



# FINAL Supplemental Environmental Impact Statement, Greater Sage-Grouse 2020

## Three Hard Looks : 2015, 2019 and 2020



**143 alternatives**  
considered in **18 EISs**



**54**  
public meetings



**48,734**  
total pages of NEPA analysis



**2,313**  
people attended



**\$17.1 million**  
total cost



**326**  
partners and  
cooperators

## Public Comments

**8,512** unique scoping comments

**16,862** substantive comments on draft EISs

## Habitat Investments

### Treatment and Restoration

**2013–19** **\$294 million** **2.7 million acres**

**2020** **\$37 million** **584,000 acres**





## United States Department of the Interior

### BUREAU OF LAND MANAGEMENT

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Cheyenne, WY 82009  
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In Reply Refer To:  
1610 (930)

OCT 09 2020

Dear Reader:

The Wyoming Greater Sage-Grouse Final Supplemental Environmental Impact Statement (FSEIS) is available for your review. The Bureau of Land Management (BLM) prepared this document in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended, the Federal Land Policy and Management Act of 1976 (FLPMA), as amended, implementing regulations, and other applicable law and policy. Please note when reading this document that we refer to the entire planning process that culminated in a Record of Decision in March 2019, as the 2019 Planning Process or Effort. The NEPA analysis, including the Draft Environmental Impact Statement (DEIS) and the Final Environmental Impact Statement (FEIS) were completed in 2018, so we refer to those documents as the 2018 DEIS and the 2018 FEIS.

The affected area includes the following BLM Wyoming Field Offices: Buffalo, Casper, Cody, Kemmerer, Lander, Newcastle, Pinedale, Rawlins, Rock Springs, and Worland. The planning area encompasses approximately 17 million surface acres administered by the BLM and approximately 28 million subsurface acres in Albany, Bighorn, Campbell, Carbon, Converse, Crook, Fremont, Hot Springs, Johnson, Lincoln, Natrona, Niobrara, Park, Sheridan, Sublette, Sweetwater, Teton, Uinta, Washakie, and Weston Counties.

The BLM has prepared this FSEIS to review its previous NEPA analysis and clarify and augment it where necessary. This FSEIS addresses four specific issues: the range of alternatives, need to take a hard look at environmental impacts, cumulative effects analysis, and the BLMs approach to compensatory mitigation. The BLMs FSEIS will help the BLM determine whether its 2015 and 2019 land use planning and NEPA processes have sufficiently addressed Greater Sage-Grouse habitat conservation or whether the BLM should initiate a new land use planning process to consider additional alternatives or new information.

Following the publishing of the Notice of Availability (NOA) for the Draft Supplemental Environmental Impact Statement (DSEIS) in the Federal Register on February 21, 2020 (85 FR 10188), the BLM received public comments for 90 days, through May 21, 2020. Across the Wyoming Draft SEIS and five other Draft SEISs for other BLM State Offices, a total of 125,062 submissions were received; 222 of these were considered unique submissions. In addition, the BLM received 125,840 campaign letters spearheaded by two separate organizations. In accordance with the NEPA, the BLM reviewed and considered all substantive comments received, and provides responses to such comments in this FSEIS.



Upon review, the BLM found that the most up-to-date Greater Sage-Grouse science and other information has incrementally increased, and built upon, the knowledgebase of Greater Sage-Grouse management evaluated by the BLM most recently in its 2019 land use plan amendments, but does not change the scope or direction of the BLMs management; however, new science does suggest adaptations to management may be warranted at site-specific scales.

After reviewing public comments and completing the new science evaluation, the BLM determined that the most recent scientific information relating to Greater Sage-Grouse is consistent with the BLMs environmental analysis supporting its 2019 Greater Sage-Grouse land use plan amendments.

You can access the FSEIS on the project website at: <https://go.usa.gov/xGeWV>. Hard copies are also available for public review at the BLM offices within the planning area.

Thank you for your continued interest in Greater Sage-Grouse management. We appreciate the information and suggestions you contributed to the NEPA process.

Sincerely,



Kimber Liebhauser  
Acting State Director



**Wyoming Greater Sage-Grouse**  
**Final Supplemental Environmental Impact Statement**  
**November 2020**

**Responsible Agency:** United States Department of the Interior  
Bureau of Land Management

**Abstract:** This final supplemental environmental impact statement (FSEIS) has been prepared by the United States Department of the Interior (DOI), Bureau of Land Management (BLM). The FSEIS describes and analyzes the eight alternatives considered during the 2015 and 2019 Greater Sage-Grouse planning processes, BLM's consultation and coordination process with federal and state stakeholders, and the rigorous analysis completed to align BLM Greater Sage-Grouse management with the State of Wyoming's plans.

On October 16, 2019, the US District Court for the District of Idaho issued an order granting a motion for a preliminary injunction filed by Plaintiffs Western Watersheds Project, WildEarth Guardians, Center for Biological Diversity, and Prairie Hills Audubon Society. The court found that the Plaintiffs were likely to succeed on the merits of their claims that the BLM violated the National Environmental Policy Act (NEPA) when adopting the 2019 Greater Sage-Grouse plans. The BLM has prepared this FSEIS to review its previous NEPA analysis, clarify and augment it where necessary, and provide the public with additional opportunities to review and comment. The BLM's FSEIS will help the BLM determine whether its 2015 and 2019 land use planning and NEPA processes have sufficiently addressed Greater Sage-Grouse habitat conservation or whether the BLM should initiate a new land use planning process to consider additional alternatives or new information. To inform this decision that the BLM will make, it has prepared this FSEIS to address four specific issues: the range of alternatives, need to take a "hard look" at environmental impacts, cumulative effects analysis, and the BLM's approach to compensatory mitigation.

References to the CEQ regulations throughout this SEIS are to the regulations in effect prior to September 14, 2020. The revised CEQ regulations effective September 14, 2020 are not referred to in this SEIS because the NEPA process began prior to this date.

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# TABLE OF CONTENTS

Chapter

Page

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<b>EXECUTIVE SUMMARY.....</b>	<b>ES-I</b>
ES.1 Introduction .....	ES-1
ES.2 Purpose of and Need for Action .....	ES-5
ES.3 Items to be clarified in This FSEIS.....	ES-5
ES.4 Analysis Conclusions.....	ES-6
<b>CHAPTER 1. PURPOSE OF AND NEED FOR ACTION.....</b>	<b>I-I</b>
1.1 Introduction .....	I-1
1.2 Purpose of and Need for Action .....	I-4
1.3 Planning Area and Current Management.....	I-4
1.4 2019 Issues Development.....	I-8
1.4.1 Issues and Related Resource Topics Identified Through Scoping as Part of the 2019 Planning Process .....	I-8
1.5 Items to be Clarified in this FSEIS.....	I-11
1.6 Relationships to Other Policies, Plans, and Programs .....	I-11
1.6.1 State Plans.....	I-12
1.6.2 Local Plans .....	I-12
1.7 Changes Between Draft and Final SEIS.....	I-12
<b>CHAPTER 2. ALTERNATIVES .....</b>	<b>2-I</b>
2.1 Introduction .....	2-1
2.2 2018 Proposed Plan Amendment Description .....	2-1
2.3 2018 Proposed Plan Amendment.....	2-1
2.5 Other Alternatives Considered .....	2-9
2.5.1 Varying Constraints on Land Uses and Development Activities.....	2-9
2.6 Description of Alternatives from the 2019 Planning Process.....	2-11
2.6.1 No-Action Alternative.....	2-11
2.6.2 Management Alignment Alternative.....	2-11
2.6.3 Detailed Description of Alternatives Considered during the 2019 Planning Process.....	2-12
<b>CHAPTER 3. AFFECTED ENVIRONMENT.....</b>	<b>3-I</b>
3.1 Introduction .....	3-1
3.1.1 USGS Reports.....	3-2
3.1.2 Multi-scale Habitat Suitability and Mapping Tools .....	3-2
3.1.3 Discrete Human Activities.....	3-2
3.1.4 Diffuse Activities .....	3-2
3.1.5 Fire and Invasive Species.....	3-3
3.1.6 Restoration Effectiveness.....	3-3
3.1.7 Population Estimation and Genetics.....	3-3
3.2 Resources Affected .....	3-4
3.3 Greater Sage-Grouse.....	3-5
3.3.1 Changes to Greater Sage-Grouse Habitat Based on Threats.....	3-6
3.4 Vegetation.....	3-8
3.5 Lands, Realty, and Renewable Energy .....	3-9
3.6 Minerals.....	3-9



3.7	Livestock Grazing .....	3-9
3.8	Socioeconomics .....	3-9
<b>CHAPTER 4. ENVIRONMENTAL CONSEQUENCES .....</b>		<b>4-1</b>
4.1	Introduction .....	4-1
4.2	Analytical Assumptions.....	4-1
4.3	General Method for Analyzing Impacts.....	4-2
4.4	Summary of Environmental Impacts of the No-Action Alternative .....	4-3
4.5	Environmental Impacts of the Management Alignment Alternative and the Proposed RMP Amendment.....	4-99
4.5.1	Modifying Habitat Management Area Designations.....	4-99
4.5.2	Sagebrush Focal Areas and Withdrawal.....	4-102
4.5.3	Habitat Objectives.....	4-102
4.5.4	Livestock Management—Permit Renewals.....	4-103
4.5.5	Livestock Management—Existing Range Improvement Structures .....	4-104
4.5.6	Livestock Management—Riparian Area Management.....	4-105
4.5.7	Noise .....	4-105
4.5.8	Adaptive Management .....	4-106
4.5.9	Prioritization of Fluid Mineral Leasing .....	4-108
4.6	Cumulative Effects Analysis .....	4-109
4.6.1	Range-wide Cumulative Effects Analysis Greater Sage-Grouse .....	4-111
4.6.2	Why Use WAFWA Management Zones?.....	4-112
4.6.3	Cumulative Effects on Greater Sage-Grouse: Management Zone I .....	4-115
4.6.4	Cumulative Effects on Greater Sage-Grouse: Management Zone II/VII.....	4-117
4.6.5	Cumulative Effects on Greater Sage-Grouse: Management Zone III .....	4-120
4.6.6	Cumulative Effects on Greater Sage-Grouse: Management Zone IV.....	4-122
4.6.7	Cumulative Effects on Greater Sage-Grouse: Management Zone V.....	4-124
4.7	Irreversible and Irretrievable Commitment of Resources .....	4-127
4.8	Unavoidable Adverse Impacts.....	4-127
4.9	Relationship Between Local Short-Term Uses and Long-Term Productivity .....	4-128
<b>CHAPTER 5. CONSULTATION AND COORDINATION.....</b>		<b>5-1</b>
5.1	Public Involvement During the 2020 NEPA Process.....	5-1
5.1.1	Public Comments on the DSEIS.....	5-1
5.2	American Indian Tribal Consultation .....	5-1
5.3	List of Preparers.....	5-1
<b>CHAPTER 6. REFERENCES.....</b>		<b>6-1</b>
<b>GLOSSARY .....</b>		<b>GLOSSARY-1</b>
<b>INDEX .....</b>		<b>INDEX-1</b>

<b>TABLES</b>	<b>Page</b>
1-1	Acres of Greater Sage-Grouse Habitat by BLM Field Office in the Decision Area .....
1-2	Issues and Related Resource Topics.....
2-1	Seasonal Habitat Objectives for the Greater Sage-Grouse Wyoming Basin Ecoregion .....
2-2	Alternatives considered during the 2019 planning process.....
2-3	Detailed Comparison of 2019 Alternatives.....
2-4a	Part I 2015 ARMPA Goals and Objectives by Alternative.....

2-4a	Part II 2015 ARMPA Management Actions by Alternative .....	2-60
2-4b	Part I 2015 Bighorn Basin RMP Revision Goals and Objectives by Alternative .....	2-316
2-4b	Part II 2015 Bighorn Basin RMP Revision Management Actions by Alternative.....	2-321
2-4c	Part I 2015 Buffalo RMP Revision Goals and Objectives by Alternative.....	2-375
2-4c	Part II 2015 Buffalo RMP Revision Management Actions by Alternative.....	2-379
2-4d	Part I 2014 Lander RMP Revision Goals and Objectives by Alternative.....	2-411
2-4d	Part II 2014 Lander RMP Revision Management Actions by Alternative .....	2-416
3-1	Affected Environment Incorporated by Reference.....	3-4
4-1	Environmental Consequences for the No-Action Alternative Incorporated by Reference.....	4-3
4-2a	2015 Wyoming ARMPA Summary of Environmental Consequences .....	4-5
4-2b	2015 Buffalo Field Office RMP Revision Summary of Environmental Consequences .....	4-22
4-2c	2015 Bighorn Basin RMP Revision Summary of Environmental Consequences .....	4-47
4-2d	2014 Lander Field Office RMP Revision Summary of Environmental Consequences .....	4-76
4-3	Cumulative Effects Analysis Incorporated by Reference.....	4-113

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## FIGURES

Page

I-1	Existing Wyoming Greater Sage-Grouse Habitat Management Area Designations (Planning Area) .....	I-6
I-2	Existing Wyoming Greater Sage-Grouse Habitat Management Decision Area .....	I-7

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## APPENDICES

A	Proposed RMP Amendment with Management Goals, Objectives, and Decisions
B	Required Design Features
C	The Greater Sage-Grouse Habitat Management Strategy
D	Cumulative Effects Supporting Information
E	Review of the NTT and COT Report's Relevance to the Planning Process; Incorporation of the NTT, COT, and USGS Summary of Science into the Wyoming Planning Process
F	Responses to Substantive Public Comments on the 2020 Draft Supplemental EIS

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## ACRONYMS AND ABBREVIATIONS

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Full Phrase

ACEC	area of critical environmental concern
AMWG	Adaptive Management Working Group
APD	application for permit to drill
ARMPA	approved resource management plan amendment
BLM	Bureau of Land Management
BMP	best management practice
BSU	biologically significant unit
CEA	cumulative effects analysis
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
COA	condition of approval
COT	Conservation Objectives Team
CSU	controlled surface use
DDCT	density and disturbance calculation tool
DOI	US Department of the Interior
DSEIS	draft supplemental environmental impact statement
EIS	environmental impact statement
EO	executive order
ESA	Endangered Species Act of 1973
ESD	ecological site description
EVT	existing vegetation type
FIAT	Fire and Invasive Assessment Tool
FLPMA	Federal Land Policy and Management Act
FSEIS	final supplemental environmental impact statement
GHMA	general habitat management area
GIS	geographic information system
HAF	habitat assessment framework
IHMA	important habitat management area
IM	Instruction Memorandum
LCHMA	linkage connectivity habitat management area
LUP	land use plan
LUPA	land use plan amendment
LWG	local working group
MOU	Memorandum of Understanding
MZ	Management Zone
NEPA	National Environmental Policy Act of 1969
NRCS	Natural Resources Conservation Service

NSO	no surface occupancy
NTT	National Technical Team
OHMA	occupied habitat management area
PAC	priority area for conservation
PFC	proper functioning condition
PHMA	priority habitat management area
RDF	required design feature
RMP	resource management plan
RMPA	resource management plan amendment
ROD	Record of Decision
ROW	right-of-way
SFA	sagebrush focal area
SGI	Sage-Grouse Initiative
SGIT	Sage-Grouse Implementation Team
SO	Secretarial Order
TL	timing limitation
US	United States
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
WAFWA	Western Association of Fish and Wildlife Agencies
WGFD	Wyoming Game and Fish Department

# Executive Summary

## ES.I INTRODUCTION

Greater Sage-Grouse is a state-managed species that depends on sagebrush steppe ecosystems. These ecosystems are managed in partnership across its range by federal, state, and local authorities. State agencies responsible for fish and wildlife management possess broad responsibility for protecting and managing fish, wildlife, and plants within their borders, except where preempted by federal law. Similarly, the BLM has broad responsibilities to manage public lands and resources for the public's benefit. Approximately half of Greater Sage-Grouse habitat is managed by the BLM and Forest Service. State agencies are at the forefront of efforts to maintain healthy fish and wildlife populations and to conserve at-risk species. State-led efforts to conserve the species and its habitat date back to the 1950s. For the past two decades, state wildlife agencies, federal agencies, and many others in the range of the species have been collaborating to conserve Greater Sage-Grouse and its habitats. The BLM prepared this Final Supplemental Environmental Impact Statement (FSEIS) to clarify analysis from the 2018 Final Environmental Impact Statement (2018 Final EIS) published as part of the 2019 Plan Amendment Process and subsequent Record of Decision. This FSEIS clarifies the range of alternatives analyzed, the range-wide nature of the analysis, and other aspects of the 2018 Final EIS where information was incorporated by reference from the 2015 Greater Sage-Grouse Land Use Plan Amendments.

In 2010, USFWS determined that listing the Greater Sage-Grouse under the Endangered Species Act of 1973 (ESA) was “warranted, but precluded” by other priorities. In its determination, the USFWS found there to be inadequate regulatory mechanisms to protect Greater Sage-Grouse and conserve its habitat. In response, the BLM, in coordination with the Forest Service, USFWS, and state agencies, developed a management strategy that included targeted Greater Sage-Grouse management actions. In 2015, the BLM and Forest Service adopted land use plan amendments and revisions to 98 BLM and Forest Service land use plans across ten western states. These planning decisions addressed, in part, threats to the Greater Sage-Grouse and its habitat. The amended land use plans govern the management of 67 million acres of Greater Sage-Grouse habitat on federal lands.

In September 2015, the USFWS determined that the Greater Sage-Grouse did not warrant listing under the ESA. The USFWS based its 2015 determination, in part, on the regulatory certainty provided by the conservation commitments and management actions in the federal planning decisions, as well as on other private, state, and federal conservation efforts.

The 2015 plans recommended that sagebrush focal areas (SFAs) be proposed for withdrawal from location and entry under the Mining Law of 1872. While the BLM later proposed to withdraw these areas, it canceled that proposed withdrawal on October 11, 2017. The BLM determined that the proposal to withdraw these areas was unreasonable in light of the data that showed that mining affected less than 0.1 percent of Greater Sage-Grouse across its occupied range.

On March 29, 2017, the Secretary of the Interior issued Secretary's Order 3349, *American Energy Independence*. It ordered DOI agencies to reexamine practices “to better balance conservation strategies and policies with the equally legitimate need of creating jobs for hard-working American families.”



On June 7, 2017, the Secretary issued Secretary's Order 3353 with a purpose of enhancing cooperation among eleven western states and the BLM in managing and conserving Greater Sage-Grouse. Secretary's Order 3353 directed an Interior Review Team, consisting of the BLM, the US Fish and Wildlife Service (USFWS), and US Geological Survey (USGS), to coordinate with the Greater Sage-Grouse Task Force. They also were directed to review the 2015 Greater Sage-Grouse plans and associated policies to identify provisions that may require modification, including opportunities to enhance consistency with individual state plans and better balance the BLM's multiple-use mission, as directed by Secretary's Order 3349.

On August 4, 2017, the Interior Review Team submitted its Report in Response to Secretary's Order 3353. The report the team recommended modifying the Greater Sage-Grouse plans and associated policies to better align with the individual state plans. On August 4, 2017, the Secretary issued a memo to the Deputy Secretary directing the BLM to implement the recommendations found in the report.

In the *Federal Register* of October 11, 2017, the BLM published the Notice of Intent to Amend Land Use Plans Regarding Greater Sage-Grouse Conservation and Prepare Associated Environment Impact Statements or Environmental Assessments.

The BLM continues to prioritize efforts to conserve Greater Sage-Grouse and restore sagebrush habitat. From Fiscal Year 2017 to Fiscal Year 2020, the BLM has treated on average over 550,000 acres of Greater Sage-Grouse habitat every year. In Fiscal Year 2020, the BLM treated approximately 584,000 acres. These 2020 treatments included approximately 162,000 acres of conifer removal; 71,000 acres of fuel breaks; 203,000 acres with invasive species treatments; 42,000 acres of habitat protection; and restored habitat on 106,000 acres of uplands and over 700 acres of riparian habitat. In 2020, Wyoming conducted habitat treatments on 87,000 acres. The BLM is committed to working directly with local communities on sagebrush conservation efforts and to emulate the successes demonstrated by the Natural Resources Conservation Service (NRCS) through the Greater Sage-Grouse Initiative on private lands. These efforts include:

- an agreement with the Intermountain West Joint Venture to work with local cattlemen associations to improve sagebrush rangeland conditions through actions such as controlling invasive species, improving mesic areas, and removing invasive conifers;
- a Memorandum of Understanding between the BLM, NRCS, and the Forest Service resulting in development of a map that identifies areas where the agencies have ongoing restoration projects and opportunities for additional collaboration across land ownerships and associated landscapes;
- promoting a locally led collaborative conservation, the BLM, the USFWS, and the Geological Survey are collaborating with the Western Association of Fish and Wildlife Agencies as they lead the development and implementation of the Sagebrush Conservation Strategy;
- working with livestock permittees and stakeholders on "targeted grazing" to utilize grazing as a tool to create and maintain fuel breaks to manage the threats of wildfire and invasive species in or next to Greater Sage-Grouse habitats; and,
- working to develop "outcome-based grazing" to provide greater flexibility for livestock permittees and land managers to meet habitat objectives as conditions on-the-ground change.

During the 2019 planning process's public scoping period, the BLM sought public comments on whether all, some, or none of the 2015 Greater Sage-Grouse plans should be amended, what issues should be

considered, and if plans should be completed at the state level rather than at the national level. In addition, the BLM recognizes that the Greater Sage-Grouse is a state-managed species that depends on sagebrush steppe habitats managed in partnership by federal, state, and local authorities. Input from governors would weigh heavily when the BLM considers what management changes should be made and when ensuring consistency with the BLM's multiple-use mission.

Further, in the 2018 Draft EIS the BLM requested public comments on the BLM's approach to compensatory mitigation. In response to these comments and information supplied by the states about how to align with their compensatory mitigation laws and policies, the 2018 Final EIS clarified the BLM's approach to compensatory mitigation in its Management Alignment Alternative. Through the Draft Supplemental EIS (DSEIS), the BLM sought additional comment from the public on compensatory mitigation.

This FSEIS also addresses and clarifies the BLM's reliance on scientific information, including how the BLM addresses the recommendation and objectives in the NTT and COT reports. The BLM, the USFWS, states and other federal agency partners prepared the NTT (2011) and the COT (2013) reports to identify rangewide Greater Sage-Grouse conservation objectives and conservation measures that would: inform the USFWS 2015 decision under the Endangered Species Act and for partners; and provide guidance for the BLM to consider through land use planning, which the BLM did in 2015 and 2019, and again in this FSEIS.

Further, at the time that the NTT and COT reports were being developed, the BLM, USFWS, and state agencies had not completely developed or established the robust programs to conserve Greater Sage-Grouse that exist today.

In 2015, the BLM developed an action alternative around the NTT report. In the 2018 Final EIS, the BLM incorporated this analysis by reference. The BLM also coordinated with the USFWS during the process culminating in the 2019 RODs to make sure that the conservation measures from the NTT and COT informed the management alignment alternative (**Appendix E**). Including the USFWS as a cooperating agency during the 2019 planning process ensured that BLM used the same materials and newest science that the USFWS uses and recommends for Greater Sage-Grouse management.

This FSEIS also clarifies how the BLM considered comments, including those of other federal agencies (including EPA) and experts, when developing its 2019 planning decisions.

In 2018, the Environmental Protection Agency (EPA) provided comments on the Draft RMPAs/EISs. Specifically, they provided six comments on the Idaho Draft RMPA/EIS, seven comments on the Nevada/Northeast California Draft RMPA/EIS, six on the Utah Draft RMPA/EIS, three on the Wyoming Draft RMPA/EIS, six on the Oregon Draft RMPA/EIS, and five on the Colorado Draft RMPA/EIS. EPA's comments include suggestions and questions regarding lek buffers, recent science, mitigation, adaptive management, and fluid minerals. BLM responded to each of EPA's comments and made corrections and/or changes in the 2018 Final EISs. The complete EPA comment analysis can be found in the administrative record.

### ***New Science and Information Considered by the BLM***

After reviewing comments on the DSEISs, the BLM identified that best available science and the role of the NTT and COT reports in planning were reoccurring comment themes from the public. This

heightened interest from commenters prompted the BLM to conduct a thorough review of new science and other information received during the DSEIS comment period. These articles and professional scientific papers were published subsequent to the USGS report that reviewed the new science published between January 1, 2015 and January 25, 2018.

The objective of the BLM's review effort was to assess whether any information and scientific literature identified by the public during the DSEIS comment period and any new scientific papers that were not included in the previous USGS science review would change the scope (i.e., issues, alternatives, and effects) of the 2019 planning process or conflict with the sage-grouse conservation measures in the NTT and COT Reports.

At regular intervals, the BLM has assessed and synthesized new science, using it to inform efforts to better align its management with state and local frameworks. The BLM first initiated its own assessment through the NTT as described above, followed by the USFWS efforts to develop the COT report. The BLM then commissioned a second synthesis from USGS in 2017 prior to initiating the 2019 planning process. Finally, the BLM coordinated with USGS in 2020 to review scientific literature presented during the DSEIS comment period. The USGS has continuously evaluated science published after 2018 and has maintained an annotated bibliography of scientific research on greater sage-grouse. The BLM relied upon USGS' annotated bibliography for the 2020 review. Out of the 75 articles considered by the BLM as new science, USGS had already reviewed 67 articles. BLM biologists summarized the remaining eight papers submitted by the public for validation. The BLM also accepted and reviewed comments that provided background information. These comments did not provide management recommendations or rigorous science-based information.

After the documents were reviewed and summarized, a team of BLM biologists and land use planners reviewed each summary to determine if the findings provided management recommendations that: 1) conflicted with the NTT and COT report recommendations; or 2) changed the scope (i.e., issues, alternatives, effects) of the 2019 plans resulting in a need for a new planning effort.

The BLM found that the most up-to-date Greater Sage-Grouse science and other information has incrementally increased, and built upon, the knowledgebase of Greater Sage-Grouse management evaluated by the BLM most recently in its 2019 land use plan amendments, but does not change the scope or direction of the BLM's management. While the NTT, the COT and this new science and information remain thus consistent with the scope of the 2019 planning decisions, new science does suggest adaptations to management may be warranted at site-specific scales.

The scientists and managers that authored the COT and NTT reports could not have anticipated all the variables that would affect sage grouse into the future when they provided their recommendations. Varying topographic factors, ecological site potential, changes in methodologies, technological advances, variation in vegetation types, and anthropogenic disturbance, to name a few, make it difficult to adequately address all factors that affect sage grouse populations and habitat. Therefore, where appropriate, the BLM will consider this science and information through implementation-level NEPA analysis, consistent with its approved land use plans, policies, and regulatory frameworks. This is precisely the approach envisioned by the NTT and COT reports as well as the BLM's decades long planning efforts to address local actions that may affect Greater Sage-Grouse.



## **ES.2 PURPOSE OF AND NEED FOR ACTION**

In the Federal Land Policy and Management Act (FLPMA), Congress provided the BLM with discretion and authority to manage public lands for multiple use and sustained yield and declared it the policy of the United States to, consistent with the laws governing the administration of the public lands, coordinate planning activities with the land use planning and management programs of other federal, state, and local governments. Further, FLPMA specifically provides that it neither enlarges nor diminishes the authority of the states in managing fish and wildlife. As the sovereign entities with the lead role in managing game species, including Greater Sage-Grouse, states play a critical role in conserving the Greater Sage-Grouse and its habitat.

In the 2019 Planning effort, the BLM modified its approach to managing Greater Sage-Grouse habitat in land use plans by (1) enhancing cooperation and coordination with the State of Wyoming, (2) aligning with DOI and BLM policies issued since 2015, and (3) incorporating appropriate management flexibility and adaptation to better align with Wyoming's conservation plan. The BLM achieved these goals while maintaining the majority of Greater Sage-Grouse protections it incorporated into its land use plans in 2015. By implementing these land use plan conservation measures and continuing to exercise its discretion to approve future project proposals under appropriate terms and conditions or deny them where appropriate, the BLM can adequately protect Greater Sage-Grouse and its habitat while meeting its general obligation under FLPMA to manage public lands under principles of multiple use and sustained yield.

On October 16, 2019, the US District Court for the District of Idaho issued an order granting a motion for a preliminary injunction filed by Plaintiffs Western Watersheds Project, WildEarth Guardians, Center for Biological Diversity, and Prairie Hills Audubon Society. The court found that the Plaintiffs were likely to succeed on the merits of their claims that the BLM violated the National Environmental Policy Act (NEPA) when adopting the 2019 Greater Sage-Grouse plans.

The BLM has prepared this FSEIS to review its previous NEPA analysis, clarify and augment it where necessary, and provide the public with additional opportunities to review and comment. The BLM's FSEIS will help the BLM determine whether its 2015 and 2019 land use planning and NEPA processes have sufficiently addressed Greater Sage-Grouse habitat conservation or whether the BLM should initiate a new land use planning process to consider additional alternatives or new information. To inform this decision that the BLM will make, it has prepared this FSEIS to address four specific issues: the range of alternatives, need to take a hard look at environmental impacts, cumulative effects analysis, and the BLM's approach to compensatory mitigation.

## **ES.3 ITEMS TO BE CLARIFIED IN THIS FSEIS**

The items considered in this FSEIS are related to the analysis in the 2018 Final EIS. These items are:

- clarifying the range of alternatives (including how the BLM considered the full range of the 2015 alternatives in the 2019 planning process),
- taking a hard look and using the best available science (including clarified effects analysis, how the 2015 and 2019 Final EISs addressed the NTT and COT recommendations and conservation measures) (**Appendix E**),

- clarifying that the cumulative effects analysis was done at the range wide level and organized by WAFWA Management Zone (MZs) Updated language also highlights why WAFWA MZs were used,
- an updated Reasonably Foreseeable Future Actions.

#### **ES.4 ANALYSIS CONCLUSIONS**

The additional information provided in this SEIS do not change analytical conclusions from either the 2018 Proposed RMPA/Final EIS or the 2015 Proposed LUPA/Final EIS. See summary of environmental consequences from 2018 in Section ES.5 of the Proposed RMPA/Final EIS and from 2015 in Section 2.13 of the Proposed LUPA/Final EIS.

# Chapter I. Purpose of and Need for Action

## I.1 INTRODUCTION

Greater Sage-Grouse is a state-managed species that depends on sagebrush steppe ecosystems. These ecosystems are managed in partnership across its range by federal, state, and local authorities. State agencies responsible for fish and wildlife management possess broad responsibility for protecting and managing fish, wildlife, and plants within their borders, except where preempted by federal law. Similarly, the Department of Interior (DOI) has broad responsibilities to manage federal lands and resources for the public's benefit. Approximately half of Greater Sage-Grouse habitat is managed by the Bureau of Land Management (BLM) and US Forest Service (Forest Service).

State agencies are at the forefront of efforts to maintain healthy fish and wildlife populations and to conserve at-risk species. State-led efforts to conserve the species and its habitat date back to the 1950s. For the past two decades, state wildlife agencies, federal agencies, and many others in the range of the species have been collaborating to conserve Greater Sage-Grouse and its habitats.

In 2010, the US Fish and Wildlife Service (USFWS) determined that listing the Greater Sage-Grouse under the Endangered Species Act (ESA) was “warranted, but precluded” by other priorities. In response, the BLM, in coordination with the DOI and the US Department of Agriculture, developed a management strategy that included targeted Greater Sage-Grouse management actions. In 2015, the agencies adopted land use plan amendments (LUPAs) and revisions to 98 BLM and Forest Service land use plans (LUPs) across ten western states. These LUPAs addressed, in part, threats to the Greater Sage-Grouse and its habitat. The amended LUPs govern the management of 67 million acres of Greater Sage-Grouse habitat on federal lands.

In September 2015, the USFWS determined that the Greater Sage-Grouse did not warrant listing under the ESA. The USFWS attributed its 2010 “warranted, but precluded” determination primarily to “inadequate regulatory mechanisms.” In its 2015 conclusion of “not warranted,” the USFWS based its decision, in part, on regulatory certainty from the conservation commitments and management actions in the federal LUPAs and revisions, as well as on other private, state, and federal conservation efforts.

The BLM continues to prioritize efforts to conserve Greater Sage-Grouse and restore sagebrush habitat. From Fiscal Year 2017 to Fiscal Year 2020, the BLM has treated on average over 550,000 acres of Greater Sage-Grouse habitat every year. In Fiscal Year 2020, the BLM treated approximately 584,000 acres. These 2020 treatments included approximately 162,000 acres of conifer removal; 71,000 acres of fuel breaks; 203,000 acres with invasive species treatments; 42,000 acres of habitat protection; and restored habitat on 106,000 acres of uplands and over 700 acres of riparian habitat. In 2020, Wyoming conducted habitat treatments on 87,000 acres. The BLM is committed to working directly with local communities on sagebrush conservation efforts and to emulate the successes demonstrated by the Natural Resources Conservation Service (NRCS) through the Greater Sage-Grouse Initiative on private lands. These efforts include:

- an agreement with the Intermountain West Joint Venture to work with local cattlemen associations to improve sagebrush rangeland conditions through actions such as controlling invasive species, improving mesic areas, and removing invasive conifers;

- a Memorandum of Understanding between the BLM, the NRCS, and the Forest Service resulting in development of a map that identifies areas where the agencies have ongoing restoration projects and opportunities for additional collaboration across land ownerships and associated landscapes;
- promoting a locally led collaborative conservation, the BLM, the USFWS, and the Geological Survey are collaborating with the Western Association of Fish and Wildlife Agencies as they lead the development and implementation of the Sagebrush Conservation Strategy;
- working with livestock permittees and stakeholders on “targeted grazing” to utilize grazing as a tool to create and maintain fuel breaks to manage the threats of wildfire and invasive species in or next to Greater Sage-Grouse habitats; and,
- working to develop “outcome-based grazing” to provide greater flexibility for livestock permittees and land managers to meet habitat objectives as conditions on-the-ground change.

The 2015 plans recommended that sagebrush focal areas (SFAs) be proposed for withdrawal from location and entry under the Mining Law of 1872. While the BLM later proposed to withdraw these areas, it canceled that proposed withdrawal on October 11, 2017. The BLM determined that the proposal to withdraw these areas was unreasonable in light of the data that showed that mining affected less than 0.1 percent of Greater Sage-Grouse across its occupied range.

On March 29, 2017, the Secretary of the Interior (Secretary) issued Secretarial Order (SO) 3349, *American Energy Independence*. It ordered DOI agencies to reexamine practices “to better balance conservation strategies and policies with the equally legitimate need of creating jobs for hard-working Americans families.”

On June 7, 2017, the Secretary issued SO 3353, with a purpose of enhancing cooperation among 11 western states and the BLM in managing and conserving Greater Sage-Grouse. SO 3353 directed an interior review team, consisting of the BLM, the USFWS, and the US Geological Survey (USGS), to coordinate with the Greater Sage-Grouse Task Force. They also were directed to review the 2015 Greater Sage-Grouse plans and associated policies to identify provisions that will maintain healthy Sage Grouse populations but may require modification to make the plans more consistent with the individual state plans and to better balance the BLM’s multiple-use mission, as directed by SO 3349.

On August 4, 2017, the interior review team submitted its report in response to SO 3353. In this report the team recommended modifying the Greater Sage-Grouse plans and associated policies to better align with the individual state plans. On August 4, 2017, the Secretary issued a memo to the Deputy Secretary directing the BLM to implement the recommendations found in the report.

In the *Federal Register* of October 11, 2017, the BLM published the Notice of Intent to Amend Land Use Plans Regarding Greater Sage-Grouse Conservation and Prepare Associated Environmental Impact Statements or Environmental Assessments.

During the public scoping period for the 2019 planning process, the BLM sought public comments on whether all, some, or none of the 2015 Greater Sage-Grouse plans should be amended, what issues should be considered, and if plans should be completed at the state level rather than at the national level. The BLM specifically sought public comment on SFA designations, mitigation standards, lek buffers, disturbance and density caps, habitat boundaries to reflect new information, and reversing adaptive

management responses when the BLM determines that resource conditions no longer warrant those responses. In addition, the BLM recognized that Greater Sage-Grouse is a state-managed species that depends on sagebrush steppe habitats managed in partnership by federal, state, and local authorities. Input from state governors would weigh heavily when the BLM considers what management changes should be made and when ensuring consistency with the BLM's multiple-use mission.

After reviewing comments received during the public scoping period, the BLM proposed the Draft EIS on May 4, 2018 and ultimately issued the Final EIS on December 6, 2018. Through the notice and comment process, the BLM was able to accomplish the objectives set forth in SO 3353 and remedy inconsistencies that existed in the 2015 LUPAs. Below is a summary of some of the issues raised during the Draft EIS and addressed during the Final EIS.

Further, in the 2018 Draft EIS the BLM again requested public comments on a number of issues, including the BLM's approach to compensatory mitigation. In response to these comments and information supplied by the states about how to align with their compensatory mitigation laws and policies, the 2018 Final EIS clarified the BLM's approach to compensatory mitigation in its Proposed Plan Amendment. Through the Draft Supplemental EIS (DSEIS), the BLM sought additional comment from the public on compensatory mitigation.

This Final Supplemental EIS (FSEIS) also addresses and clarifies the BLM's reliance on scientific information, including how the BLM addresses the recommendation and objectives in the NTT and COT reports. The BLM, the USFWS, states and other federal agency partners prepared the NTT (2011) and the COT (2013) reports to identify rangewide Greater Sage-Grouse conservation objectives and conservation measures that would: inform the USFWS 2015 decision under the Endangered Species Act and inform partners; and provide guidance for the BLM to consider through land use planning, which the BLM did in 2015 and 2019, and again in this FSEIS. The NTT and COT reports constituted starting points for the BLM to consider in at least one alternative to be considered through the NEPA. They are not compendiums that, standing alone, represent best available science. The NTT and COT reports do not address, or even attempt to address, how the implementation of their Greater Sage-Grouse conservation measures would affect other uses of the public lands—such as recreation, fluid mineral development, mining, and livestock grazing. Moreover, the NTT and COT reports do not quantify, or even attempt to quantify, the Greater Sage-Grouse conservation benefits of each respective conservation measure. At the time that the NTT and COT reports were being developed, the BLM, USFWS, and state agencies had not completely developed or established the robust programs to conserve Greater Sage-Grouse that exist today.

In 2015, the BLM developed an action alternative around the NTT report. In the 2018 Final EIS, the BLM incorporated this analysis by reference. The BLM also coordinated with USFWS during the process culminating in the 2019 RODs to make sure that the conservation measures from the NTT and COT informed the management alignment alternative (**Appendix E**). Including the USFWS as a cooperating agency during the 2019 planning process ensured that BLM was aware of the same materials and newest science that the USFWS uses and recommends for Greater Sage-Grouse management.

In 2018, the Environmental Protection Agency (EPA) provided comments on the Draft RMPAs/EISs. Specifically, they provided three discrete comments on the Wyoming Draft RMPA/EIS, six comments on the Utah Draft RMPA/EIS, six comments on the Idaho Draft RMPA/EIS, seven comments on the Nevada/Northeast California Draft RMPA/EIS, comments on the Oregon Draft RMPA/EIS, and five

comments on the Colorado Draft RMPA/EIS. The EPA's comments include suggestions and questions regarding lek buffers, recent science, mitigation, adaptive management, and fluid minerals. The BLM responded to each of EPA's comments and made corrections and/or changes in the 2018 Final EISs. The complete EPA comment analysis can be found in the administrative record. This FSEIS also clarifies how the BLM considered comments, including those of other federal agencies and experts, when developing its 2019 planning decisions.

## **I.2 PURPOSE OF AND NEED FOR ACTION**

In the Federal Land Policy and Management Act, including Greater Sage-Grouse, states play a critical role in conserving the Greater Sage-Grouse and its habitat.

In the 2019 Planning effort, the BLM modified its approach to managing Greater Sage-Grouse habitat in land use plans by (1) enhancing cooperation and coordination with the State of Wyoming, (2) aligning with DOI and BLM policies issued since 2015, and (3) incorporating appropriate management flexibility and adaptation to better align with Wyoming's conservation plan. The BLM achieved these goals while maintaining the majority of Greater Sage-Grouse protections it incorporated into its land use plans in 2015. By implementing these land use plan conservation measures and continuing to exercise its discretion to approve future project proposals under appropriate terms and conditions or deny them where appropriate, the BLM can adequately protect Greater Sage-Grouse and its habitat while meeting its general obligation under FLPMA to manage public lands under principles of multiple use and sustained yield.

On October 16, 2019, the US District Court for the District of Idaho issued an order granting a motion for a preliminary injunction filed by Plaintiffs Western Watersheds Project, WildEarth Guardians, Center for Biological Diversity, and Prairie Hills Audubon Society. The court found that the Plaintiffs were likely to succeed on the merits of their claims that the BLM violated the National Environmental Policy Act (NEPA) when adopting the 2019 Greater Sage-Grouse RMP Amendments. The BLM has prepared this FSEIS to review its previous NEPA analysis, clarify and augment it where necessary, and provide the public with additional opportunities to review and comment. The BLM's FSEIS will help the BLM determine whether its 2015 and 2019 land use planning and NEPA processes have sufficiently addressed Greater Sage-Grouse habitat conservation or whether the BLM should initiate a new land use planning process to consider additional alternatives or new information. To inform this decision that the BLM will make, it has prepared this FSEIS to address four specific issues: the range of alternatives, need to take a hard look at environmental impacts, cumulative effects analysis, and the BLM's approach to compensatory mitigation.

## **I.3 PLANNING AREA AND CURRENT MANAGEMENT**

The planning area for this Greater Sage-Grouse FSEIS consists of lands managed by all of the BLM Wyoming Field Offices: Buffalo, Casper, Cody, Kemmerer, Lander, Newcastle, Pinedale, Rawlins, Rock Springs, and Worland. It includes all lands and federal mineral estate managed by the BLM within these areas. The decision area for the FSEIS is BLM-administered public lands in Greater Sage-Grouse habitats.,

The BLM manages approximately 17,494,000 acres of surface estate and 40,700,000 acres of federal mineral estate in Wyoming. The decision area encompasses approximately 17 million acres of surface land and 28 million acres of federal mineral estate. **Table I-1**, below, identifies the acreage for priority

habitat management areas (PHMA) and general habitat management areas (GHMA) for federal surface and federal mineral estate in each field office across the decision area. Approximately 1,915,990 acres are designated as sagebrush focal areas (SFAs), which are managed as PHMA in Wyoming.

**Table I-1**  
**Acres of Greater Sage-Grouse Habitat by BLM Field Office in the Decision Area**

BLM Office	PHMA Acres		GHMA Acres		Total Habitat Acres	
	BLM Surface	Federal Mineral	BLM Surface	Federal Mineral	BLM Surface	Federal Mineral
Buffalo Field Office	136,877	840,465	627,579	3,994,864	764,456	4,835,329
Casper Field Office	726,376	1,561,575	531,643	2,281,859	1,258,019	3,843,434
Cody Field Office	317,262	435,451	769,356	1,101,459	1,086,618	1,536,910
Kemmerer Field Office	632,810	686,546	768,146	910,615	1,400,956	1,597,161
Lander Field Office*	1,686,648	1,888,629	685,289	882,057	2,371,937	2,770,686
Newcastle Field Office	81,468	529,358	169,349	1,150,165	250,817	1,679,523
Pinedale Field Office	421,079	675,858	491,028	818,530	912,107	1,494,388
Rawlins Field Office	1,520,006	1,920,060	1,916,257	2,384,409	3,436,263	4,304,469
Rock Springs Field Office	1,731,730	1,808,975	1,865,180	1,920,425	3,596,910	3,729,400
Worland Field Office	797,448	1,019,544	1,301,942	1,670,110	2,099,390	2,689,654
<b>Total decision area acres</b>	<b>8,051,704</b>	<b>11,366,461</b>	<b>9,125,769</b>	<b>17,114,493</b>	<b>17,177,473</b>	<b>28,480,954</b>

\*The Lander Field Office does not contain PHMA/GHMA designations but rather uses the terminology of core and non-core areas, similar to the State of Wyoming's Executive Orders (EOs).

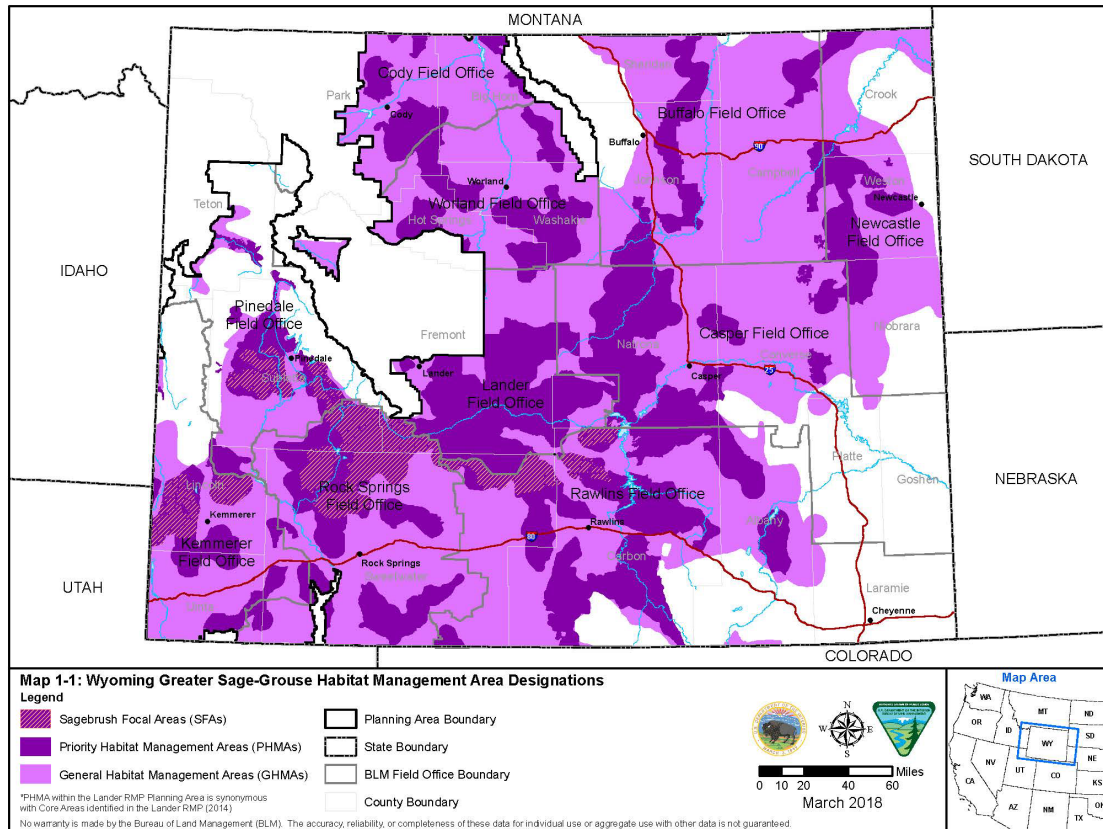
**Figures I-1 and I-2** identify the planning (analysis) area for this FSEIS and the decision area for this document, respectively. These maps depict the existing habitat management areas that are being considered in this FSEIS.

Current management for Greater Sage-Grouse conservation in Wyoming is provided in the Approved RMPAs (ARMPAs) for Greater Sage-Grouse in the Casper, Kemmerer, Newcastle, Pinedale, Rawlins, and Rock Springs Field Offices, as well as in the RMPs for Buffalo, Cody, Worland, and Lander; however, management actions proposed in this Final EIS/Proposed RMPA would not be universally applied across all RMPs. There are various management decisions in the existing ARMPA decision area and not to the Lander, Buffalo, Cody, or Worland RMPs because those RMPs were developed independently as land use plan revisions.

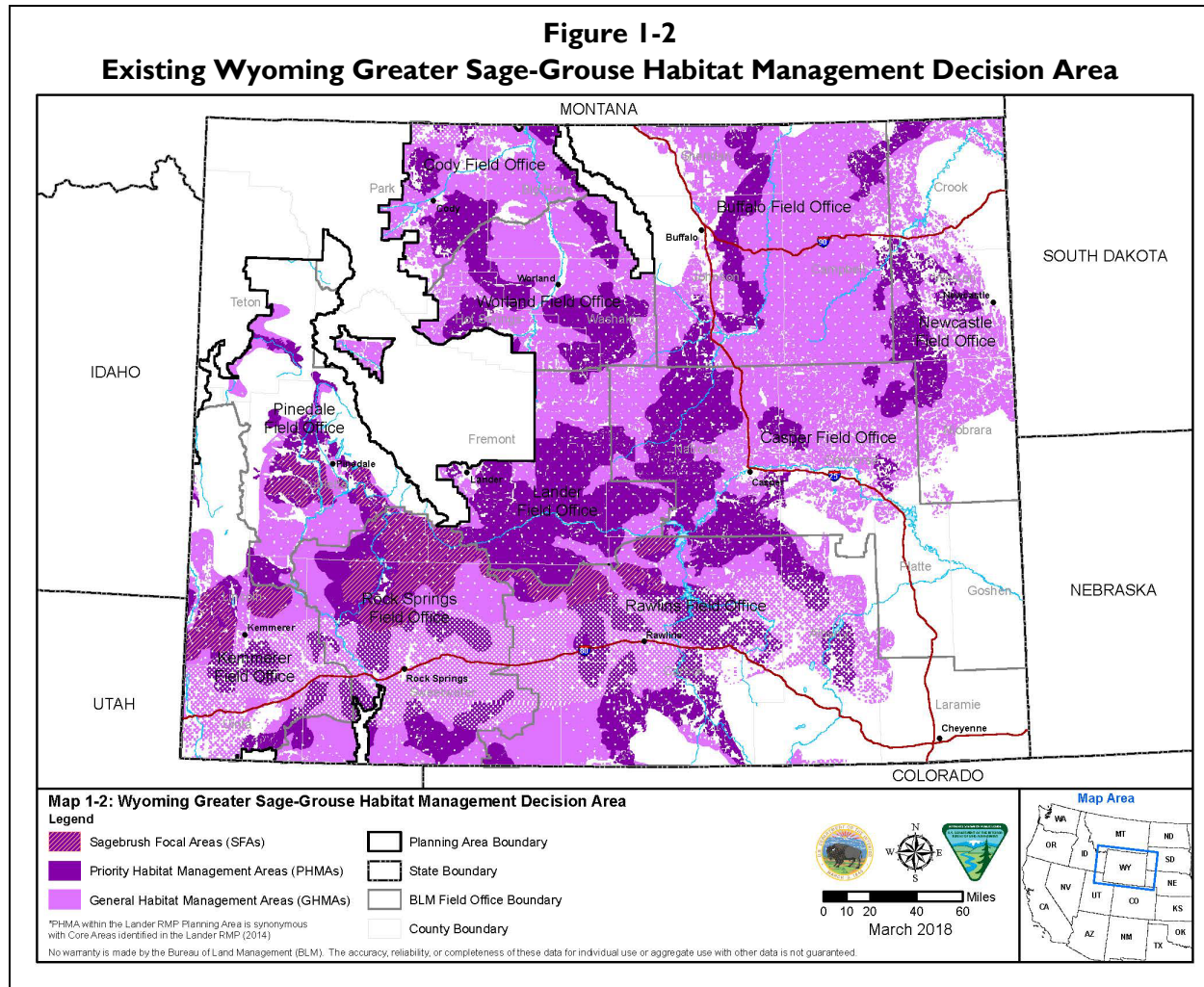
The Lander RMP revision, although completed in 2014, is being included in this RMPA/EIS because there are some proposed management actions that would apply to the Lander RMP. For example, one of the actions the BLM proposes is to update its Greater Sage-Grouse habitat management area designations when the State of Wyoming updates its core areas. This should apply to Lander, along with the other

plans; however, there are several actions (identified by No Similar Action in **Table I-2**) that would *not* apply to the Lander RMP. See **Chapter 2** for more information.

**Figure I-1**  
**Existing Wyoming Greater Sage-Grouse Habitat Management Area Designations**  
**(Planning Area)**







PHMA are areas that have been identified as having the highest conservation value to maintaining sustainable Greater Sage-Grouse populations. They include areas meeting life cycle requirements, such as breeding and late brood-rearing habitats, and winter concentration areas, and are based on best available science. These broad habitat maps are necessary at the RMP scale of planning in order to include a variety of important seasonal habitats and movement corridors that are spread across geographically diverse and naturally fragmented landscapes. Greater Sage-Grouse use multiple areas to meet seasonal habitat needs throughout the year, and the resulting mosaic of habitats (e.g., winter, breeding, nesting, early brood-rearing, late brood-rearing, transitional, and movement corridor habitats) can encompass large areas. Broad habitat maps increase the likelihood that all seasonal habitats (including transition and movement corridors) are included. While areas of non-habitat, in and of themselves, may not provide direct habitat value for Greater Sage-Grouse (e.g., canyons, water bodies, and human disturbances), these areas may be crossed by birds when moving between seasonal habitats; therefore, these habitat management areas are not strictly about managing habitat but are about providing those large landscapes that are necessary to meet the life-stage requirements for Greater Sage-Grouse. These areas will include areas that do not meet the habitat requirements described in the Seasonal Habitat Objectives tables in the 2015 Final EISs for Bighorn and Buffalo RMP revisions and the 2015 Final EIS for Greater Sage-

Grouse. These areas meet Greater Sage-Grouse habitat needs by maintaining large, contiguous expanses of relatively intact sagebrush vegetation community.

The BLM will continue to implement other decisions in the existing RMPs, until otherwise amended.

## **I.4 2019 ISSUES DEVELOPMENT**

### **I.4.1 Issues and Related Resource Topics Identified Through Scoping as Part of the 2019 Planning Process**

When deciding which issues to address related to the purpose and need, the BLM considers points of disagreement, debate, or dispute regarding an anticipated outcome from a proposed action. Issues are based on anticipated environmental effects; as such, issues can help shape the proposal and alternatives. The BLM used internal, agency, and public scoping to identify issues to consider in the environmental analysis. A summary of the scoping process for the 2019 planning process is presented in a report titled Potential Amendments to Land Use Plans Regarding Greater Sage-Grouse Conservation Scoping Report (<https://goo.gl/FopNgWV>).

When determining whether to retain an issue for more detailed analysis in this RMPA/EIS, the interdisciplinary team considered, among other things, the following:

- The environmental impacts associated with the issue and the threats to species and habitat associated with the issue are central to development of a Greater Sage-Grouse management plan or of critical importance.
- A detailed analysis of environmental impacts related to the issue is necessary to make a reasoned choice between alternatives.
- The environmental impacts associated with the issue are a significant point of contention among the public or other agencies.
- Whether there are potentially significant impacts on resources associated with the issue.

Ultimately, it was important for decision-makers and the public to understand the impacts that each of the alternatives would have on specific resources; therefore, the BLM used resource topics as a heading to indicate which resources would be affected by a management change. Importantly, resource topics helped organize the discussions of the affected environment (**Chapter 3**) and environmental consequences (**Chapter 4**).

The sections below lay out how issues raised during scoping for the 2019 planning process, as well as related resource topics, are considered in the 2018 RMPA/EIS. Generally, they fall into the following categories:

- Issues and related resource topics retained for further consideration in the 2018 RMPA/EIS— These are issues raised during scoping that were retained in the 2018 RMPA/EIS and for which alternatives were developed to address the issues. In some cases, the alternatives were previously analyzed in the 2015 Final EISs. In other cases, additional analysis was needed in the 2018 RMPA/EIS. Because the issues were analyzed under resource topics in 2015, the resource topics corresponding with those retained for further analysis were also considered in the 2018 RMPA/EIS. Just like issues, they may have been analyzed in the 2015 Final EISs for those decisions being included in the 2018 RMPA/EIS.

- Clarification of decisions in the 2015 amendments and revisions—These are decisions or frameworks in the 2015 amendments and revisions that require clarification as to their application or implementation. No new analysis was required, as the effects behind the decisions were analyzed in the 2015 Final EISs.
- Issues and resource topics not carried forward for additional consideration or analysis—These are issues brought up during scoping that were not carried forward in the 2018 RMPA/EIS. While some of these issues are considered, they do not require additional analysis because they were analyzed in the 2015 Final EISs. Others were not carried forward because they did not further the purpose of aligning with the State of Wyoming’s conservation plan.

Similar to issues, there are resource topics that were not retained for further analysis in the 2018 RMPA/EIS. This is because either they were not affected by the changes proposed in Chapter 2 of the 2018 RMPA/EIS or because the effect was analyzed in the 2015 Final EISs.

### ***Issues and Related Resource Topics Retained for Further Consideration in this FSEIS***

**Table 1-2** summarizes those issues identified through scoping and that have been retained for consideration and additional discussion in **Chapters 3** and **4**.

Based on the issues identified in **Table 1-2** that have not been previously analyzed, the resource topics that have the potential to be affected are Greater Sage-Grouse, livestock grazing management, locatable minerals, and fluid minerals; therefore, these resource topics are carried forward for detailed analysis.

**Table 1-2** identifies the corresponding resource topics to which the issues relate. The level of detail in the description of each resource topic and the effects from implementing any of the alternatives also are described in **Chapters 3** and **4**.

**Table 1-2**  
**Issues and Related Resource Topics**

<b>Issues</b>	<b>Resource Topics Related to the Issues</b>
<b>Modifying Habitat Management Area Designations</b> <ul style="list-style-type: none"> <li>• Need for adjusting habitat management areas to reflect best available science and ensure consistency with habitat management areas identified by the Wyoming Game and Fish Department (WGFD)</li> </ul>	Greater Sage-Grouse Vegetation Realty Minerals Renewable Energy Livestock Grazing Socioeconomics
<b>Sagebrush Focal Areas</b> <ul style="list-style-type: none"> <li>• Do SFAs contribute to achieving conservation outcomes?</li> <li>• Relevance of this habitat designation in the absence of a withdrawal</li> <li>• Constraints on mineral development within SFAs</li> </ul>	Greater Sage-Grouse Vegetation Minerals Livestock Grazing Socioeconomics
<b>Withdrawal</b> <ul style="list-style-type: none"> <li>• What would occur as a result of not moving forward with the recommended withdrawal?</li> </ul>	Greater Sage-Grouse Vegetation Minerals Socioeconomics
<b>Managing Noise Standards Outside PHMA</b> <ul style="list-style-type: none"> <li>• Are noise standards being applied consistent with the state management?</li> </ul>	Greater Sage-Grouse Realty Minerals

<b>Issues</b>	<b>Resource Topics Related to the Issues</b>
<b>Habitat Objectives</b> <ul style="list-style-type: none"> <li>• Use in assessing rangeland health standards</li> <li>• Consideration of localized ecological site potential</li> <li>• Habitat objectives tables</li> </ul>	Greater Sage-Grouse Vegetation Realty Minerals Renewable Energy Livestock Grazing Socioeconomics
<b>Livestock Management</b> <ul style="list-style-type: none"> <li>• Management of existing range improvement structures</li> <li>• Riparian area management</li> </ul>	Greater Sage-Grouse Vegetation Livestock grazing Socioeconomics
<b>Modifying Adaptive Management Strategies</b> <ul style="list-style-type: none"> <li>• What should be the process for changing or reverting to an adaptive management response?</li> </ul>	Greater Sage-Grouse
<b>Compensatory Mitigation</b> <ul style="list-style-type: none"> <li>• What are the impacts of following the State's mitigation framework?</li> <li>• What would be the result of not requiring net conservation gain for recreation facilities?</li> </ul>	Greater Sage-Grouse Vegetation Realty Minerals Renewable Energy Livestock grazing Socioeconomics
<b>Prioritization of Fluid Mineral Leasing</b> <ul style="list-style-type: none"> <li>• Prioritization of oil and gas leasing outside of PHMA</li> </ul>	Greater Sage-Grouse Vegetation Minerals Socioeconomics

***Issues and Resource Topics not carried forward for Additional Analysis (Scoping Issues Outside the Scope and Scoping Issues Previously Analyzed)***

*Issues and Related Resource Topics Not Carried Forward for Additional Analysis*

Commenters raised population-based management as an issue for consideration during scoping for this RMPA/EIS. This issue was not carried forward for detailed analysis because the BLM does not manage species populations, an authority that falls under the WGFD's jurisdiction.

Because the issues listed below were analyzed in the 2015 Final EISs and no significant new information has emerged, they do not require additional analysis in this RMPA/EIS; these types of impacts on these resources are described in the range of alternatives in the 2015 Final EISs.

- Restrictions on rights-of-way (ROWs) and infrastructure
- Wind energy development in PHMA
- ROW avoidance in PHMA and GHMA
- Retention of lands as identified as PHMA or GHMA in federal ownership
- Varying stipulations applied to oil, gas, and geothermal development
- Effects of no surface occupancy (NSO) stipulations on Greater Sage-Grouse habitat on non-BLM-administered land
- Contribution of disturbance caps toward Greater Sage-Grouse conservation objectives
- Vegetation treatments and wildfire response

### *Resource Topics Not Carried Forward for Additional Analysis*

The resource topics below are dismissed from detailed analysis. While these resource topics may have impacts related to Greater Sage-Grouse conservation that were analyzed in the 2015 Final EISs, they are dismissed from detailed analysis because they have no potentially significant impacts from actions proposed in this RMPA/EIS:

- Air Quality
- Cultural resources
- Forestry
- Lands with wilderness characteristics
- Paleontology
- Recreation resources
- Soils
- Special designations and management areas
- Transportation and access management
- Visual resources
- Watershed and water quality
- Wild horses and burros
- Wildland fire and fuels
- Wildlife (other than Greater Sage-Grouse) and fisheries

## **I.5 ITEMS TO BE CLARIFIED IN THIS FSEIS**

The items considered in this FSEIS are related to the analysis in the 2018 Final EIS. These items are:

- clarifying the range of alternatives (including how the BLM considered the full range of the 2015 alternatives in the 2019 planning process),
- taking a hard look and using the best available science (including clarified effects analysis, how the 2015 and 2019 Final EISs addressed the NTT and COT recommendations and conservation measures) (**Appendix E**),
- clarifying that the cumulative effects analysis was done at the range wide level and organized by WAFWA Management Zone (MZs) Updated language also highlights why WAFWA MZs were used,
- an updated Reasonably Foreseeable Future Actions.

## **I.6 RELATIONSHIPS TO OTHER POLICIES, PLANS, AND PROGRAMS**

The BLM amendments must be consistent with officially approved or adopted resource-related plans, and the policies and programs contained therein, of other federal agencies, state and local governments, and Native American tribes, so long as the guidance and RMPs are also consistent with the purposes, policies, and programs of federal laws and regulations applicable to public lands. The BLM is aware that there are specific state laws and local plans relevant to aspects of public land management that are discrete from, and independent of, federal law; however, the BLM is bound by federal law. As a

consequence, there may be inconsistencies that cannot be reconciled. The BLM will consider, to the extent practicable, all state and local land use plans during this planning effort.

Specifically, the BLM considered the plans shown below.

#### **I.6.1 State Plans**

State plans considered during this planning effort include the following:

- The State of Wyoming's Greater Sage-Grouse Core Area Protection strategy (EO 2015-4)
- Supplement to Greater Sage-Grouse Suitable Habitat Definitions (EO 2017-2)
- Revised Greater Sage-Grouse Compensatory Mitigation Framework (the Core Area Protection Strategy, EO 2015-4)

#### **I.6.2 Local Plans**

Local land use plans considered during this planning effort include all local plans from all counties and conservation districts across Wyoming that may be affected by any decisions in this proposed amendment addressing alignment with state management plans.

### **I.7 CHANGES BETWEEN DRAFT AND FINAL SEIS**

Based on comments received on the DSEIS, the BLM has updated the list of past, present, and reasonably foreseeable projects considered for cumulative impacts in **Appendix D**. Responses to substantive public comments received on the DSEIS are included in **Appendix F**.

# Chapter 2. Alternatives

## 2.1 INTRODUCTION

This chapter describes the eight alternatives considered during the 2019 planning processes. The 2018 Draft RMPA/Draft EIS and Proposed RMPA/Final EIS analyzed in detail a No-Action Alternative and one action alternative, the Management Alignment Alternative (which was modified to become the Proposed Plan Amendment in the Proposed RMPA/Final EIS), while incorporating by reference the full range of alternatives evaluated in detail by the BLM in its 2015 EISs. The 2019 Record of Decision also explains how the BLM considered the alternatives evaluated in the BLM's 2015 and 2018 EISs. This FSEIS likewise considers this full range of reasonable alternatives, while adding a greater level of detail about each alternative and giving the public an additional opportunity to review and comment on these eight alternatives. The full range of alternatives considered in the 2018 Final EIS is both summarized and provided in detail in the three tables in **Section 2.6**. NEPA's implementing regulations require materials to be incorporated by reference when the effect will be to cut down on bulk without impeding agency and public review of the action (40 CFR 1502. 21).

## 2.2 2018 PROPOSED PLAN AMENDMENT DESCRIPTION

In 2019, the Wyoming BLM amended the existing Greater Sage-Grouse management direction from the following Wyoming plans, as directed by Secretarial Order 3353; this was meant to bring BLM Greater Sage-Grouse management into alignment with the State of Wyoming:

- Buffalo Resource Management Plan (BLM 2015)
- Casper Resource Management Plan (BLM 2007)
- Cody Resource Management Plan (BLM 2015)
- Green River (covering the Rock Springs Field Office) Resource Management Plan (BLM 1997)
- Kemmerer Resource Management Plan (BLM 2010)
- Lander Resource Management Plan (BLM 2014)
- Newcastle Resource Management Plan (BLM 2000)
- Pinedale Resource Management Plan (BLM 2008)
- Rawlins Resource Management Plan (BLM 2008)
- Worland Resource Management Plan (BLM 2015)

## 2.3 2018 PROPOSED PLAN AMENDMENT

A detailed comparison of the alternatives considered during the 2019 planning process and the Proposed Plan Amendment is found in the side-by-side comparison Tables below in **Section 2.6.3**.

The Proposed Plan Amendment was to amend the plans identified in **Section 2.2** by replacing the specific objectives, management decisions, and appendices from the 2015 ARMPA and 2014 and 2015 Revisions with the language proposed below. All portions of the existing management plans, as amended by the 2015 ARMPA, that are not specifically called out in the 2018 RMPA/EIS remained in effect. The 2018 proposed plan amendment was derived by combining the Management Alignment Alternative from the 2018 Draft RMPA/EIS, with the further clarifications and modifications received from the Governor's Greater Sage-Grouse Task Force members and from applicable public comments.

All except three of the Governor's suggestions were accepted. One was not accepted because it was outside of the range of alternatives analyzed in the Draft EIS; the second was not accepted because it did not comply with BLM 4180 grazing regulations; the third was not accepted because it was considered redundant with another management decision already in the plan. These deletions were discussed with the Governor's office staff, who agreed with the rationale for not accepting the recommendations.

The 2018 Proposed Plan Amendment referred to in this FSEIS applied to Wyoming only.

The Management Alignment Alternative in the 2018 Draft RMPA/EIS included a proposed management action for compensatory mitigation based upon the mitigation framework BLM incorporated into its plans in 2015. However, following extensive review of FLPMA, including existing regulations, orders, policies, and guidance, the BLM concluded that FLPMA does not explicitly mandate or authorize the BLM to require public land users to implement compensatory mitigation as a condition of obtaining authorization for the use of the public lands (IM 2018-093, *Compensatory Mitigation*, July 24, 2018). In addition, the Draft RMPA/EIS analyzed a change to the net conservation gain standard for compensatory mitigation actions required to offset residual impacts to Greater Sage-Grouse on BLM-administered lands.

To align the 2019 planning effort with the BLM's compensatory mitigation policy (IM 2018-093) and the State of Wyoming's mitigation framework, the 2018 Proposed RMP Amendment clarified that the BLM would consider compensatory mitigation only as a component of compliance with a state mitigation plan, program, or authority, or when offered voluntarily by a project proponent. In accordance with the State's goals for managing Greater Sage-Grouse, the 2018 Proposed RMP Amendment modified the net conservation gain standard for compensatory mitigation to clarify that the BLM would pursue conservation benefits as a broader planning goal and objective. This meant that the BLM would continue to require avoidance, minimization, and other onsite mitigation to adequately conserve Greater Sage-Grouse and its habitat.

The BLM committed to cooperating with the State of Wyoming to analyze applicant-proffered or state-imposed compensatory mitigation to offset residual impacts. BLM may authorize such actions consistent with NEPA analysis and the governing RMP.

*New and Amended Decisions that apply to all RMPs in Wyoming:*

**New Management Decision I:** The BLM will update its Greater Sage-Grouse habitat management areas, including biologically significant units (BSUs), in conjunction with the State of Wyoming's core areas, upon issuance of any Wyoming Governor's Executive Order revising or amending the core area boundaries and upon completion of appropriate NEPA analysis and process. The BLM will complete the appropriate NEPA documentation (including appropriate public comment) prior to adopting any revised core area boundaries (e.g., maintenance action or plan amendment, environmental assessment, etc.).

**Amended MD SSS 12 (Casper, Kemmerer, Newcastle, Pinedale, Rawlins, Rock Springs); Amended #SS WL 4025 (Buffalo); Amended #4111 (Cody); Amended # 4110 (Worland); Amended #4117 (Lander):** Within PHMA (core only), new project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of the lek (or lek center if no perimeter is yet mapped) from 6:00 pm to 8:00 am during the breeding season (March 1–May 15). The authorized officer may grant an exception on a case-by-case basis subject



to appropriate site-specific analysis, mitigation requirements, and consultation with the State of Wyoming and consistent with the applicable State management strategy (currently Governor of Wyoming's Executive Order 2019-3) (see MD SSS 4). In coordination with the State of Wyoming, specific noise protocols for measurement and implementation will be developed as additional research and information emerges. These measures would be considered at the site-specific project level where and when appropriate.

**Amended MD SSS 4 (Casper, Kemmerer, Newcastle, Pinedale, Rawlins, Rock Springs); New Management Decision 2 (Buffalo, Cody, Lander, Worland): Specific to management for Greater Sage-Grouse, all RMPs are amended as follows:**

Adopt the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework to the extent consistent with federal law, regulations, and policy.

In all Greater Sage-Grouse habitat, when authorizing third-party actions in designated Greater Sage-Grouse habitat, the BLM will seek to achieve the planning-level Greater Sage-Grouse management goals and objectives through implementation of mitigation and management actions, consistent with valid existing rights and applicable law. Under this Plan Amendment, management would be consistent with the Greater Sage-Grouse goals and objectives, and in conformance with BLM Manual 6840, Special Status Species Management. In accordance with BLM Manual 6840, the BLM will undertake planning decisions, actions and authorizations "to minimize or eliminate threats affecting the status of [Greater Sage-Grouse] or to improve the condition of [Greater Sage-Grouse] habitat" across the planning area.

Accordingly, before authorizing third-party actions that result in habitat loss and degradation, the BLM will complete the following steps, in alignment with the applicable Governor of Wyoming's Executive Order :

1. Work jointly with the WGFD to evaluate projects and recommend mitigation in the form of avoidance and minimization.
2. The WGFD will determine if the State requires or recommends any additional mitigation including compensatory mitigation under State regulations, policies, or programs related to the conservation of Greater Sage-Grouse.
3. Incorporate state required or recommended mitigation into the BLM's NEPA decision-making process, if the WGFD determines that compensatory mitigation is required to address impacts to Greater Sage-Grouse habitat as a part of State policy or authorization, or if a proponent voluntarily offers mitigation.
4. Analyze whether the compensatory mitigation (deferring to the appropriate State authority to quantify habitat offsets, durability, and other aspects used to determine the recommended compensatory mitigation action):
  - achieves measurable outcomes for Greater Sage-Grouse habitat function on a landscape scale as determined by WGFD that are at least equal to the lost or degraded values in accordance with the applicable Governor of Wyoming's Executive Order.
  - provides benefits that are in place for at least the duration of the impacts.
  - accounts for a level of risk that the mitigation action may fail or not persist for the full duration of the impact.
5. Ensure mitigation outcomes are consistent with the State of Wyoming's mitigation strategy and principles outlined in 2018 Approved RMPA **Appendix C**, The Greater Sage-Grouse Habitat Management Strategy.

The BLM has determined that compensatory mitigation must be voluntary unless required by other applicable law and in recognition that State authorities may also require compensatory mitigation (IM 2019-018, Compensatory Mitigation, December 6, 2018). Therefore, consistent with valid existing rights and applicable law, when authorizing third-party actions that result in habitat loss and degradation, the BLM will consider voluntary compensatory mitigation actions only as a component of compliance with a State mitigation plan, program, or authority, or when offered voluntarily by a project proponent.

Project-specific analysis will be necessary to determine how a compensatory mitigation proposal addresses impacts from a proposed action. The BLM will cooperate with the State to determine appropriate project design and alignment with State policies and requirements, including those regarding compensatory mitigation. When the BLM is considering compensatory mitigation as a component of the project proponent's submission or based on a mitigation requirement from the State, the BLM's NEPA analysis would evaluate the need to avoid or minimize impacts of the proposed project and achieve the goals and objectives of this RMPA. The BLM will defer to the appropriate State authority to quantify habitat offsets, durability, and other aspects used to determine the recommended compensatory mitigation action.

*The following amended decisions apply to the Casper, Kemmerer, Newcastle, Pinedale, Rawlins, and Rock Springs RMPs:*

**Amended MD SSS 14:** Lands identified as Sagebrush Focal Areas (SFAs) will no longer be designated as SFAs. Lands previously identified as SFAs will be managed as Priority Habitat Management Areas (PHMAs), consistent with Core Area boundaries.

**Amended MD MR 12:** Areas previously identified as recommended for withdrawal from location and entry under the Mining Law of 1872 in the 2015 RMP Amendments for the Casper, Kemmerer, Newcastle, Pinedale, Rawlins, and Rock Springs RMPs are no longer recommended for withdrawal. While the BLM proposed to withdraw these areas in 2015, the BLM canceled the proposed withdrawal, as noticed in the Federal Register (82 FR 47248), on October 11, 2017.

Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: A total of approximately 21,251,690 acres are open to locatable mineral location and entry. Operators may be requested to submit modifications to the accepted notice or approved plan of operations so that the operations minimally impact PHMA. The AO may convey to the operator suggested conservation measures, based on the notice or plan level operations and the geographic area of those operations (also called the project area which is defined in 43 CFR 3809.5 and 36 CFR 228.3). These suggested conservation measures include measures that support the overall goals and objectives of the core population area strategy, though measures listed for protection of Greater Sage-Grouse breeding, nesting, brood-rearing, and wintering may not be reasonable or applicable to the BLM's determination of whether the proposed operations will cause unnecessary or undue degradation under 43 CFR 3809.5 and 36 CFR 228.3. The request containing the suggested conservation measures must make clear that the operator's compliance is not mandatory.

Notices or Plans of Operation, or modifications thereto, submitted following the issuance of this guidance: As part of the 15-day completeness review of notices [or modifications thereto] and 30-day completeness review of plans of operations [or modifications thereto], the proposed project area(s) where exploration, development, mining, access and reclamation will take place shall be reviewed for

overlap of PHMA in the BLM's GIS database. If there is overlap, the BLM AO may notify the operator of ways that they may minimize impacts on PHMA and request the operator to amend its notice or plan to include such measures. The request to amend the submitted notice or plan of operations must make clear that the operator's compliance is not mandatory and that including such measures is not a requirement for completeness of either the notice or a plan of operations, nor is it a condition of acceptance of the notice or approval of the plan of operations. (See also MD SSS 4 through MD SSS 10 and MD SSS 12)

For values other than Greater Sage-Grouse, the following RMP decisions remain in effect:

1,785,230 acres are withdrawn from mineral entry for the protection of sensitive resources.

**Amended Management Objective #6:** Develop specific habitat objectives to protect, enhance, or restore Greater Sage-Grouse priority habitat based on Ecological Site Descriptions (ESDs) and BLM land health evaluations (including within wetlands and riparian areas) taking into account site history (historic treatments or habitat manipulations) that have changed the soil chemistry, possibly altering the ESD.

**Amended MD LG 8:** In PHMA, existing range improvements (e.g., fences and livestock/wildlife watering facilities) would continue to be evaluated and modified when necessary. Supplements and supplemental feeding will continue to be authorized where appropriate.

**Amended MD LG 10:** In PHMA, for riparian and/or wet meadow communities utilized by Greater Sage-Grouse, livestock grazing will be managed to promote the production and availability of beneficial grasses and forbs for use during brood-rearing, while maintaining upland conditions and functions.

**Amended Management Objective #14:** Where the BLM has a backlog of Expressions of Interest for leasing, the BLM will prioritize its work first in non-habitat management areas, followed by lower priority habitat management areas (e.g., GHMA) and then higher priority habitat management areas (i.e., PHMA). To the extent consistent with federal regulation, law, and policy, priority would be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMAs. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMAs, and subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority would be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse. The implementation of these priorities would be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 USC 226(p) and 43 CFR 3162.3-1(h). Where a proposed fluid mineral development project on an existing lease could adversely affect Greater Sage-Grouse populations or habitat, the BLM will work with the lessees, operators, or other project proponents to avoid, reduce, and mitigate adverse impacts to the extent compatible with lessees' rights to drill and produce fluid mineral resources. To incentivize development to locate outside of PHMA, the BLM will work with the lessee, operator, or project proponent in developing an application for permit to drill (APD) for the lease to avoid and minimize impacts to Greater Sage-Grouse or its habitat and would ensure that the best information about the Greater Sage-Grouse and its habitat informs and helps to guide development of such federal leases.

*The following amended decisions apply to the Buffalo, Casper, Cody, Kemmerer, Newcastle, Pinedale, Rawlins, Rock Springs, and Worland RMPs:*

**Amended MD LG 4 (Casper, Kemmerer, Newcastle, Pinedale, Rawlins, Rock Springs); Amended Grazing #6017 (Buffalo); Revised #6130 (Cody); Revised #6202 (Worland):** Within PHMA, if monitoring data show the wildlife/special status species standard has not been meeting nor progress being made toward meeting that standard, there would be an evaluation and a determination made as to the cause. If it is determined that the current authorized livestock use is a significant causal factor in failing to achieve the wildlife/special status species standard, the BLM will address achievement or progress toward achieving the LHSs (43 CFR 4180.2) and, if needed, Greater Sage-Grouse habitat maintenance or improvement. When NEPA analysis is required for a specific implementation action, one alternative would include mechanisms to make adjustments to meet or make progress toward meeting the wildlife/special status species standard. The analysis should also identify the BLM-approved data collection methodologies used for monitoring conditions and determining when adjustments are necessary. If current grazing management meets land health standards and provides for Greater Sage-Grouse habitat, there would be no need to analyze an alternative for Greater Sage-Grouse. Authorized uses in PHMA that incorporate habitat objectives for Greater Sage-Grouse must develop desired conditions based on Greater Sage-Grouse habitats present in the allotment and the ecological potential of sites which supports these habitats. Metrics used to monitor for objectives must be developed and inform the wildlife/special status species portion of the Standards for Healthy Rangelands. Within PHMAs, seasonal habitat objectives for Greater Sage-Grouse apply only to those habitats delineated within an allotment during the specific season (e.g., breeding season objectives during breeding season). Data needed to inform the relationship between the authorized use and habitat condition would come from sample locations that appropriately reflect the impact of the authorized use on habitat conditions. Data points should fall within Greater Sage-Grouse seasonal habitat areas and be collected on ecological sites that have the potential to produce Greater Sage-Grouse habitat.

**Amended MD LG 5 (Casper, Kemmerer, Newcastle, Pinedale, Rawlins, Rock Springs); Amended # Grazing 6017 (Buffalo); Amended #6126 (Cody); Amended # 6198 (Worland):** Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: BLM monitoring would be used to evaluate progress toward achieving land health standards within PHMA and, where not achieved, to determine if existing grazing management practices or levels of grazing use on public lands are significant causal factors in failing to meet, maintain, or make progress toward achieving the standards and conform with the guidelines, which, through this process, will identify appropriate actions to address non-achievement and non-conformance. The BLM will prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in PHMA. In setting workload priorities, precedence would be given to existing permits/leases in these areas not meeting land health standards, with an emphasis on those containing riparian areas, including wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., fire) and legal obligations.

**Amended MD SSS 13 (Casper, Kemmerer, Newcastle, Pinedale, Rawlins, Rock Springs); Amended #SS WL 4010 (Buffalo); Amended #4116 (Cody); Amended #4115 (Worland):** The Adaptive Management Working Group would define a process to review and reverse adaptive management actions once the identified causal factor is resolved (e.g., returning to previous management once objectives of interim management strategy have been met).

**Appendix A** presents all management goals, objectives, and decisions for management of Greater Sage-Grouse (including existing, new, and amended decisions identified above) for the Casper, Kemmerer,

Newcastle, Pinedale, Rawlins, and Rock Springs RMPs (**Table A-1**), the Buffalo RMP (**Table A-2**), the Cody RMP (**Table A-3**), the Lander RMP (**Table A-4**), and the Worland RMP (**Table A-5**).

**Appendix B** presents the Required Design Features that apply to both GHMA and PHMA.

**Appendix C** presents the Greater Sage-Grouse Habitat Management Strategy, as amended.

**Table 2-1**, below, identifies the seasonal habitat objectives for Greater Sage-Grouse in the Wyoming Basin Ecoregion. The purpose of the habitat objectives table is to identify vegetation attributes important to Greater Sage-Grouse site selection as described in the Habitat Assessment Framework (HAF; Stiver, 2015). Indicators should be measured during the appropriate season, within the seasonal habitat being assessed, and in the context of the ecological potential for the site.

**Table 2-1**  
**Seasonal Habitat Objectives for the Greater Sage-Grouse Wyoming Basin Ecoregion**

Attribute	Indicators	Desired Condition <sup>6</sup>	Reference
<b>Breeding and Nesting (Seasonal Use Period March 1–June 15</b> (Doherty 2008; Holloran and Anderson 2005)			
Lek Security	Proximity of trees	Trees absent or uncommon shrub/grassland ecological sites within 1.8 miles (approximately 3 kilometers) of occupied leks	Baruch-Mordo et al. 2013; Stiver et al. 2015
	Proximity of sagebrush to leks	Adjacent protective sagebrush cover within 330 feet (approximately 100 meters) of an occupied lek	Stiver et al. 2015
Cover	% of seasonal habitat meeting desired conditions	>80% of the nesting habitat meets the recommended vegetation characteristics, where appropriate (relative to ecological site potential, etc.).	Connelly et al. 2000
	Sagebrush cover <sup>2</sup>	5 to 25%	Connelly et al. 2000; Connelly et al. 2003; Hagen et al. 2007
	Sagebrush height	4–31 inches (10–80 centimeters)	Connelly et al. 2000
	Arid sites <sup>3</sup>	12–31 inches (30–80 centimeters)	
	Mesic sites <sup>4</sup>		
	Predominant sagebrush shape	Predominantly spreading shape <sup>5</sup>	Stiver et al. 2015
	Perennial grass cover (such as native bunchgrass) <sup>2</sup>	>10% >15% Cool-season bunchgrasses preferred	Connelly et al. 2000; Stiver et al. 2015; Cagney et al. 2010
	Arid sites <sup>3</sup>		
	Mesic sites <sup>4</sup>		
	Perennial grass and forb height (including residual grasses)	Adequate nesting cover would be as determined by ESD site potential or best available science in consideration of local variability.	Connelly et al. 2000; Connelly et al. 2003; Doherty et al. 2014; Hagen et al. 2007; Stiver et al. 2015

Attribute	Indicators	Desired Condition <sup>6</sup>	Reference
Cover (continued)	Perennial forb cover <sup>2</sup> Arid sites <sup>3</sup> Mesic sites <sup>4</sup>	>5% >10%	Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun 2000.
<b>Brood-Rearing/Summer<sup>1</sup> (Seasonal Use Period June 16–October 31)</b>			
Cover	% of seasonal habitat meeting desired condition	>40% of the summer/brood habitat meets recommended brood habitat characteristics where appropriate (relative to ecological site potential, etc.)	Connelly et al. 2000
	Sagebrush cover <sup>2</sup>	5–25%	Connelly et al. 2000
	Sagebrush height	4–32 inches (20.3–80 centimeters)	Connelly et al. 2000
	Perennial grass cover and forbs <sup>2</sup>	>5% arid sites >10% mesic sites	Connelly et al. 2000
	Riparian areas/mesic meadows <sup>2</sup>	Proper functioning condition	Preferred forbs are listed in Stiver et al. 2015
	Upland and riparian perennial forb availability	Preferred forbs are common with several preferred species present	Stiver et al. 2015
<b>Winter (Seasonal Use Period November 1–February 28)</b>			
Cover and Food	% of seasonal habitat meeting desired conditions	>80% of the wintering habitat meets winter habitat characteristics where appropriate (relative to ecological site, etc.).	Connelly et al. 2000
	Sagebrush cover above snow <sup>2</sup>	>5%	Connelly et al. 2000; Stiver et al. 2015
	Sagebrush height above snow	>10 inches (>25 centimeters)	Connelly et al. 2000

## Notes:

<sup>1</sup> Where credible data support different seasonal dates than those identified, dates may be shifted, but the amount of days cannot be shortened or lengthened by the local unit.

<sup>2</sup> Absolute cover is the actual recorded cover and can exceed 100% when recorded across all species and all layers. It is not relative cover, which is the proportions of each species, and equals 100%. Note that cover is reported for only those species (e.g., sagebrush and preferred forbs) that are sampled to determine suitability of habitat for Greater Sage-Grouse. Overall cover at the site will be greater than that sampled for Greater Sage-Grouse habitat, due to other species present.

<sup>3</sup> Arid corresponds to the 10-12-inch precipitation zone; *Artemisia tridentata wyomingensis* is a common big sagebrush subspecies for this type site (Stiver et al. 2015).

<sup>4</sup> Mesic corresponds to the ≥12-inch precipitation zone; *Artemisia tridentata vaseyana* is a common big sagebrush subspecies for this type site (Stiver et al. 2015).

<sup>5</sup> Collectively, the indicators for sagebrush (cover, height, and shape), perennial grass, and perennial forb (cover, height, and/or availability) represent the desired condition range for nesting/early brood-rearing habitat characteristics, consistent with the breeding habitat suitability matrix identified in Stiver et al. 2015. Sagebrush plants that are more tree or columnar shaped provide less protective cover near the ground than sagebrush plants with a spreading shape (Stiver et al. 2015). Some sagebrush plants are naturally columnar (e.g., Great Basin big sagebrush) and a natural part of the plant community; however, a predominance of columnar shape arising from animal impacts may warrant management investigation or adjustments at site-specific scales.

<sup>6</sup> All desired conditions will be dependent upon site capability and local variation (e.g., weather patterns, localized drought, and ESD state).

The habitat objectives table outlines range-wide attributes and values for each. Some of the science-based information used to establish indicator values in the Habitat Objectives table was developed in disparate geographic regions and will not reflect local conditions. Therefore, the BLM should use indicator values that reflect high quality data at the local or the project level, to the extent it is available.

Collectively, the indicators for sagebrush (cover, height, and shape), perennial grass, and perennial forb (cover, height, and/or availability) represent the desired vegetation components for the seasonal habitats. Indicators are not standards to be achieved but a metric used to evaluate habitat conditions. Data collected at each location (during the appropriate season) in Greater Sage-Grouse habitat is compared to each seasonal habitat indicator value in the table. These indicator values would then be examined using a preponderance of evidence approach (BLM Technical Reference 1734-6).

When completing site-scale assessments for Greater Sage-Grouse, it is not appropriate to use a single indicator to determine habitat suitability. Site-scale Greater Sage-Grouse habitat assessments inform the land health standard evaluation for the wildlife/special status species standard.

Not all areas within a given habitat type will be capable of achieving the indicator values, due to inherent variation in vegetation communities and ecological site potential. Further, local data supported by BLM-approved data collection protocols or most recent available science may indicate Greater Sage-Grouse select for vegetation structure and composition not characterized by values in the table.

The values in the table should be considered as initial references and do not preclude development of local desired conditions or utilizing other indicators/values, based on site selection preferences of the local population and ecological site capability of sagebrush communities.

## **2.5 OTHER ALTERNATIVES CONSIDERED**

### **2.5.1 Varying Constraints on Land Uses and Development Activities**

During scoping for the 2019 planning process, some commenters asked the BLM to consider additional constraints on land uses and ground-disturbing development activities to protect Greater Sage-Grouse habitat. These constraints are beyond those in the current management plan.<sup>1</sup> Other commenters, in contrast, asked the BLM to consider eliminating or reducing constraints on land uses, or incorporating other flexibilities into the BLM's implementation of RMPs, in addition to those issues that are already evaluated in the Management Alignment Alternative. The BLM considered every scoping comment and, where appropriate, incorporated these issues into the Management Alignment Alternative, following coordination with the State. Because the purpose and need for the BLM's action in 2018, building off of the 2014/2015 RODs/ARMPs and 2015 ROD/ARMPA, was to enhance cooperation with the States by seeking to better align the BLM's RMPs with individual state plans and/or conservation measures, the BLM gave great weight to the States' identification of issues that warrant consideration in that planning effort.

The 2019 planning process did not revisit every issue that the BLM evaluated in 2014/2015. Instead, the BLM addressed refinements to the 2014/2015 RODs/RMP Revisions/ARMPA decisions, consistent with the BLM's purpose and need for action. Accordingly, this FSEIS has its foundation in the comprehensive 2014/2015 Final EISs and RODs/ARMPs/ARMPA and incorporates those documents by reference—including the entire range of alternatives evaluated through the 2014/2015 planning process:

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<sup>1</sup>For example, this 2019 planning process, built upon the 2015 planning process, will continue to ensure that the BLM complies with its special status species policy, including the commitment to “implement measures to conserve [special status] species and their habitats...and promote their conservation and reduce the likelihood and need for such species to be listed pursuant to the ESA.” (BLM Manual 6840, Special Status Species Management)

- Alternative A would have retained the management goals, objectives and direction specified in the BLM RMPs effective prior to the 2014/2015 RODs/RMP Revisions/ARMPA (except management actions I-29a).
- Alternative B was based on the conservation measures developed by the National Technical Team planning effort in Washington Office IM 2012-044. As directed in the IM, the conservation measures developed by the National Technical Team must be considered and analyzed, as appropriate, through the land use planning process and NEPA by all BLM state and field offices that contain occupied Greater Sage-Grouse habitat.
- ARMPA Alternative C was based on a citizen group's recommended alternative. This alternative emphasized improvement and protection of habitat for Greater Sage-Grouse and was applied to all occupied Greater Sage-Grouse habitat. Alternative C would have limited commodity development in areas of occupied Greater Sage-Grouse habitat and would have closed or designated portions of the planning area to some land uses.
- Buffalo Alternative C would emphasize resource uses and reduce constraints on resource uses to protect physical, biological, and heritage and visual resources. The emphasis on resource uses under Alternative C would reduce the amount of habitat protection for Greater Sage-Grouse and its habitat. Impacts on Greater Sage-Grouse under Alternative C would be similar to Alternative A (current management).
- Alternative D, which was identified as the Preferred Alternative in the Draft RMPs/RMPA/EISs, balanced opportunities to use and develop the planning area and protects Greater Sage-Grouse habitat based on scoping comments and input from cooperating agencies involved in the alternatives development process. Protective measures would have been applied to Greater Sage-Grouse habitat. Alternative D generally applies greater restrictions on surface disturbance and disruptive activities to protect sensitive wildlife habitats, including occupied Greater Sage-Grouse leks. Alternative D implements the State of Wyoming's Core Area Strategy. For Greater Sage-Grouse, constraints on resource uses are greater within PHMA than outside PHMA.
- Cody and Worland RMP Revisions Alternative E is the same as Alternative B outside of Greater Sage-Grouse Key Habitat Areas. Within Greater Sage-Grouse Key Habitat Areas, Alternative E includes additional management actions and designates the area as an Area of Environmental Concern (ACEC).
- Cody and Worland RMP Revisions Alternative F is the same as Alternative D outside of Greater Sage-Grouse Priority Habitat Management Areas (PHMAs). Within Greater Sage-Grouse PHMAs, Alternative F includes additional management actions and designates these areas as an ACEC.
- The Proposed LUPA incorporated guidance from specific State Conservation strategies, as well as additional management based on the National Technical Team recommendations. This alternative emphasized management of Greater Sage-Grouse seasonal habitats and maintaining habitat connectivity to support population objectives.

The BLM considered the entire range of alternatives from the 2015 Final EIS to identify issues meriting reconsideration, given the BLM's goal of enhancing alignment with state plans. In this manner, the BLM will continue to appropriately manage Greater Sage-Grouse and its habitat through this planning effort in tandem with the 2014/2015 RODs/RMP Revisions/ARMPA.



Further, additional constraints on land uses or development without a documented need would not meet the purpose of SO 3353. The BLM did not discover new information that would indicate the agency should increase the level of conservation, management, and protection to achieve its land use plan objective. As part of the consideration of whether to amend the 2015 Greater Sage-Grouse RMPs, the BLM requested the USGS to develop an annotated bibliography of Greater Sage-Grouse science published since January 2015 (Carter et al. 2018; see **Section 3.1**). In addition, SO 3353 directs the BLM to promote habitat conservation, while contributing to economic growth and energy independence. As analyzed in the 2015 Final EIS (Section 4.15), all of the previously analyzed alternatives, including one proposing constraint stricter than the current management plan, were predicted to result in a loss of development opportunities on public lands.

## **2.6 DESCRIPTION OF ALTERNATIVES FROM THE 2019 PLANNING PROCESS**

### **2.6.1 No-Action Alternative**

Under the No-Action Alternative, the BLM would not amend the current RMP Revisions (2014 Lander ROD/RMP and 2015 Buffalo, Worland, and Cody RODs/RMPs) nor the RMPs amended by the Wyoming Greater Sage-Grouse Resource Management Plan Amendment (2015 ROD/ARMPA). Greater Sage-Grouse habitat would continue to be managed under the management direction implemented in the 2014/2015 decisions. Goals and objectives for BLM-administered lands and federal mineral estate would not change from those decisions. Allowable uses and restrictions pertaining to activities such as mineral leasing and development, recreation, lands and realty, and livestock grazing would also remain the same, as described in the 2014/2015 decisions.

### **2.6.2 Management Alignment Alternative**

This alternative was derived through coordination with the State and cooperating agencies to better align with the Wyoming Governor's Core Population Area Strategy and to support conservation outcomes for Greater Sage-Grouse. The BLM continued to build upon the 2014/2015 planning effort as envisioned in SO 3353 by collaborating with states and stakeholders to improve compatibility between federal management plans and other plans and programs at the state level, while ensuring consistency with the BLM's multiple use mission.

This enhanced cooperation between the BLM and the Governor's office would lead to improved management and coordination with states across the range of Greater Sage-Grouse. The Management Alignment Alternative aligned the 2014 Lander ARMP and 2015 RODs/ARMPs and ARMPA with the Governor's Plan by strategically removing or altering the specific points of contention while preserving those parts that were already in alignment with the substance of the Governor's Plan. All parts of the existing 2014 Lander ARMP and 2015 RODs/ARMPs and ARMPA in Wyoming will remain in place except those specifically called out for change or deletion in this alternative. At the request of the State, the Management Alignment Alternative in the 2018 Draft RMPA/EIS proposed a change to compensatory mitigation by modifying the net conservation gain standard that the BLM incorporated into its plans in 2015. The DOI and the BLM also modified their mitigation policies since the 2015 plans were finalized. The public did not have the opportunity to comment specifically on a net conservation gain approach to compensatory mitigation during the 2015 land use planning process. In addition, the DOI and the BLM have reconsidered whether the mandatory implementation of compensatory mitigation on public lands is appropriate and consistent with applicable legal authorities. The BLM requested public comment about how the BLM should consider and implement mitigation with respect to the Greater Sage-Grouse, including alternative approaches to requiring compensatory mitigation in BLM land use plans.

Consistent with the Notice of Cancellation, which canceled the BLM's application to withdraw SFA from locatable mineral entry (82 *Federal Register* 195, October 11, 2017, p. 47248), this alternative removed the recommendation for withdrawal. The effects of such action are included in **Chapter 4**.

### **2.6.3 Detailed Description of Alternatives Considered during the 2019 Planning Process**

BLM considered a range of reasonable alternatives when responding to Secretary's Order 3353 to enhance cooperation with Western States in the management and conservation of Greater Sage-Grouse and its habitat. The BLM reconsidered the six alternatives it analyzed in detail during the 2015 planning process and two new alternatives during the 2019 planning process. BLM incorporated the 2015 alternatives by reference into the 2018 Final EISs, for a total of eight alternatives evaluated in detail.

The following three tables illustrate the alternatives that the BLM considered during the 2019 land use planning effort. **Table 2-2** summarizes the alternatives that the BLM evaluated in detail during the 2019 planning effort, as well as alternatives that the BLM considered but did not analyze in detail.

**Table 2-3** describes in detail the new alternatives developed during the 2019 planning effort to address the issues raised during scoping. Because the 2019 effort was focused on aligning BLM Greater Sage-Grouse management with State plans, BLM focused on a narrower set of issues and therefore only two additional alternatives were analyzed in detail. However, that did not limit the BLM which incorporated analysis from 2015 to consider all the alternatives considered in 2015 as well.

**Table 2-4** describes in detail the alternatives developed during the 2015 planning effort that were also considered in the most recent Greater Sage-Grouse land use planning process. **Table 2-4** is considerably longer than **Table 2-3** because the 2015 process addressed many more issues than the focused 2019 planning effort.

**Table 2-2**  
**Alternatives considered during the 2019 planning process.**

Wyoming Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description
<i>Alternatives Considered During the 2015 and 2019 Planning Processes</i>				
Buffalo Proposed Resource Management Plan Revision Final EIS	June 2015	Alternative A	Fully Analyzed	Alternative A represents continuation of current management and provides a baseline from which to identify potential environmental consequences when compared to the action alternatives. The No Action Alternative describes current resource and land management direction as represented in the Buffalo RMP (BLM 1985, as amended), and associated habitat management plans, maintenance actions, and updates. Current management identifies constraints on mineral leasing and other activities in the Planning Area to protect resource values. Current management includes stipulations and seasonal restrictions for surface disturbing and disruptive activities to protect sensitive wildlife areas and other values that are incompatible with mineral resources activity. Greater Sage-Grouse habitat would continue to be managed under current management direction.
Buffalo Proposed Resource Management Plan Revision Final EIS	June 2015	Alternative B	Fully Analyzed	Alternative B is based on the conservation measures developed by the BLM National Technical Team (NTT) planning effort described in Instruction Memorandum (IM) No. WO-2012-044. As directed in the IM, the conservation measures developed by the NTT must be considered and analyzed, as appropriate, through the land use planning and NEPA processes by all BLM state and field offices that contain occupied Greater Sage-Grouse habitat. This alternative would restore vegetation in Greater Sage-Grouse habitat on BLM-administered lands. Restrictions on surface-disturbing and disruptive activities in sensitive wildlife habitats are generally more prohibitive under Alternative B than Alternative A, and the size of protective buffers is increased around areas of specific management concern such as occupied Greater Sage-Grouse leks. Alternative B would also enlarge and enhance habitat areas and habitat for connectivity.
Buffalo Proposed Resource Management Plan Revision Final EIS	June 2015	Alternative C	Fully Analyzed	Alternative C would emphasize resource uses and reduce constraints on resource uses to protect physical, biological, and heritage and visual resources. The emphasis on resource uses under Alternative C would reduce the amount of habitat protection for Greater Sage-Grouse and its habitat. Impacts on Greater Sage-Grouse under Alternative C would be similar to Alternative A (current management).

<b>Wyoming Planning Document</b>	<b>Document Date</b>	<b>Alternative Title</b>	<b>Analysis Level</b>	<b>Alternative Description</b>
Buffalo Proposed Resource Management Plan Revision Final EIS	June 2015	Alternative D	Fully Analyzed	Alternative D would generally allow resource use if the activity could be conducted in a manner that would conserve physical, biological, and heritage and visual resources. Alternative D generally applies greater restrictions on surface disturbance and disruptive activities to protect sensitive wildlife habitats, including occupied Greater Sage-Grouse leks. Alternative D implements the State of Wyoming's Core Area Strategy. For Greater Sage-Grouse, constraints on resource uses are greater within PHMA than outside PHMA.
Buffalo Proposed Resource Management Plan Revision Final EIS	June 2015	Recommend Mineral Withdrawal Across the Planning Area	Considered; Not Analyzed in Detail	The BLM considered, but eliminated from detailed analysis alternatives to recommend a withdrawal for the remainder of the planning area under the mining laws, even in the absence of an identified resource conflict. Recommending withdrawal of the entire planning area, even in the absence of a currently identified resource conflict, would be inconsistent with the goals and objectives for mineral resources. Moreover, the BLM lacks the authority to close lands to the Mining Law in the planning process its authority is limited to making recommendations for future withdrawals. Alternative B analyzes the impacts of recommending mineral withdrawal for resource conflicts on 467,897 acres of BLM surface (60%), and 618,256 acres of federal mineral estate (13%).
Buffalo Proposed Resource Management Plan Revision Final EIS	June 2015	Suspend or Eliminate All Existing Federal Fluid Mineral Leasing	Considered; Not Analyzed in Detail	The BLM considered, but eliminated from detailed analysis suspending or eliminating all existing federal oil and gas leasing and development operations and canceling existing oil and gas leases. By law, the BLM must recognize all valid existing rights. The BLM's authority to suspend or cancel existing oil and gas leases is limited by regulation. The BLM can impose reasonable limits on the manner and pace of development, and limits of this type are evaluated in the alternatives analyzed in detail. Individual locations within the planning area which the BLM would close to fluid mineral leasing are also evaluated in the alternatives analyzed in detail.
Buffalo Proposed Resource Management Plan Revision Final EIS	June 2015	Closure to Fluid Mineral Leasing	Considered; Not Analyzed in Detail	Closing the planning area to new leasing of federal fluid minerals, even where there are no identified resource conflicts, was considered but eliminated from further analysis. Closing the entire planning area to new fluid mineral leasing would not meet BLM's purpose and need.

<b>Wyoming Planning Document</b>	<b>Document Date</b>	<b>Alternative Title</b>	<b>Analysis Level</b>	<b>Alternative Description</b>
Buffalo Proposed Resource Management Plan Revision Final EIS	June 2015	Remove All Stipulations and Restrictions from Oil and Gas Leases	Considered; Not Analyzed in Detail	The BLM considered removing all stipulations and restrictions from existing oil and gas leases. The BLM can authorize waivers, modifications, and exceptions to stipulations on existing leases when appropriate given site-specific resource conditions. This alternative was eliminated from detailed analysis as BLM's authority to waive existing oil and gas lease stipulations is limited by regulation.
Buffalo Proposed Resource Management Plan Revision Final EIS	June 2015	Phase Fluid Mineral Development	Considered; Not Analyzed in Detail	The BLM considered an alternative that would regulate the rate at which oil and gas development in the planning area occurred. Given the extent of non-federal mineral ownership within the planning area, a phased development alternative would not allow compliance with any of the above requirements and therefore it was eliminated from detailed analysis.
Buffalo Proposed Resource Management Plan Revision Final EIS	June 2015	Emphasize the Protection of Resources by Removing Human Uses	Considered; Not Analyzed in Detail	The BLM considered, but eliminated from detailed analysis an alternative that removed human uses from the planning area. The FLPMA requires the BLM to manage public lands and resources according to the principles of multiple use and sustained yield. Included in this requirement are human uses, such as mineral development or livestock grazing, that must be managed in consideration of other resource values, such as wilderness or wildlife resources. Management actions, including closure or prohibition of various resource uses over portions of the planning area, are included in the alternatives considered in detail.
Buffalo Proposed Resource Management Plan Revision Final EIS	June 2015	Applying the National Technical Team Conservation Measures to Priority Habitat	Considered; Not Analyzed in Detail	The BLM National Greater Sage-Grouse Strategy (WO IM-2012-044) directed field offices to consider all applicable conservation measures recommended by the NTT when revising or amending RMPs in Greater Sage-Grouse habitat. Most of the NTT conservation measures are recommended to be applied to priority habitats. However, the designated priority habitat may not be sufficient to conserve Greater Sage-Grouse within the Buffalo planning area (Taylor et al. 2012). Because of the concern over adequacy of the BFO designated Core Population Areas to meet the planning goal for Greater Sage-Grouse conservation, an alternative applying the NTT conservation measures only to the designated priority habitat was eliminated from detailed analysis.

<b>Wyoming Planning Document</b>	<b>Document Date</b>	<b>Alternative Title</b>	<b>Analysis Level</b>	<b>Alternative Description</b>
Buffalo Proposed Resource Management Plan Revision Final EIS	June 2015	No Development Within Occupied Greater Sage-Grouse Habitat	Considered; Not Analyzed in Detail	The BLM considered, but eliminated from detailed analysis an alternative that prohibited development within occupied Greater Sage-Grouse habitat. The FLPMA requires the BLM to manage public lands and resources according to the principles of multiple use and sustained yield. Included in this requirement are human uses which must be managed in consideration of other resource values, including wildlife resources such as Greater Sage-Grouse. This alternative would preclude the BLM from achieving a balance among resources and resource uses.
Buffalo Proposed Resource Management Plan Revision Final EIS	June 2015	No Livestock Grazing	Considered; Not Analyzed in Detail	The elimination of livestock grazing from all BLM-administered lands in the planning area as a method for resolving range, watershed, and wildlife habitat-related planning issues was considered, but eliminated from detailed analysis. BLM determined that resource conditions on BLM-administered lands in the planning area do not warrant such a blanket elimination of livestock grazing because 97 percent of allotments (122 out of 125) assessed to date meet the Wyoming Standards for Healthy Rangelands. Fencing custodial allotments to keep cattle off public lands would require hundreds of miles of new fences to prevent unauthorized grazing. In addition, the potential impacts of such extensive fencing on, for example big game movement and Greater Sage-Grouse mortality from raptor predation and collisions are better analyzed on an allotment-by-allotment basis, taking into account distribution of wildlife habitat and other resources as well as site-specific land ownership patterns.
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	Alternative A	Fully Analyzed	Alternative A represents the current management of resources on BLM-administered surface and mineral estate within the Planning Area under the three existing plans (Cody RMP (BLM 1990), Washakie RMP (1988a), and Grass Creek RMP (BLM 1998a)). Management under Alternative A continues to balance the use and development of Planning Area resources. Under this alternative, the BLM prohibits surface-disturbing activities within ¼ mile of occupied Greater Sage-Grouse leks and within 2 miles of occupied leks in Greater Sage-Grouse nesting and early brood-rearing habitats. The BLM prohibits surface-disturbing activities in Greater Sage-Grouse winter concentration area from November 15 to March 14. Alternative A does not include travel management restrictions in Greater Sage-Grouse Key Habitat Areas.
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	Alternative B	Fully Analyzed	Alternative B emphasizes conservation of physical, biological, heritage and visual resources, and lands with wilderness characteristics with constraints on resource uses.

2. Alternatives (Table 2-2. Alternatives Considered During the 2019 Planning Process)

<b>Wyoming Planning Document</b>	<b>Document Date</b>	<b>Alternative Title</b>	<b>Analysis Level</b>	<b>Alternative Description</b>
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	Alternative C	Fully Analyzed	Alternative C emphasizes resource uses and reduces constraints on resource uses to protect physical, biological, and heritage and visual resources.
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	Alternative D	Fully Analyzed	Alternative D generally increase conservation of physical, biological, and heritage and visual resources compared to current management, including designation of one SMA, two Management Areas, and 12 ACECs. Alternative D also emphasizes moderate constraints on resource uses and reclamation and mitigation requirements to reduce impacts to resource values.
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	Alternative E	Fully Analyzed	Alternative E is the same as Alternative B outside of Greater Sage-Grouse Key Habitat Areas. Within Greater Sage-Grouse Key Habitat Areas, Alternative E includes additional management actions and designates the area as an ACEC. Alternative E emphasizes conservation of physical, biological, heritage and visual resources, and lands with wilderness characteristics with constraints on resource uses.
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	Alternative F	Fully Analyzed	Alternative F is the same as Alternative D outside of Greater Sage-Grouse PHMAs. Within Greater Sage-Grouse PHMAs, Alternative F generally emphasizes conservation of physical, biological, and heritage and visual resources compared to current management, while placing moderate constraints on resource uses and reclamation and mitigation requirements to reduce impacts to resource values.
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	Recommend Mineral Withdrawals Across the Planning Area	Considered; Not Analyzed in Detail	The BLM considered, but eliminated from detailed analysis alternatives to recommend a withdrawal from appropriations under the mining laws for a large portion of the Planning Area because it found those alternatives to be overly restrictive and not reasonable in those areas. By law, an RMP cannot close an area to the operation of the Mining Laws this can be accomplished by withdrawal, which is a separate action BLM can recommend but must ultimately be taken at the Secretarial level. Withdrawing a large portion of the Planning Area would conflict substantially with the goals and objectives for mineral resources and would require an extensive inventory and evaluation outside the scope of the RMP and EIS of the current natural uses and values of the site and adjacent land, as well as an analysis of how those uses and values would be affected.
Bighorn Basin Proposed Resource	June 2015	Suspend or Eliminate all Existing Federal Mineral Leasing	Considered; Not Analyzed in Detail	The BLM considered, but eliminated from detailed analysis, suspending or eliminating all existing federal minerals leasing and development operations and cancelling existing oil and gas leases. Under the FLPMA,

Wyoming Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description
Management Plan Revision Final EIS				the BLM must recognize all valid existing rights. The BLM can impose reasonable measures to the manner and pace of development; the BLM evaluates measures of this type under alternatives analyzed in detail. Alternatives analyzed in detail also evaluate locations in the Planning Area where BLM would recommend a withdrawal from mineral entry.
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	Require Directional Drilling	Considered; Not Analyzed in Detail	BLM considered an alternative that would require directional and/or horizontal drilling of all oil and gas wells in the Planning Areas. The BLM eliminated that alternative from further consideration and detailed analysis. Experience and improved efficiency have caused the additional costs attributed to directional drilling and/or horizontal drilling to decrease. However, exclusive use of directional and /or horizontal drilling is not always necessary and could result in wells not being drilled and reserves not being recovered. This does not meet either the Nation's energy needs or result in the maximum ultimate recovery of the oil and gas resources with minimum waste, as required by regulation (43 CFR 3161.2).
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	Remove all Stipulations and Restrictions from Oil and Gas Leases	Considered; Not Analyzed in Detail	The BLM considered a request to remove all stipulations and restrictions from oil and gas leases. This alternative is unreasonable because it conflicts with the FLPMA Section 102(8) policy to manage the public lands to protect resource values. Removing all stipulations and restrictions from oil and gas leases would impair the BLM's ability to fulfill its mission by eliminating its primary tool for managing potential effects from oil and gas development on public lands; such an alternative is, therefore, not consistent with the policy objectives of the area or feasible.
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	Phased Oil and Gas Development	Considered; Not Analyzed in Detail	The BLM considered an alternative that would regulate the rate of oil and gas development in the Planning Area but determined that the holders of federal oil and gas leases have the right to develop those leases on the schedules they deem appropriate within regulatory limits. Setting reduced or limited rates of development is more appropriately analyzed in project-/wellfield-specific NEPA documents.
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	Phased Oil and Gas Leasing	Considered; Not Analyzed in Detail	The BLM considered an alternative of phased leasing, especially along areas where conflict with other resources are anticipated to occur, such as bentonite and gypsum mine development or wildlife habitat. Leasing is a discretionary action, therefore, the right to phase lease is retained under all alternatives.



<b>Wyoming Planning Document</b>	<b>Document Date</b>	<b>Alternative Title</b>	<b>Analysis Level</b>	<b>Alternative Description</b>
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	No New Oil and Gas Leasing	Considered; Not Analyzed in Detail	The BLM considered closing the entire Planning Area to new leasing of federal minerals, specifically oil and gas, as a method to resource conflicts with other resource values and uses. This alternative would eliminate development and production in areas where conflicts can be mitigated or where conflicts do not exist, which is inconsistent with the multiple use policy objectives of the Planning Area. Alternatives analyzed in detail address making portions of the Planning Area closed to oil and gas leasing in response to other identified resource needs.
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	Require Reinjection of all Produced Water	Considered; Not Analyzed in Detail	The BLM considered requiring reinjection of all produced water. The BLM considered this alternative, but eliminated it from detailed analysis for several reasons, including responding to issues such as potential impacts to aquifers, soils, and the quantity and quality of surface water in and downstream of produced water discharges. Under Alternative B the BLM did analyze a management action prohibiting the authorization of new activities resulting in the surface discharge of produced water on BLM-administered land.
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	Emphasize the Protection of Resources by Removing Human Uses	Considered; Not Analyzed in Detail	The BLM considered an alternative to emphasize the protection of resources by removing most, if not all, human uses, but eliminated it from further analysis because it would not respond to the purpose and need for the RMP revision. Alternatives considered in detail address management actions that include closure or prohibition of various uses over portions of the Planning Area.
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	Prohibit or Exclude Wind-Energy Development, Oil and Gas Leasing, Off-Highway Vehicle Use, and Livestock Grazing	Considered; Not Analyzed in Detail	The BLM considered requests to prohibit or exclude part or all of the Planning Area from wind-energy development, oil and gas leasing, off-highway vehicle (OHV) use, and livestock grazing. However, FLPMA requires that BLM manage public lands and resources according to the principles of multiple use and sustained yield, and the BLM eliminated from detailed review alternatives inconsistent with this multiple use mandate. However, alternatives analyzed in detail include limitations and restrictions on wind-energy development, oil and gas leasing, OHV use, and livestock grazing. The BLM recognizes that there are conflicts between resources and resource uses and considered these conflicts during alternatives development.

2. Alternatives (Table 2-2. Alternatives Considered During the 2019 Planning Process)

Wyoming Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	Limit Travel Only to Existing Roads and Trails	Considered; Not Analyzed in Detail	The BLM considered an alternative limiting travel to only existing roads and trails within the entire Planning Area but eliminated it from detailed analysis. The BLM comprehensive travel and transportation management (CTTM) program is guided by resource values and user needs. Such an alternative would not meet the purpose and need of the RMP revision. The BLM analyzes a reasonable range of travel management designations in the alternatives considered in detail.
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	No Livestock Grazing	Considered; Not Analyzed in Detail	This alternative was not analyzed in detail because such an alternative is not reasonable, viable, or necessary. Instead, and in accordance with BLM's Land Use Planning Handbook and BLM IM No. 2012-169, the BLM considered a range of alternatives with respect to both areas that are available or unavailable for livestock grazing on an area-wide basis. The range of alternatives considered includes a meaningful reduction in livestock grazing through a reduction in areas available to livestock grazing and forage allocation. The BLM analyzed closing 1,984,211 acres to livestock grazing under alternatives B and E to address identified unresolved conflicts concerning various uses of available resources including within elk and bighorn sheep winter range areas and the Greater Sage-Grouse Key Habitat Areas ACEC. In addition, all alternatives would allow the reduction or elimination of livestock grazing in specific situations where livestock grazing causes or contributes to conflicts with the protection or management of other resource values or uses.

Wyoming Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description
Bighorn Basin Proposed Resource Management Plan Revision Final EIS	June 2015	Open Off-Highway Vehicle "Play" Areas	Considered; Not Analyzed in Detail	<p>The BLM evaluated proposals for designating areas as open to OHV use. Motorized vehicle travel is permitted year-round anywhere within an area designated as open to OHV use. Open designations are used for intensive OHV use areas where there are no special restrictions or where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country travel (see 43 CFR 8340.0-5) (BLM 2011c).</p> <p>The BLM evaluated the following areas:</p> <ul style="list-style-type: none"> <li>• Red Lake/Diamond Basin Area</li> <li>• North Oregon Basin</li> <li>• Garland Slopes Area</li> <li>• McCullough Peaks Area</li> <li>• Polecat Bench Area</li> <li>• Bentonite Hills "Darnell's Area"</li> <li>• Lovell Motocross Track</li> <li>• Cowley Hill Climb "Monsters Area"</li> </ul> <p>The BLM identified user conflicts, public safety issues, and compelling resource protection needs including threatened and endangered species, Greater Sage-Grouse habitat, cultural and historic features, crucial winter range, valid existing rights such as mining claims or active mining, and ongoing reclamation activities, all of which preclude an open designation for most of these areas at this time. A portion of the Red Lake, Bentonite Hills, and Lovell Motocross Track areas are included within the range of alternatives analyzed in detail. Should the issues listed above be resolved, the BLM may consider R&amp;PP leases or amend the RMP.</p>
Lander Proposed Resource Management Plan Revision Final EIS	June 2014	Alternative A	Fully Analyzed	<p>Alternative A represents continuation of current management and provides a baseline from which to identify potential environmental consequences when compared to the action alternatives. It describes current resource and land management direction in the planning area under the existing plan. Current management identifies constraints on mineral leasing in the planning area to protect resource values that are incompatible with mineral resources activity. Constraints on resource uses specifically to protect fish and wildlife resources are only used in a few cases under Alternative A, including seasonal limitations on surface-disturbing activities in important habitat and buffers to restrict surface-disturbing activities around Greater Sage-Grouse leks.</p>

2. Alternatives (Table 2-2. Alternatives Considered During the 2019 Planning Process)

<b>Wyoming Planning Document</b>	<b>Document Date</b>	<b>Alternative Title</b>	<b>Analysis Level</b>	<b>Alternative Description</b>
Lander Proposed Resource Management Plan Revision Final EIS	June 2014	Alternative B	Fully Analyzed	Alternative B emphasizes conservation of physical, biological, heritage and visual resources while managing the public lands for multiple use. Resource development and other active land uses would still be authorized, but greater restrictions would be placed on where and how they occur.
Lander Proposed Resource Management Plan Revision Final EIS	June 2014	Alternative C	Fully Analyzed	Alternative C emphasizes resource uses by reducing constraints placed on physical, biological, heritage, and visual resources. Alternative C gives priority to land uses such as oil and gas development, mining, ROWs, and livestock grazing when managing the public lands for multiple use. Fewer restrictions protecting biological, physical, heritage and visual resources would be placed on surface-disturbing and disruptive activities to facilitate land uses and development.
Lander Proposed Resource Management Plan Revision Final EIS	June 2014	Alternative D	Fully Analyzed	Alternative D balances the use and conservation of planning area resources. This alternative generally allows resource use if the activity can be conducted in a manner that conserves physical, biological, heritage and visual resources. Fish and wildlife resources under Alternative D, in general, receive more protection compared to Alternative A, especially within important habitat areas including Greater Sage-Grouse leks (0.6 mile within Core Area). Under Alternative D, the Wyoming Governor's Greater Sage-Grouse Core Area strategy is incorporated into management actions. Additionally, under Alternative D, Greater Sage-Grouse lek habitat are identified for withdrawal from locatable mineral entry. Extensive Best Management Practices (BMPs) and Required Designed Features are also identified under Alternative D that would provide protections for Greater Sage-Grouse, wildlife, and other resources.

Wyoming Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description
Lander Proposed Resource Management Plan Revision Final EIS	June 2014	Prohibit Oil and Gas Development	Considered; Not Analyzed in Detail	A citizen proposal suggested closing all of the planning area to oil and gas development because of important resources such as Greater Sage-Grouse habitat, crucial winter range, and visual resources. The BLM determined that a planning area-wide closure was not in conformance with policy and regulations. Oil and gas development is an authorized use of BLM-administered lands and encouraged by national energy policy. Therefore, it would be arbitrary and inconsistent with existing laws to analyze closing the entire planning area to development. Moreover, that analysis would be misleading since extensive valid lease rights exist that could be developed regardless of changes in management in this RMP revision. A subset of this proposed alternative is to close all occupied Greater Sage-Grouse habitat to oil and gas leasing. Only 1 percent of the planning area is outside Greater Sage-Grouse habitat. Such closure would not be consistent with national energy policy and would, similarly, not meet the purpose and need for this RMP revision.
Lander Proposed Resource Management Plan Revision Final EIS	June 2014	Designate Areas as "Open" to Facilitate Motorized Vehicle Play Areas	Considered; Not Analyzed in Detail	<p>Numerous members of the public commented on the need for an area where motorized vehicle use is not restricted to roads and trails; thus, allowing for a motorized vehicle "play area." In areas designated as "open" intensive motorized vehicle travel is permitted year-long anywhere within the designated area.</p> <p>Travel and Transportation Management guidance and 43 CFR 8340.05 have restricted the use of this designation to: "...areas where there are no special restrictions or where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross country travel..." The Lander Field Office could not locate an area on public lands that met the above criteria. Some factors that precluded this designation included: ¾ of the field office being located in the Wyoming Governor's Greater Sage-Grouse Core Area, other large areas of critical wildlife habitat (winter and parturition habitat), a multitude of areas where an open designation would cause user conflicts (nonmotorized recreation areas) and public safety issues (near communities), as well as areas with existing safety hazards (hydrogen sulfide gas, mine shafts).</p>
Wyoming 9-Plan Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	Alternative A	Fully Analyzed	Alternative A would have continued the present course of management for Greater Sage-Grouse within each of the BLM and Forest Service offices. Management actions 1 through 29a do not apply to this alternative.

2. Alternatives (Table 2-2. Alternatives Considered During the 2019 Planning Process)

Wyoming Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description
Wyoming 9-Plan Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	Alternative B	Fully Analyzed	Alternative B was based on the conservation measures developed by the National Technical Team planning effort in Washington Office IM 2012-044. As directed in the IM, the conservation measures developed by the National Technical Team must be considered and analyzed, as appropriate, through the land use planning process and NEPA by all BLM state and field offices that contain occupied Greater Sage-Grouse habitat.
Wyoming 9-Plan Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	Alternative C	Fully Analyzed	Alternative C was based on a citizen group's recommended alternative. This alternative emphasized improvement and protection of habitat for Greater Sage-Grouse and was applied to all occupied Greater Sage-Grouse habitat. Alternative C would have limited commodity development in areas of occupied Greater Sage-Grouse habitat and would have closed or designated portions of the planning area to some land uses.
Wyoming 9-Plan Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	Alternative D	Fully Analyzed	Alternative D, which was identified as the Preferred Alternative in the Draft RMPA/EIS, balanced opportunities to use and develop the planning area and protects Greater Sage-Grouse habitat based on scoping comments and input from cooperating agencies involved in the alternatives development process. Protective measures would have been applied to Greater Sage-Grouse habitat.
Wyoming 9-Plan Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	Include Stipulations for Protection of Greater Sage-Grouse Habitat from Oil Shale Resources	Considered; Not Analyzed in Detail	Comments were received during the public scoping process that suggested the BLM should either adopt the permitting processes guidelines and stipulations in the Wyoming EO 2011-05 or develop some other mitigation strategies for the protection of Greater Sage-Grouse habitat from oil shale development. This land use allocation does not authorize any future lease or development proposal. There is insufficient analytical basis for such consideration. For this reason, the BLM is not carrying forward for more detailed analysis in this EIS consideration of protective stipulations to be adopted for oil shale development.

Wyoming Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description
Wyoming 9-Plan Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	Close All or Portions of PHMA or GHMA to Off-Highway Vehicle Use	Considered; Not Analyzed in Detail	Through this LUPA/EIS, the BLM has identified, but has not studied in detail, an alternative to designate new area closures for OHV use within PHMA and GHMA. The BLM has analyzed alternatives to designate all areas within PHMAs and GHMAs as “limited” to existing roads and trails for OHV use, if not already closed by existing planning efforts. Subsequent Travel Management Plans will be developed to identify specific routes within limited areas that will be closed in order to protect and conserve Greater Sage-Grouse and its habitat. The BLM and Forest Service have analyzed existing OHV area closures within PHMAs and GHMAs as part of the No Action alternative and as a decision common to all alternatives.
Wyoming 9-Plan Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	USFWS-Listing Alternative	Considered; Not Analyzed in Detail	Comments provided through scoping requested analysis of an alternative based on the assumption that Greater Sage-Grouse become listed under the ESA. This was outside the scope; the purpose and need of this plan amendment is to address inadequacy of regulatory mechanisms that were identified as one of the listing factors for Greater Sage-Grouse in the USFWS finding on the petition to list Greater Sage-Grouse. Although the potential listing of Greater Sage-Grouse would also include conservation measures identified by the USFWS, those conservation measures were not known at this time. Therefore, an alternative that includes USFWS-listing with associated conservation measures for Greater Sage-Grouse was not being analyzed in detail.

Wyoming Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description
Wyoming 9-Plan Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	Designation of All Greater Sage-Grouse General Habitat as Areas of Critical Environmental Concern or Forest Service Special Interest Areas	Considered; Not Analyzed in Detail	The BLM and Forest Service identified, but did not analyze in detail, an alternative to designate all Greater Sage-Grouse general habitat as an ACEC or SIA. These areas did not meet the relevance and importance criteria necessary to be considered for ACEC designation as determined by BLM regulation, nor did they meet designation criteria as determined by Forest Service regulation. However, the areas found to meet relevance and importance criteria are analyzed in detail in Alternative B and Alternative C. The Greater Sage-Grouse general habitat areas did not meet the ACEC importance criteria due to the cumulative buildup of anthropomorphic disturbances over time that has reduced habitat effectiveness to the point that the Greater Sage-Grouse has been identified as eligible for listing under the Endangered Species Act. The combination of disturbances industrial and agricultural in general habitats negates the benefits of the added protection needed in priority habitat and may inadvertently increase fragmentation of priority habitat, as the complexities of overlapping resource values and projects of national interest intersect. The general habitats within the project area in most cases have intensive mineral development and are held by production. The added value of managing the general habitat as an ACEC would not be fully realized due to the valid existing rights encumbering these habitats, which is largely why these areas were not included in the core-area strategy by the State of Wyoming.
Wyoming Greater Sage-Grouse Draft Resource Management Plan Amendment and Environmental Impact Statement-May 2018	May 2018	No Action	Fully Analyzed	The No Action would not amend the current RMPs amended by the Wyoming Greater Sage-Grouse Resource Management Plan the Amendment (2015 ROD/ARMPA) nor the Revised RMPs (2014/2015 RODs/ARMPs). Greater Sage-Grouse habitat would continue to be managed under current management direction. Goals and objectives for BLM-administered lands and federal mineral estate would not change. Allowable uses and restrictions pertaining to activities such as mineral leasing and development, recreation, lands and realty, and livestock grazing would also remain the same.



2. Alternatives (Table 2-2. Alternatives Considered During the 2019 Planning Process)

Wyoming Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description
Wyoming Greater Sage-Grouse Draft Resource Management Plan Amendment and Environmental Impact Statement	May 2018	Management Alignment Alternative	Fully Analyzed	This alternative was derived through coordination with the State and cooperating agencies to better align with the Idaho Governor's conservation plan and to support conservation outcomes for Greater Sage-Grouse. The BLM continued to build upon the 2015 planning effort as envisioned in SO 3353 by collaborating with states and stakeholders to improve compatibility between federal management plans and other plans and programs at the state level, while ensuring consistency with the BLM's multiple use mission.

**Table 2-3**, below, is organized by issue and provides a side-by-side comparison of the No-Action Alternative, the Draft EIS Management Alignment Alternative, and the Final EIS Proposed Plan Amendment.

**Table 2-3**  
**Detailed Comparison of 2019 Alternatives**

<b>Topic</b>	<b>2015 ARMPA Decision Number</b>	<b>No-Action Alternative</b> <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	<b>Management Alignment Alternative</b> <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	<b>Proposed Plan</b> <i>Note: References to figures, tables, or appendices are those in the 2015 ARMPA.</i>
<b>Modifying habitat boundaries</b>				
Modifying habitat management area designations	No existing decision	No similar action.	The BLM would update its Greater Sage-Grouse habitat management areas, including biologically significant units (BSUs), in conjunction with the State of Wyoming's core areas, upon issuance of any Wyoming Governor's EO revising or amending the core area boundaries.	The BLM would update its Greater Sage-Grouse habitat management areas, including BSUs, in conjunction with the State of Wyoming's Core Areas, upon issuance of any Wyoming Governor's EO revising or amending the Core Area boundaries and upon completion of appropriate NEPA analysis and process (i.e. plan maintenance, environmental assessment, etc.)

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<b>Removing Sagebrush Focal Area Designations</b>				
Sagebrush Focal Areas	<b>ARMPA:</b> MD SSS 14	<b>From the ARMPA:</b> Designate SFAs (1,915,990 acres). SFAs would be managed as PHMA, with the following additional management: · Recommend for withdrawal from the General Mining Act of 1972, subject to valid existing rights (252,160 acres).  Prioritized for vegetation management and conservation actions in these areas, including, but not limited to, land health assessments, wild horse and burro management actions, review of livestock grazing permits/leases, and habitat restoration (see specific management sections).  <b>Buffalo RMP, Lander RMP, Cody RMP, and Worland RMP:</b> No similar action (no SFAs designated).	No similar action (no areas would be designated as SFA).	No similar action (no areas would be designated as SFA). Lands previously identified as SFA would be managed as PHMA, consistent with Core Area boundaries.  Delete MD SSS 14.  Remove references to SFA in all other management decisions, as appropriate.  MD LG 4 MD LG 5
SFA Withdrawal	<b>ARMPA:</b> MD MR 12  <b>ARMPA:</b> MD LG 4  <b>ARMPA:</b> MD LG 5	<b>From the ARMPA:</b> MD MR 12— Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: 252,160 acres within SFAs would be recommended for withdrawal from the General Mining Act of 1872, subject to valid existing rights. A total of approximately 21,251,690 acres are open to locatable mineral location and entry.	<b>Across all RMPs:</b> No similar action.	<b>For the ARMPA:</b> MD MR 12 is modified as follows: Operators may be requested to submit modifications to the accepted notice or approved plan of operations so that the operations minimally impact PHMA. The AO may convey to the operator suggested conservation measures, based on the notice or plan level operations and the geographic area of those operations (also called the project area which is

<b>Topic</b>	<b>2015 ARMPA Decision Number</b>	<b>No-Action Alternative</b> <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	<b>Management Alignment Alternative</b> <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	<b>Proposed Plan</b> <i>Note: References to figures, tables, or appendices are those in the 2015 ARMPA.</i>
SFA Withdrawal (continued)	(see above)	<p>Operators may be requested to submit modifications to the accepted notice or approved plan of operations so that the operations minimally impact PHMA. The Authorized Officer (AO) may convey to the operator suggested conservation measures, based upon the notice or plan level operations and the geographic area of those operations (also called the project area which is defined in 43 Code of Federal Regulations (CFR) 3809.5 and CFR 228.3).</p> <p>These suggested conservation measures include measures that support the overall goals and objectives of the core population area strategy, though measures listed for protection of Greater Sage-Grouse breeding, nesting, brood-rearing, and wintering may not be reasonable or applicable to the BLM's determination of whether the proposed operations will cause unnecessary or undue degradation under 43 CFR 3809.5 and 36 CFR 228.3. The request containing the suggested conservation measures must make clear that the operator's compliance is not mandatory.</p> <p>Notices or Plans of Operation, or modifications thereto, submitted following the issuance of this guidance: As part of the 15 day completeness review of notices (or modifications</p>	(see above)	<p>defined in 43 CFR 3809.5 and CFR 228.3).</p> <p>These suggested conservation measures include measures that support the overall goals and objectives of the Core Population Area Strategy, though measures listed for protection of Greater Sage-Grouse breeding, nesting, brood-rearing, and wintering may not be reasonable or applicable to the BLM's determination of whether the proposed operations will cause unnecessary or undue degradation under 43 CFR 3809.5 and 36 CFR 228.3. The request containing the suggested conservation measures must make clear that the operator's compliance is not mandatory.</p> <p>Notices or Plans of Operation, or modifications thereto, submitted following the issuance of this guidance: As part of the 15 day completeness review of notices (or modifications thereto) and 30 day completeness review of plans of operations (or modifications thereto), the proposed project area(s) where exploration, development, mining, access and reclamation will take place shall be reviewed for overlap of PHMA in the corporate Geographic Information System (GIS) database. If there is</p>

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SFA Withdrawal (continued)	(see above)	<p>thereto) and 30 day completeness review of plans of operations (or modifications thereto), the proposed project area(s) where exploration, development, mining, access and reclamation will take place shall be reviewed for overlap of PHMA in the corporate GIS database. If there is overlap, the BLM AO may notify the operator of ways that they may minimize impacts on PHMA and request the operator to amend its notice or plan to include such measures. The request to amend the submitted notice or plan of operations must make clear that the operator's compliance is not mandatory and that including such measures is not a requirement for completeness of either the notice or a plan of operations, nor is it a condition of acceptance of the notice or approval of the plan of operations.</p> <p><b>Buffalo RMP, Lander RMP, Cody RMP, and Worland RMP:</b> No similar action (no SFAs and no recommended withdrawal).</p>	(see above)	<p>overlap, the BLM AO may notify the operator of ways that they may minimize impacts on PHMA and request the operator to amend its notice or plan to include such measures. The request to amend the submitted notice or plan of operations must make clear that the operator's compliance is not mandatory and that including such measures is not a requirement for completeness of either the notice or a plan of operations, nor is it a condition of acceptance of the notice or approval of the plan of operations.</p> <p><b>For the ARMPA:</b> Delete reference to SFAs in MD LG 4.</p> <p><b>For the ARMPA:</b> Delete references to SFAs in MD LG 5.</p> <p><b>Buffalo, Cody, Worland, and Lander RMPs:</b> No similar action.</p>

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<b>Modifying Habitat Objectives</b>				
	<b>ARMPA:</b> Management Objective (MO) #6	<b>From the ARMPA:</b> Develop specific habitat objectives to protect, enhance, or restore Greater Sage-Grouse priority habitat, based on Ecological Site Descriptions (ESDs) and BLM land health evaluations (including within wetland and riparian areas) taking into account site history (historic treatments or habitat manipulations) that have changed the soil chemistry, possibly altering the ESD. If an effective grazing system that meets Greater Sage-Grouse habitat requirements is not already in place, analyze at least one alternative that conserves, restores, or enhances Greater Sage-Grouse habitat in the NEPA document prepared for grazing management (Doherty et al. 2011; Williams et al. 2011).  <b>Buffalo, Cody, Worland, and Lander RMP:</b> No similar action.	<b>For the Plans covered under the ARMPA:</b> Develop specific habitat objectives to protect, enhance or restore Greater Sage-Grouse habitat based on ESDs and BLM land health evaluations taking into account site history (historic treatments or habitat manipulations) that may have changed the soil chemistry, possibly altering the ESD.  <b>Buffalo, Cody, Worland, and Lander RMPs:</b> No similar action.	<b>For the ARMPA:</b> Develop specific habitat objectives to protect, enhance or restore Greater Sage-Grouse habitat based on ESDs and BLM land health evaluations taking into account site history (historic treatments or habitat manipulations) that may have changed the soil chemistry, possibly altering the ESD.  <b>Buffalo, Cody, Worland, and Lander RMPs:</b> No similar action.

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Seasonal habitat objectives for Greater Sage-Grouse	No existing decision	<p><b>From the ARMPA, Buffalo, Cody, and Worland RMPs:</b> The habitat objectives for Greater Sage-Grouse (Table 2-2 [ARMPA], Table 2-6 [Buffalo]), and Table 2-7 [Cody and Worland]) is a list of indicators, characteristics, and values that describe Greater Sage-Grouse seasonal habitat use areas. The BLM used indicator values derived from a synthesis of local and regional Greater Sage-Grouse habitat research and data to describe the typical vegetation communities that Greater Sage-Grouse select. While the habitat objectives are not attainable on every site or every acre within designated Greater Sage-Grouse habitat management areas, the values reflect a range of habitat conditions that generally lead to greater survival of individuals within a population. When permitting land use activities, BLM should consider the ecological site potential within designated habitat management areas to validate the habitat conditions achievable for a specific site.</p> <p>The seasonal habitat descriptions in habitat objectives tables (noted above) vary across the range of Greater Sage-</p>	<p><b>For the ARMPA, Buffalo RMP, Worland RMP, and Cody RMP:</b> Include as preamble to the tables— The purpose of the habitat objectives tables is to identify vegetation attributes important to Greater Sage-Grouse site selection as described in the habitat assessment framework. Indicators should be measured during the appropriate season, within the seasonal habitat being assessed, and in the context of the ecological potential for the site.</p> <p>Collectively, the indicators for sagebrush (cover, height, and shape), perennial grass, and perennial forb (cover, height, and/or availability) represent the desired vegetation components for the seasonal habitats. Indicators are not standards to be achieved but a metric used to evaluate habitat suitability within a home range.</p> <p>The habitat objectives tables outline rangewide attributes and values for each. Some of the science-based information used to</p>	<p><b>For the ARMPA, Buffalo RMP, Worland RMP, and Cody RMP:</b> Include as preamble to the tables- The purpose of the habitat objectives tables is to identify vegetation attributes important to Greater Sage-Grouse site selection as described in the Habitat Assessment Framework (HAF; Stiver 2015). Indicators should be measured during the appropriate season, within the seasonal habitat being assessed, and in the context of the ecological potential for the site.</p> <p>The habitat objectives tables outline rangewide attributes and values for each. Some of the science-based information used to establish indicator values in the Habitat Objectives tables was developed in disparate geographic regions and will not reflect local conditions. The BLM is required to use the best available information and specific values should be developed locally or at the project level.</p> <p>Collectively, the indicators for sagebrush (cover, height, and shape), perennial grass, and perennial forb (cover, height, and/or availability)</p>

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Seasonal habitat objectives for Greater Sage-Grouse (continued)	(see above)	<p>Grouse, within a subregion, and between sites. They are not land health standards but are quantitative measures that inform the special status species habitat land health standard for Greater Sage-Grouse. These measurable values reflect ecological potential and may be adjusted based on local factors influencing Greater Sage-Grouse habitat selection. Local data or recent science may indicate that Greater Sage-Grouse select for vegetation structure and composition in seasonal habitats not characterized by the values in the habitat objectives table. In these cases, it may be appropriate to adjust the values.</p> <p>Habitat objectives should be evaluated in the context of annual variability in ecological conditions and should not be used singly to determine habitat suitability for Greater Sage-Grouse. They may be used to demonstrate trends over time, during plan evaluations for effectiveness of Greater Sage-Grouse conservation, or when identifying limiting habitat characteristics for a given area.</p> <p>The indicators, characteristics, values and desired seasonal habitat conditions in the Greater Sage-Grouse Plan Habitat Objectives Table are meant to inform the wildlife habitat component of the</p>	<p>determine the values in the Habitat Objectives tables was developed in disparate geographic regions and may not be based on local conditions. The BLM uses the best available information to; specific values should be developed locally or at the project level. Data collected at each location (during the appropriate season) in Greater Sage-Grouse habitat is compared with each seasonal habitat indicator value in the tables. These indicator values would then be examined using a preponderance of evidence approach (BLM Technical Reference 1734-6) to determine seasonal habitat suitability within a home range and documented in a Greater Sage-Grouse habitat assessment.</p> <p>When completing site-scale assessments for Greater Sage-Grouse, it is not appropriate to use a single indicator to determine habitat suitability. Site-scale Greater Sage-Grouse habitat assessments inform the land health standard evaluation for the wildlife/special status species standard.</p> <p>Not all areas within a given habitat type would be capable of achieving the indicator values, due to</p>	<p>represent the desired vegetation components for the seasonal habitats. Indicators are not standards to be achieved but a metric used to evaluate habitat conditions. Data collected at each location (during the appropriate season) in Greater Sage-Grouse habitat is compared with each seasonal habitat indicator value in the tables. These indicator values would then be examined using a preponderance of evidence approach (BLM Technical Reference 1734-6).</p> <p>When completing site-scale assessments for Greater Sage-Grouse, it is not appropriate to use a single indicator to determine habitat suitability. Site-scale Greater Sage-Grouse habitat assessments inform the land health standard evaluation for the wildlife/special status species standard. Not all areas within a given habitat type will be capable of achieving the indicator values, due to inherent variation in vegetation communities and ecological site potential. Further, local data supported by BLM-approved data collection protocols or most recent available science may indicate Greater Sage-Grouse select for vegetation structure and composition not characterized by values in the table.</p>



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Seasonal habitat objectives for Greater Sage-Grouse (continued)	(see above)	<p>land health standards evaluation process (43 CFR 4180.2), but do not replace rangeland health assessments. Results from the land health evaluation should be used to support BLM in land use authorization processes and during development of objectives for management actions such as vegetation treatments. BLM land use authorizations will contain terms and conditions regarding the actions needed to achieve or make progress toward achieving habitat objectives and land health standards.</p> <p>The habitat objectives tables are to be used:</p> <ul style="list-style-type: none"> <li>• To assess habitat suitability for Greater Sage-Grouse following the BLM policy on Greater Sage-Grouse habitat assessments</li> <li>• To evaluate land use plan effectiveness for Greater Sage-Grouse conservation, and</li> <li>• As a basis to develop measurable project objectives for actions in BLM-designated Greater Sage-Grouse habitat management areas when considered alongside land health standards, ecological potential and local information.</li> </ul>	<p>inherent variation in vegetation communities and ecological site potential. Further, local data supported BLM-approved data collection protocols or most recent available science may indicate Greater Sage-Grouse select for vegetation structure and composition not characterized by values in the table.</p> <p>The values in the tables should be considered as initial references and do not preclude development of local desired conditions or utilizing other indicators/values, based on site selection preferences of the local population and ecological site capability of sagebrush communities. Adequate nesting cover is determined by ESD site potential or best available science in consideration of local variability.</p> <p><b>Lander RMP:</b> No similar action.</p>	<p>The values in the tables should be considered as initial references and do not preclude development of local desired conditions or utilizing other indicators/values, based on site selection preferences of the local population and ecological site capability of sagebrush communities. Adequate nesting cover would be as determined by ESD site potential or best available science in consideration of local variability.</p> <p><b>Lander RMP:</b> No similar action.</p>

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Seasonal habitat objectives for Greater Sage-Grouse (continued)	(see above)	<b>Lander RMP:</b> No similar action.  <b>ARMPA, Buffalo, Cody, and Worland RMPs:</b> As an indicator for perennial grass and forb height (includes residual grasses): Adequate nesting cover greater than or equal to 7 inches or as determined by ESD site potential and local variability.  <b>Lander RMP:</b> No similar action.	(see above)	(see above)
<b>Livestock Management</b>				
Permit renewals	<b>ARMPA:</b> MD LG 4  <b>Buffalo:</b> Page 76; Grazing-6017  <b>Cody:</b> Page 21; Record #6130  <b>Worland:</b> Page 21, Record #6202	<b>ARMPA:</b> Within PHMA, all BLM use authorizations would contain terms and conditions regarding the actions needed to meet or progress toward meeting the habitat objectives. If monitoring data show the habitat objectives have not been met nor progress being made toward meeting them, there would be an evaluation and a determination made as to the cause. If it is determined that the authorized use is a significant factor in failing to achieve the standards for healthy rangelands, the use would be adjusted by the response specified in the instrument that authorized the use.  <b>Cody RMP, Worland RMP:</b> All BLM use authorizations would contain terms and conditions regarding the actions needed to meet or progress toward meeting the habitat objectives. If	<b>ARMPA, Buffalo RMP, Worland RMP, and Cody RMP:</b> Within PHMA, if monitoring data show the wildlife/special status species standard is neither being met or no progress is being made toward meeting that standard, there would be an evaluation and a determination made as to the cause. If it is determined that the current authorized livestock use is a significant causal factor in failing to achieve the wildlife/special status species standard, the BLM would address achievement or progress toward achieving the land health standards (43 CFR 4180.2) and, if needed, Greater Sage-Grouse habitat maintenance or improvement.	<b>ARMPA, Buffalo RMP, Worland RMP, and Cody RMP:</b> Within PHMA, if monitoring data show the wildlife/special status species standard is neither being met nor progress being made toward meeting that standard, there would be an evaluation and a determination made as to the cause. If it is determined that the current authorized livestock use is a significant causal factor in failing to achieve the wildlife/special status species standard, the BLM would address achievement or progress toward achieving the land health standards (43 CFR 4180.2) and, if needed, Greater Sage-Grouse habitat maintenance or improvement.  When NEPA analysis is required for a specific implementation action, one

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<b>Permit Renewals (continued)</b>	(see above)	<p>monitoring data show the habitat objectives have not been met nor progress being made toward meeting then, there would be an evaluation and a determination made as to the cause. If it is determined that the authorized use is a cause, the use would be adjusted by the response specified in the instrument that authorized the use.</p> <p><b>ARMPA, Buffalo RMP, Cody RMP, Worland RMP:</b> The NEPA analysis for renewals and modifications of livestock grazing permits/leases that includes lands within SFAs and PHMA would include specific management thresholds based on Greater Sage-Grouse habitat objectives (Tables 2-2 and 2-3) and land health standards (43 CFR 4180.2), and one or more defined responses that would allow the Authorizing Officer to make adjustments to livestock grazing that have already been subjected to NEPA analysis.</p> <p><b>Lander RMP:</b> No similar action.</p>	<p>If NEPA analysis is required for a specific implementation action, one alternative would include mechanisms to make adjustments to meet or make progress toward meeting the wildlife/special status species standard. The analysis should also identify the BLM-approved data collection methodologies used for monitoring conditions and determining when adjustments are necessary. If current grazing management meets land health standards and provides for Greater Sage-Grouse habitat, there is no need to analyze an alternative for Greater Sage-Grouse.</p> <p>Authorized uses in PHMA that incorporate habitat objectives for Greater Sage-Grouse must develop desired conditions based on Greater Sage-Grouse habitats present in the allotment and the ecological potential of sites which supports these habitats. Metrics used to monitor for objectives must be developed and inform the Wildlife/SSS portion of the Standards for Healthy Rangelands.</p>	<p>alternative would include mechanisms to make adjustments to meet or make progress toward meeting the wildlife/special status species standard. The analysis should also identify the BLM-approved data collection methodologies used for monitoring conditions and determining when adjustments are necessary. If current grazing management meets land health standards and provides for Greater Sage-Grouse habitat, there would be no need to analyze an alternative for Greater Sage-Grouse.</p> <p>Authorized uses in PHMA that incorporate habitat objectives for Greater Sage-Grouse must develop desired conditions based on Greater Sage-Grouse habitats present in the allotment and the ecological potential of sites which supports these habitats. Metrics used to monitor for objectives must be developed and inform the Wildlife/special status species portion of the Standards for Healthy Rangelands.</p> <p>Within PHMA, seasonal habitat objectives for Greater Sage-Grouse apply only to those habitats delineated within an allotment during the specific season (e.g., breeding season objectives during breeding season).</p>

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<b>Permit Renewals (continued)</b>	(see above)	(see above)	Within PHMA, seasonal habitat objectives for Greater Sage-Grouse apply only to those habitats delineated within an allotment during the specific season (e.g., breeding season objectives during breeding season). Data needed to inform the relationship between the authorized use and habitat condition would come from sample locations that appropriately reflect the impact of the authorized use on habitat conditions. Data points should fall within Greater Sage-Grouse seasonal habitat areas and be collected on ecological sites that have the potential to produce Greater Sage-Grouse habitat.  <b>Lander RMP:</b> No similar action.	Data needed to inform the relationship between the authorized use and habitat condition would come from sample locations that appropriately reflect the impact of the authorized use on habitat conditions. Data points should fall within Greater Sage-Grouse seasonal habitat areas and be collected on ecological sites that have the potential to produce Greater Sage-Grouse habitat.  <b>Lander RMP:</b> No similar action.
Permit renewals	<b>ARMPA:</b> MD LG 5  <b>Cody:</b> Record #6126  <b>Worland:</b> Record #6198	<b>From the ARMPA:</b> BLM monitoring would be used to evaluate progress toward achieving land health standards within PHMA and, where not achieved, to determine if existing grazing management practices or levels of grazing use on public lands are significant factors in failing to meet, maintain or make progress toward achieving the standards and conform with the guidelines, which through this process would identify appropriate actions to address non-achievement and non-conformance.	<b>For the ARMPA:</b> The BLM monitoring would be used to evaluate progress toward achieving land health standards within PHMA and, where not achieved, to determine if existing grazing management practices or levels of grazing use on public lands are significant causal factors in failing to achieve, maintain, or make progress toward achieving the standards and conform with the guidelines, which through this process would identify	<b>For the ARMPA:</b> BLM monitoring would be used to evaluate progress toward achieving land health standards within PHMA and, where not achieved, to determine if existing grazing management practices or levels of grazing use on public lands are significant causal factors in failing to achieve, maintain, or make progress toward achieving the standards and conform with the guidelines, which through this process would identify appropriate actions to address non-achievement and non-conformance.

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Permit Renewals (continued)	(see above)	<p>Allotments within SFAs, followed by those within PHMA, and focusing on those containing riparian areas, including wet meadows, would be prioritized for field checks to help ensure compliance with the terms and conditions of the grazing permits. Field checks include monitoring for actual use, utilization, and use supervision.</p> <p>The BLM would prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in SFAs followed by PHMA outside of the SFAs. In setting workload priorities, precedence would be given to existing permits/leases in these areas not meeting Land Health Standards, with focus on those containing riparian areas, including wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., fire) and legal obligations.</p> <p><b>Buffalo RMP:</b> No similar action.</p> <p><b>Cody RMP, Worland RMP:</b> The BLM would prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing</p>	<p>appropriate actions to address non-achievement and non-conformance.</p> <p>The BLM would prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in PHMA. In setting workload priorities, precedence would be given to existing permits/leases in these areas not meeting land health standards, with an emphasis on those containing riparian areas, including wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., fire) and legal obligations.</p> <p><b>Buffalo, Cody, Worland, Lander RMPs:</b> No similar action.</p>	<p>The BLM would prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in PHMA. In setting workload priorities, precedence would be given to existing permits/leases in these areas not meeting land health standards, with an emphasis on those containing riparian areas, including wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., fire) and legal obligations.</p> <p><b>Buffalo, Cody, Worland, Lander RMPs:</b> No similar action.</p>

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Permit Renewals (continued)	(see above)	<p>of grazing permits/leases in PHMA. In setting workload priorities, precedence would be given to existing permits/leases in areas not meeting land health standards, with focus on allotments containing riparian areas or wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., wildfire) and legal obligations.</p> <p><b>Lander RMP:</b> No similar action.</p>	(see above)	(see above)
Range improvement projects	<b>ARMPA:</b> MD LG 8	<p><b>From the ARMPA:</b> In GHMA and PHMA, existing range improvements (e.g., fences, livestock/wildlife watering facilities) would continue to be evaluated and modified when necessary.</p> <p>The potential risk to Greater Sage-Grouse and its habitats from existing structural range improvements would be evaluated. The potential for modification of those structural range improvements identified as posing a risk would be addressed. Supplements and supplemental feeding would continue to be authorized where appropriate.</p> <p><b>Buffalo RMP, Cody RMP, Worland RMP, and Lander RMP:</b> No similar action.</p>	<p><b>ARMPA:</b> In PHMA, existing range improvements (e.g., fences and livestock/wildlife watering facilities) would continue to be evaluated and modified when necessary. Supplements and supplemental feeding would continue to be authorized where appropriate.</p> <p><b>Buffalo RMP, Cody RMP, Worland RMP, and Lander RMP:</b> No similar action.</p>	<p><b>ARMPA:</b> In PHMA, existing range improvements (e.g., fences and livestock/wildlife watering facilities) would continue to be evaluated and modified when necessary. Supplements and supplemental feeding would continue to be authorized where appropriate.</p> <p><b>Buffalo RMP, Cody RMP, Worland RMP, and Lander RMP:</b> No similar action.</p>

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Riparian area management	<b>ARMPA:</b> MD LG 10	<b>From the ARMPA:</b> Grazing between riparian habitats and upland habitats would be balanced to promote the production and availability of beneficial forbs to Greater Sage-Grouse for use during nesting and brood-rearing. Grazing in meadows, mesic habitats, and riparian pastures also would be balanced to promote the production and availability of beneficial grasses and forbs for use during late brood-rearing within PHMA, while maintaining upland conditions and functions.  <b>Buffalo RMP, Cody RMP, Worland RMP, and Lander RMP:</b> No similar action.	<b>ARMPA:</b> In PHMA, for riparian and/or wet meadow communities utilized by Greater Sage-Grouse, livestock grazing management would be balanced to promote the production and availability of beneficial grasses and forbs for use during late brood-rearing, while maintaining upland conditions and functions.  <b>Buffalo RMP, Cody RMP, Worland RMP, and Lander RMP:</b> No similar action.	<b>ARMPA:</b> In PHMA, for riparian and/or wet meadow communities utilized by Greater Sage-Grouse, livestock grazing would be managed to promote the production and availability of beneficial grasses and forbs for use during brood-rearing, while maintaining upland conditions and functions.  <b>Buffalo RMP, Cody RMP, Worland RMP, and Lander RMP:</b> No similar action.
<b>Noise</b>				
Noise requirements in PHMA	<b>ARMPA:</b> MD SSS 12  <b>Buffalo:</b> Record # SS WL-4025  <b>Cody:</b> Record #4111  <b>Worland:</b> Record #4110  <b>Lander:</b> Record #4117	<b>ARMPA and Worland RMP:</b> New project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of the lek from 6:00 p.m. to 8:00 a.m. during the breeding season (March 1–May 15). Specific noise protocols for measurement and implementation would be developed as additional research and information emerges.  <b>Lander RMP:</b> Limit noise sources to 10 decibels above ambient noise measured at the perimeter of occupied	<b>Within PHMA (Core) across all RMPs:</b> New project noise levels, either individual or cumulative, should not exceed 10 dB(A) (as measured by the L50) above baseline noise at the perimeter of a lek from 6:00 p.m. to 8:00 a.m. during the breeding season (March 1–May 15). Specific noise protocols for measurement and stipulations for implementation would be developed as additional research and information emerges.	<b>Within PHMA (Core) across all RMPs:</b> New project noise levels, either individual or cumulative, should not exceed 10 dB(A) (as measured by the L50) above baseline noise at the perimeter of a lek from 6:00 p.m. to 8:00 a.m. during the breeding season (March 1–May 15). In coordination with the State of Wyoming, specific noise protocols for measurement and stipulations for implementation would be developed as additional research and information emerges.

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Noise requirements in PHMA (continued)	(see above)	<p>Greater Sage-Grouse leks from March 1 May 15, unless scientific findings indicate a different noise level is appropriate. In addition, limit noise sources in other important Greater Sage-Grouse habitats if research and/or policy indicate the need.</p> <p><b>Cody RMP:</b> New project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of the lek from 6:00 pm to 6:00 am during the breeding season (March 1 to May 15). Specific noise protocols for measurement and implementation would be developed as additional research and information emerges.</p> <p><b>From Buffalo RMP:</b> Inside Greater Sage-Grouse (priority habitat) core population areas and connectivity corridors...New project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of the lek from 6:00 pm to 8:00 am during the breeding season (March 1 May 15). Specific noise protocols for measurement and implementation would be developed as additional research and information emerges.</p>	(see above)	These measures would be considered at the site-specific project level where and when appropriate.



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<b>Modifying Adaptive Management Strategies</b>				
Adaptive management triggers	<b>ARMPA:</b> MD SSS 13  <b>Buffalo:</b> Record #SS WL-4010  <b>Cody:</b> Record #4116  <b>Worland:</b> Record #4115	<b>Generally, across the ARMPA, Buffalo, Cody, and Worland RMPs:</b> The Greater Sage-Grouse adaptive management plan provides a means of addressing and responding to unintended negative impacts on Greater Sage-Grouse and its habitat would be addressed before consequences become severe or irreversible...With respect to Greater Sage-Grouse, all regulatory entities in Wyoming, including the BLM, use soft and hard triggers.  <b>Lander RMP:</b> No similar action.	<b>Across the ARMPA, Buffalo, Cody, and Worland RMPs:</b> The Adaptive Management Working Group (AMWG) would define a process to review and reverse adaptive management actions once the identified causal factor is resolved (e.g., returning to previous management once objectives of interim management strategy have been met).  <b>Lander RMP:</b> No similar action.	<b>Across the ARMPA, Buffalo, Cody, and Worland RMPs:</b> The AMWG would define a process to review and reverse adaptive management actions once the identified causal factor is resolved (e.g., returning to previous management once objectives of interim management strategy have been met).  <b>Lander RMP:</b> No similar action.
<b>Modifying Compensatory Mitigation Strategies</b>				
	<b>ARMPA:</b> MD SSS 4 MD REC 2  <b>Buffalo RMP:</b> Page 339	<b>From the ARMPA, Buffalo RMP, Cody RMP, and Worland RMP:</b> In undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss and degradation in PHMA, the BLM would require and ensure mitigation that provides a net conservation gain to the species including any accounting for any uncertainty associated with the effectiveness of such mitigation. This would be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions...The BLM would implement actions to achieve the goal of net	<b>Within PHMA across all RMPs:</b> Adopt the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework to the extent consistent with federal law, regulations, and policy. The BLM would follow the NEPA process in determining appropriate avoidance, minimization, and other mitigation measures in accordance with the Council on Environmental Quality (CEQ) mitigation hierarchy as appropriate at the site-specific project level and would defer to	<b>Across all RMPs:</b> Adopt the State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework to the extent consistent with federal law, regulations, and policy.  In all Greater Sage-Grouse habitat, when authorizing third-party actions in designated Greater Sage-Grouse habitat, the BLM will seek to achieve the planning-level Greater Sage-Grouse management goals and objectives through implementation of mitigation and management actions, consistent with valid existing rights

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	(see above)	<p>conservation gain consistent with the Wyoming Strategy (EO 2015-4) that includes “compensatory mitigation as a strategy that should be used when avoidance and minimization are inadequate to protect Core Population Area Greater Sage-Grouse.”</p> <p><b>Lander RMP:</b> No similar action.</p>	<p>the State of Wyoming regarding the applicability, and, if deemed applicable, the determination of compensatory mitigation.</p> <p>Remove the phrase “net conservation gain” from all management actions across all RMPs.</p>	<p>and applicable law. Under this Proposed Plan Amendment, management would be consistent with the Greater Sage-Grouse goals and objectives, and in conformance with BLM Manual 6840, Special Status Species Management. In accordance with BLM Manual 6840, the BLM will undertake planning decisions, actions and authorizations “to minimize or eliminate threats affecting the status of [Greater Sage-Grouse] or to improve the condition of [Greater Sage-Grouse] habitat” across the planning area.</p> <p>Accordingly, before authorizing third-party actions that result in habitat loss and degradation, the BLM will complete the following steps, in alignment with the Governor of Wyoming’s Executive Order 2015-4 (July 29, 2015):</p> <ol style="list-style-type: none"> <li>1. Work jointly with the WGFD to evaluate projects and recommend mitigation in the form of avoidance and minimization.</li> <li>2. The WGFD will determine if the State requires or recommends any additional mitigation including</li> </ol>

<b>Topic</b>	<b>2015 ARMPA Decision Number</b>	<b>No-Action Alternative</b> <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	<b>Management Alignment Alternative</b> <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	<b>Proposed Plan</b> <i>Note: References to figures, tables, or appendices are those in the 2015 ARMPA.</i>
	(see above)	(see above)	(see above)	<p>compensatory mitigation under State regulations, policies, or programs related to the conservation of Greater Sage-Grouse.</p> <p>3. Incorporate state required or recommended mitigation into the BLM's NEPA decision-making process, if the WGFD determines that compensatory mitigation is required to address impacts to Greater Sage-Grouse habitat as a part of State policy or authorization, or if a proponent voluntarily offers mitigation.</p> <p>4. Analyze whether the compensatory mitigation:</p> <ul style="list-style-type: none"> <li>• achieves measurable outcomes for Greater Sage-Grouse habitat function on a landscape scale as determined by WGFD that are at least equal to the lost or degraded values in accordance with the Governor of Wyoming's Executive Order 2015-4.</li> <li>• provides benefits that are in place for at least the duration of the impacts</li> <li>• accounts for a level of risk that the mitigation action may fail</li> </ul>

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	(see above)	(see above)	(see above)	<p>or not persist for the full duration of the impact</p> <p>5. Ensure mitigation outcomes are consistent with the State of Wyoming's mitigation strategy and principles outlined in Appendix C, The Greater Sage-Grouse Habitat Management Strategy.</p> <p>The BLM has determined that compensatory mitigation must be voluntary unless required by other applicable law and in recognition that State authorities may also require compensatory mitigation (IM 2018-093, Compensatory Mitigation, July 24, 2018). Therefore, consistent with valid existing rights and applicable law, when authorizing third-party actions that result in habitat loss and degradation, the BLM would consider voluntary compensatory mitigation actions only as a component of compliance with a State mitigation plan, program, or authority, or when offered voluntarily by a project proponent.</p> <p>Project-specific analysis would be necessary to determine how a compensatory mitigation proposal addresses impacts from a proposed</p>

<b>Topic</b>	<b>2015 ARMPA Decision Number</b>	<b>No-Action Alternative</b> <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	<b>Management Alignment Alternative</b> <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	<b>Proposed Plan</b> <i>Note: References to figures, tables, or appendices are those in the 2015 ARMPA.</i>
	(see above)	(see above)	(see above)	<p>action. The BLM would cooperate with the State to determine appropriate project design and alignment with State policies and requirements, including those regarding compensatory mitigation. When the BLM is considering compensatory mitigation as a component of the project proponent's submission or based on a requirement from the State, the BLM's NEPA analysis would evaluate the need to avoid or minimize impacts of the proposed project and achieve the goals and objectives of this RMPA. The BLM would defer to the appropriate State authority to quantify habitat offsets, durability, and other aspects used to determine the recommended compensatory mitigation action.</p> <p>Remove the phrase "net conservation gain" from all management actions across all RMPs and appendices, including in reference to MD REC 2.</p>

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<b>Fluid Mineral Leasing</b>				
Prioritization of leasing	<b>ARMPA:</b> MO 14	<b>From the ARMPA:</b> Priority would be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMA and GHMA. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA and GHMA, and subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority would be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse. The implementation of these priorities would be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 USC 226(p) and 43 CFR 3162.3-1(h). Where a proposed fluid mineral development project on an existing lease could adversely affect Greater Sage-Grouse populations or habitat, the BLM would work with the lessees, operators, or other project proponents to avoid, reduce and mitigate adverse impacts on the extent compatible with lessees' rights to drill and produce fluid mineral resources. The BLM would work with the lessee, operator, or project proponent in developing an application	<b>For the ARMPA:</b> To the extent consistent with federal regulation, law, and policy, priority would be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMA. Leasing is allowed in PHMA. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA, and subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority would be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse. The implementation of these priorities would be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 USC 226(p) and 43 CFR 3162.3-1(h). Where a proposed fluid mineral development project on an existing lease could adversely affect Greater Sage-Grouse populations or habitat, the BLM would work with the lessees, operators, or other project proponents to avoid,	<b>For the ARMPA:</b> Leasing is allowed in PHMA. To the extent consistent with federal regulation, law, and policy, priority would be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMA. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA, and subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority would be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse. The implementation of these priorities would be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 USC 226(p) and 43 CFR 3162.3-1(h). Where a proposed fluid mineral development project on an existing lease could adversely affect Greater Sage-Grouse populations or habitat, the BLM would work with the lessees, operators, or other project proponents to avoid, reduce and

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Prioritization of leasing (continued)	(see above)	<p>for permit to drill (APD) for the lease to avoid and minimize impacts on Greater Sage-Grouse or its habitat and would ensure that the best information about the Greater Sage-Grouse and its habitat informs and helps to guide development of such federal leases.</p> <p><b>Buffalo, Cody, Worland, Lander RMPs:</b> No similar action.</p>	<p>reduce and mitigate adverse impacts on the extent compatible with lessees' rights to drill and produce fluid mineral resources. To incentivize development to locate outside of PHMA, the BLM would work with the lessee, operator, or project proponent in developing an APD for the lease to avoid and minimize impacts on Greater Sage-Grouse habitat and would ensure that the best information about the Greater Sage-Grouse habitat informs and helps to guide development of such federal leases.</p> <p><b>Buffalo, Cody, Worland, Lander RMPs:</b> No similar action.</p>	<p>otherwise mitigate adverse impacts on the extent compatible with lessees' rights to drill and produce fluid mineral resources. To incentivize development to locate outside of PHMA, the BLM would work with the lessee, operator, or project proponent in developing an application for APD for the lease to avoid and minimize impacts on Greater Sage-Grouse or its habitat and would ensure that the best information about the Greater Sage-Grouse and its habitat informs and helps to guide development of such federal leases.</p> <p><b>Buffalo, Cody, Worland, Lander RMPs:</b> No similar action.</p>

**Table 2-4a.** Alternatives analyzed in detail during the 2015 planning effort and incorporated into the 2019 process. **Table 2-4a** is in two parts. Part I are the LUP 2015 ARMPA Goals and Objectives by Alternative analyzed in 2015 and Part II are the Management Actions analyzed in 2015.

**Table 2-4a**  
**Part I 2015 ARMPA Goals and Objectives by Alternative**

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>Goals</b>				
<b>A-GOAL-1:</b> Conserve, recover, and enhance Greater Sage-Grouse habitat on a landscape scale consistent with local, state, and federal management plans and policies, as practical, while providing for multiple use of BLM-administered lands and National Forest System lands.	<b>B-GOAL-1:</b> Maintain and/or increase Greater Sage-Grouse abundance and distribution by conserving, enhancing, or restoring the sagebrush ecosystem upon which populations depend in cooperation with other conservation partners.	<b>C-GOAL-1:</b> Maintain and increase current Greater Sage-Grouse abundance and distribution by conserving, enhancing, or restoring the sagebrush ecosystem.	<b>D-GOAL-1:</b> Conserve, recover, and enhance Greater Sage-Grouse habitat on a landscape scale consistent with local, state, and federal management plans and policies, as practical, while providing for multiple use of BLM-administered lands and National Forest System lands.	<b>E-GOAL-1:</b> Conserve, recover, and enhance Greater Sage-Grouse habitat on a landscape scale consistent with local, state, and federal management plans and policies, as practical, while providing for multiple use of BLM-administered lands and National Forest System lands.
<b>A-GOAL-2:</b> Maintain and/or increase Greater Sage-Grouse abundance and distribution by conserving, enhancing or restoring the sagebrush ecosystem upon which populations depend in cooperation with other state, local, industry, permittee and conservation partners.	<b>B-GOAL-2:</b> Maintain and/or increase Greater Sage-Grouse abundance and distribution by conserving, enhancing, or restoring the sagebrush ecosystem upon which populations depend in cooperation with other conservation partners.	<b>C-GOAL-2:</b> Maintain and increase current Greater Sage-Grouse abundance and distribution by conserving, enhancing, or restoring the sagebrush ecosystem.	<b>D-GOAL-2:</b> Maintain and/or increase Greater Sage-Grouse abundance and distribution by conserving, enhancing or restoring the sagebrush ecosystem upon which populations depend in cooperation with other state, local, industry, permittee and conservation partners.	



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>Objectives</b>				
<b>A-OBJ-1:</b> No common objective across LUPs within the state.	<b>B, C, D-OBJ-1:</b> In cooperation with State of Wyoming and its agencies, local governments, private landowners, local Greater Sage-Grouse working groups, partners and stakeholders, develop site-specific conservation strategies to maintain or enhance Greater Sage-Grouse habitats and habitat connectivity.			
<b>A-OBJ-2:</b> No common objective across LUPs within the state.	<b>B, C, D-OBJ-2:</b> Enhance quality/suitable habitat to support the expansion of Greater Sage-Grouse populations on federally- administered lands within the planning areas.			
<b>A-OBJ-3:</b> No common objective across LUPs within the state.	<b>B, C, D-OBJ-3:</b> Manage Greater Sage-Grouse seasonal habitats and maintain habitat connectivity to support population objectives set by the State of Wyoming in cooperation with the agencies.			
<b>A-OBJ-4:</b> No common objective across LUPs within the state.	<b>B, C, D-OBJ-4:</b> Identify and prioritize opportunities for habitat enhancement and conservation within Greater Sage-Grouse core habitat areas based on threats and the ability to manage Greater Sage-Grouse habitat.			
<b>A-OBJ-5:</b> No common objective across LUPs within the state.	<b>B, C, D-OBJ-5:</b> Restore native (or desirable) plants and create landscape patterns which most benefit Greater Sage-Grouse.			
<b>A-OBJ-6:</b> No common objective across LUPs within the state.	<b>B, C, D-OBJ-6:</b> Develop specific objectives to conserve, enhance or restore Greater Sage-Grouse priority habitat based on Ecological Site Descriptions (ESD) (Forest Service may use other methods) and BLM land health evaluations (including within wetland and riparian areas) taking into account site history (historic treatments or habitat manipulations) that have changed the soil chemistry possibly altering the ESD. If an effective grazing system that meets Greater Sage-Grouse habitat requirements is not already in place, analyze at least one alternative that conserves, restores, or enhances Greater Sage-Grouse habitat in the NEPA document prepared for grazing management (Doherty et al. 2011b, Williams et al. 2011).			
<b>A-OBJ-7:</b> No common objective across LUPs within the state.	<b>B, C, D-OBJ-7:</b> Establish measurable objectives related to Greater Sage-Grouse habitat from baseline monitoring data, ESDs (Forest Service may use other methods), or land health assessments/evaluations.			
<b>A-OBJ-8:</b> No common objective across LUPs within the state.	<b>B, C, D-OBJ-8:</b> Manage for vegetation composition and structure consistent with ecological site potential (Forest Service may use other methods) to achieve Greater Sage-Grouse seasonal habitat objectives.			
<b>A-OBJ-9:</b> No common objective across LUPs within the state.	<b>B, C, D-OBJ-9:</b> Incorporate available site information collected using the Greater Sage-Grouse Habitat Assessment Framework or similar methods to evaluate existing resource conditions and to develop any necessary resource solutions in cooperation with State of Wyoming and its agencies, the local governments, private landowners, project proponents, partners, and stakeholders.			

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-OBJ-10:</b> No common objective across LUPs within the state.	<b>B, C, D-OBJ-10:</b> Incorporate management practices that will provide for maintenance and/or enhancement of Greater Sage-Grouse habitats, including specific attention to maintenance of desired understories of sagebrush plant communities. When developing objectives for residual cover and species diversity, identify the ecological site types within the planning area and refer to the appropriate ESDs (Forest Service may use other methods).			
<b>A-OBJ-11:</b> No common objective across LUPs within the state.	<b>B, C, D-OBJ-11:</b> In determining appropriate management actions that will be considered, refer to the document, "Grazing Influence, Management, and Objective Development in Wyoming's Greater Sage-Grouse Habitat" (Cagney et al. 2010) for guidance.			
<b>A-OBJ-12:</b> No common objective across LUPs within the state.	<b>B-OBJ-12:</b> Protect priority Greater Sage-Grouse habitats from anthropogenic disturbances that will reduce distribution or abundance of Greater Sage-Grouse.	<b>C-OBJ-12:</b>	<b>D-OBJ-12:</b> Protect core/priority, general, and connectivity habitats from anthropogenic disturbance that will reduce distribution or abundance of Greater Sage-Grouse.	<b>E-OBJ-12:</b> Protect PHMAs and GHMAs from anthropogenic disturbance that will reduce distribution or abundance of Greater Sage-Grouse.
<b>A-OBJ-13:</b> No common objective across LUPs within the state.	<b>B-OBJ-13:</b> Sub-Objective: Designate priority Greater Sage-Grouse habitats for each WAFWA management zone (Stiver et al. 2006) across the current geographic range of Greater Sage-Grouse that are large enough to stabilize populations in the short term and enhance populations over the long term.	<b>C-OBJ-13:</b>	<b>D-OBJ-13:</b> Identify core/priority, general, and connectivity habitats for each WAFWA MZ across the current geographic range of Greater Sage-Grouse that are large enough to stabilize populations in the short term and enhance populations over the long term. Greater Sage-Grouse habitat in this planning area overlaps 2 WAFWA MZs: (1) MZ I-Great Plains and (2) MZ II-Wyoming Basin.	<b>E-OBJ-13:</b> Identify PHMAs and GHMAs for each WAFWA MZ across the current geographic range of Greater Sage-Grouse that are large enough to stabilize populations in the short term and enhance populations over the long term. Greater Sage-Grouse habitat in this planning area overlaps 2 WAFWA MZs: (1) MZ I-Great Plains and (2) MZ II-Wyoming Basin.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-OBJ-14:</b> No common objective across LUPs within the state.	<b>B-OBJ-14:</b> Sub-objective: To maintain or increase current populations, manage or restore priority areas so that at least 70% of the land cover provides adequate sagebrush habitat to meet Greater Sage-Grouse needs.	<b>C-OBJ-14:</b>	<b>D-OBJ-14:</b>	<b>E-OBJ-14:</b>
<b>A-OBJ-15:</b> No common objective across LUPs within the state.	<b>B-OBJ-15:</b> Sub-objective: Develop quantifiable habitat and population objectives with WAFWA and other conservation partners at the management zone and/or other appropriate scales. Develop a monitoring and adaptive management strategy to track whether these objectives are being met and allow for revisions to management approaches if they are not.	<b>C-OBJ-15:</b>	<b>D-OBJ-15:</b>	<b>E-OBJ-15:</b> The habitat objectives will be part of the Greater Sage-Grouse habitat assessment to be used during land health evaluations (see Monitoring Framework, Appendix D). These habitat objectives are not obtainable on every acre within the designated Greater Sage-Grouse habitat management areas. Therefore, the determination on whether the objectives have been met will be based on the specific site's ecological ability to meet the desired condition identified in the table.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-OBJ-16:</b> No common objective across LUPs within the state.	<b>B-OBJ-16:</b> Sub-objective: An additional objective will be designated for the priority area to prioritize and reclaim/restore anthropogenic disturbances so that 3% or less of the total priority habitat area is disturbed within 10 years.	<b>C-OBJ-16:</b>	<b>D-OBJ-16:</b>	<b>E-OBJ-16:</b>
<b>A-OBJ-17:</b> No common objective across LUPs within the state.	<b>B-OBJ-17:</b> Sub-objective: Quantify and delineate general habitat for capability to provide connectivity among priority areas (Knick and Hanser 2011).	<b>C-OBJ-17:</b>	<b>D-OBJ-17:</b>	<b>E-OBJ-17:</b>
<b>A-OBJ-18:</b> No common objective across LUPs within the state.	<b>B-OBJ-18:</b> Sub-objective: Conserve, enhance, or restore Greater Sage-Grouse habitat and connectivity (Knick and Hanser 2011) to promote movement and genetic diversity, with emphasis on those habitats occupied by Greater Sage-Grouse.	<b>C-OBJ-18:</b>	<b>D-OBJ-18:</b>	<b>E-OBJ-18:</b>
<b>A-OBJ-19:</b> No common objective across LUPs within the state.	<b>B-OBJ-19:</b> Sub-objective: Enhance general Greater Sage-Grouse habitat such that population declines in one area are replaced elsewhere within the habitat.	<b>C-OBJ-19:</b>	<b>D-OBJ-19:</b>	<b>E-OBJ-19:</b>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-OBJ-20:</b> No common objective across LUPs within the state.	<b>B-OBJ-20:</b> Sub-objective: Assess general Greater Sage-Grouse habitats to determine potential to replace lost priority habitat caused by perturbations and/or disturbances and provide connectivity (Knick and Hanser 2011) between priority areas. These habitats should be given some priority over other general Greater Sage-Grouse habitats that provide marginal or substandard Greater Sage-Grouse habitat.	<b>C-OBJ-20:</b>	<b>D-OBJ-20:</b>	<b>E-OBJ-20:</b>
<b>A-OBJ-21:</b> No common objective across LUPs within the state.	<b>B-OBJ-21:</b> Sub-objective: Restore historical habitat functionality to support Greater Sage-Grouse populations guided by objectives to maintain or enhance connectivity. Total area and locations will be determined at the Land Use Plan level.	<b>C-OBJ-21:</b> Restore and maintain sagebrush steppe to its ecological potential in occupied Greater Sage-Grouse habitat.	<b>D-OBJ-21:</b>	<b>E-OBJ-21:</b>
<b>A-OBJ-22:</b> No common objective across LUPs within the state.	<b>B-OBJ-22:</b> Manage wild horse population levels within established AMLs.	<b>C-OBJ-22:</b> Manage wild horse and burro population levels within established Appropriate Management Levels (AML).		<b>E-OBJ-22:</b>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-OBJ-23:</b> No common objective across LUPs within the state.	<b>B-OBJ-23:</b> Prioritize wild horse and burro gathers in Greater Sage-Grouse priority habitat, unless removals are necessary in other areas to prevent catastrophic environmental issues, including herd health impacts.	<b>C-OBJ-23:</b> Prioritize wild horse gathers in Greater Sage-Grouse priority habitat, unless removals are necessary in other areas to prevent catastrophic environmental issues, including herd health impacts.	<b>D-OBJ-23:</b>	<b>E-OBJ-23:</b>
<b>A-OBJ-24:</b> No common objective across LUPs within the state.	<b>B-OBJ-24:</b> Write specific land use plan objectives for vegetation that connects habitats and creates patterns that benefit Greater Sage-Grouse. Write specific vegetation management objectives relative to invasive annual grass spread and woody plant removal where these are of concern in Greater Sage-Grouse habitat. Consider management objectives in buffers around intact priority habitats that detect and rapidly respond to invasions in the buffer zones.	<b>C-OBJ-24:</b>	<b>D-OBJ-24:</b>	<b>E-OBJ-24:</b>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-OBJ-25:</b> No common objective across LUPs within the state.	<b>B-OBJ-25:</b>	<b>C-OBJ-25:</b> Develop and implement methods for prioritizing and restoring sagebrush steppe invaded by non- native plants.	<b>D-OBJ-25:</b>	<b>E-OBJ-25:</b>
<b>A-OBJ-26:</b> No common objective across LUPs within the state.	<b>B-OBJ-26:</b>	<b>C-OBJ-26:</b> Establish a system of sagebrush reserves to anchor recovery efforts by protecting the highest quality habitats.	<b>D-OBJ-26:</b>	<b>E-OBJ-26:</b> In all SFAs and PHMAs, the desired condition is to maintain a minimum of 70 percent of lands capable of producing sagebrush with 10 to 30% sagebrush canopy cover. The attributes necessary to sustain these habitats are described in Interpreting Indicators of Rangeland Health (BLM Tech Ref 1734-6).
<b>A-OBJ-27:</b> No common objective across LUPs within the state.	<b>B-OBJ-27:</b>	<b>C-OBJ-27:</b> Encourage partners to monitor effects of retiring grazing permits in Greater Sage-Grouse habitat.	<b>D-OBJ-27:</b>	<b>E-OBJ-27:</b>
<b>A-OBJ-28:</b> No common objective across LUPs within the state.	<b>B-OBJ-28:</b>	<b>C-OBJ-28:</b> Any oil, gas, or geothermal activity will be conducted to maximize avoidance of impacts, based on evolving scientific knowledge of impacts.	<b>D-OBJ-28:</b>	<b>E-OBJ-28:</b> Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMA and GHMA. When analyzing leasing and authorizing development of fluid mineral resources,

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>including geothermal, in PHMA and GHMA, and subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority will be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse. The implementation of these priorities will be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 U.S.C. 226(p) and 43 C.F.R. 3162.3-1(h).</p> <p>Where a proposed fluid mineral development project on an existing lease could adversely affect Greater Sage-Grouse populations or habitat, the BLM will work with the lessees, operators, or other project proponents to avoid, reduce and mitigate adverse impacts to the extent compatible with lessees' rights to drill and</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	produce fluid mineral resources. The BLM will work with the lessee, operator, or project proponent in developing an application for permit to drill (APD) for the lease to avoid and minimize impacts to Greater Sage-Grouse or its habitat and will ensure that the best information about the Greater Sage-Grouse and its habitat informs and helps to guide development of such federal leases.

**Table 2-4a**  
**Part II 2015 ARMPA Management Actions by Alternative**

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>General Management Direction for Action Alternatives</b>				
<b>A-1:</b> No common action across LUPs within the state.	<b>B, C, D -1:</b> Continue to support the development of statewide Greater Sage-Grouse seasonal habitat models for the State of Wyoming.			<b>E-1:</b> Continue to support the development of statewide Greater Sage-Grouse seasonal habitat models for the State of Wyoming.
<b>A-2:</b> No common action across LUPs within the state.	<b>B, C, D - 2:</b> Field Offices and Ranger Districts will work with project proponents, partners, and stakeholders to avoid or minimize impacts and/or implement direct mitigation (e.g., relocating disturbance, timing restrictions, etc.), and utilize BMPs and off-site compensatory mitigation where appropriate.			<b>E-2:</b> Field Offices and Ranger Districts will work with project proponents, partners, and stakeholders to avoid or minimize impacts and/or implement direct mitigation (e.g., relocating disturbance, timing restrictions, etc.), and utilize best management practices (BMP) and offsite compensatory mitigation where appropriate.
<b>A-3:</b> No common action across LUPs within the state.	<b>B, C, D - 3:</b> Utilize the Wyoming Greater Sage-Grouse Implementation Team (SGIT) and Local Working Group plans or other state or cooperatively developed plans, analyses, and other sources of information to guide development of conservation objectives for local management of Greater Sage-Grouse habitats. The BLM and Forest Service will collaborate with the State of Wyoming and appropriate federal agencies to develop appropriate conservation objectives. The BLM and Forest Service will collaborate with appropriate federal and state agencies as contemplated under the Governor's Executive Order 2013-3 in defining a framework for evaluating situations to determine if a significant causal relationship exists between improper grazing (by wildlife, wild horses, or livestock) and			<b>E-3:</b> Utilize the Wyoming Greater Sage-Grouse Implementation Team (SGIT) and Local Working Group plans or other state plans, analyses, and other sources of information to guide development of conservation objectives for local management of

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	Greater Sage-Grouse conservation objectives where conservation objectives are not being achieved on federal land.			Greater Sage-Grouse habitats. The BLM will collaborate with appropriate federal agencies, and the State of Wyoming as contemplated under Governor Executive Order 2013-3, to: (1) develop appropriate conservation objectives; (2) define a framework for evaluating situations where Greater Sage-Grouse conservation objectives are not being achieved on federal land, to determine if a causal relationship exists between improper grazing (by wildlife or wild horses or livestock) and Greater Sage-Grouse conservation objectives; and (3) identify appropriate site-based action to achieve Greater Sage-Grouse conservation objectives within the framework.
<b>A-4:</b> No common action across LUPs within the state.	<b>B, C, D - 4:</b> Include the collection of baseline data and outline post-project monitoring components into project planning, as appropriate and necessary.			<b>E-4:</b> Include the collection of baseline data and outline post-project monitoring components into project planning, as appropriate and necessary.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-5:</b> No common action across LUPs within the state.	<b>B, C, D - 5:</b> The BLM/Forest Service will coordinate new recommendations, mitigation, and conservation measures applied for Greater Sage-Grouse with the WGFD and other appropriate agencies, local government cooperators, and the Wyoming SGIT. These measures will be analyzed in site-specific NEPA documents, as necessary.			<b>E-5:</b> The BLM will coordinate new recommendations, mitigation, and conservation measures applied for Greater Sage-Grouse with the WGFD and other appropriate agencies, local government cooperators, and the Wyoming SGIT. These measures will be analyzed in site-specific NEPA documents, as necessary.
<b>A-6:</b> No common action across LUPs within the state.	<b>B, C, D - 6:</b> Apply appropriate seasonal restrictions for implementing vegetation management treatments according to the type of seasonal habitats present in a priority area. Vegetation treatments must include monitoring to determine achievement of objectives and their long-term success.			<b>E-6:</b> Apply appropriate seasonal restrictions for implementing vegetation management treatments according to the type of seasonal habitats present within Greater Sage-Grouse habitat. Vegetation treatments must include monitoring to determine achievement of objectives and their long-term success.
<b>A-7:</b> No common action across LUPs within the state.	<b>B, C, D - 7:</b> Ensure site-specific, measurable, conservation and mitigation objectives are included in project planning within Greater Sage-Grouse habitats.			<b>E-7:</b> Ensure site-specific, measurable, conservation and mitigation objectives are included in project planning within Greater Sage-Grouse habitats.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-8:</b> No common action across LUPs within the state.	<b>B, C, D - 8:</b> Each BLM field office and Forest Service planning unit will develop landscape-scale restoration, conservation, and maintenance strategies, including special management of seasonal habitats and identified connectivity zones outside of Greater Sage-Grouse core/priority habitat areas, working with voluntary partners and cooperating agencies. These strategies must be coordinated and reconciled with adjoining management entities that share habitats or populations.			<b>E-8:</b> Each BLM field office will develop landscape-scale restoration, conservation, and maintenance strategies, including special management of seasonal habitats and identified connectivity zones outside of PHMAs, working with voluntary partners and cooperating agencies. These strategies must be coordinated and reconciled, where possible, with adjoining management entities that share habitats or populations.
<b>A-9:</b> No common action across LUPs within the state.	<b>B, C, D - 9:</b> Design all range projects in a manner that minimizes potential for invasive species establishment. Monitor and treat invasive species associated with existing range improvements.			<b>E-9:</b> Design all range projects in a manner that minimizes potential for invasive species establishment. Monitor and treat invasive species associated with existing range improvements.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-10:</b> No common action across LUPs within the state.	<b>B, C, D - 10:</b> Apply required design features (Appendix B of the 2015 Final EIS) as mandatory Stipulations/Conditions of Approval (COAs) within priority/core Greater Sage-Grouse habitat for fluid minerals, travel management, lands and realty, range management, wild horses and burro, solid leasable minerals (coal), locatable minerals, West Nile Virus, mineral materials, non-energy solid leasable minerals, vegetation management, fire and fuels management, and noise.			<b>E-10:</b> Apply all appropriate required design features (Appendix B of the 2015 Final EIS) as mandatory Stipulations/Conditions of Approval (COA) within PHMAs for fluid minerals, travel management, lands and realty, range management, wild horses, coal exploration, locatable mineral location and entry, West Nile Virus, mineral materials, non-energy solid leasable minerals, vegetation management, fire and fuels management, and noise.
<b>A-11:</b> No common action across LUPs within the state.	<b>B, C, D - 11:</b> Integrated vegetation management would be used to control, suppress, and eradicate, where possible, noxious and invasive species per BLM Handbook H-1740-2 and Forest Service Manual 2080.			<b>E-11:</b> Integrated vegetation management would be used to control, suppress, and eradicate, where possible, noxious and invasive species per BLM Handbook H-1740-2. Manage weed treatments to maintain and improve Greater Sage-Grouse habitat. Apply Required Design Features and BMPs as Conditions of Approval, such as those in Appendix B [of the 2015 Final EIS].

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><b>A-12:</b> No common action across LUPs within the state.</p>	<p><b>B, C, D - 12:</b> Existing notices and approved plans of operations under 43 CFR 3809: For projects that overlap priority/core habitat areas, operators may be requested to submit modifications to the accepted notice or approved plan of operations so that the operations minimally impact core area habitats. The AO may convey to the operator suggested conservation measures, based upon the notice or plan level operations and the geographic area of those operations (also called the project area, which is defined by the BLM in 43 CFR 3809.5 and the Forest Service in 36CFR 228.3). These suggested conservation measures include measures that support the overall goals and objectives of the priority/core population area strategy and may not be reasonable or applicable to the BLM/Forest Service's determination of whether the proposed operations will cause unnecessary or undue degradation under 43CFR 3809.5 or likely cause a significant disturbance of surface resources under 36 CFR 228.4. The request containing the suggested conservation measures must make clear that the operator's compliance is not mandatory.</p> <p>Notices or plans of operation, or modifications thereto, submitted following the issuance of this guidance: As part of the 15-day completeness review of notices (or modifications thereto) and 30-day completeness review of plans of operations (or modifications thereto), the proposed project area(s) where exploration, development, mining, access and reclamation would take place should be reviewed for overlap of Greater Sage-Grouse priority/core habitat areas in the corporate GIS database. If there is overlap, the BLM/Forest Service AO may notify the operator of ways that they may minimize impacts to core area habitats and request the operator to amend its notice or plan to include such measures. The request to amend the submitted notice or plan of operations must make clear that the operator's compliance is not mandatory and that including such measures is not a requirement for completeness of either the notice or a plan of operations, nor is it a condition of acceptance of the notice or approval of the plan of operations.</p>			<p><b>E-12:</b> Existing notices and approved plans of operations under 43 CFR 3809: For projects that overlap PHMAs, operators may be requested to submit modifications to the accepted notice or approved plan of operations so that the operations minimally impact PHMAs (core only). The Authorized Officer (AO) may convey to the operator suggested conservation measures, based upon the notice or plan level operations and the geographic area of those operations (also called the project area, which is defined in 43 CFR 3809.5). These suggested conservation measures include measures that support the overall goals and objectives of the priority/core population area strategy and may not be reasonable or applicable to the BLM's determination of whether the proposed operations will cause unnecessary or undue degradation under 43 CFR</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)			<p>3809.5. The request containing the suggested conservation measures must make clear that the operator's compliance is not mandatory.</p> <p>Notices or plans of operation, or modifications thereto, submitted following the issuance of this guidance: As part of the 15-day completeness review of notices (or modifications thereto) and 30-day completeness review of plans of operations (or modifications thereto), the proposed project area(s) where exploration, development, mining, access and reclamation would take place should be reviewed for overlap of Greater Sage-Grouse PHMAs in the corporate geographic information system (GIS) database. If there is overlap, the BLM AO may notify the operator of ways that they may minimize impacts to PHMAs (core only) and</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)			request the operator to amend its notice or plan to include such measures. The request to amend the submitted notice or plan of operations must make clear that the operator's compliance is not mandatory and that including such measures is not a requirement for completeness of either the notice or a plan of operations, nor is it a condition of acceptance of the notice or approval of the plan of operations.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-13:</b> No common action across LUPs within the state.	<b>B, C, D - 13:</b> As new occupied Greater Sage-Grouse habitat is found or occurs either through additional inventories or expansion into previously unoccupied habitat, the agencies will incorporate these areas into the general Greater Sage-Grouse habitat category and manage them as such, until the earliest review occurs by the SGIT. At that time, they will be considered for priority/core habitat status or continue to be managed as general habitat and will be added to the statewide Map at that time.			<b>E-13:</b> As new occupied Greater Sage-Grouse habitat is found or occurs either through additional inventories or expansion into previously unoccupied habitat, the BLM will incorporate, through appropriate processes and analyses, these areas into the GHMA category and manage them as such, until earliest review occurs by the SGIT. At that time, they will be considered for PHMA status or continue to be managed as GHMAs and will be added to the statewide map at that time.
<b>A-14:</b> No common action across LUPs within the state.	<b>B, C, D - 14:</b> Contribute to actions that help to ground-truth the statewide Greater Sage-Grouse seasonal habitat models for the State of Wyoming.			<b>E-14:</b> Contribute to actions that help to ground-truth the statewide Greater Sage-Grouse seasonal habitat models for the State of Wyoming.
<b>A-15:</b> No common action across LUPs within the state.	<b>B, C, D - 15:</b> Use the Greater Sage-Grouse Habitat Assessment Framework or best available assessment tool (approved by the AO/Responsible Official) when assessing or evaluating Greater Sage-Grouse habitats at multiple scales.			<b>E-15:</b> Use the Greater Sage-Grouse Habitat Assessment Framework or best available assessment tool (approved by the AO) when assessing or evaluating Greater Sage-Grouse habitats at multiple scales.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><b>A-16:</b> No common action across LUPs within the state.</p>	<p><b>B, C, D - 16:</b> The official Wyoming Greater Sage-Grouse lek database is maintained by the WGFD in accordance with Appendix 4B of the Umbrella Memorandum of Understanding (MOU) between the WGFD and BLM/Forest Service (WGFD and BLM 1990).</p> <p>The MOU states that agencies will meet at least annually to coordinate and review the accuracy of data and incorporate the most up to date information.</p>			<p><b>E-16:</b> The official Wyoming Greater Sage-Grouse lek database is maintained by the WGFD in accordance with Appendix 4B of the Umbrella Memorandum of Understanding (MOU) between the WGFD and BLM (WGFD and BLM 1990).</p> <p>The MOU states that agencies will meet at least annually to coordinate and review the accuracy of data and incorporate the most up-to-date information.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><b>A-17:</b> No common action across LUPs within the state.</p>	<p><b>B, C, D - 17:</b> Many Greater Sage-Grouse seasonal habitats within and outside of core habitat areas are encumbered by valid existing rights, such as mineral leases or existing rights-of-way. Fluid mineral leases often will include less stringent lease stipulations than the timing, distance, and density requirements identified for consideration in this plan. Agencies (BLM/Forest Service) will work with proponents holding valid existing leases that include less stringent lease stipulations than the timing, distance, and density restrictions described within this plan to ensure that measurable Greater Sage-Grouse conservation objectives (such as, but not limited to, consolidation of infrastructure to reduce habitat fragmentation and loss, and effective conservation of seasonal habitats and habitat connectivity to support management objectives set by the WGFD) are included in all project proposals.</p>			<p><b>E-17:</b> Many Greater Sage-Grouse seasonal habitats within and outside of PHMAs (core only) are encumbered by valid existing rights, such as mineral leases or existing rights-of-way. Fluid mineral leases often will include less stringent lease stipulations than the timing, distance, and density requirements identified for consideration in this plan. The BLM will work with proponents holding valid existing leases that include less stringent lease stipulations than the timing, distance, and density restrictions described within this plan to ensure that measurable Greater Sage-Grouse conservation objectives (such as, but not limited to, consolidation of infrastructure to reduce habitat fragmentation and loss, and effective conservation of seasonal habitats and habitat connectivity to support management objectives set by the WGFD) are included in all project proposals.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-18:</b> No common action across LUPs within the state.	<b>B, C, D - 18:</b> Limit motorized travel to existing roads, primitive roads, and trails at a minimum, until such time as travel management planning is complete and routes are either designated or closed within Greater Sage-Grouse priority/core habitats.			<b>E-18:</b> PHMAs will be designated as OHV Limited Areas. The OHV limitation will ultimately be to “Designated Routes” as determined through a subsequent implementation/activity level Travel Management Plan. In the interim, motorized use on existing routes may occur; however, no new routes may be created without specific authorization.
<b>A-19:</b> No common action across LUPs within the state.	<b>B, C, D - 19:</b> Complete activity-level travel plans within five years of the ROD for this planning effort. During activity level planning, where appropriate, designate routes in priority habitat with current administrative/agency purpose or need to administrative access only. Existing plans should be assessed for consistency with Greater Sage-Grouse conservation objectives.			<b>E-19:</b> Complete activity-level travel plans within five years of the record of decision (ROD) for this planning effort. During activity level planning, where appropriate, designate routes in PHMAs with current administrative/agency purpose or need to administrative access only. Existing plans should be assessed for consistency with Greater Sage-Grouse conservation objectives.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-20:</b> No common action across LUPs within the state.	<b>B, C, D - 20:</b> Construct roads needed for production activities to minimum design standards within Greater Sage-Grouse priority/core habitats, in compliance with the Density and Disturbance Calculation Tool (DDCT).			<b>E-20:</b> Construct roads needed for production activities to minimum design standards within PHMAs, in compliance with the Density and Disturbance Calculation Tool (DDCT) process.
<b>A-21:</b> No common action across LUPs within the state.	<b>B, C, D - 21:</b> Field Office and Ranger District staff will work with project proponents (including those within the BLM/Forest Service) and the WGFD to site their projects in locations that meet the purpose and need for their project, but have been determined to contain the least sensitive habitats whether inside or outside of Greater Sage-Grouse priority/core habitat areas.			<b>E-21:</b> Field Office staff will work with project proponents (including those within the BLM) and the WGFD to site their projects in locations that meet the purpose and need for their project, utilize the DDCT, and have been determined to contain the least sensitive habitats.
<b>A-22:</b> No common action across LUPs within the state.	<b>B, C, D - 22:</b> Evaluate opportunities to coordinate management plans and strategies on multiple allotments where coordination under a single management plan/strategy would result in enhancing Greater Sage-Grouse populations or its habitat, as determined in coordination with the state wildlife agency and with project proponents, partners, and stakeholders.			<b>E-22:</b> Evaluate opportunities to coordinate management plans and strategies on multiple allotments where coordination under a single management plan/strategy would result in enhancing Greater Sage-Grouse populations or its habitat, as determined in coordination with the state wildlife agency and with project proponents, partners, and stakeholders.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-23:</b> No common action across LUPs within the state.	<b>B, C, D - 23:</b> Management Action 23 has been moved to Management Action 137.			<b>E-23:</b> Management Action 23 has been moved to Management Action 137.
<b>A-24:</b> No common action across LUPs within the state.	<b>B, C, D - 24:</b> Management Action 24 has been moved to Management Action 137.			<b>E-24:</b> Management Action 24 has been moved to Management Action 137.
<b>A-25:</b> No common action across LUPs within the state.	<b>B, C, D - 25:</b> All existing LUP decisions will be retained unless vacated or modified by decisions in this plan amendment.			<b>E-25:</b> Existing RMP decisions will be retained unless vacated or modified by decisions in this ARMPA amendments. Where more restrictive land use allocations or decisions are made in existing RMPs, those more restrictive land use allocations or decisions will remain in effect and will not be amended by this ARMPA.
<b>A-26:</b> No common action across LUPs within the state.	<b>B, C, D - 26:</b> Fire and fuels management would contribute to the protection and enhancement of sagebrush habitat that support Greater Sage-Grouse populations (including large contiguous blocks of sagebrush).			<b>E-26:</b> Fire and fuels management actions would be designed to contribute to the protection and enhancement of sagebrush habitat that support Greater Sage-Grouse populations (including large contiguous blocks of sagebrush).
<b>A-27:</b> No common action across LUPs within the state.	<b>B, C, D - 27:</b> BLM and Forest Service planning units (Districts and Forests), in coordination with the USFWS and relevant state agencies, by December 2014, would complete and continue to update Greater Sage-Grouse Landscape Wildfire & Invasive Species Habitat Assessments to prioritize at-risk habitats, and identify fuels management, preparedness, suppression and restoration priorities			<b>E-27:</b> BLM planning units (Districts), in coordination with the USFWS and relevant state agencies, would complete and

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	<p>necessary to maintain sagebrush habitat to support interconnecting Greater Sage-Grouse populations. These assessments and subsequent assessment updates would also be a coordinated effort with an interdisciplinary team to take into account other Greater Sage-Grouse priorities identified in this plan. Appendix J [of the 2015 Final EIS] describes a minimal framework example and suggested approach for this assessment.</p> <p>Implementation actions will be tiered to the Local (District/Forest) Greater Sage-Grouse Landscape Wildfire &amp; Invasive Species Assessment using the best available science related to the conservation of Greater Sage-Grouse.</p> <p>In coordination with USFWS and relevant state agencies, BLM/Forest Service planning units (Districts/Forests) will identify annual treatment needs for wildfire and invasive species management as identified in local unit level Landscape Wildfire and Invasive Species Assessments.</p> <p>Annual treatment needs will be coordinated across state/regional scales and across jurisdictional boundaries for long-term conservation of Greater Sage-Grouse.</p> <p>These landscape assessment implementation efforts will be reviewed annually with appropriate USFWS and state agency personnel.</p>			<p>continue to update Greater Sage-Grouse Landscape Wildfire &amp; Invasive Species Habitat Assessments to prioritize at-risk habitats, and identify fuels management, preparedness, suppression and restoration priorities necessary to maintain sagebrush habitat to support interconnecting Greater Sage-Grouse populations. These assessments and subsequent assessment updates would also be a coordinated effort with an interdisciplinary team (IDT) to take into account other Greater Sage-Grouse priorities identified in this plan. Appendix J [of the 2015 Final EIS] describes a minimal framework example and suggested approach for this assessment.</p> <p>Implementation actions will be tiered to the Local (District) Greater Sage-Grouse Landscape Wildfire &amp; Invasive Species Assessment using the best</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)			<p>available science related to the conservation of Greater Sage-Grouse.</p> <p>In coordination with USFWS and relevant state agencies, the BLM planning units (Districts) will identify annual treatment needs for wildfire and invasive species management as identified in local unit level Landscape Wildfire and Invasive Species Assessments.</p> <p>Annual treatment needs will be coordinated across state/regional scales and across jurisdictional boundaries for long-term conservation of Greater Sage-Grouse.</p> <p>These landscape assessment implementation efforts will be reviewed annually with appropriate USFWS and state agency personnel.</p>

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<b>A-28:</b> No common action across LUPs within the state.	<b>B, C, D - 28:</b> Implement a coordinated inter-agency approach to fire restrictions based upon National Fire Danger Rating System (NFDRS) thresholds (fuel conditions, drought conditions, and predicted weather patterns) for Greater Sage-Grouse habitat.			<b>E-28:</b> Implement a coordinated inter-agency approach to fire restrictions based upon National Fire Danger Rating System (NFDRS) thresholds (fuel conditions, drought conditions, and predicted weather patterns) for Greater Sage-Grouse habitat.
<b>A-29:</b> No common action across LUPs within the state.	<b>B, C, D - 29:</b> Within acceptable risk levels, utilize a full range of fire management strategies and tactics, including the management of wildfires to achieve resource objectives across the range of Greater Sage-Grouse habitat consistent with land use plan direction.			<b>E-29:</b> Within acceptable risk levels, utilize a full range of fire management strategies and tactics, including the management of wildfires to achieve resource objectives across the range of Greater Sage-Grouse habitat consistent with land use plan direction.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-29a:</b> No common action across LUPs within the state.	<b>B, C, D - 29a:</b> No similar action.			<b>E-29a:</b> In order to avoid surface-disturbing activities in PHMAs, priority will be given to development of oil and gas and other mineral resources outside of PHMAs, subject to applicable stipulations. When authorizing development of oil and gas and other mineral resources in PHMAs, subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority will be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse.
Lands and Realty Management				
<b>A-30:</b> Portions of Greater Sage-Grouse core habitat areas would be managed as ROW exclusion areas.	<b>B-30:</b> Priority Greater Sage-Grouse habitat areas would be managed as exclusion areas for new BLM ROW or Forest Service Special Use Authorization (SUA) permits. Consider the following exceptions:	<b>C-30:</b> Greater Sage-Grouse priority and general habitat areas would be managed as ROW exclusion areas for new ROW or SUA permits. Consider the following exceptions: I. Within designated ROW or SUA corridors encumbered	<b>D-30:</b> Greater Sage-Grouse core habitat areas would be managed as ROW exclusion areas for new ROW or SUA permits. Consider the following exceptions: I. Within designated ROW corridors encumbered by	<b>E-30:</b> <u>Specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u>  PHMAs would be managed as right-of-way (ROW) avoidance areas for new ROW or Special Use Authorization (SUA) permits.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	<p>1. Within designated ROW or SUA corridors encumbered by existing ROW or SUA authorizations, new ROWs could be co-located only if the entire footprint of the proposed project (including construction and staging) can be completed within the existing disturbance associated with the authorized ROWs or SUAs.</p> <p>2. Subject to valid, existing rights where new ROWs or SUAs associated with valid existing rights are required, new ROWs or SUAs would be co-located within existing ROWs or SUAs or where it best minimizes Greater Sage-Grouse impacts. Existing roads or</p>	<p>by existing ROW or SUA authorizations, new ROWs and SUAs could be co-located only if the entire footprint of the proposed project (including construction and staging) can be completed within the existing disturbance associated with the authorized ROWs or SUAs.</p> <p>2. Subject to valid, existing rights where new ROWs or SUAs associated with valid existing rights are required, new ROWs and SUAs would be co-located within existing ROWs or SUAs or where it best minimizes Greater Sage-Grouse impacts. Existing roads or realignments, as described above, would be used to access valid existing</p>	<p>existing ROW or SUA authorizations, new ROWs and SUAs could be co-located within the designated corridors.</p> <p>2. Subject to valid existing rights including non-federal land inholdings, required new ROWs and SUAs would be co-located within existing ROWs or SUAs or where it best minimizes Greater Sage-Grouse impacts. Existing roads or realignments, as described above, would be used to access valid existing rights that are not yet developed.</p> <p>3. If valid existing rights cannot be accessed via existing roads, any new road would be constructed to the absolute minimum standard necessary,</p>	<p>Within PHMAs where new ROWs/SUAs are necessary, new ROWs/SUAs would be located within designated RMP corridors or adjacent to existing ROWs/SUAs where technically feasible. Subject to valid existing rights including non-federal land inholdings, required new ROWs/SUAs would be located adjacent to existing ROWs/SUAs or where it best minimizes Greater Sage-Grouse impacts.</p> <p><u>For values other than Greater Sage-Grouse, the following RMP decisions remain in effect:</u> Portions of PHMAs would be managed as ROW exclusion areas in accordance with existing RMP decisions for resource values other than Greater Sage-Grouse.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	<p>realignments, as described above, would be used to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, any new road would be constructed to the absolute minimum standard necessary, and the surface disturbance would be added to the total disturbance in the priority area. If that disturbance exceeds 3% for that area, additional effective mitigation would be evaluated and implemented on a case-by-case basis to offset the resulting loss of Greater Sage-Grouse habitat.</p>	<p>rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, any new road would be constructed to the absolute minimum standard necessary, and the surface disturbance would be added to the total disturbance in the priority area. If that disturbance exceeds 3% for that area, additional mitigation that has been demonstrated to be effective would be used to offset the resulting loss of Greater Sage-Grouse habitat.</p>	<p>and the surface disturbance would be added to the total disturbance in the core habitat area. If that disturbance exceeds 9% for that area, additional effective mitigation necessary to offset the resulting loss of Greater Sage-Grouse would be used. If such a ROW or SUA is subsequently relinquished, the AO would require the holder to complete reclamation with objective of ensuring reestablishment of prior affected Greater Sage-Grouse habitat.</p>	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><b>A-31:</b> Portions of Greater Sage-Grouse general habitat areas would be managed as ROW avoidance areas.</p>	<p><b>B-31:</b> General Greater Sage-Grouse habitat areas would be managed as avoidance areas for new ROWs or SUAs, except for areas currently managed as ROW exclusion areas.</p> <p>Within general Greater Sage-Grouse habitat where new ROWs/SUAs are necessary, new ROWs/SUAs would be co-located within existing ROWs/SUAs where technically feasible.</p>	<p><b>C-31:</b> No similar action</p>	<p><b>D-31:</b> General Greater Sage-Grouse habitat areas would be available for new ROWs or SUAs, subject to BMPs.</p>	<p><b>E-31:</b> <u>Specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></p> <p>Within GHMAs where new ROWs/SUAs are necessary, new ROWs/SUAs would be co-located within existing ROWs/SUAs where technically feasible. Appropriate Greater Sage-Grouse seasonal timing constraints would be applied.</p> <p><u>For values other than Greater Sage-Grouse, the following RMP decisions remain in effect:</u></p> <p>Portions of GHMAs would be managed as ROW avoidance areas in accordance with existing RMP decisions for resource values other than Greater Sage-Grouse.</p>
<p><b>A-32: Greater Sage-Grouse core and connectivity habitat areas:</b></p> <p><u>Casper RMP:</u></p> <p>No new corridor designations would be made in Bates Hole. When placement of a major ROW facility within a designated</p>	<p><b>B-32: Greater Sage-Grouse priority habitat areas:</b></p> <p>New transmission corridors would not be authorized.</p> <p>New above-ground transmission structures would be prohibited both</p>	<p><b>C-32:</b> No similar action</p>	<p><b>D-32: Greater Sage-Grouse core and connectivity habitat areas:</b></p> <p>New transmission project would be allowed in existing designated utility corridors (i.e., West Wide Energy Corridor, RMPs, etc.).</p>	<p><b>E-32: <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></b></p> <p>New Transmission Lines (greater than 115 kV):</p> <p>New transmission lines greater than 115 kV in PHMA (core only)</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>corridor is not possible, and for smaller ROW and other linear facilities, placement would be adjacent to existing facilities or disturbances. Cross-country placement of ROW and other linear facilities would be allowed only when placement in a designated corridor or adjacent to an existing facility is not practical or feasible. The extent of all surface disturbances would be minimized.</p> <p>No new corridors would be established in the Sand Hills Management Area (MA); ROWs would be allowed when management objectives for the area can still be achieved. All currently designated corridors would be maintained All special restrictions that apply</p>	inside and outside existing corridors.	(see above)	<p>New transmission project would be allowed within the proposed 2-mile wide transmission line corridor through Greater Sage-Grouse core habitat population areas in south-central and southwestern Wyoming (see Map 2-15 from EO 2011-5).</p> <p>New transmission lines would be authorized if they are constructed within the 2-mile wide corridor between July 1 and March 14 (or between July 1 and November 30 in Greater Sage-Grouse winter concentration areas).</p> <p>In addition, new transmission lines would be authorized if they are constructed between July 1 and March 14 (or between July 1 and November 30 in Greater Sage-Grouse winter concentration areas) and within one half mile either side of existing 115 kV or larger transmission lines.</p>	<p>would be allowed only (1) within the 2-mile wide transmission line route through PHMA (core only) population areas in south-central and southwestern Wyoming (see Map 2-15 from Executive Order (EO) 2011-5); (2) when located within 0.5 miles or less of an existing 115 kV or greater transmission line or; or (3) in designated RMP corridors authorized for above- ground transmission lines.</p> <p>Transmission lines routed using one or more of the three criteria listed above will not be counted against the DDCT 5% disturbance cap.</p> <p>New transmission lines greater than 115 kV proposed outside of these areas would be considered where it can be demonstrated that declines in Greater</p>

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<p>to types of use/facilities on the corridors would be removed, except as noted for the Oregon Trail Road</p> <p>ROW Corridor, Segment A. The corridors include 351,020 acres, of which 94,580 acres are federal surface. The widths/size of designated corridors would not change. Special restrictions applying to types of use/facilities on the corridors would be removed on a case-by-case basis. Existing corridors include:</p> <ol style="list-style-type: none"> <li>1. Oregon Trail Road Corridor, Segment A</li> <li>2. Oregon Trail Road Corridor, Segment B</li> <li>3. Oregon Trail Road Corridor, Segment C</li> <li>4. Poison Spider/Gas Hills Road Corridor</li> <li>5. Highway 20-26 Corridor</li> <li>6. Wyoming Highway 259/US 87 Corridor</li> </ol>	(see above)	(see above)	<p>New transmission project may be constructed outside the 2-mile wide corridor and the one-mile wide corridor mentioned above, in consideration of other resources, when it can be demonstrated that the activity will not cause declines in Greater Sage-Grouse populations through project design and/or mitigation.</p>	<p>Sage-Grouse populations could be avoided through project design and/or mitigation. These projects will be subject to the density and disturbance restrictions for PHMA.</p> <p>Construction of new transmission lines will adhere to the restrictions associated with conducting activities within PHMAs. Review of transmission line proposals would incorporate the Framework for Greater Sage-Grouse Impacts Analysis for Interstate Transmission Lines and other appropriate documents consistent with the three routing criteria described above.</p> <p>New projects within PHMAs that may require future utility lines, including distribution and transmission lines or pipelines, would include the proposed utility lines</p>



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<p>7. Wyoming Highway 387 Corridor</p> <p>8. Lost Cabin-Arminto Road Corridor</p> <p>9. RMP Change No. 2012- 03: included the</p> <p>10. West wide Energy Corridor</p> <p>11. Cabin Creek Corridor</p> <p>12. Existing Oregon Trail Road ROW Corridor, Segment A</p> <p>Oregon Trail Road ROW Corridor, Segment A allows additional ROW facilities provided they are subsurface, surface, or low-profile developments.</p> <p>ROW facilities that introduce visual intrusions on the skyline along the corridor would not be allowed. Special restrictions applying to types of use/facilities on the corridors would be removed on a case-by- case basis, and a</p>	(see above)	(see above)	(see above)	<p>in their DDCT as part of the proposed disturbance. Lines permitted but not located in the above mentioned routes or a designated corridor will be counted towards the 5% disturbance calculation (line disturbance is equal to the anticipated construction footprint or construction ROW width multiplied by length and includes all access roads, staging areas, and other surface disturbance associated with construction outside of the construction ROW).</p> <p>New Electric Distribution Lines (less than 115 kV): New electric distribution lines would be buried where feasible and economically feasible. If not economically feasible, distribution lines may be authorized when</p>

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<p>new corridor, to be called the Cabin Creek Corridor, would be designated.</p> <p>Future Corridor Adjustments and New Corridor Designations: Future corridor adjustments and new corridor designations would be made only when facility placement within an existing designated corridor is incompatible, unfeasible, or impractical and when the environmental consequences can be adequately mitigated. Problems of technical compatibility between facilities and spacing of facilities in corridors would be solved on a case-by- case basis. Special restrictions applying to types of use/facilities on the corridors would be removed on a case-by- case basis.</p>	(see above)	(see above)	(see above)	<p>effectively designed/mitigated to protect Greater Sage-Grouse and the Authorized Officer determines that overhead installation is the action alternative with the fewest adverse impacts while still meeting the project need.</p> <p>Agricultural and residential lines will be considered to be adequately mitigated for Greater Sage-Grouse if constructed at least 0.6 mile from the lek perimeter with appropriate timing constraints and constructed to the latest APLIC standards. These ROW authorizations will be subject to approval by the State Director.</p> <p>Priority Transmission Lines: PHMAs are designated as avoidance areas for</p>

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<p>South Bighorns/Red Wall Management Area: No corridors would be designated; however, ROWs would be allowed on a case-by-case basis when management objectives for the area could still be achieved.</p> <p><u>Kemmerer RMP:</u> Utility corridors would be designated, based on use (i.e., power lines, pipelines, and fiber optic lines).</p> <p>Preferred utility corridors would be 2 miles wide (width would be determined based on resource values) and designated as follows, but variances would be allowed based on application where conflicts with other resources were minimal or could be mitigated through resource-specific</p>	(see above)	(see above)	(see above)	<p>high voltage transmission line and pipeline ROWs, except for the transmission projects specifically identified below. All authorizations in these areas, other than the excepted projects, must comply with the conservation measures outlined in this proposed plan, including the Required Design Features (RDF) and avoidance criteria presented in Appendix B [of the 2015 Final EIS]. The BLM is currently processing an application for Gateway South, Gateway West and TransWest Express and the NEPA review for these projects is well underway. The BLM is analyzing Greater Sage-Grouse mitigation measures through the project's NEPA review process.</p> <p>Pipelines: New pipelines through</p>

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<p>stipulations:</p> <p>High-voltage power line corridors would be established north of and parallel to I-80, and along Wyoming SH 89 from the junction of I-80 and the Wyoming state line.</p> <p>Fiber optic and low-voltage power line corridors would be located along currently established road systems (e.g., interstate or state highways and paved county roads).</p> <p><u>Newcastle RMP:</u> Utility/transportation systems would be located adjacent to existing utility/transportation systems whenever practical. Areas to be avoided for new facility placement and routes would be identified on a case-by-case basis, rather than attempting to establish utility</p>	(see above)	(see above)	(see above)	<p>PHMAs would be allowed: (1) within an RMP corridor currently authorized for that use or designated through future RMP amendments; or (2) constructed in or adjacent to existing utilities (buried and above-ground) or roads. Pipelines constructed in RMP corridors or adjacent to existing utilities or roads will require completion of a DDCT analysis for baseline data collection, but the project is not required to meet the threshold of 5%. However, within 6 months of the completion of construction, the project proponent will provide the AO with as-built drawings so that total disturbance within core area can be calculated annually.</p> <p><b><u>The following RMP decisions remain in</u></b></p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>corridors.</p> <p><u>Pinedale RMP:</u> Utility facilities would be restricted to existing routes and designated corridors where practicable, including environmental and socioeconomic considerations. Corridor routes include US Highways 189 and 191 and State Highways 189, 191, 350, 351, 352, 353, and 354. New corridors could be established as oil and gas fields are developed.</p> <p><u>Rawlins RMP:</u> All BLM-administered public lands, except WSAs and some SD/MAs (including ACEC/SIAs), would be open to consideration for placement of utility ROW systems. Each utility ROW would be located adjacent to existing facilities, when possible. Areas with</p>	(see above)	(see above)	(see above)	<p><b><u>effect with the modification described above:</u></b></p> <p><u>Casper RMP:</u> No new corridor designations would be made in Bates Hole. When placement of a major ROW facility within a designated corridor is not possible, and for smaller ROW and other linear facilities, placement would be adjacent to existing facilities or disturbances. Cross-country placement of ROW and other linear facilities would be allowed only when placement in a designated corridor or adjacent to an existing facility is not practical or feasible. The extent of all surface disturbances would be minimized.</p> <p>No new corridors would be established in the Sand Hills Management Area (MA); ROWs would be</p>

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<p>important or sensitive resource values would be avoided.</p> <p>Existing major transportation and utility ROW routes would be designated corridors. However, major transportation routes within the planning area that are located east of the Carbon County-Albany County line would not be considered for ROW corridor designation because of the scattered public landownership pattern in the area. All corridors would be designated for power lines (above ground and buried), telephone lines, and fiber optic lines. Specific proposals would require site-specific environmental analysis and compliance with established permitting processes. Activities generally excluded from ROW</p>	(see above)	(see above)	(see above)	<p>allowed when management objectives for the area can still be achieved.</p> <p>All currently designated corridors would be maintained All special restrictions that apply to types of use/facilities on the corridors would be removed, except as noted for the Oregon Trail Road ROW Corridor, Segment A. The corridors include 351,020 acres, of which 94,580 acres are federal surface. The widths/size of designated corridors would not change. Special restrictions applying to types of use/facilities on the corridors would be removed on a case-by-case basis. Existing corridors include:</p> <ol style="list-style-type: none"> <li>1. Oregon Trail Road Corridor, Segment A</li> <li>2. Oregon Trail Road Corridor, Segment B</li> <li>3. Oregon Trail Road Corridor, Segment C</li> </ol>

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<p>corridors include mineral materials disposal, range and wildlife habitat improvements involving surface disturbance and facility construction, campgrounds, and public recreation facilities and other facilities that would attract public use.</p> <p>ROW facilities would not be placed adjacent to each other if issues with safety or incompatibility or resource conflicts were identified. The designated width, allowable uses, and excluded uses for each corridor may be modified during implementation of the Approved RMP.</p> <p><u>Green River RMP:</u> Areas designated as utility windows would be preferred locations for future grants. Five windows have been</p>	(see above)	(see above)	(see above)	<ol style="list-style-type: none"> <li>4. Poison Spider/Gas Hills Road Corridor</li> <li>5. Highway 20-26 Corridor</li> <li>6. Wyoming Highway 259/US 87 Corridor</li> <li>7. Wyoming Highway 387 Corridor</li> <li>8. Lost Cabin-Arminto Road Corridor</li> <li>9. RMP Change No. 2012-03: included the</li> <li>10. West wide Energy Corridor</li> <li>11. Cabin Creek Corridor</li> <li>12. Existing Oregon Trail Road ROW Corridor, Segment A</li> </ol> <p>BLM Proposed Land Use Plan Amendments Oregon Trail Road ROW Corridor, Segment A allows additional ROW facilities provided they are subsurface, surface, or low-profile developments. ROW facilities that introduce visual intrusions on the skyline along the</p>

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<p>identified: 2 east-west, 3 north-south.</p> <p>Other areas would be considered for rights-of-way on a case-by-case basis. Windows 0.5 mile in width have been identified for the placement of utilities. The northern east-west window would be for underground facilities only, and the southern east-west window would be for both above and below ground facilities. A 0.5-mile-wide north-south window on the west side of Flaming Gorge, a window south along Highway 430, and a north-south window along the east side of Flaming Gorge have been identified for above and below ground utilities.</p> <p><u>Jack Morrow Hills Coordinated Activity Plan (JMH CAP):</u></p>	(see above)	(see above)	(see above)	<p>corridor would not be allowed. Special restrictions applying to types of use/facilities on the corridors would be removed on a case-by-case basis, and a new corridor, to be called the Cabin Creek Corridor, would be designated.</p> <p>Future Corridor Adjustments and New Corridor Designations: Future corridor adjustments and new corridor designations would be made only when facility placement within an existing designated corridor is incompatible, unfeasible, or impractical and when the environmental consequences can be adequately mitigated. Problems of technical compatibility between facilities and spacing of facilities in corridors would be solved on a case-by-case basis. Special restrictions</p>



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<p>The planning area, with the exception of defined exclusion and avoidance areas, would be open to considering grants of rights-of-way if area objectives could be met. Exclusion areas are closed to rights-of-way. Avoidance and special management areas not identified as exclusion areas would be open to consideration only after site-specific analysis demonstrates area objectives could be met (see glossary) in Greater Sage-Grouse potential nesting habitat.</p> <p><b>TBNG LRMP:</b> Utility companies would be permitted to construct new utility corridors, unless prohibited by management direction.</p> <p><b>MBNF LRMP:</b> Current utility corridors would be</p>	(see above)	(see above)	(see above)	<p>applying to types of use/facilities on the corridors would be removed on a case-by-case basis.</p> <p>South Bighorns/Red Wall Management Area: No corridors would be designated; however, ROWs would be allowed on a case-by-case basis when management objectives for the area could still be achieved.</p> <p><b>Kemmerer RMP:</b> Utility corridors would be designated, based on use (i.e., power lines, pipelines, and fiber optic lines).</p> <p>Preferred utility corridors would be 2 miles wide (width would be determined based on resource values) and designated as follows, but variances would be allowed based on application where conflicts with other</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>fully utilized. Corridors would be provided in the future in areas that meet the needs of society while protecting the integrity of the environment.</p> <p><b>BTNF LRMP:</b> Within Greater Sage-Grouse core habitat areas, disturbance would be limited by co-locating roads, pipelines, gathering lines, and power lines for energy resource development.</p> <p>New roads, pipelines, gathering lines, and technically required overhead power lines would be routed in a manner as to minimize visual impacts and conform to approved corridors. When these facilities leave corridors, they should be subordinate to the landscape.</p>	(see above)	(see above)	(see above)	<p>resources were minimal or could be mitigated through resource-specific stipulations: High-voltage power line corridors would be established north of and parallel to I-80, and along Wyoming State Highway 89 from the junction of I- 80 and the Wyoming state line. Fiber optic and low-voltage power line corridors would be located along currently established road systems (e.g., interstate or state highways and paved county roads).</p> <p><b>Newcastle RMP:</b> Utility/transportation systems would be located adjacent to existing utility/transportation systems whenever practical. Areas to be avoided for new facility placement and routes would be identified on a case-by-case basis, rather than attempting</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>to establish utility corridors.</p> <p><u>Pinedale RMP:</u> Utility facilities would be restricted to existing routes and designated corridors where practicable, including environmental and socioeconomic considerations. Corridor routes include US Highways 189 and 191 and State Highways 189, 191, 350, 351, 352, 353, and 354. New corridors could be established as oil and gas fields are developed.</p> <p><u>Rawlins RMP:</u> All BLM-administered public lands, except wilderness study areas (WSA) and some SD/MAs (including areas of critical environmental concern (ACEC)/Special Interest Areas (SIA)), would be open to consideration for placement of utility ROW systems. Each</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>utility ROW would be located adjacent to existing facilities, when possible.</p> <p>Areas with important or sensitive resource values would be avoided.</p> <p>Existing major transportation and utility ROW routes would be designated corridors. However, major transportation routes within the planning area that are located east of the Carbon County-Albany County line would not be considered for ROW corridor designation because of the scattered public landownership pattern in the area. All corridors would be designated for power lines (above ground and buried), telephone lines, and fiber optic lines. Specific proposals would require site-specific environmental analysis and compliance with</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>established permitting processes.</p> <p>BLM Proposed Land Use Plan Amendments Activities generally excluded from ROW corridors include mineral materials disposal, range and wildlife habitat improvements involving surface disturbance and facility construction, campgrounds, and public recreation facilities and other facilities that would attract public use.</p> <p>ROW facilities would not be placed adjacent to each other if issues with safety or incompatibility or resource conflicts were identified. The designated width, allowable uses, and excluded uses for each corridor may be modified during implementation of the Approved RMP.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p><u>Green River RMP:</u>  Areas designated as utility windows would be preferred locations for future grants. Five windows have been identified: 2 east-west, 3 north-south. Other areas would be considered for rights-of-way on a case-by-case basis. Windows 0.5 mile in width have been identified for the placement of utilities. The northern east-west window would be for underground facilities only, and the southern east-west window would be for both above and below ground facilities. A 0.5-mile-wide north-south window on the west side of Flaming Gorge, a window south along Highway 430, and a north-south window along the east side of Flaming Gorge have been identified for above and below ground utilities.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p><u>Jack Morrow Hills (JMH) Coordinated Activity Plan (CAP):</u></p> <p>The planning area, with the exception of defined exclusion and avoidance areas, would be open to considering grants of rights-of-way if area objectives could be met. Exclusion areas are closed to rights-of-way. Avoidance and special management areas not identified as exclusion areas would be open to consideration only after site-specific analysis demonstrates area objectives could be met (see glossary) in Greater Sage-Grouse potential nesting habitat.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-33:</b> No similar action	<b>B-33:</b> Existing designated ROW corridors crossing Greater Sage-Grouse priority habitat that are void of any authorized ROWs would be relocated outside of the priority habitat area. If relocation is not possible, the entire corridor would be undesignated during the planning process.	<b>C-33:</b> Same as Alternative B	<b>D- 33:</b> No similar action	<b>E-33:</b> No action
<p><b>A- 34:</b>  <u>Kemmerer RMP:</u>            New utility lines would be buried, or BLM-approved anti-perch devices would be installed on all new utility lines within sagebrush and/or semiarid shrub-dominated habitats, unless NEPA analysis shows little or no impact without burial or modification.</p> <p><u>BTNF LRMP:</u>            Operations would be conducted in a manner that will offer the least</p>	<b>B- 34:</b> No similar action	<p><b>C- 34:</b> ROWs would be amended to require features that enhance Greater Sage-Grouse habitat security.</p> <p>Existing designated corridors in BLM ACECs and Forest Service Special Areas could be accessed for maintenance.</p>	<b>D- 34:</b> Maintenance of existing structures would be allowed, and upgrades would be considered, subject to BMPs.	<p><b>E-34: <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></b></p> <p>Maintenance/replacement of existing structures would be allowed subject to valid and existing rights. Upgrades would be considered, subject to mandatory RDFs (Appendix B of the 2015 Final EIS).</p> <p>Existing guy wires should be removed or appropriately marked</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
possible disturbance to wildlife on or adjacent to the leased land.	(see above)	(see above)	(see above)	<p>with bird flight diverters to make them more visible to Greater Sage-Grouse in flight. Power lines (distribution and transmission) will be designed to minimize wildlife related impacts and constructed to the latest APLIC standards.</p> <p><b><u>Outside of PHMAs the following RMP decisions remain in effect:</u></b></p> <p><b><u>Kemmerer RMP:</u></b></p> <p>New utility lines would be buried, or BLM-approved anti-perch devices would be installed on all new utility lines within sagebrush and/or semiarid shrub-dominated habitats, unless NEPA analysis shows little or no impact without burial or modification.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A- 35:</b> No similar action	<p><b>B- 35:</b> Opportunities to remove, bury, or modify existing power lines within priority Greater Sage-Grouse habitat areas would be evaluated and taken advantage of.</p> <p>Where existing leases or ROWs or SUAs have had some level of development (e.g., road, fence, and well) and are no longer in use, the site would be reclaimed by removing these features and restoring the habitat.</p>	<b>C- 35:</b> Same as Alternative B	<b>D- 35:</b> No similar action	<p><b>E-35:</b> Within PHMA where existing authorizations, ROWs, or SUAs have had some level of development (e.g., road, fence, and well) and are expired and are no longer in use, the site would be reclaimed by removing these features and restoring the habitat. Power lines (distribution and transmission) will be designed to minimize wildlife related impacts and constructed to the latest APLIC standards.</p>
Renewable Energy				
<b>A- 36:</b> Wind energy development would be allowed within Greater Sage-Grouse core habitat areas, except in areas that are currently unavailable due to the need to protect sensitive resources.	<b>B- 36:</b> No similar action	<b>C- 36:</b> Wind energy development would be prohibited in Greater Sage-Grouse priority and general habitat areas.	<p><b>D- 36:</b> Wind energy development would be prohibited in Greater Sage-Grouse core habitat areas, unless it can be sufficiently demonstrated that the development activity would not result in declines of Greater Sage-Grouse core habitat populations. Sufficient demonstration of “no declines” should be coordinated with the WGFD and USFWS. Areas that are currently</p>	<p><b>E-36: <u>Within PHMAs, all RMPs are amended as follows:</u></b></p> <p>Wind energy development would be avoided in PHMAs, and not allowed unless it can be sufficiently demonstrated that the development activity would not result in declines of PHMA populations. Sufficient demonstration of “no declines” should be coordinated with the WGFD and USFWS.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	unavailable due to the need to protect sensitive resources would remain unavailable to wind energy development.	<b><u>For values other than Greater Sage-Grouse, the following RMP decisions remain in effect:</u></b> BLM Proposed Land Use Plan Amendments Areas that are currently unavailable due to the need to protect sensitive resources would remain unavailable to wind energy development.
<b>A- 37:</b> No similar action	<b>B- 37:</b> No similar action	<b>C- 37:</b> Wind energy development would be sited at least five miles from active Greater Sage-Grouse leks.	<b>D- 37:</b> No similar action	<b>E- 37:</b> No action
<b>A- 38:</b> <u>Kemmerer RMP:</u> New meteorological towers (MET) towers would be avoided within 1 mile of occupied sagebrush obligate habitats, unless anti-perch devices are installed.  MET towers relying on guy wires for support would be prohibited in these habitats. Exceptions could be	<b>B- 38:</b> In addition to Alternative A: MET towers would be prohibited in Greater Sage-Grouse priority habitat areas.	<b>C-38:</b> Same as Alternative A	<b>D- 38:</b> Same as Alternative A	<b>E-38: <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></b> The use of guy wires for meteorological towers (MET) tower supports would be avoided within PHMAs. All existing and any new unavoidable guy wires should be marked with recommended bird deterrent devices.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>made if NEPA analysis shows little or no impact to sagebrush obligate species.</p> <p><u>Rawlins RMP:</u> MET towers would be authorized on a case-by-case basis from 0.25 mile to 1 mile of an occupied Greater Sage-Grouse and sharp-tailed grouse lek.</p>	(see above)	(see above)	(see above)	<p>The siting of new temporary MET towers within PHMAs would be avoided within 2 miles of occupied Greater Sage-Grouse leks, unless they are out of the direct line of sight of the occupied lek.</p> <p><b><u>Outside of PHMA the following RMP decisions remain in effect:</u></b></p> <p><u>Kemmerer RMP:</u> New MET towers would be avoided within 1 mile of occupied sagebrush obligate habitats, unless anti-perch devices are installed. MET towers relying on guy wires for support would be prohibited in these habitats. Exceptions could be made if NEPA analysis shows little or no impact to sagebrush obligate species.</p> <p><u>Rawlins RMP:</u> MET towers would be authorized on a case-by-</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	case basis from 0.25 mile to 1 mile of an occupied Greater Sage-Grouse and sharp-tailed grouse lek.
<b>A- 39:</b> No similar action	<b>B- 39:</b> No similar action	<b>C- 39:</b> Industrial solar projects would be prohibited in ACECs and occupied Greater Sage-Grouse habitats.	<b>D- 39:</b> No similar action	<b>E-39:</b> No action
<b>Land Tenure Adjustments (Acquisitions, Land Exchanges, Transfers and Sales)</b>				
<b>A- 40:</b> <u>Casper RMP:</u> 224,830 acres of public lands are identified as potentially suitable for disposal. At the implementation stage, site- specific analysis with public participation will be conducted. Based on the analysis and public comments received, a determination will be made on whether disposal of the parcel is in the public's best interest. If it is not in the public's best interest, the parcel will be retained in public ownership.	<b>B- 40:</b> The BLM Forest Service would retain public ownership of Greater Sage-Grouse priority habitat. Exceptions would be considered where there is mixed ownership and land exchanges would allow for additional or more contiguous federal ownership patterns within the Greater Sage-Grouse priority habitat area. Under Greater Sage-Grouse priority habitat areas with minority federal ownership, an additional, effective mitigation agreement would be included for any disposal of federal	<b>C- 40:</b> Same as Alternative B, without exceptions for disposal to consolidate ownership that would be beneficial to Greater Sage-Grouse.	<b>D- 40:</b> The BLM/Forest Service would retain ownership of Greater Sage-Grouse core habitats unless economic or other benefits are determined.	<b>E-40: <u>Within PHMAs and GHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></b> Lands classified as PHMAs for Greater Sage-Grouse would be retained in federal management unless: (1) the agency can demonstrate that disposal of the lands will provide a net conservation gain to the Greater Sage-Grouse or (2) the agency can demonstrate that the disposal of the lands will have no direct or indirect adverse impact on conservation of the Greater Sage-Grouse.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Restricted Disposal dispose of 5,450 acres on a restricted basis.</p> <p>Allow land-use authorizations under FLPMA Section 302(b) leases and permits to meet public demand.</p> <p>Evaluate on a case-by-case basis as proposals are presented. Potential lease and permit areas may include, but are not limited to the following:</p> <ol style="list-style-type: none"> <li>1. Areas where there are documented or existing trespass facilities that can be resolved by an authorization under this section</li> <li>2. Areas along major highways where developments may facilitate public needs</li> <li>3. Areas in or adjacent to residential, agricultural, commercial, or</li> </ol>	<p>land. As a final preservation measure, consideration should be given to pursuing a permanent conservation easement.</p>	<p>(see above)</p>	<p>(see above)</p>	<p>Exceptions would be considered where there is mixed ownership and land exchanges would allow for additional or more contiguous federal ownership patterns within PHMAs.</p> <p>For PHMAs with minority federal ownership, an additional, effective mitigation agreement would be included for any disposal of federal land. As a final preservation measure, consideration should be given to pursuing a permanent conservation easement.</p> <p>For lands in GHMAs that are identified for disposal, the BLM will only dispose of such lands consistent with the goals and objectives of this plan, including, but not limited to, the LUP goal to conserve, recover, and enhance Greater Sage-Grouse habitat on a landscape scale.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Industrial developments.</p> <p>The BLM will pursue acquisition of lands and interest in lands in the South Bighorns/Red Wall area.</p>	(see above)	(see above)	(see above)	<p><b><u>For values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b></p> <p><b><u>Casper RMP:</u></b> 224,830 acres of public lands are identified as potentially suitable for disposal. At the implementation stage, site-specific analysis with public participation will be conducted. Based on the analysis and public comments received, a determination will be made on whether disposal of the parcel is in the public's best interest. If it is not in the public's best interest, the parcel will be retained in public ownership.</p> <p>Restricted Disposal dispose of 5,450 acres on a restricted basis.</p> <p>Allow land-use authorizations under FLPMA Section 302(b)</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>leases and permits to meet public demand.</p> <p>Evaluate on a case-by-case basis as proposals are presented. Potential lease and permit areas may include, but are not limited to the following:</p> <ul style="list-style-type: none"> <li>• Areas where there are documented or existing trespass facilities that can be resolved by an authorization under this section</li> <li>• Areas along major highways where developments may facilitate public needs</li> <li>• Areas in or adjacent to residential, agricultural, commercial, or industrial developments.</li> </ul> <p>The BLM will pursue acquisition of lands and interest in lands in the South Bighorns/Red Wall area.</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><b>A- 4I: Casper RMP:</b> The BLM would pursue acquisition of lands and interest in lands in the Bolton Creek Drainage and Bates Creek areas.</p>	<p><b>B -4I:</b> Areas where acquisitions (including subsurface mineral rights) or conservation easements would benefit Greater Sage-Grouse habitat would be identified.</p>	<p><b>C- 4I:</b> Same as Alternative B</p>	<p><b>D-4I:</b> Same as Alternative A</p>	<p><b>E- 4I: <u>Within PHMA and GHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></b> Areas where acquisitions (including subsurface mineral rights) or conservation easements would benefit Greater Sage-Grouse habitat would be identified. <b><u>Outside of PHMA and GHMA, and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b> <b><u>Casper RMP:</u></b> The BLM would pursue acquisition of lands and interest in lands in the Bolton Creek Drainage and Bates Creek areas.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A- 42:</b> No similar action	<b>B -42:</b> Where suitable conservation actions cannot be achieved, the BLM/Forest Service would seek to acquire state and private lands with intact subsurface mineral estate or BLM/National Forest System Lands that need subsurface mineral estate by donation, purchase or exchange in order to best conserve, enhance or restore Greater Sage-Grouse habitat.	<b>C- 42:</b> The BLM/Forest Service would strive to acquire important private lands in BLM-designated ACECs and Forest Service Greater Sage-Grouse Special Areas. Acquisition will be prioritized over easements.	<b>D- 42:</b> The BLM/Forest Service would acquire lands based on a variety of economic resources criteria. Land exchanges outside of Greater Sage-Grouse core habitat would be considered if lands can be exchanged for lands within Greater Sage-Grouse core habitat.	<b>E -42:</b> Greater Sage-Grouse habitat requirements would be utilized to prioritize parcels for exchange or acquisition within PHMAs.
<b>A- 43:</b> No similar action	<b>B- 43:</b> In priority habitat, withdrawal proposals not associated with mineral activity would not be approved unless the land management is consistent with Greater Sage-Grouse conservation measures. (For example, in a proposed withdrawal for a military training range buffer area, the buffer area would be managed with Greater Sage-Grouse conservation measures.)	<b>C- 43:</b> Withdrawal proposals not associated with mineral activity would not be approved unless the land management is consistent with Greater Sage-Grouse conservation measures. (For example, in a proposed withdrawal for a military training range buffer area, the buffer area would be managed with Greater Sage-Grouse conservation measures that have been demonstrated to be effective.)	<b>D- 43:</b> No similar action	<b>E- 43:</b> Within PHMAs, non-mineral withdrawals would be evaluated to determine if the withdrawal action is consistent with Greater Sage-Grouse conservation.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><b>A- 44:</b> The BLM policy in WO-IM-2009-007 and BLM Handbook H-4180-I and a National Forest's LRMP or allotment specific NEPA decision for the Forest Service would be used to evaluate land health standards achievement in Greater Sage-Grouse core habitats and, where not achieved, to determine if existing grazing management practices or levels of grazing use on public lands are significant factors in failing to achieve the standards and conform with the guidelines, which through this process will identify appropriate actions to address non-achievement and non-conformance.</p> <p>When determining appropriate actions to address non-achievement of land</p>	<p><b>B- 44:</b> Allotments not meeting standards due to livestock grazing in Greater Sage-Grouse priority habitat would incorporate a light grazing management strategy utilizing a 20-30% forage allocation for livestock.</p>	<p><b>C- 44:</b> Livestock grazing would be prohibited within Greater Sage-Grouse priority habitat.</p>	<p><b>D- 44:</b> Same as Alternative A</p>	<p><b>E- 44:</b> The BLM policy in WO-IM-2009-007 and BLM Handbook H-4180-I would be used to evaluate land health standards achievement in PHMAs (core only) and, where not achieved, to determine if existing grazing management practices or levels of grazing use on public lands are significant factors in failing to achieve the standards and conform with the guidelines, which through this process will identify appropriate actions to address non-achievement and non-conformance.</p> <p>When determining appropriate actions to address non-achievement of land health standards and non-conformance with the guidelines due to existing grazing management practices or levels of grazing use, management actions including but not limited to the following would be considered singly or in combination:</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>health standards and non-conformance with the guidelines due to existing grazing management practices or levels of grazing use, management actions including but not limited to the following would be considered singly or in combination:</p> <ol style="list-style-type: none"> <li>1. Season or timing of use</li> <li>2. Numbers of livestock (includes temporary non-use or livestock removal)</li> <li>3. Distribution of livestock use</li> <li>4. Intensity of use (utilization or stubble height objectives)</li> <li>5. Kind of livestock (e.g., cattle, sheep, horses, llamas, alpacas and goats)</li> <li>6. Class of livestock (e.g., yearlings versus cow calf pairs)</li> <li>7. Refer to the document, "Grazing Influence, Management, and Objective Development in</li> </ol>	(see above)	(see above)	(see above)	<ol style="list-style-type: none"> <li>1. Season or timing of use</li> <li>2. Numbers of livestock (includes temporary non-use or livestock removal)</li> <li>3. Distribution of livestock use</li> <li>4. Intensity of use</li> <li>5. Kind of livestock (e.g., cattle, sheep, horses, llamas, alpacas and goats)</li> <li>6. Class of livestock (e.g., yearlings versus cow calf pairs)</li> <li>7. Range improvements.</li> </ol> <p>Refer to the document, "Grazing Influence, Management, and Objective Development in Wyoming's Greater Sage-Grouse Habitat" (Cagney et al. 2010) for guidance when considering appropriate management actions to achieve conformance.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
Wyoming's Greater Sage-Grouse Habitat" (Cagney et al. 2010) for guidance when considering appropriate management actions to achieve conformance.	(see above)	(see above)	(see above)	(see above)
<b>A- 45:</b> No similar action	<b>B- 45:</b> In priority habitat, the BLM/Forest Service would work cooperatively on integrated ranch planning within Greater Sage-Grouse habitat so operations with deeded BLM and/or Forest Service allotments can be planned as single units.	<b>C- 45:</b> No similar action	<b>D- 45:</b> The BLM/Forest Service would work cooperatively with permittees, lessees, and other landowners to develop grazing management strategies on an allotment-by-allotment basis to improve Greater Sage-Grouse habitat.	<b>E-45:</b> Within PHMAs the BLM would work cooperatively with permittees, lessees, and other landowners to develop voluntary grazing management strategies that integrate both public and private lands into single management units to improve Greater Sage-Grouse habitat.
Livestock Grazing Permit Monitoring				
<b>A- 46:</b> <u>Casper RMP:</u> Grazing leases would be adjusted where an evaluation of monitoring, field observations, or other data indicate changes, and either increases or decreases, in forage allocation are needed or when necessary or required by other	<b>B- 46:</b> In addition to Alternative A: Measurable objective would be monitored on grazing management would be evaluated to assure that management actions are achieving Greater Sage-Grouse habitat objectives. When conducting land health assessments, indicators and	<b>C- 46:</b> In addition to Alternative A: Measurable objectives would be monitored, and grazing management would be evaluated to assure that management actions are achieving Greater Sage-Grouse habitat objectives. Composition, function, and structure of native vegetation communities	<b>D- 46:</b> In addition to Alternative A: The BLM/Forest Service would continue to prioritize oversight and effectiveness monitoring of grazing activities to ensure compliance with permit conditions and that progress is being made on achieving Wyoming land health standards	<b>E- 46: <u>The following RMP decisions remain in effect:</u></b> <u>Casper RMP:</u> Grazing leases would be adjusted where an evaluation of monitoring, field observations, or other data indicate changes, and either increases or decreases, in forage allocation are needed or when necessary or required

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>applicable law or regulation.  <u>Kemmerer RMP:</u>  Vegetative communities would be managed in accordance with Wyoming Standards for Healthy Rangelands. Appropriate livestock grazing management actions would be developed and integrated to address rangeland health standards, improve forage for livestock, and enhance rangeland health.  <u>Newcastle RMP:</u>  Any adjustments in livestock grazing use would be made as a result of monitoring and consultation with grazing permittees. Monitoring studies would be conducted using the current BLM-approved methodology.  <u>Pinedale RMP:</u>  Monitoring of the range</p>	<p>measurements of structure, condition, and composition of vegetation specific to achieving Greater Sage-Grouse habitat objectives would be included. If local/state seasonal habitat objectives are not available, Greater Sage-Grouse habitat recommendations from Connelly et al. 2000b and Hagen et al. 2007 would be used. Completion of land health assessments (Forest Service may use other analyses) and processing grazing permits within Greater Sage-Grouse priority habitat areas would be prioritized. This process would focus on allotments that have the best opportunities for conserving, enhancing, or restoring habitat for Greater Sage-Grouse. BLM/Forest Service Ecological Site Descriptions (ESDs)</p>	<p>would be consistent with the reference state of the appropriate ESD and would provide for healthy, resilient, and recovering Greater Sage-Grouse habitat components.</p>	<p>on BLM- administered lands.</p>	<p>by other applicable law or regulation.  <u>Kemmerer RMP:</u>  Vegetative communities would be managed in accordance with Wyoming Standards for Healthy Rangelands. Appropriate livestock grazing management actions would be developed and integrated to address rangeland health standards, improve forage for livestock, and enhance rangeland health.  <u>Newcastle RMP:</u>  Any adjustments in livestock grazing use would be made as a result of monitoring and consultation with grazing permittees. Monitoring studies would be conducted using the current BLM-approved methodology.  <u>Pinedale RMP:</u>  Monitoring of the range and the vegetation resource would be conducted at a level sufficient to detect changes in grazing use, trend, and range conditions. Monitoring would be tied</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>and the vegetation resource would be conducted at a level sufficient to detect changes in grazing use, trend, and range conditions. Monitoring would be tied to land health standards and indicators that help determine change in status and progress toward meeting objectives. Data would be used to direct and support grazing management decisions consistent with national policy.</p> <p><u>Rawlins RMP:</u></p>	<p>(Forest Service may use other methods) would be utilized to conduct land health assessments to determine if standards of rangeland health are being met.</p>	<p>(see above)</p>	<p>(see above)</p>	<p>to land health standards and indicators that help determine change in status and progress toward meeting objectives. Data would be used to direct and support grazing management decisions consistent with national policy.</p> <p><u>Rawlins RMP:</u> Livestock grazing would be managed to meet the Wyoming Standards for Healthy Rangelands.</p> <p><u>Green River RMP/JMH CAP:</u> The kinds and seasons of livestock grazing use would continue to be licensed until monitoring, negotiation, consultation, or a change in resources conditions indicate that a modification is needed. Monitoring would be continued or initiated following adjustments in grazing use to assure that grazing and other management objectives are being met.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Livestock grazing would be managed to meet the Wyoming Standards for Healthy Rangelands.</p> <p><u>Green River RMP/JMH CAP: continued or initiated following adjustments in grazing use to assure that grazing and other management objectives are being met.</u></p> <p>The kinds and seasons of livestock grazing use would continue to be licensed until monitoring, negotiation, consultation, or a change in resources conditions indicate that a modification is needed. Monitoring would be continued or initiated following adjustments in grazing use to assure that grazing and other management objectives are being met.</p>	(see above)	(see above)	(see above)	(see above)



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A- 47:</b> No similar action	<b>B- 47:</b> No similar action	<b>C- 47:</b> In Greater Sage-Grouse habitat, the BLM/Forest Service would ensure that soil cover and native herbaceous plants are at their ESD potential to help protect against invasive plants. In areas without ESDs, reference sites would be utilized to identify appropriate vegetation communities and soil cover.	<b>D- 47:</b> No similar action	<b>E- 47:</b> No action
<b>Permit Renewals</b>				
<b>A- 48:</b> <u>TBNG LRMP:</u> During the AMP process or as other opportunities arise, livestock grazing strategies would be designed and implemented to provide quality nesting cover in all sagebrush stands (>15% canopy cover of big sagebrush, silver sagebrush, and greasewood) within at least 3.0 miles of active display grounds (consistent with GA	<b>B- 48:</b> If the LUP identifies specific allotment and/or permits where retirement is potentially beneficial, but the plan directs further site-specific analysis, land use plan amendment would not be required to retire the permit as long as the site-specific analysis is consistent with the ROD.	<b>C- 48:</b> Same as Alternative B	<b>D-48:</b> In addition to Alternative A: As the grazing permits are renewed incorporating Greater Sage-Grouse habitat objectives and management considerations in core habitats would be considered.	<b>E-SSS-48:</b> Within PHMAs, all BLM use authorizations will contain terms and conditions regarding the actions needed to meet or progress toward meeting the habitat objectives. If monitoring data show the habitat objectives have not been met nor progress being made towards meeting them, there will be an evaluation and a determination made as to the cause. If it is determined that the authorized use is a cause,

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>vegetation objectives) where sagebrush is irregularly distributed around the display ground. This minimum distance could be reduced to 2.0 miles where sagebrush is uniformly distributed around display grounds.</p> <p><u>MBNF LRMP:</u> Livestock grazing on rangelands would be coordinated to provide adequate cover and forage for Greater Sage-Grouse.</p>	(see above)	(see above)	(see above)	<p>the use will be adjusted by the response specified in the instrument that authorized the use.</p> <p>The NEPA analysis for renewals and modifications of livestock grazing permits/leases that includes lands within SFAs and PHMAs will include specific management thresholds based on Greater Sage-Grouse habitat objectives (Tables 2-2 and 2-3), Land Health Standards (43 CFR 4180.2) and ecological site potential, and one or more defined responses that will allow the authorizing officer to make adjustments to livestock grazing that have already been subjected to NEPA analysis.</p>
<p><b>A- 49:</b> <u>Casper RMP:</u> Conversions in kinds of livestock and changes in season of use would be considered on a case-by- case basis</p>	<p><b>B- 49:</b> The BLM/Forest Service would implement management actions (grazing decisions, conservation plan development, or other agreements) to modify grazing</p>	<p><b>C- 49:</b> No similar action</p>	<p><b>D- 49:</b> Same as Alternative B</p>	<p><b>E- 49: Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</b> BLM monitoring would be used to evaluate progress</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>through an environmental analysis. Such changes will be consistent with rangeland health objectives. Grazing leases will be adjusted to accurately reflect the kind of livestock use on public land in all allotments.</p> <p><u>Kemmerer RMP:</u> Current amounts, kinds, and seasons of livestock grazing uses would be authorized until rangeland health standards assessment results and (or) monitoring indicates a grazing use adjustment is necessary, or that a kind and (or) class of livestock or season of use modification can be accommodated.</p> <p><u>Newcastle RMP:</u> Any adjustments in livestock grazing use would be made as a</p>	<p>management to meet seasonal Greater Sage-Grouse habitat requirements. The BLM/Forest Service would consider singly, or in combination, changes in:</p> <ol style="list-style-type: none"> <li>1. Season or timing of use</li> <li>2. Numbers of livestock (includes temporary non-use or livestock removal)</li> <li>3. Distribution of livestock use</li> <li>4. Intensity of use (utilization or stubble height objectives)</li> <li>5. Kind of livestock (e.g., cattle, sheep, horses, llamas, alpacas and goats)</li> <li>6. Class of livestock (e.g., yearlings versus cow calf pairs)</li> <li>7. When processing NEPA for grazing permit renewals, include at least one alternative that</li> </ol>	(see above)	(see above)	<p>toward achieving land health standards within PHMAs and, where not achieved, to determine if existing grazing management practices or levels of grazing use on public lands are significant factors in failing to meet, maintain or make progress towards achieving the standards and conform with the guidelines, which through this process will identify appropriate actions to address non-achievement and non-conformance.</p> <p>Allotments within SFAs, followed by those within PHMAs, and focusing on those containing riparian areas, including wet meadows, will be prioritized for field checks to help ensure compliance with the terms and conditions of the grazing permits. Field checks could include monitoring for actual use, utilization, and use supervision.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>result of monitoring and consultation with grazing permittees. Monitoring studies would be conducted using the current BLM-approved methodology.</p> <p><u>Pinedale RMP:</u> Conversions from one type of livestock to another would be evaluated on a case-by-case basis, including an environmental analysis, and would be authorized in conformance with the goals and objectives of the RMP.</p> <p><u>Rawlins RMP:</u> The current amounts, kinds, and seasons of livestock grazing use would be authorized until monitoring, field observations, ecological site inventory, or other data acceptable to BLM indicates a</p>	<p>would implement a deferred or rest-rotation grazing system, if one is not already in place and the size of the allotment warrants it. The BLM/Forest Service would consider terms and conditions on grazing permits and leases that assure plant growth requirement are met and residual forage remains available for Greater Sage-Grouse hiding cover.</p>	(see above)	(see above)	<p>The BLM will prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in SFAs followed by PHMAs outside of the SFAs. In setting workload priorities, precedence will be given to existing permits/leases in these areas not meeting Land Health Standards, with focus on those containing riparian areas, including wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., fire) and legal obligations.</p> <p><b>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</b></p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>grazing use adjustment is needed, as appropriate. Requests for changes in season-of use or kind-of-livestock would be considered on a case-by-case basis. Any decision regarding changes in grazing use would include cooperation, consultation, and coordination with the grazing permittees and the interested public.</p> <p><u>Green River RMP:</u> The Wyoming Standards for Healthy Rangelands (BLM 1997a) would apply to all resource uses on BLM-administered lands. These standards are the minimal acceptable conditions that address the health, productivity, and sustainability of the rangeland. The standards describe healthy rangelands</p>	(see above)	(see above)	(see above)	<p><u>Casper RMP:</u> Conversions in kinds of livestock and changes in season of use would be considered on a case-by-case basis through an environmental analysis. Such changes will be consistent with rangeland health objectives. Grazing leases will be adjusted to accurately reflect the kind of livestock use on public land in all allotments.</p> <p><u>Kemmerer RMP:</u> Current amounts, kinds, and seasons of livestock grazing uses would be authorized until rangeland health standards assessment results and (or) monitoring indicates a grazing use adjustment is necessary, or that a kind and (or) class of livestock or season of use modification can be accommodated.</p> <p><u>Newcastle RMP:</u> Any adjustments in livestock grazing use would be made as a result of monitoring and consultation with grazing</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>rather than rangeland by-products.</p> <p>Achievement of a standard is determined through observing, measuring, and monitoring appropriate indicators. An indicator is a component of a system whose characteristics (e.g., presence, absence, quantity, and distribution) can be observed, measured, or monitored based on sound scientific principles. The standards will direct the management of public lands and focus the implementation of this activity plan toward the maintenance or attainment of healthy rangelands.</p> <p><u>TBNG LRMP:</u> During the AMP process or as other opportunities arise,</p>	(see above)	(see above)	(see above)	<p>permittees. Monitoring studies would be conducted using the current BLM-approved methodology.</p> <p><u>Pinedale RMP:</u> Conversions from one type of livestock to another would be evaluated on a case-by-case basis, including an environmental analysis, and would be authorized in conformance with the goals and objectives of the RMP.</p> <p><u>Rawlins RMP:</u> The current amounts, kinds, and seasons of livestock grazing use would be authorized until monitoring, field observations, ecological site inventory, or other data acceptable to BLM indicates a grazing use adjustment is needed, as appropriate. Requests for changes in season-of use or kind-of-livestock would be considered on a case-by-case basis. Any decision regarding changes in grazing use</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>livestock grazing strategies would be designed and implemented to provide quality nesting cover in all sagebrush stands (&gt;15% canopy cover of big sagebrush, silver sagebrush, and greasewood) within at least 3.0 miles of active display grounds (consistent with GA vegetation objectives) where sagebrush is irregularly distributed around the display ground. This minimum distance could be reduced to 2.0 miles where sagebrush is uniformly distributed around display grounds.</p> <p><u>BTNF LRMP:</u> Fisheries, riparian habitats, and Threatened and Endangered Species (TES) species' needs would be addressed in allotment management plans.</p>	(see above)	(see above)	(see above)	<p>would include cooperation, consultation, and coordination with the grazing permittees and the interested public.</p> <p><u>Green River RMP:</u> The Wyoming Standards for Healthy Rangelands (BLM 1997a) would apply to all resource uses on BLM-administered lands. These standards are the minimal acceptable conditions that address the health, productivity, and sustainability of the rangeland. The standards describe healthy rangelands rather than rangeland by-products.</p> <p>Achievement of a standard is determined through observing, measuring, and monitoring appropriate indicators. An indicator is a component of a system whose characteristics (e.g., presence, absence, quantity, and distribution) can be observed, measured, or monitored based on sound scientific</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
Range improvements, management activities, and trailing would be coordinated with and designed to help meet fish and wildlife needs, especially on key habitat such as crucial winter range, seasonal calving areas, riparian areas, Greater Sage-Grouse leks, and nesting sites. Special emphasis would be placed on helping to meet the needs of TES species.	(see above)	(see above)	(see above)	principles. The standards will direct the management of public lands and focus the implementation of this activity plan toward the maintenance or attainment of healthy rangelands.
<b>A- 50:</b> When livestock grazing permits and/or grazing preference are voluntarily relinquished, the relinquishment of grazing preference would be managed according to appropriate BLM and Forest Service regulations.	<p><b>B- 50:</b> Retirement of grazing privileges would be maintained as an option in Greater Sage-Grouse priority habitat areas when the current permittee is willing to retire grazing on all or part of an allotment.</p> <p>The impacts of no livestock use on wildfire and invasive species threats would be analyzed in evaluating retirement proposals. Retirement of grazing preference would be</p>	<b>C- 50:</b> Same as Alternative B	<p><b>D- 50:</b> In addition to Alternative A: Retirement of up to 15% within the individual planning unit would be authorized for grazing allotments in Greater Sage-Grouse core and connectivity habitat areas, where the permittee or lessee voluntarily relinquishes their grazing preference in their grazing allotment.</p> <p>Temporary use may be allowed in allotments where grazing preference</p>	<b>E- 50:</b> Within PHMAs, at the time a permittee or lessee voluntarily relinquishes a permit or lease (see Grazing Relinquishment in the Glossary), the BLM will consider whether the public lands where that permitted use was authorized should remain available for livestock grazing or be used for other resource management objectives, such as reserve common allotments or fire breaks.



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	<p>provided on a case by case basis when the advantage to Greater Sage-Grouse habitat warrants, and a permittee or lessee voluntarily relinquishes their grazing preference in a specific grazing allotment or when a property is transferred.</p> <p>No temporary use would be allowed in allotments where grazing preference has been relinquished.</p> <p>If the LUP identifies specific allotment and/or permits where retirement is potentially beneficial, but the plan directs further site-specific analysis, a land use plan amendment would not be required to retire the permit as long as the site-specific analysis is consistent with the ROD.</p>	(see above)	has been relinquished or non-use warrants, to rest other allotments that include important Greater Sage-Grouse habitat.	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A- 51:</b> No similar action	<b>B- 51:</b> Each planning effort would identify the specific allotment(s) where permanent retirement of grazing privileges is potentially beneficial to Greater Sage-Grouse.	<b>C- 51:</b> In each planning process, grazing allotments where permanent retirement of grazing privileges would be potentially beneficial to Greater Sage-Grouse would be identified.	<b>D- 51:</b> No similar action	<b>E -51:</b> No action
<p><b>A- 52:</b> <u>Casper RMP:</u> Other management considerations for use of stock driveway withdrawals (SDW) would include providing emergency use for relief from fire, drought, or other natural causes or to meet management objectives in adjoining allotments that require rest. These other uses would be addressed on a case-by- case basis and may occur any time during the year provided the AO has determined adequate forage is available and it does not interfere with regular trail use. The decision determining there is adequate</p>	<p><b>B- 52:</b> In addition to Alternative A: During drought periods, evaluating effects of drought in Greater Sage-Grouse priority habitat areas relative to their needs for food and cover would be prioritized. Since there is a lag in vegetation recovery following drought, the BLM/Forest Service would ensure that post-drought management allows for vegetation recovery that meets Greater Sage-Grouse needs in priority habitat areas.</p>	<p><b>C- 52:</b> In addition to Alternative A: During drought periods, evaluating effects of drought in Greater Sage-Grouse priority and general habitat areas relative to their biological needs would be prioritized, as well as drought effects on ungrazed reference areas. Since there is a lag in vegetation recovery following drought, the BLM/Forest Service would ensure that post-drought management allows for vegetation recovery that meets Greater Sage-Grouse needs in Greater Sage-Grouse habitat areas based on Greater Sage-Grouse habitat objectives.</p>	<p><b>D- 52:</b> In addition to Alternative A: If periods of drought occur within Greater Sage-Grouse core habitat, where appropriate, the season of use and stocking rate would be evaluated and adjusted through coordination with grazing permittee/lessee and annual billings processes.</p>	<p><b>E- 52:</b> <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u> When periods of drought occur, where appropriate, the AO would evaluate strategies to address drought through coordination with grazing permittee/lessee and annual billings processes. In cooperation with livestock grazing permittees/lessees, drought contingency plans would be developed at the appropriate landscape unit that provide for a consistent/appropriate BLM response. Contingency plans should establish strategies for addressing ongoing</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>forage would be documented and filed in the appropriate SDW file. Consultation and coordination with livestock owners who regularly use the respective SDW would be made prior to authorizing this type of use. This use would be authorized in accordance with Federal grazing regulations. A drought contingency plan would be developed to maintain adequate habitat components for viable fish, wildlife, and special status species populations.</p> <p><u>BTNF LRMP:</u> Non-use for resource protection can be approved as a result of ongoing drought conditions. Requests by permittees to downsize or de-stock because of extreme or prolonged drought are in the interest of sound</p>	(see above)	(see above)	(see above)	<p>drought and post- drought recovery.</p> <p><b><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b>  <u>Casper RMP:</u>  Other management considerations for use of stock driveway withdrawals (SDW) would include providing emergency use for relief from fire, drought, or other natural causes or to meet management objectives in adjoining allotments that require rest. These other uses would be addressed on a case-by-case basis and may occur any time during the year provided the AO has determined adequate forage is available and it does not interfere with regular trail use. The decision determining there is adequate forage would</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>rangeland management, should be approved on a case-by-case allotment basis, and should not count against the permittee's period of nonuse for personal convenience.</p> <p><b>TBNG LRMP:</b> At the onset of drought, the need to adjust land uses to reduce impacts on Greater Sage-Grouse nesting and brooding habitat would be evaluated.</p>	(see above)	(see above)	(see above)	<p>be documented and filed in the appropriate SDW file. Consultation and coordination with livestock owners who regularly use the respective SDW would be made prior to authorizing this type of use. This use would be authorized in accordance with federal grazing regulations. (also see Management Action 54)</p> <p>A drought contingency plan would be developed to maintain adequate habitat components for viable fish, wildlife, and Special Status Species populations.</p>
Range Development Projects				
<p><b>A- 53: Casper RMP:</b> Identified hazard fences would be modified and new fences would be constructed in accordance with the BLM Fencing Handbook 1741-I. Decision 4010. Placement of salt, mineral, or forage supplements for</p>	<p><b>B- 53:</b> In addition to Alternative A: In priority habitat, any new structural range improvements and location of supplements (salt or protein blocks) would be designed to conserve, enhance, or restore Greater Sage-Grouse habitat through</p>	<p><b>C- -53:</b> In addition to Alternative A: All new structural range developments and location of supplements (salt or protein blocks) would be avoided in sage- grouse priority and general habitat unless independent</p>	<p><b>D- 53:</b> In addition to Alternative A: In Greater Sage-Grouse general and core habitat, existing range improvements (e.g., fences, livestock/wildlife watering facilities) associated with grazing management operations would continue to be</p>	<p><b>E-53: Specific to management for all Greater Sage-Grouse Habitat, all RMPs are amended as follows:</b> In GHMAs and PHMAs, existing range improvements (e.g., fences, livestock/wildlife watering facilities) would continue</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>livestock would not be allowed within 0.25 mile of water, wetlands, and riparian areas, unless written analysis shows that watershed, riparian, wetland, wildlife, and vegetative values would not be adversely impacted. Forage supplements would be required to be “certified weed-free.”</p> <p><u>Kemmerer RMP:</u> BLM fencing standards would be applied to newly constructed fences on BLM-administered lands within the planning area.</p> <p>Existing fences would be eliminated or modified to reduce conflicts on a case- by-case basis.</p> <p>Livestock salt or mineral supplements would be located a minimum of 0.25 mile away from water sources, riparian areas, and aspen stands.</p>	<p>an improved grazing management system relative to Greater Sage-Grouse objectives.</p> <p>Structural range improvements, in this context, would include but would not be limited to: cattle guards, fences, exclosures, corrals or other livestock handling structures; pipelines, troughs, storage tanks (including moveable tanks used in livestock water hauling), windmills, ponds/reservoirs, solar panels and spring developments. Potential for invasive species establishment or increase following construction must be considered in the project planning process and monitored and treated post-construction. When fences are necessary, in Greater Sage-Grouse habitat a</p>	<p>peer- reviewed studies show that the range improvement structure or nutrient supplement placement benefits sage- grouse.</p> <p>Structural range developments, in this context, would include but would not be limited to cattle guards, fences, exclosures, corrals or other livestock handling structures; pipelines, troughs, storage tanks (including moveable tanks used in livestock water hauling), windmills, ponds/reservoirs, solar panels and spring developments. Potential for invasive species establishment or increase following construction must be considered in the project planning process and monitored and treated post-construction. The</p>	<p>evaluated and modified when necessary for reducing impacts on Greater Sage-Grouse and its habitat.</p>	<p>to be evaluated and modified when necessary. The potential risk to Greater Sage-Grouse and its habitats from existing structural range improvements would be evaluated. The potential for modification of those structural range improvements identified as posing a risk would be addressed. Supplements and supplemental feeding would continue to be authorized where appropriate.</p> <p><b><u>Outside of PHMA and GHMA, and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b></p> <p><u>Casper RMP:</u> Identified hazard fences would be modified and new fences would be constructed in accordance with the BLM Fencing</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Buffers would be based on resource concerns on a case-by-case basis.</p> <p><u>Newcastle RMP:</u> Fence construction would be required to meet current BLM fence standards.</p> <p>Fences on BLM-administered public land surface that cause documented wildlife conflicts would be removed, reconstructed, or modified, as appropriate or necessary, to eliminate or reduce the conflict.</p> <p>Construction of fences that interfere with movements of big game species in crucial big game winter range would not be allowed on BLM-administered public land surface.</p> <p><u>Pinedale RMP:</u> Mineral supplement blocks would be placed in locations that promote</p>	<p>Greater Sage-Grouse-safe design would be required.</p> <p>To reduce Greater Sage-Grouse strikes and mortality fences in high risk areas would be removed, modified, or marked within Greater Sage-Grouse habitat based on proximity to lek, Lek size, and topography.</p> <p>In Greater Sage-Grouse priority habitat, existing structural range improvements and location of supplements (salt or protein blocks) would be evaluated to make sure they conserve, enhance, or restore Greater Sage-Grouse habitat.</p>	<p>comparative cost of changing grazing management instead of constructing additional range developments would be considered.</p> <p>Fences in areas of moderate or high risk of Greater Sage-Grouse strikes would be removed, modified, or marked within Greater Sage-Grouse habitat based on proximity to lek, lek size, and topography.</p> <p>In Greater Sage-Grouse priority and general habitat, existing structural range improvements and location of supplements (salt or protein blocks) would be evaluated to make sure they conserve, enhance, or restore Greater Sage-Grouse habitat</p>	<p>(see above)</p>	<p>Handbook 1741-1. Decision 4010.</p> <p>Placement of salt, mineral, or forage supplements for livestock would not be allowed within 0.25 mile of water, wetlands, and riparian areas, unless written analysis shows that watershed, riparian, wetland, wildlife, and vegetative values would not be adversely impacted. Forage supplements would be required to be “certified weed-free.”</p> <p><u>Kemmerer RMP:</u> BLM fencing standards would be applied to newly constructed fences on BLM-administered lands within the planning area. Existing fences would be eliminated or modified to reduce conflicts on a case-by-case basis.</p> <p>Livestock salt or mineral supplements would be located a minimum of 0.25 mile away from water sources, riparian areas,</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>proper grazing distribution and prevent inappropriate livestock use on riparian habitat; for example, by locating supplements on ridgetops and/or approximately 0.25 mile from riparian habitat. Placement of supplements near water sources, such as wells and reservoirs, would consider rangeland objectives, such as grazing distribution, wildlife habitat requirements, and reclamation success. Mineral supplement blocks would not be placed within 0.25 mile of an occupied Greater Sage-Grouse lek. Mineral supplement blocks would not be placed within 0.25 mile of known Special Status Plant Species locations.</p> <p><u>Rawlins RMP:</u> New fence construction would be authorized according to BLM standards unless modified following consultation</p>	(see above)	(see above)	(see above)	<p>and aspen stands. Buffers would be based on resource concerns on a case-by-case basis.</p> <p><u>Newcastle RMP:</u> Fence construction would be required to meet current BLM fence standards.</p> <p>Fences on BLM-administered public land surface that cause documented wildlife conflicts would be removed, reconstructed, or modified, as appropriate or necessary, to eliminate or reduce the conflict.</p> <p>Construction of fences that interfere with movements of big game species in crucial big game winter range would not be allowed on BLM-administered public land surface.</p> <p><u>Pinedale RMP:</u> Mineral supplement blocks would be placed in</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>with affected parties. Existing fences would be modified according to current BLM standards and according to wildlife and livestock management needs.</p> <p><u>Green River RMP/JMH CAP:</u> Where documented wildlife conflicts with fencing on public lands occur, fences would be modified, reconstructed, or, if necessary, removed. Herding control of livestock would be encouraged as an alternative to fencing. Fence construction would be in accordance with BLM design standards and located so as not to overly impede wildlife movement. Consideration would also be given to special status species and wild horse movement.</p> <p><u>Green River RMP:</u> Livestock water developments and range improvements would be</p>	(see above)	(see above)	(see above)	<p>locations that promote proper grazing distribution and prevent inappropriate livestock use on riparian habitat; for example, by locating supplements on ridgetops and/or approximately 0.25 mile from riparian habitat.</p> <p>Placement of supplements near water sources, such as wells and reservoirs, would consider rangeland objectives, such as grazing distribution, wildlife habitat requirements, and reclamation success. Mineral supplement blocks would not be placed within 0.25 mile of an occupied Greater Sage-Grouse lek. Mineral supplement blocks would not be placed within 0.25 mile of known Special Status Plant Species locations.</p> <p><u>Rawlins RMP:</u> New fence construction would be authorized according to BLM standards unless modified</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>considered to maintain or improve resource conditions, enhance livestock distribution, or both. Compatibility with special status plant species would be required. Water developments and/or range improvements proposed in sensitive areas would be considered only if wildlife habitat and resource conditions are maintained or improved and no significant or irreversible adverse effects would occur.</p> <p>Salt or nutritional supplements would be prohibited within 500 feet of riparian habitat and National Historic and Scenic Trails unless analysis shows that these resources would not be adversely affected. These supplements also would be prohibited on areas inhabited by special status plant species. Placement of supplements at least</p>	(see above)	(see above)	(see above)	<p>following consultation with affected parties.</p> <p>Existing fences would be modified according to current BLM standards and according to wildlife and livestock management needs.</p> <p><u>Green River RMP/JMH CAP:</u> Where documented wildlife conflicts with fencing on public lands occur, fences would be modified, reconstructed, or, if necessary, removed. Herding control of livestock would be encouraged as an alternative to fencing.</p> <p>Fence construction would be in accordance with BLM design standards and located so as not to overly impede wildlife movement. Consideration would also be given to Special Status Species and wild horse movement.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>500 feet away from wells, troughs, and other human-made water sources would be encouraged to better distribute livestock.</p> <p><u>JMH CAP:</u> Livestock water developments and range improvements would be considered to maintain or improve resource conditions, enhance livestock distribution, or both. Compatibility with special status plant species would be required. Water developments and/or range improvements proposed in sensitive areas would be considered only if wildlife habitat and resource conditions were maintained or improved and no significant or irreversible adverse effects would occur.</p> <p>Salt or nutritional supplements would be prohibited within 500 feet of riparian habitat and</p>	(see above)	(see above)	(see above)	<p><u>Green River RMP:</u> Livestock water developments and range improvements would be considered to maintain or improve resource conditions, enhance livestock distribution, or both. Compatibility with special status plant species would be required. Water developments and/or range improvements proposed in sensitive areas would be considered only if wildlife habitat and resource conditions are maintained or improved and no significant or irreversible adverse effects would occur.</p> <p>Salt or nutritional supplements would be prohibited within 500 feet of riparian habitat and National Historic and Scenic Trails unless analysis shows that these resources would not be adversely affected. These supplements also would be prohibited on areas</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>National Historic and Scenic Trails unless analysis shows that these resources would not be adversely affected. These supplements also would be prohibited on areas inhabited by special status plant species. Placement of supplements at least 500 feet away from wells, troughs, and other human-made water sources would be encouraged to better distribute livestock.</p> <p><u>TBNG LRMP:</u> Any fences or water developments that are not contributing in achieving desired conditions would be prioritized for removal. When installing new livestock water tanks, durable and effective escape ramps for birds and small mammals would be installed. During maintenance of existing tanks, ramps that are ineffective or missing would be replaced.</p>	(see above)	(see above)	(see above)	<p>inhabited by special status plant species. Placement of supplements at least 500 feet away from wells, troughs, and other human-made water sources would be encouraged to better distribute livestock.</p> <p><u>JMH CAP:</u> Livestock water developments and range improvements would be considered to maintain or improve resource conditions, enhance livestock distribution, or both. Compatibility with special status plant species would be required. Water developments and/or range improvements proposed in sensitive areas would be considered only if wildlife habitat and resource conditions were maintained or improved and no significant or irreversible adverse effects would occur.</p> <p>Salt or nutritional supplements would be prohibited within 500 feet</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>To help reduce disturbances to nesting Greater Sage-Grouse, the following activities would be prohibited within 2.0 miles of active display grounds from March 1 to June 15:</p> <ol style="list-style-type: none"> <li>1. Construction (e.g., roads, water impoundments, oil and gas facilities),</li> <li>2. Reclamation,</li> <li>3. Gravel mining operations,</li> <li>4. Drilling of water wells, Standard (Grassland Wide Direction)</li> </ol> <p>To reduce disturbances to nesting Greater Sage-Grouse, the following activities would not be authorized within 2.0 miles of active display grounds from March 1 to June 15:</p> <ol style="list-style-type: none"> <li>1. Construction (e.g., pipelines, utilities, fencing), Guideline (Grassland Wide Direction)</li> </ol> <p>When constructing facilities or structures</p>	(see above)	(see above)	(see above)	<p>of riparian habitat and National Historic and Scenic Trails unless analysis shows that these resources would not be adversely affected. These supplements also would be prohibited on areas inhabited by special status plant species. Placement of supplements at least 500 feet away from wells, troughs, and other human-made water sources would be encouraged to better distribute livestock.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>within 2 miles of a Greater Sage-Grouse active display ground, they would be designed to discourage raptor perching by maintaining a low profile or using perch inhibitors.</p> <p><u>BTNF LRMP:</u> Fish; Wildlife; and Sensitive Species Standard Range improvements, management activities, and trailing would be coordinated with and designed to help meet fish and wildlife needs, especially on key habitat such as crucial winter range, seasonal calving areas, riparian areas, Greater Sage-Grouse leks, and nesting sites. Special emphasis would be placed on helping to meet the needs of TES species.</p> <p>Allotment Management Plan Standard Fisheries; riparian habitats; and TES species' needs would be</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>addressed in allotment management plans.</p> <p>Fish; Wildlife; and Sensitive Species Standard Range improvements, management activities, and trailing would be coordinated with and designed to help meet fish and wildlife needs, especially on key habitat such as crucial winter range, seasonal calving areas, riparian areas, Greater Sage-Grouse leks, and nesting sites. Special emphasis will be placed on helping to meet the needs of TES species.</p> <p>Form FS-2200-10b (Grazing Permit Part 3) contains management practice requirements pertaining to livestock salting. Though none of the provisions found in recent permits directly address Greater Sage-Grouse conservation measures, this section may be modified to stipulate such measures.</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><u>MBNF LRMP:</u> New disturbances such as construction, drilling, new recreation facilities, logging, or other concentrated intense activities would be prohibited. Short-term projects designed to improve habitat such as prescribed burning are permitted.</p> <p>Greater Sage-Grouse breeding complexes: March 1 June 30; 2 miles: Fence density would be limited by allowing new fences only to facilitate protection, public safety, or habitat protection or enhancement. Stock tanks and similar features would, in all cases, be kept out of the water influence zone if feasible and out of riparian areas and wetlands. Stock driveways would be kept out of the water influence zone except to cross at designated points. Water gaps would be hardened,</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
and stock crossing would be designated where needed and feasible. Salt and other supplements would be placed at least 0.25 mile from riparian areas and water developments unless specified otherwise in the allotment management plan or annual operating instructions.	(see above)	(see above)	(see above)	(see above)
<b>Livestock Trailing</b>				
<p><b>A- 54: Casper RMP:</b> The revocation of withdrawals for those trails that are no longer active would be reviewed and recommended and these lands would be incorporated into adjacent allotments (46,050 acres). Grazing leases would be offered to the respective grazing lessees. All remaining SDW lands for trail use (55,680 acres) would be retained.</p> <p><u>Kemmerer RMP:</u> .</p>	<b>B- 54:</b> No similar action	<p><b>C- 54:</b> In addition to Alternative A: Grazing and trailing would be avoided within lekking, nesting, brood-rearing, and winter habitats during periods of the year when these habitats are utilized by Greater Sage-Grouse.</p>	<b>D- 54:</b> Same as Alternative A	<p><b>E- 54: <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></b> Livestock trailing that is authorized would include a trailing plan to utilize non-habitat to the extent possible, include specific routes and timeframes for trailing, utilize existing trails, and avoid stopovers on occupied leks, as appropriate. <b><u>The following RMP decisions remain in effect with the modification described above:</u></b></p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Current livestock trails would be retained. Livestock trailing use would occur within 0.5 mile of the mapped centerline.</p> <p><u>Pinedale RMP:</u> Adequate stock trails would be maintained to support livestock trailing needs</p>	(see above)	(see above)	(see above)	<p><u>Casper RMP:</u> The revocation of withdrawals for those trails that are no longer active would be reviewed and recommended and these lands would be incorporated into adjacent allotments (46,050 acres). Grazing leases would be offered to the respective grazing lessees. All remaining SDW lands for trail use (55,680 acres) would be retained.</p> <p><u>Kemmerer RMP:</u> Current livestock trails would be retained. Livestock trailing use would occur within 0.5 mile of the mapped centerline. Pinedale RMP: Adequate stock trails would be maintained to support livestock trailing needs.</p>
Riparian Area Management				
<p><b>A- 55:</b> <u>Casper RMP:</u> Lotic and lentic wetland/riparian areas would be managed toward PFC. The BLM would manage toward PFC</p>	<p><b>B- 55:</b> In addition to Alternative A: Within Greater Sage-Grouse priority habitat, where riparian areas and wet meadows meet proper functioning condition</p>	<p><b>C- 55:</b> In addition to Alternative A: Within Greater Sage-Grouse priority habitat, where riparian areas and wet meadows meet proper functioning condition or meet</p>	<p><b>D- 55:</b> In Greater Sage-Grouse core habitats, to address a proven threat to Greater Sage-Grouse conservation, balancing grazing between riparian</p>	<p><b>E- 55:</b> <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u> Grazing between riparian habitats and upland</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>and identified DPC on 350 miles of lotic and adjacent riparian habitat and 10,000 acres of lentic habitat to meet fish, wildlife, and special status species habitat requirements.</p> <p><u>Kemmerer RMP:</u> Livestock conversions would be allowed in allotments with riparian concerns only when a plan is approved to address riparian issues. Management actions and range improvements proposed to address riparian issues would have to be implemented prior to authorizing the conversion. Livestock conversions may be approved only after completion of a suitability study for the conversion. The conversion may be authorized if it is determined that</p>	<p>or meet standards using other similar methodology (Forest Service only), the BLM/Forest Service would strive to attain reference state vegetation relative to the ESD.</p> <p>Riparian areas and wet meadows would be managed for proper functioning condition or other similar methodology (Forest Service only) within Greater Sage-Grouse priority habitats.</p> <p>Within priority and general Greater Sage-Grouse habitats, wet meadows would be managed to maintain a component of perennial forbs with diverse species richness relative to site potential (e.g., reference state) to facilitate brood rearing. Also, these wet meadow complexes</p>	<p>standards using other similar methodology (Forest Service only), the BLM/Forest Service would strive to attain reference state vegetation relative to the ESD. Riparian areas and wet meadows would be managed for proper functioning condition or other similar methodology (Forest Service only) within Greater Sage-Grouse priority habitats.</p> <p>Within Greater Sage-Grouse priority and general habitats, wet meadows would be managed to maintain a component of perennial forbs with diverse species richness and productivity relative to site potential (e.g., reference state) to facilitate brood rearing. At least 6 inches of stubble height must remain on all riparian/meadow area herbaceous species at all times. Also, these wet meadow complexes</p>	<p>habitats and upland habitats would be considered to promote the production and availability of beneficial forbs to Greater Sage-Grouse in meadows mesic habitats, and riparian pastures for Greater Sage-Grouse use during nesting and brood-rearing while maintaining upland conditions and functions. Through a full range of grazing management strategies for livestock, wildlife, and wild horses, changes to season-of-use in riparian/wetland areas before or after the hot growing season would be considered.</p>	<p>habitats would be balanced to promote the production and availability of beneficial forbs to Greater Sage-Grouse for use during nesting and brood-rearing. Grazing in meadows, mesic habitats, and riparian pastures also would be balanced to promote the production and availability of beneficial grasses and forbs for use during late brood-rearing within PHMAs, while maintaining upland conditions and functions.</p> <p><b><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b></p> <p><u>Casper RMP:</u> Lotic and lentic wetland/riparian areas would be managed toward Proper Functioning Condition (PFC).</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>riparian habitats will be maintained or improved by the conversion.</p> <p><u>Pinedale RMP:</u> Meet the Wyoming Standards for Rangeland Health and maintain or enhance wetland and riparian vegetation to achieve Proper Functioning Condition.</p> <p>Grazing systems will be designed to maintain or improve watershed and range condition; for example, through changing seasons of use, implementing rotational or other grazing management systems, or developing infrastructure for livestock management.</p> <p>In allotments with riparian habitat, grazing management actions will be designed to maintain or achieve</p>	<p>would be conserved or enhanced to maintain or increase the amount of edge and cover within that edge to minimize elevated mortality during the late brood rearing period.</p> <p>Within Greater Sage-Grouse priority habitat, hot season grazing on riparian and meadow complexes would be reduced to promote recovery or maintenance of appropriate vegetation and water quality.</p> <p>Fencing/herding techniques, seasonal use, or livestock distribution changes would be utilized to reduce pressure on riparian or wet meadow vegetation used by Greater Sage-Grouse in the hot season (summer).</p>	<p>would be conserved or enhanced to maintain or increase the amount of edge and cover within that edge to minimize elevated mortality during the late brood-rearing period.</p>	<p>(see above)</p>	<p>The BLM would manage toward PFC and identified Desired Plant Community (DPC) on 350 miles of lotic and adjacent riparian habitat and 10,000 acres of lentic habitat to meet fish, wildlife, and Special Status Species habitat requirements.</p> <p><u>Kemmerer RMP:</u> Livestock conversions would be allowed in allotments with riparian concerns only when a plan is approved to address riparian issues. Management actions and range improvements proposed to address riparian issues would have to be implemented prior to authorizing the conversion. Livestock conversions may be approved only after completion of a suitability study for the conversion. The conversion may be authorized if it is determined that riparian habitats will be maintained</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>proper functioning condition.</p> <p><u>Green River RMP:</u> Range improvements will be directed at resolving or reducing resource concerns, improvement of wetland/riparian areas, and overall improvement of vegetation/ground cover. New range improvements may be implemented in “I” and “M” category allotments. Maintenance of range improvements will be required in accordance with the BLM Rangeland Improvement Policy.</p> <p><u>JMH CAP:</u> Implementation of grazing management systems will assist in improving or maintaining the desired range condition. Approved AMPs, or other activity plans</p>	(see above)	(see above)	(see above)	<p>or improved by the conversion.</p> <p><u>Pinedale RMP:</u> Meet the Wyoming Standards for Rangeland Health and maintain or enhance wetland and riparian vegetation to achieve Proper Functioning Condition.</p> <p>Grazing systems will be designed to maintain or improve watershed and range condition; for example, through changing seasons of use, implementing rotational or other grazing management systems, or developing infrastructure for livestock management. In allotments with riparian habitat, grazing management actions will be designed to maintain or achieve proper functioning condition.</p> <p><u>Green River RMP:</u> Range improvements will be directed at resolving or reducing resource</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>intended to serve as the functional equivalent to an AMP, for each of the designated grazing allotments will provide the necessary guidance for achieving grazing management objectives.</p> <p>Appropriate actions for improving degraded rangeland and riparian habitat (i.e., meeting Wyoming Standards for Healthy Rangelands (BLM 1997a)) could include, but will not be limited to, reduction of permitted animal unit months (AUM), modified turnout dates, livestock water developments, range improvements, modified grazing periods, growing season rest, riparian pastures, exclosures, implementation of forage utilization levels, and livestock conversions. These</p>	(see above)	(see above)	(see above)	<p>concerns, improvement of wetland/riparian areas, and overall improvement of vegetation/ground cover. New range improvements may be implemented in “I” and “M” category allotments. Maintenance of range improvements will be required in accordance with the BLM Rangeland Improvement Policy.</p> <p><u>JMH CAP:</u> Implementation of grazing management systems will assist in improving or maintaining the desired range condition. Approved AMPs, or other activity plans intended to serve as the functional equivalent to an AMP, for each of the designated grazing allotments will provide the necessary guidance for achieving grazing management objectives.</p> <p>Appropriate actions for improving degraded rangeland and riparian habitat (i.e., meeting Wyoming Standards for</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>improvements will be considered individually using the method outlined in Appendix 2 of the JMH CAP ROD to ensure conformance with management objectives for the planning area and other resource values.</p> <p><b><u>TBNG LRMP:</u></b> During vegetation management practices, maintain or enhance wet and sub-irrigated meadows, seeps, riparian habitats, and other wetland areas that occur in or adjacent to Greater Sage-Grouse habitat as quality Greater Sage-Grouse foraging areas during the spring, summer, and fall.</p> <p><b><u>BTNF LRMP:</u></b> Objective 4.3 Protect and rehabilitate riparian areas to retain and improve their value for fisheries, aquatic</p>	(see above)	(see above)	(see above)	<p>Healthy Rangelands (BLM 1997a)) could include, but will not be limited to, reduction of permitted animal unit months (AUM), modified turnout dates, livestock water developments, range improvements, modified grazing periods, growing season rest, riparian pastures, exclosures, implementation of forage utilization levels, and livestock conversions. These improvements will be considered individually using the method outlined in Appendix 2 of the JMH CAP ROD to ensure conformance with management objectives for the planning area and other resource values.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>habitat, wildlife, and water quality.</p> <p><b>MBNF LRMP:</b> Manage livestock grazing in riparian areas and wetlands using “best management practices.” The following Watershed Conservation Practices are interrelated and should be considered and implemented as a complete package where feasible:</p> <p>1. Apply short duration grazing, as feasible (generally 20-30 days), to provide greater opportunity for regrowth and to avoid utilization of woody species.</p> <p>2. Design grazing systems to limit utilization of woody species. Move livestock from riparian areas and wetlands when they begin to have a preference for woody</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>species, especially plants in the young maturity classes.</p> <p>3. Keep stock tanks and similar features out of the water influence zone if feasible and out of riparian areas and wetlands always.</p> <p>4. Keep stock driveways out of the water influence zone except to cross at designated points. Harden water gaps and designated stock crossing where needed and feasible.</p>	(see above)	(see above)	(see above)	(see above)
<p><b>A- 56:</b> <u>Green River RMP:</u> Water sources may be developed in crucial wildlife winter ranges only when consistent with wildlife habitat needs. Such sources will be designed to benefit livestock, wild horses, and wildlife. Alternative water supplies or facilities for livestock may be</p>	<p><b>B-56:</b> In addition, to Alternative A: Within Greater Sage-Grouse priority habitats, new water developments for diversion from spring or seep source would be authorized only when priority Greater Sage-Grouse habitat would benefit on both upland and riparian habitat from the development or when there are no negative</p>	<p><b>C- 56:</b> In addition to Alternative A: No new water developments for diversion from spring or seep sources would be authorized within Greater Sage-Grouse priority and general habitats.</p>	<p><b>D- 56:</b> In addition to Alternative A: Within Greater Sage-Grouse core habitats, water developments would be authorized as needed to support grazing objectives.</p>	<p><b>E- 56:</b> <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u> Range improvement projects would be planned and authorized in a way that contributes to rangeland health and maintains and/or improves Greater Sage-Grouse and its habitat.</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>provided to relieve livestock grazing pressure along stream bottoms and improve livestock distribution.</p> <p><u>JMH CAP:</u> Livestock water developments and range improvements will be considered to maintain or improve resource conditions, enhance livestock distribution, or both. Compatibility with special status plant species will be required. Water developments and/or range improvements proposed in sensitive areas will be considered only if wildlife habitat and resource conditions are maintained or improved and no significant or irreversible adverse effects will occur.</p> <p><u>BTNF LRMP:</u></p>	<p>impacts to Greater Sage-Grouse. This would include developing new water sources for livestock as part of an AMP/conservation plan to improve Greater Sage-Grouse habitat.</p>	<p>(see above)</p>	<p>(see above)</p>	<p>BLM Proposed Land Use Plan Amendments</p> <p><b><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b></p> <p><u>Green River RMP:</u> Water sources may be developed in crucial wildlife winter ranges only when consistent with wildlife habitat needs. Such sources will be designed to benefit livestock, wild horses, and wildlife. Alternative water supplies or facilities for livestock may be provided to relieve livestock grazing pressure along stream bottoms and improve livestock distribution.</p> <p><u>JMH CAP:</u> Livestock water developments and range improvements will be considered to maintain or improve resource</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Allotment Management Plan Standard Fisheries; riparian habitats; and TES species' needs will be addressed in allotment management plans.</p> <p><u>MBNF LRMP:</u> Keep stock tanks and similar features out of the water influence zone if feasible and out of riparian areas and wetlands always.</p>	(see above)	(see above)	(see above)	<p>conditions, enhance livestock distribution, or both. Compatibility with special status plant species will be required. Water developments and/or range improvements proposed in sensitive areas will be considered only if wildlife habitat and resource conditions are maintained or improved and no significant or irreversible adverse effects will occur.</p>
<p><b>A- 57:</b> <u>BTNF LRMP:</u> Allotment Management Plan Standard Fisheries; riparian habitats; and TES species' needs will be addressed in allotment management plans. Priority I validation monitoring of riparian areas: Conduct a level III riparian evaluation...and level II riparian evaluation on stocked allotments...with key riparian values to solve site specific problems and/or to assess</p>	<p><b>B- 57:</b> In addition to Alternative A: Springs, seeps and associated pipelines would be analyzed to determine if modifications are necessary to maintain the continuity of the predevelopment riparian area within Greater Sage-Grouse priority habitats. Modifications would be made where necessary, considering impacts to other water uses when such considerations are</p>	<p><b>C- 57:</b> In addition to Alternative A: Springs, seeps and associated water developments would be analyzed to determine if modifications are necessary to maintain the continuity of the predevelopment riparian area within Greater Sage-Grouse habitats. Modifications would be made where necessary, including dismantling water developments.</p>	<p><b>D -57:</b> In addition to Alternative A: Existing water developments would be maintained or modified to support grazing objectives.</p>	<p><b>E -57:</b> Existing water developments associated with springs and seeps would be evaluated and associated pipelines/structures to those developments having a negative effect on PHMAs would be modified.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>impacts of management activities on riparian resources. Further evaluation or change in management required when riparian area management objectives are not met.</p> <p><b>TBNG LRMP:</b> Manage livestock grazing to maintain or improve riparian/woody draw areas. Implement the following practices:</p> <p>Avoid season-long grazing and activities, such as feeding, salting, herding, or water developments, which concentrate livestock in riparian/woody draw areas.</p> <p>Control the timing, duration, and intensity of grazing in riparian areas to promote establishment and development of woody species.</p>	neutral or beneficial to Greater Sage-Grouse.	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>Minerals Management</b>				
<b>Exceptions to lease stipulations, Conditions of Approval, and terms and conditions</b>				
<p><b>A- 58:</b> Exceptions, waivers, and modifications to lease stipulations, COAs, and terms and conditions (T&amp;C), etc. for Greater Sage-Grouse will continue to be considered on a case-by-case basis consistent with approved LUPs.</p> <p><u>TBNG LRMP:</u> Exceptions to lease stipulations, COAs, and T&amp;Cs, etc. for Greater Sage-Grouse will continue to be considered on a case-by-case basis consistent with approved stipulations in Appendix D of the TBNG LRMP.</p> <p><u>MBNF LRMP:</u> Exceptions to lease stipulations, COAs, and T&amp;Cs, etc. for Greater Sage-Grouse will continue to be considered on a case by-case basis consistent with approved</p>	<p><b>B- 58:</b> Exceptions, waivers, and modifications to lease stipulations, COAs, and T&amp;Cs for Greater Sage-Grouse would not be considered within Greater Sage-Grouse priority habitat.</p>	<p><b>C- 58:</b> Exceptions, waivers, and modifications to lease stipulations, COAs, and T&amp;Cs for Greater Sage-Grouse would not be considered within Greater Sage-Grouse priority and general habitat.</p>	<p><b>D- 58:</b> Exceptions waivers, and modifications to lease stipulations, COAs, and T&amp;Cs, etc., for Greater Sage-Grouse would continue to be considered on a case- by-case basis consistent with approved LUPs and other BLM/Forest Service policy and regulations as they relate to exceptions within Greater Sage-Grouse core and general habitat.</p>	<p><b>E- 58:</b> Exceptions waivers, and modifications to lease stipulations, COAs, and terms and conditions (T&amp;C), etc. for Greater Sage-Grouse would continue to be considered on a case-by-case basis consistent with approved LUPs and other BLM policy and regulations as they relate to exceptions within PHMAs and GHMAs.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
stipulations in Appendix E of the MBNF LRMP.	(see above)	(see above)	(see above)	(see above)
<b>Fluid Minerals Unleased Estate</b>				
<b>A- 59:</b> No similar action	<b>B- 59:</b> No similar action	<b>C- 59:</b> Any oil, gas, or geothermal activity would be conducted to maximize avoidance of impacts, based on evolving scientific knowledge of impacts.	<b>D- 59:</b> No similar action	<b>E- 59:</b> No action
<b>A- 60:</b> Fluid mineral leasing would be allowed in Greater Sage-Grouse core habitat areas, except in areas that are unavailable for leasing due to the need to protect other sensitive resources .	<b>B- 60:</b> Priority Greater Sage-Grouse habitat areas would be closed to fluid mineral leasing.  An exception would be considered when there is an opportunity for the BLM and Forest Service to influence conservation measures where surface and/or mineral ownership is not entirely federally owned (i.e., checkerboard ownership). In this case, a plan amendment may be developed that opens the priority area for new leasing. The plan must demonstrate long-term population increases in the priority area through	<b>C- 60:</b> Greater Sage-Grouse priority and general habitat areas would be closed to fluid mineral leasing.  An exception would be considered when there is an opportunity for the BLM/Forest Service to influence conservation measures where surface and/or mineral ownership is not entirely federally owned (i.e., checkerboard ownership). In this case, a plan amendment may be developed that opens Greater Sage-Grouse habitat for new leasing. The plan must demonstrate long-term population increases in	<b>D- 60:</b> The agencies would allow oil and gas leasing consistent and subject to the leasing stipulations analyzed in the timing, distance, disturbance, and density restrictions sections.  In addition to Alternative A: Fluid mineral leasing would be administratively unavailable in the following special management or higher Greater Sage-Grouse core habitat areas: 1. Newcastle RMP: Raven Creek (79,640 total acres) 2. Pinedale RMP: Beaver Ridge, Fontenelle Creek,	<b>E -60:</b> <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u> The BLM would allow oil and gas leasing consistent and subject to the leasing stipulations analyzed in the timing, distance, disturbance, and density restrictions sections. <u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u> Fluid mineral leasing would be allowed in PHMAs (core only), except in areas that are closed to leasing due to

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	mitigation (prior to issuing the lease) including lease stipulations, offsite mitigation, etc., and avoid short-term losses that put the Greater Sage-Grouse population at risk from stochastic events leading to extirpation.	<p>the priority area through mitigation (prior to issuing the lease) including lease stipulations, and off-site mitigation, and avoid short-term losses that put the Greater Sage-Grouse population at risk from stochastic events leading to extirpation.</p> <p>Upon expiration or termination of existing leases, nominations/expressions of interest for parcels within Greater Sage-Grouse priority and general habitat would not be accepted.</p>	<p>and East Anticline (39,860 total acres).</p> <p>As existing fluid mineral leases expire in the areas listed above, they would not be re-offered for lease.</p>	the need to protect other sensitive resources.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A- 61:</b> A minimum lease size will not be applied within Greater Sage-Grouse core habitat areas.	<b>B- 61:</b> Same as Alternative A	<b>C- 61:</b> Same as Alternative A	<b>D- 61:</b> Same as Alternative A	<b>E- 61:</b> A minimum lease size of 640 contiguous acres of federal mineral estate would be applied within PHMAs. Preliminary parcels reviewed for possible offering in a lease sale should comply with this minimum lease size. Expressions of interest that are less than this minimum lease size would be evaluated and modified by the BLM to meet the minimum lease size, where possible, prior to review for possible offering in a lease sale.
<b>A- 62:</b> <u>Casper RMP:</u> The blocks of public land identified as mapped in the Casper Field Office GIS database will be managed to retain intact blocks of native vegetation (192,550 acres, of which 131,880 acres are BLM-administered surface). In these areas, the	<b>B- 62:</b> In addition to Alternative A: Geophysical exploration would be allowed within Greater Sage-Grouse priority habitat areas to obtain exploratory information for areas outside of and adjacent to Greater Sage-Grouse priority habitat areas.	<b>C- 62:</b> In addition to Alternative A: No new geophysical exploration permits would be issued within priority and general Greater Sage-Grouse habitat.  An exception to this for the purposes of recognizing valid existing rights would be the following:	<b>D- 62:</b> Same as Alternative A	<b>E- 62:</b> <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u> Geophysical exploration projects that are designed to minimize habitat fragmentation within PHMAs would be allowed, except where prohibited or restricted by existing LUP decisions,

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>following restrictions apply:</p> <ol style="list-style-type: none"> <li>1. These blocks are (1) administratively unavailable for oil and gas leasing and (2) a geophysical operation on public surface for the life of the plan. Activities for existing oil and gas leases are managed intensively (see Appendix U of the Casper RMP). Existing leases will be allowed to expire and not be renewed.</li> <li>2. Within these blocks, a withdrawal from the operation of the public land laws, including the mining laws will be pursued.</li> <li>3. These blocks are closed to mineral material disposal. Existing permits will be allowed to expire without renewal or expansion.</li> <li>4. These blocks are not open to wind/renewable energy development.</li> </ol>	<p>Geophysical operations would be allowed using only helicopter-portable drilling, wheeled or tracked vehicles on existing roads, or other approved methods conducted in accordance with seasonal timing limitations and other restrictions that may apply.</p>	<p>Geophysical exploration would be allowed within priority and general Greater Sage-Grouse habitat areas to obtain exploratory information for areas outside of and adjacent to priority and general Greater Sage-Grouse habitat areas. Geophysical operations would be allowed by only using helicopter-portable drilling methods and in accordance with seasonal timing restrictions and/or other restrictions that may apply. Geophysical exploration shall be subject to seasonal restrictions that preclude activities in breeding, nesting, brood rearing, and winter habitats during their season of use by Greater Sage-Grouse.</p>	<p>(see above)</p>	<p>and in conformance with timing and distances stipulations (see actions 129 through 134). <b><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b>  <u>Casper RMP:</u>  The blocks of public land identified as mapped in the Casper Field Office GIS database will be managed to retain intact blocks of native vegetation (192,550 acres, of which 131,880 acres are BLM-administered surface). In these areas, the following restrictions apply:  1. These blocks are (1) unavailable for oil and gas leasing and (2) a geophysical operation on public surface for the life of the plan. Activities for existing oil and gas leases are</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>5. These blocks remain open to livestock grazing.</p> <p>6. All allowed surface- disturbing activities within the designated blocks are subject to a CSU restriction, minimizing surface disturbance to meet management objectives.</p> <p>Decision 4024</p> <p>The North Platte River SRMA will continue to be open to oil and gas leasing and geophysical operations. Decision 7039</p> <p>The area is administratively unavailable for oil and gas leasing and geophysical exploration is not allowed. Decision 7047</p> <p>The MA is administratively unavailable for new oil and gas leasing. No geophysical operations</p>	(see above)	(see above)	(see above)	<p>managed intensively (see Appendix U of the Casper RMP). Existing leases will be allowed to expire and not be renewed.</p> <p>2. Within these blocks, a withdrawal from the operation of the public land laws, including the mining laws will be pursued.</p> <p>3. These blocks are closed to mineral material disposal. Existing permits will be allowed to expire without renewal or expansion.</p> <p>4. These blocks are not open to wind/renewable energy development.</p> <p>5. These blocks remain open to livestock grazing.</p> <p>6. All allowed surface-disturbing activities within the designated blocks are subject to a Controlled Surface Use (CSU) restriction, minimizing surface disturbance to meet</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>will be allowed on public surface.</p> <p>Activities on existing leases will be managed intensively to meet the objectives of the MA (see Appendix U of the Casper RMP–Intensive Management). To minimize surface-disturbing activities, oil and gas exploration and development will use directional drilling techniques and well twinning whenever practicable. Decision 7059</p> <p>The Red Wall/Gray Wall complex is located entirely within the South Bighorns/Red Wall MA and is administratively unavailable for new oil and gas leasing. No geophysical operations will be allowed on public surface. Activities on existing leases will be intensively managed to meet the objectives of the MA (see Appendix U of</p>	(see above)	(see above)	(see above)	<p>management objectives. Decision 4024</p> <p>The North Platte River Special Recreation Management Area (SRMA) will continue to be open to oil and gas leasing and geophysical operations. Decision 7039</p> <p>The area is unavailable for oil and gas leasing and geophysical exploration is not allowed. Decision 7047</p> <p>The MA is unavailable for new oil and gas leasing. No geophysical operations will be allowed on public surface.</p> <p>Activities on existing leases will be managed intensively to meet the objectives of the MA (see Appendix U of the Casper RMP– Intensive Management). To minimize surface-disturbing activities, oil</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>the Casper RMP– Intensive Management). To minimize surface-disturbing activities, oil and gas exploration and development will use directional drilling techniques and well twinning whenever practicable. Decision 7063</p> <p>Those lands currently open to oil and gas leasing will continue to be open to geophysical operations. Those lands open to oil and gas leasing, but subject to an NSO restriction, may be open to geophysical operations should site specific NEPA analysis disclose a finding of no significant impact. No geophysical operations are allowed in areas administratively unavailable for oil and gas leasing. Decision 2019</p> <p><u>Kemmerer RMP:</u> Allow for geophysical exploration on lands throughout the planning</p>	(see above)	(see above)	(see above)	<p>and gas exploration and development will use directional drilling techniques and well twinning whenever practicable. Decision 7059</p> <p>The Red Wall/Gray Wall complex is located entirely within the South Bighorns/Red Wall MA and is unavailable for new oil and gas leasing. No geophysical operations will be allowed on public surface. Activities on existing leases will be intensively managed to meet the objectives of the MA (see Appendix U of the Casper RMP– Intensive Management). To minimize surface-disturbing activities, oil and gas exploration and development will use directional drilling techniques and well twinning whenever practicable. Decision 7063</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>area subject to identified conditions of approval.</p> <p><u>Newcastle RMP:</u> Surface-disturbing and disruptive activities associated with all types of minerals exploration and development and with geophysical exploration will be subject to appropriate mitigation measures determined through, but not limited to, use of the Wyoming BLM Mitigation Guidelines.</p> <p><u>Pinedale RMP:</u> Vehicle-based geophysical activities will be assessed on a case-by-case basis.</p> <p>The use of surface and/or above-ground (Poulter shot) explosive charges for geophysical exploration will be assessed case by case.</p> <p>Geophysical projects, including projects proposed in areas with an NSO restriction, will be</p>	(see above)	(see above)	(see above)	<p>Those lands currently open to oil and gas leasing will continue to be open to geophysical operations. Those lands open to oil and gas leasing, but subject to a No Surface Occupancy (NSO) restriction, may be open to geophysical operations should site specific NEPA analysis disclose a finding of no significant impact. No geophysical operations are allowed in areas closed for oil and gas leasing. Decision 2019</p> <p><u>Kemmerer RMP:</u> Allow for geophysical exploration on lands throughout the planning area subject to identified conditions of approval.</p> <p><u>Newcastle RMP:</u> Surface-disturbing and disruptive activities associated with all types of minerals exploration and development and with geophysical exploration will be</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>analyzed and mitigation developed on a case-by-case basis. Geophysical activities that are considered casual use actions are allowed within 0.25 mile of active Greater Sage-Grouse leks provided that: Operations are conducted on designated roads and trails.</p> <p>Operations during the breeding season (March 1 through May 15) are conducted between the hours of 8:00 a.m. and 8:00 p.m.</p> <p>A 150-foot wide strip of undisturbed sagebrush is maintained around the perimeter of the lek for hiding and escape cover.</p> <p><u>Rawlins RMP:</u> All lands open to oil and gas leasing consideration will also be open to geophysical exploration, subject to appropriate resource surveys, surface protection measures,</p>	(see above)	(see above)	(see above)	<p>subject to appropriate mitigation measures determined through, but not limited to, use of the Wyoming BLM Mitigation Guidelines. BLM Proposed Land Use Plan Amendments</p> <p><u>Pinedale RMP:</u> Vehicle-based geophysical activities will be assessed on a case-by-case basis. The use of surface and/or above-ground (Poulter shot) explosive charges for geophysical exploration will be assessed case by case. Geophysical projects, including projects proposed in areas with an NSO restriction, will be analyzed and mitigation developed on a case-by-case basis.</p> <p>Geophysical activities that are considered casual use actions are allowed within 0.25 mile of active Greater Sage-Grouse leks provided that:</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>adequate bonding, and adherence to State of Wyoming standards for geophysical operations.</p> <p>Vehicular use for “necessary tasks” (as defined in the glossary), such as geophysical exploration including project survey and layout, will be permitted except where specifically prohibited (e.g., some SD/MAs).</p> <p><u>Green River RMP:</u> Geophysical exploration (vehicles and detonation) activities will be prohibited within 0.5 mile of the Pinnacles Geologic Feature. Areas of sensitive heritage resources and geologic features, such as Boars Tusk, White Mountain Petroglyphs, special status plant species, WSAs, and historic trails, will remain closed. Receiver lines may be laid using foot traffic within these areas. Exceptions to these</p>	(see above)	(see above)	(see above)	<ul style="list-style-type: none"> <li>Operations are conducted on designated roads and trails.</li> <li>Operations during the breeding season (March 1 through May 15) are conducted between the hours of 8:00 a.m. and 8:00 p.m.</li> <li>A 150-foot wide strip of undisturbed sagebrush is maintained around the perimeter of the lek for hiding and escape cover.</li> </ul> <p><u>Rawlins RMP:</u> All lands open to oil and gas leasing consideration will also be open to geophysical exploration, subject to appropriate resource surveys, surface protection measures, adequate bonding, and adherence to State of Wyoming standards for geophysical operations. Vehicular use for “necessary tasks” (as defined in the glossary),</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>restrictions may be granted on a case-by-case basis subject to appropriate site- specific analysis and mitigation requirements.</p> <p>The remainder of the planning area will be open to geophysical exploration, with application of appropriate mitigation. Rights-of-way limitations in the planning area apply to on- and off-road vehicle traffic used for geophysical activities. Exploration activities will be allowed in sensitive resource areas only if they can be performed with acceptable mitigation of impacts.</p> <p><u>JMH CAP:</u> Geophysical exploration (vehicles and detonation) activities will be prohibited within 0.5 mile of the Pinnacles Geologic Feature. Areas of sensitive heritage resources and geologic features, such as Boars</p>	(see above)	(see above)	(see above)	<p>such as geophysical exploration including project survey and layout, will be permitted except where specifically prohibited (e.g., some SD/MAs).</p> <p><u>Green River RMP:</u> Geophysical exploration (vehicles and detonation) activities will be prohibited within 0.5 mile of the Pinnacles Geologic Feature. Areas of sensitive heritage resources and geologic features, such as Boars Tusk, White Mountain Petroglyphs, special status plant species, WSAs, and historic trails, will remain closed. Receiver lines may be laid using foot traffic within these areas. Exceptions to these restrictions may be granted on a case-by-case basis subject to appropriate site-specific analysis and mitigation requirements.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Tusk, White Mountain Petroglyphs, special status plant species, WSAs, and historic trails, will remain closed. Receiver lines may be laid using foot traffic within these areas. Exceptions to these restrictions may be granted on a case-by-case basis subject to appropriate site- specific analysis and mitigation requirements.</p> <p>The remainder of the planning area will be open to geophysical exploration, with application of appropriate mitigation. Rights-of-way limitations in the planning area apply to on- and off-road vehicle traffic used for geophysical activities. Exploration activities will be allowed in sensitive resource areas only if they can be performed with acceptable mitigation of impacts.</p>	(see above)	(see above)	(see above)	<p>The remainder of the planning area will be open to geophysical exploration, with application of appropriate mitigation. Rights-of-way limitations in the planning area apply to on- and off-road vehicle traffic used for geophysical activities. Exploration activities will be allowed in sensitive resource areas only if they can be performed with acceptable mitigation of impacts.</p> <p><u>JMH CAP:</u> Geophysical exploration (vehicles and detonation) activities will be prohibited within 0.5 mile of the Pinnacles Geologic Feature. Areas of sensitive heritage resources and geologic features, such as Boars Tusk, White Mountain Petroglyphs, special status plant species, WSAs, and historic trails, will remain closed. Receiver lines may be laid using foot traffic within</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><u>BTNF LRMP:</u> Seismic Activity Standard Helicopter-access seismic activity will be permitted. Seismic Activity Termination Guideline Seismic activity may be seasonally restricted.</p> <p><u>TBNG LRMP:</u> Where no suitable mitigation measures are possible, prohibit geophysical (seismic) operations that cause surface disturbance in Research Natural Areas, Special Interest Areas, American Indian traditional use area, and known National Register eligible sites.</p> <p>Minimize surface and other resource disturbance from geophysical operations. Do not allow new road construction, unless alternatives have been assessed and determined to be more environmentally damaging.</p>	(see above)	(see above)	(see above)	<p>these areas. Exceptions to these restrictions may be granted on a case-by-case basis subject to appropriate site-specific analysis and mitigation requirements.</p> <p>The remainder of the planning area will be open to geophysical exploration, with application of appropriate mitigation. Rights-of-way limitations in the planning area apply to on- and off-road vehicle traffic used for geophysical activities. Exploration activities will be allowed in sensitive resource areas only if they can be performed with acceptable mitigation of impacts.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><u>MBNF LRMP</u>: Where no effective mitigation measures are possible, prohibit geophysical (seismic) operations that cause surface disturbance in Research Natural Areas, Special Interest Areas, Recommended Wilderness, recommended Wild and Scenic Rivers, American Indian traditional use areas and known National Register sites.</p> <p>Minimize surface and other resource disturbance from geophysical operations.</p>	(see above)	(see above)	(see above)	(see above)
<p><b>A- 63:</b> <u>Kemmerer RMP</u>: Choose and implement appropriate mitigation in a timely manner to minimize decreases in habitat function.</p> <p>Utilize appropriate voluntary offsite compensatory mitigation to reduce</p>	<p><b>B- 63:</b> In addition to Alternative A: In cases where federal oil and gas leases have been issued without adequate stipulations for the protection of Greater Sage-Grouse or their habitats being provided in the applicable LUP decision, as revised or amended, their inclusion as permit COAs would be</p>	<p><b>C- 63:</b> In addition to Alternative A: In cases where federal oil and gas leases have been issued without adequate stipulations for the protection of Greater Sage-Grouse or their habitats being provided in the applicable LUP decision, as revised or amended, their inclusion as permit COAs would be considered when</p>	<p><b>D- 63:</b> In addition to Alternative A: The BLM/Forest Service would work with project proponents in these situations to promote measurable Greater Sage-Grouse conservation objectives such as, but not limited to, consolidation of project related infrastructure to reduce habitat fragmentation and</p>	<p><b>E-63: <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></b> In cases where federal oil and gas leases have been issued with stipulations varying from those in Appendix E [of the 2015 Final EIS ] for the protection of Greater Sage-Grouse or their</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>impacts. This would be necessary if (1) all onsite mitigation has been accomplished and adverse effects have not been mitigated; or (2) if onsite mitigation is not feasible.</p> <p><u>Pinedale RMP:</u> Offsite mitigation proposed by oil and gas or other operators could be considered and analyzed in future environmental documents as mitigation for proposed activities within the planning area.</p> <p>Proposed offsite mitigation will be described and analyzed for effectiveness in detail on a project-specific basis. Offsite mitigation would conform to requirements in the Pinedale RMP regarding the order of use of mitigation methods, stipulations applied to</p>	<p>considered when approving exploration and development activities through completion of the environmental record of review (43 CFR 3162.5 and 36 CFR 228.108), including appropriate documentation of compliance with NEPA.</p> <p>Overall consideration would be given to minimizing the impact to Greater Sage-Grouse through a project design that avoids, minimizes, reduces, rectifies, and/or adequately compensates for direct and indirect impacts to Greater Sage-Grouse habitat or use and includes applicable and technically COAs. Selection and application of these measures would be based on current science and research on the effects to important</p>	<p>approving exploration and development activities through completion of the environmental record of review (43 CFR 3162.5 and 36 CFR 228.108), including appropriate documentation of compliance with NEPA. In this process, the following, among other things, would be evaluated:</p> <ol style="list-style-type: none"> <li>1. Whether the conservation measure is “reasonable” (43 CFR § 3101.1-2) with the valid existing rights</li> <li>2. Whether the action is in conformance with the approved RMP.</li> </ol>	<p>loss and to promote effective conservation of seasonal habitats and connectivity areas that support population management objectives set by the state.</p> <p>The BLM/Forest Service would continue to work with project proponents (including those from within the BLM/Forest Service) and the WGFD to site their projects in locations that meet the purpose and need for their project but have been determined to contain the least sensitive habitats and resources whether inside or outside of Greater Sage-Grouse core habitat areas. Valid existing rights will be recognized and respected.</p>	<p>habitats, as provided in the applicable LUP decision, as revised or amended, their inclusion as APD COAs would be considered when approving exploration and development activities through completion of the environmental record of review (43 CFR 3162.5 and 36 CFR 228.108), including appropriate documentation of compliance with NEPA.</p> <p>Overall consideration shall be given to minimizing the impact to Greater Sage-Grouse through a project design that avoids, minimizes, reduces, rectifies, and/or adequately compensates for direct and indirect impacts to PHMAs or use and includes applicable and technical COAs. Selection and application of these measures shall be based on current science and research on the effects to important breeding, nesting, brood-rearing, and wintering areas. For</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>offsite mitigation measures, and priority order for mitigating resource impacts on site or offsite.</p> <p><u>Green River RMP:</u> Development actions will be analyzed on a case-by-case basis to identify mitigation needs to meet RMP objectives, provide for resource protection, and provide for logical development. Limitations on the amount, sequence, timing, or level of development may occur. This may result in transportation planning and in limitations in the number of roads and drill pads or deferring development in some areas until other areas have been restored to previous uses.</p> <p><u>JMH CAP:</u> COAs attached to an Application for Permit to Drill (APD) will be</p>	<p>breeding, nesting, brood- rearing, and wintering areas.</p> <p>For proposed operations in priority habitat areas, the Surface Use Plan of Operations (see 43CFR3162.3-1(f)) would address, at a minimum, the anticipated noise, density and amount of disturbance, mechanical movement (e.g., pump jacks), permanent and temporary facilities, traffic, phases of development over time, offsite mitigation, and expected periods of use associated with the proposed project. Seasonal habitats or project features related to potential Greater Sage-Grouse impacts that are not addressed in the SUPO based on site-specific or project-specific considerations shall be noted in the project file, along with a</p>	(see above)	(see above)	<p>proposed operations in PHMAs, the Surface Use Plan of Operations (see 43CFR 3162.3-1(f)) shall address, at a minimum, the anticipated noise, density and amount of disturbance, mechanical movement (e.g., pump jacks), permanent and temporary facilities, traffic, phases of development over time, offsite mitigation, and expected periods of use associated with the proposed project. Seasonal habitats or project features related to potential Greater Sage-Grouse impacts that are not addressed in the Surface Use Plan of Operations based on site-specific or project-specific considerations shall be noted in the project file, along with a rationale for not including them.</p> <p>In this process the BLM would evaluate, among other things:</p> <p>I. Whether the conservation measure is</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>based on site-specific NEPA or other analysis and will establish specific, necessary mitigation measures not covered by stipulations for resource and environmental protection.</p> <p>Some areas will need more intensive mitigation measures to protect sensitive resources and provide for public health and safety. These intensive mitigation measures or COAs will mostly apply to areas with overlapping sensitive resources (e.g., Areas 2 and 3). Examples of intensive mitigation that can apply to all activities based on site-specific analysis include offsite placement of facilities, remote control monitoring, restricted or prohibited surface use including road construction, multiple</p>	<p>rationale for not including them.</p> <p>In this process, the following, among other things, would be evaluated:</p> <ol style="list-style-type: none"> <li>1. Whether the conservation measure is “reasonable” (43CFR 3101.1-2) and consistent with valid existing rights</li> <li>2. Whether the action is in conformance with the approved LUP; and the effectiveness of the proposed mitigation measures.</li> </ol> <p>BLM/Forest Service Field Offices/District Offices would work with project proponents in these situations to promote measurable Greater Sage-Grouse conservation objectives such as but not limited to consolidation of project related infrastructure to reduce habitat fragmentation and loss and to promote effective conservation of seasonal habitats and</p>	(see above)	(see above)	<p>“reasonable” (43 CFR 3101.1-2) and consistent with valid existing rights</p> <p>2. Whether the action is in conformance with the approved LUP; and the effectiveness of the proposed mitigation measures.</p> <p>The BLM would work with project proponents in these situations to promote measurable Greater Sage-Grouse conservation objectives such as, but not limited to, consolidation of project related infrastructure to reduce habitat fragmentation and loss and to promote effective conservation of seasonal habitats and PHMAs (connectivity only) that support population management objectives set by the state.</p> <p>The BLM would continue to work with project proponents and the WGFD to site their projects in locations that</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
wells from a single pad, central tank batteries/facilities, and pipelines and power lines concentrated in specific areas. In addition, refer to Section 3.12.3 for additional mitigation measures that may apply as part of the transportation plan.	connectivity areas that support population management objectives set by the State. BLM/Forest Service would continue to work with project proponents (including those from within the BLM/Forest Service) and the WGFD to site their projects in locations that meet the purpose and need for their project, but have been determined to contain the least sensitive habitats and resources whether inside or outside of priority habitat areas. Valid existing rights would be recognized and respected	(see above)	(see above)	<p>meet the purpose and need for their project, but have been determined to contain the least sensitive habitats (based on vegetation, topography, or other habitat features) and resources whether inside or outside of PHMAs (utilizing DDCT analysis process). Valid existing rights would be recognized and respected.</p> <p><b><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b></p> <p><u>Kemmerer RMP:</u> Choose and implement appropriate mitigation in a timely manner to minimize decreases in habitat function. Utilize appropriate voluntary offsite compensatory mitigation to reduce impacts. This would be necessary if (I)</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>all onsite mitigation has been accomplished and adverse effects have not been mitigated; or (2) if onsite mitigation is not feasible.</p> <p><u>Pinedale RMP:</u> Offsite mitigation proposed by oil and gas or other operators could be considered and analyzed in future environmental documents as mitigation for proposed activities within the planning area. Proposed offsite mitigation will be described and analyzed for effectiveness in detail on a project-specific basis. Offsite mitigation would conform to requirements in the Pinedale RMP regarding the order of use of mitigation methods, stipulations applied to offsite mitigation measures, and priority order for mitigating resource impacts onsite or offsite.</p> <p><u>Green River RMP:</u></p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>Development actions will be analyzed on a case-by-case basis to identify mitigation needs to meet RMP objectives, provide for resource protection, and provide for logical development. Limitations on the amount, sequence, timing, or level of development may occur. This may result in transportation planning and in limitations in the number of roads and drill pads or deferring development in some areas until other areas have been restored to previous uses.</p> <p><u>JMH CAP:</u> COAs attached to an APD will be based on site-specific NEPA or other analysis and will establish specific, necessary mitigation measures not covered by stipulations for resource and environmental protection. Some areas will need more intensive mitigation measures to protect</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>sensitive resources and provide for public health and safety. These intensive mitigation measures or COAs will mostly apply to areas with overlapping sensitive resources (e.g., Areas 2 and 3). Examples of intensive mitigation that can apply to all activities based on site-specific analysis include offsite placement of facilities, remote control monitoring, restricted or prohibited surface use including road construction, multiple wells from a single pad, central tank batteries facilities, and pipelines and power lines concentrated in specific areas. In addition, refer to Section 3.12.3 for additional mitigation measures that may apply as part of the transportation plan.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><b>A- 64:</b> Field Offices would work with project proponents (including those within BLM/Forest Service) to site their projects in locations that minimize impacts to sensitive resources.</p>	<p><b>B- 64:</b> In addition to Alternative A: If the lease is partially or entirely within priority habitat areas, subject to topographic and other environmental constraints, any development within priority habitat would be required to be placed in the area least harmful to Greater Sage-Grouse based on vegetation, topography, or other habitat features.</p>	<p><b>C- 64:</b> No similar action</p>	<p><b>D- 64:</b> Same as Alternative A</p>	<p><b>E- 64:</b> Within PHMAs, field offices would work with project proponents (including those within BLM) to site their projects in locations that minimize impacts to sensitive resources.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A- 65:</b> No similar action	<b>B- 65:</b> In Greater Sage-Grouse priority habitat, the following conservation measures would be provided as terms and conditions of the approved RMP: Do not allow new surface occupancy on federal leases within priority habitats, this includes winter concentration areas during any time of the year. Consider an exception: If the lease is entirely within priority habitats, apply a 4- mile NSO around the lek.	<b>C- 65:</b> Same as Alternative B	<b>D- 65:</b> No similar action	<b>E- 65:</b> No action

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A- 66:</b> No similar action	<b>B- 66:</b> To ensure comprehensive planning relative to Greater Sage-Grouse conflicts, Master Development Plans would be completed during planning and review of projects involving multiple proposed disturbances within a lease or priority habitat area, without an exception for individual wildcat (exploratory) wells.	<b>C- 66:</b> Same as Alternative B	<b>D- 66:</b> Master development plans would not be required.	<b>E- 66:</b> Master Development Plans would be considered and encouraged for projects involving multiple proposed disturbances within PHMAs.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A- 67:</b> No similar action	<b>B- 67:</b> Within Greater Sage-Grouse priority habitat, unitization would be required when deemed necessary for proper development and operation of an area (with strong oversight and monitoring) to minimize adverse impacts to Greater Sage-Grouse according to the Federal Lease Form, 3100-11, Sections 4 and 6.	<b>C- 67:</b> Same as Alternative B	<b>D- 67:</b> Within Greater Sage-Grouse core habitat, unitization for the orderly development of the mineral resource would be used.	<b>E -67:</b> Within PHMAs, unitization would be encouraged as a means of minimizing adverse impacts to Greater Sage-Grouse to reduce fragmentation and surface disturbing and disruptive activities. Require unitization when deemed necessary for proper development and operation of an area or to facilitate more orderly (e.g., phased and/or clustered) development as a means of minimizing adverse impacts to resources, including Greater Sage-Grouse, so long as the unitization plan adequately protects the rights of all parties, including the United States.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A- 68:</b> The BLM and Forest Service should closely examine the applicability of categorical exclusions in Greater Sage-Grouse core, connectivity, and general habitat. If extraordinary circumstances review is applicable, the BLM and Forest Service should determine whether those circumstances exist.	<b>B- 68:</b> The BLM and Forest Service would closely examine the applicability of categorical exclusions in priority habitat. If extraordinary circumstances review is applicable, BLM and Forest Service should determine whether those circumstances exist.	<b>C- 68:</b> Same as Alternative A	<b>D- 68:</b> Same as Alternative A	<b>E- 68:</b> The BLM should closely examine the applicability of categorical exclusions in PHMAs and GHMAs. If extraordinary circumstances review is applicable, the BLM should determine whether those circumstances exist. For proposed actions in PHMAs, determine whether a categorical exclusion is applicable and if so, closely examine the extraordinary circumstances, if applicable, to determine whether one or more exists that would require preparation of a NEPA analysis. If a categorical exclusion applies, and no extraordinary circumstances exist, determine whether preparing a NEPA analysis would help inform decision making.
<b>A- 69:</b> Federal Regulations, 43 CFR 3104.1 requires that a bond be furnished before any drilling or surface disturbance activities begin. The lessee,	<b>B- 69:</b> For future actions, a full reclamation bond specific to the site would be required in accordance with 43 CFR 3104.2, 3104.3	<b>C- 69:</b> Same as Alternative B	<b>D- 69:</b> Same as Alternative A	<b>E- 69:</b> Federal Regulations, 43 CFR 3104.1 requires that a bond be furnished before any drilling or surface disturbance activities begin. The lessee,

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>sublessee or the operator must furnish a surety or personal bond in the amount of at least \$10,000 to ensure compliance with all the lease terms, including protection of the environment. With the consent of the surety and principal, the operator may use the bond of another party, such as the lessee. Each time there is a new operator, that operator must notify BLM/Forest Service that he/she is the responsible operator, giving the particulars of the bond under which, he/she will operate. BLM/Forest Service can require an increase in a bond amount any time conditions warrant such an increase.</p> <p>Per 36 CFR 228.109, as part of the review of a proposed surface use plan of operations, the authorized Forest officer shall consider the estimated cost to the</p>	<p>and 3104.5, and 36 CFR 228.109. The BLM/Forest Service would ensure bonds are sufficient for costs relative to reclamation (Connelly et al. 2000, Hagen et al. 2007) that would result in full restoration of the lands to the condition it was found prior to disturbance. The reclamation costs would be based on the assumption that contractors for the BLM or Forest Service would perform the work.</p>	<p>(see above)</p>	<p>(see above)</p>	<p>sublessee or the operator must furnish a surety or personal bond in the amount of at least \$10,000 to ensure compliance with all the lease terms, including protection of the environment. With the consent of the surety and principal, the operator may use the bond of another party, such as the lessee. Each time there is a new operator, that operator must notify the BLM that he/she is the responsible operator, giving the particulars of the bond under which, he/she will operate. The BLM can require an increase in a bond amount any time conditions warrant such an increase.</p> <p>Per 36 CFR 228.109, as part of the review of a proposed surface use plan of operations, the authorized forest officer shall consider the estimated cost to the Forest Service to reclaim those areas that would be</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Forest Service to reclaim those areas that would be disturbed by operations and to restore any lands or surface waters adversely affected by the lease operations after the abandonment or cessation of operations on the lease. If at any time prior to or during the conduct of operations, the authorized Forest officer determines the financial instrument held by the Bureau of Land Management is not adequate to ensure complete and timely reclamation and restoration, the authorized Forest officer shall give the operator the option of either increasing the financial instrument held by the Bureau of Land Management or filing a separate instrument with the Forest Service in the amount deemed adequately the authorized Forest officer to ensure reclamation and</p>	<p>(see above)</p>	<p>(see above)</p>	<p>(see above)</p>	<p>disturbed by operations and to restore any lands or surface waters adversely affected by the lease operations after the abandonment or cessation of operations on the lease. If at any time prior to or during the conduct of operations, the authorized forest officer determines the financial instrument held by the Bureau of Land Management is not adequate to ensure complete and timely reclamation and restoration, the authorized forest officer shall give the operator the option of either increasing the financial instrument held by the Bureau of Land Management or filing a separate instrument with the Forest Service in the amount deemed adequate by the authorized forest officer to ensure reclamation and restoration. The authorized forest officer shall consider the costs of the operator's proposed</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>restoration. The authorized Forest officer shall consider the costs of the operator's proposed reclamation program and the need for additional measures to be taken when estimating the cost to the Forest Service to reclaim the disturbed area</p>	(see above)	(see above)	(see above)	<p>reclamation program and the need for additional measures to be taken when estimating the cost to the Forest Service to reclaim the disturbed area.</p> <p>A reclamation bond would be required on all projects that is commensurate with the scope, scale, size of the project within PHMAs. Partial bonding may be appropriate depending on these factors.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><b>A- 70:</b>  <u>Pinedale RMP:</u>            Produced water from coalbed natural gas (CBNG) wells will be treated and disposed of in collaboration and consistent with the requirements of the state.</p>	<p><b>B- 70:</b> No similar action</p>	<p><b>C- 70:</b> Prohibit the construction of evaporation or infiltration reservoirs to hold coalbed methane wastewater.</p>	<p><b>D- 70:</b> No similar action</p>	<p><b>E- 70:</b>  <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u>            Produced water from coalbed natural gas (CBNG) wells will be treated and disposed of in collaboration and consistent with the requirements of the state and required design features specified in Management Action 10 (see Appendix B of the 2015 Final EIS).</p> <p><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u>  <u>Pinedale RMP:</u>            Produced water from CBNG wells will be treated and disposed of in collaboration and consistent with the requirements of the state.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><b>A- 7I:</b>  <u>Pinedale RMP:</u>            BLM-permitted actions on split estate lands are subject to the same stipulations as leased federal mineral estate on federal surface lands, provided the stipulations do not adversely affect the surface owner's land use or actions. Exceptions to surface development restrictions could be granted if requested or agreed to by the surface owner.</p>	<p><b>B- 7I:</b> Where the federal government owns the mineral estate and the surface is non-federal ownership, the same conservation measures would be applied as those applied on public land.</p>	<p><b>C -7I:</b> Same as Alternative B</p>	<p><b>D- 7I:</b> Same as Alternative A</p>	<p><b>E- 7I:</b> <u>Specific to management for Greater Sage-Grouse, within PHMA (core only), all RMPs are amended as follows:</u>            Where the federal government owns the mineral estate, and the surface is in non-federal ownership, apply the same stipulations, COAs, and/or conservation measures and RDFs applied if the mineral estate is developed on BLM-administered lands in that management area, to the maximum extent permissible under existing authorities, and in coordination with the landowner.  <u>Within PHMAs (non-core only) and outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u>  <u>Pinedale RMP:</u></p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	BLM-permitted actions on split estate lands are subject to the same stipulations as leased federal mineral estate on federal surface lands, provided the stipulations do not adversely affect the surface owner's land use or actions. Exceptions to surface development restrictions could be granted if requested or agreed to by the surface owner.
<b>A- 72:</b> <u>MBNF LRMP:</u> Negotiate surface management for private oil and gas minerals with the owner and operator to be as close as possible to the standards used for federal minerals.	<b>B- 72:</b> Where the federal government owns the surface and the mineral estate is in non-federal ownership, appropriate BMPs would be applied to surface development.	<b>C-72:</b> Same as Alternative B	<b>D- 72:</b> Same as Alternative A	<b>E- 72:</b> Within PHMAs where the federal government owns the surface and the mineral estate is in non-federal ownership, apply appropriate surface use COAs, stipulations, and mineral RDFs through ROW grants or other surface management instruments, to the maximum extent permissible under existing authorities, in coordination with the mineral estate owner/lessee.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A- 73:</b> No similar action	<b>B- 73:</b> No similar action	<b>C- 73:</b> Agencies would explore options to amend, cancel, or buy out leases in ACECs and Greater Sage-Grouse priority and general habitat.	<b>D- 73:</b> No similar action	<b>E- 73:</b> No action
<b>A- 74:</b> No similar action	<b>B- 74:</b> No similar action	<b>C- 74:</b> Conditions that require relinquishment of leases/authorizations would be included if doing so would: 1) mitigate the impact of a proposed development, or 2) mitigate the unanticipated impacts of an approved development.	<b>D- 74:</b> No similar action	<b>E- 74:</b> No action
<b>Solid Leasable Minerals</b>				
<b>A- 75:</b> <u>Casper RMP:</u> If coal development potential is shown to exist, all BLM-administered lands outside the Coal Development Potential Area (CDPA) will be considered for coal leasing, unless specifically closed to mineral leasing. The coal-screening process will be completed on all newly identified	<b>B- 75:</b> In addition to Alternative A: In Greater Sage-Grouse priority habitat, find unsuitable all surface mining of coal under the criteria set forth in 43 CFR 3461.5.  In general habitat, apply minimization of surface-disturbing or disrupting activities (including operations and maintenance) where needed to reduce the	<b>C- 75:</b> Same as Alternative B	<b>D- 75:</b> In addition to Alternative A: Upon receipt of a coal lease application in Greater Sage-Grouse core areas, 43 CFR 3461.5, Criterion 15 would be applied and the area would be identified as suitable for further coal leasing consideration after consultation with the state and where applicable, surface management agency, to determine that all or	<b>E- 75:</b> <b><u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></b> At the time an application for a new coal lease or lease modification is submitted to the BLM, the BLM will determine whether the lease application area is "unsuitable" for all or certain coal mining methods pursuant to 43 CFR 3461.5.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>lands having coal development potential.</p> <p>All BLM-administered lands within the CDPA identified in the 2001 Buffalo RMP maintenance action are acceptable for further consideration for coal leasing. The only exceptions are those lands determined unacceptable within the area. The coal unsuitability criteria are re- evaluated whenever new coal lease applications are received.</p> <p><u>Kemmerer RMP:</u> Process new coal lease applications by using the coal screening process. The coal screening process results will determine which lands may be available for further consideration for coal leasing and development. Appropriate NEPA analysis would be required prior to leasing. Federal land within the</p>	<p>impacts of human activities on important seasonal Greater Sage-Grouse habitats. Apply these measures during activity- level planning.</p> <p>Use additional, effective mitigation to offset impacts as appropriate (determined by local options/needs).</p>	<p>(see above)</p>	<p>certain stipulated methods of coal mining will not have a significant long-term impact on the Greater Sage-Grouse. Special conditions could be required as identified during the leasing process to protect Greater Sage-Grouse resources.</p>	<p>PHMA is essential habitat for maintaining Greater Sage-Grouse for purposes of the suitability criteria set forth at 43 CFR 3461.5(o)(1).</p> <p><b><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b></p> <p><u>Casper RMP:</u> If coal development potential is shown to exist, all BLM-administered lands outside the Coal Development Potential Area (CDPA) will be considered for coal leasing, unless specifically closed to mineral leasing. The coal-screening process will be completed on all newly identified lands having coal development potential.</p> <p>All BLM-administered lands within the CDPA identified in the 2001 Buffalo RMP</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>proposed Haystack project area is determined acceptable for further consideration for coal leasing and development. No coal LBAs will be considered for Rock Creek/Tunp and Bear River Divide management areas.</p> <p><u>Pinedale RMP:</u> Decisions on lands acceptable for leasing consideration for coal development will be made after an application is received and the coal screening process is conducted.</p> <p><u>Rawlins RMP:</u> Federal coal lease applications will be accepted only on those federal coal lands with development potential identified as suitable for further leasing consideration after application of the coal unsuitability criteria (the above-mentioned approximately 51,250</p>	(see above)	(see above)	(see above)	<p>maintenance action are acceptable for further consideration for coal leasing. The only exceptions are those lands determined unacceptable within the area. The coal unsuitability criteria are re-evaluated whenever new coal lease applications are received.</p> <p><u>Kemmerer RMP:</u> Process new coal lease applications by using the coal screening process. The coal screening process results will determine which lands may be available for further consideration for coal leasing and development. Appropriate NEPA analysis would be required prior to leasing. Federal land within the proposed Haystack project area is determined acceptable for further consideration for coal leasing and development. No coal LBAs will be considered for Rock Creek/Tunp and Bear River Divide management areas.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>acres and 2,318.7 million tons of surface minable federal coal).</p> <p><u>Green River RMP/JMH CAP:</u> Federal coal lands within the Coal Occurrence and Development Potential area (about 422,000 acres) are open to further consideration for coal leasing and development(i.e., new competitive leasing, emergency leasing, lease modifications, and exchange proposals, under the Federal Coal Management Program) with appropriate and necessary conditions and requirements for protection of other land and resource values and uses.</p> <p><u>BTNF LRMP:</u> Coal Leasing Standard Coal leasing will be allowed. Strip mining will not be permitted unless no other mining options exist. Numerous areas</p>	(see above)	(see above)	(see above)	<p><u>Pinedale RMP:</u> Decisions on lands acceptable for leasing consideration for coal development will be made after an application is received and the coal screening process is conducted.</p> <p><u>Rawlins RMP:</u> Federal coal lease applications will be accepted only on those federal coal lands with development potential identified as suitable for further leasing consideration after application of the coal unsuitability criteria (the above-mentioned approximately 51,250 acres and 2,318.7 million tons of surface minable federal coal).</p> <p><u>Green River RMP/JMH CAP:</u> Federal coal lands within the Coal Occurrence and Development Potential area (about 422,000 acres) are open to further</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
closed to leasing of solid minerals	(see above)	(see above)	(see above)	consideration for coal leasing and development (i.e., new competitive leasing, emergency leasing, lease modifications, and exchange proposals, under the Federal Coal Management Program) with appropriate and necessary conditions and requirements for protection of other land and resource values and uses.
<p><b>A- 76:</b>  <u>Casper RMP:</u>            If coal development potential is shown to exist, all BLM-administered lands outside the CDPA will be considered for coal leasing, unless specifically closed to mineral leasing. The coal-screening process will be completed on all newly identified lands having coal development potential.            All BLM-administered lands within the CDPA identified in the 2001 Buffalo RMP maintenance</p>	<p><b>B- 76:</b> In addition to Alternative A:            No new underground mining leases would be granted unless all surface disturbances (appurtenant facilities) are placed outside of the Greater Sage-Grouse priority habitat area. Where new appurtenant facilities associated with the existing lease cannot be located outside the Greater Sage-Grouse priority habitat area, new facilities would be co-located within existing disturbed areas. If this is not possible, any</p>	<p><b>C- 76:</b> Same as Alternative B</p>	<p><b>D- 76:</b> Same as Alternative A</p>	<p><b>E- 76: Within PHMAs, <u>specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></b>            Upon receipt of a coal lease application proposing underground mining methods that include surface operations and impacts within PHMAs, Criterion 15 would be applied and the area would be identified as suitable for further coal leasing consideration after consultation with the state and, where applicable, surface management agency to determine that all or</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>action are acceptable for further consideration for coal leasing. The only exceptions are those lands determined unacceptable within the area. The coal unsuitability criteria are re- evaluated whenever new coal lease applications are received.</p> <p><u>Kemmerer RMP:</u> Process new coal lease applications by using the coal screening process. The coal screening process results will determine which lands may be available for further consideration for coal leasing and development. Appropriate NEPA analysis would be required prior to leasing. Federal land within the proposed Haystack project area is determined acceptable for further consideration for coal leasing and development. No coal LBAs will be considered</p>	<p>new appurtenant facilities would be constructed to the absolute minimum standard necessary. Where BLM/Forest Service identifies development of coal using underground mining methods, the BLM/Forest Service would consider the potential surface operations and surface Impacts, and unsuitability Criterion No. 15 applies, the lands would be assessed as unsuitable unless the surface management agency finds that a relevant exception or exemption applies. See 43 CFR 3461.1(b).</p>	<p>(see above)</p>	<p>(see above)</p>	<p>certain stipulated methods of coal mining will not have a significant long-term impact on Greater Sage-Grouse. Stipulated methods may include, but not limited to, underground mining methods with no placement of surface facilities.</p> <p>Unsuitability is not applied to underground operations without surface impacts (43 CFR 3461.1) This would be consistent with Instruction Memorandum (IM) WY WY-2012-019 says that the BLM will assess potential impacts to Greater Sage-Grouse through the NEPA process, and that the state regulatory agency would apply this mitigation, as well as protective measures consistent with the state policy for solid leasable mining action at the permitting stage.</p> <p><b><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in</u></b></p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>for Rock Creek/Tunp and Bear River Divide management areas.</p> <p><u>Pinedale RMP:</u> Decisions on lands acceptable for leasing consideration for coal development will be made after an application is received and the coal screening process is conducted.</p> <p><u>Rawlins RMP:</u> Federal coal lease applications will be accepted only on those federal coal lands with development potential identified as suitable for further leasing consideration after application of the coal unsuitability criteria (the above-mentioned approximately 51,250 acres and 2,318.7 million tons of surface minable federal coal).</p> <p><u>Green River RMP/JMH CAP:</u></p>	(see above)	(see above)	(see above)	<p><b><u>effect with the modification described above:</u></b></p> <p><u>Casper RMP:</u> If coal development potential is shown to exist, all BLM-administered lands outside the CDPA will be considered for coal leasing, unless specifically closed to mineral leasing. The coal-screening process will be completed on all newly identified lands having coal development potential.</p> <p>All BLM-administered lands within the CDPA identified in the 2001 Buffalo RMP maintenance action are acceptable for further consideration for coal leasing. The only exceptions are those lands determined unacceptable within the area. The coal unsuitability criteria are re-evaluated whenever new coal lease applications are received.</p> <p><u>Kemmerer RMP:</u> Process new coal lease applications by using the coal screening process. The</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Federal coal lands within the Coal Occurrence and Development Potential area (about 422,000 acres) are open to further consideration for coal leasing and development (i.e., new competitive leasing, emergency leasing, lease modifications, and exchange proposals, under the Federal Coal Management Program) with appropriate and necessary conditions and requirements for protection of other land and resource values and uses.</p> <p><b>BTNF LRMP:</b> Coal Leasing Standard Coal leasing will be allowed. Strip mining will not be permitted unless no other mining options exist. Numerous areas closed to leasing of solid minerals.</p>	(see above)	(see above)	(see above)	<p>coal screening process results will determine which lands may be available for further consideration for coal leasing and development. Appropriate NEPA analysis would be required prior to leasing. Federal land within the proposed Haystack project area is determined acceptable for further consideration for coal leasing and development. No coal LBAs will be considered for Rock Creek/Tunp and Bear River Divide management areas.</p> <p><b>Pinedale RMP:</b> Decisions on lands acceptable for leasing consideration for coal development will be made after an application is received and the coal screening process is conducted.</p> <p><b>Rawlins RMP:</b> Federal coal lease applications will be accepted only on those federal coal lands with development</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>potential identified as suitable for further leasing consideration after application of the coal unsuitability criteria (the above-mentioned approximately 51,250 acres and 2,318.7 million tons of surface minable federal coal).</p> <p><u>Green River RMP/JMH CAP:</u> Federal coal lands within the Coal Occurrence and Development Potential area (about 422,000 acres) are open to further consideration for coal leasing and development (i.e., new competitive leasing, emergency leasing, lease modifications, and exchange proposals, under the Federal Coal Management Program) with appropriate and necessary conditions and requirements for protection of other land and resource values and uses.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A- 77:</b> Coal exploration activities are allowed in Greater Sage-Grouse core habitat with applicable stipulations.	<b>B- 77:</b> Coal exploration activities would not be allowed in Greater Sage-Grouse priority habitat.	<b>C- 77:</b> No similar action	<b>D- 77:</b> Same as Alternative A	<b>E- 77:</b> Coal exploration activities could be allowed in PHMAs if they can be completed in compliance to surface occupancy and disturbance and density stipulations analyzed through the DDCT process.
<b>Solid Leasable Minerals (Other than Coal and Oil Shale)</b>				
<p><b>A- 78:</b> Leasing of non-energy leasable minerals would be considered within Greater Sage-Grouse core habitat areas, except in areas that are unavailable for leasing due to the need to protect sensitive resources.</p> <p><u>Kemmerer RMP:</u> Sodium: All public lands (outside of the Raymond Mountain WSA and exceptions identified below) within the planning area are available for sodium leasing consideration. Exploration for sodium will be considered on a case-by- case basis. Limited surface</p>	<b>B- 78:</b> Priority habitat would be closed to non-energy leasable mineral leasing. This would include not permitting any new leases to expand an existing mine.	<b>C- 78:</b> Same as Alternative B.	<p><b>D- 78:</b> In addition to Alternative A: Exploration licenses and prospecting permits would be considered with appropriate mitigating measures.</p> <p>All non-energy leasable mineral activities would be considered in Greater Sage-Grouse core habitats, provided that the activities can be completed in compliance to surface occupancy and disturbance and density stipulations analyzed through the DDCT process.</p>	<p><b>E- 78: <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></b> All non-energy leasable mineral activities would be considered in PHMAs, provided that the activities can be completed in compliance to surface occupancy and disturbance and density stipulations analyzed through the DDCT process.</p> <p>Exploration licenses and prospecting permits would be considered with appropriate mitigating measures.</p> <p><b><u>Outside of PHMA and/or for values other</u></b></p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>occupancy criteria contained in the Sodium Mineral Development Environmental Assessment will be applied on a case-by-case basis. No new sodium leases or exploration licenses may be issued on lands within the Raymond Mountain WSA. No new sodium exploration and leasing will be considered for Rock Creek/Tunp and Bear River Divide management areas.</p> <p>Phosphate: All public lands (outside of the Raymond Mountain WSA and exceptions identified below) within the planning area are available for phosphate leasing consideration. Exploration for phosphate will be considered on a case-by- case basis. No new phosphate exploration and leasing will be considered for Rock Creek/Tunp and Bear River Divide management areas.</p>	(see above)	(see above)	(see above)	<p><b><u>than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b></p> <p>Portions of PHMAs would be unavailable for leasing in accordance with existing RMP decisions for resource values other than Greater Sage-Grouse.</p> <p><b><u>Kemmerer RMP:</u></b> Sodium: All public lands (outside of the Raymond Mountain WSA and exceptions identified below) within the planning area are available for sodium leasing consideration. Exploration for sodium will be considered on a case-by-case basis. Limited surface occupancy criteria contained in the Sodium Mineral Development Environmental Assessment will be applied on a case-by-case basis. No new sodium leases or exploration licenses may be issued on lands within the Raymond</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><u>Pinedale RMP:</u> Should interest in other leasable minerals materialize in the future, leasing will be considered on a case-by-case basis, and the RMP will be amended as appropriate and necessary. The same surface disturbance restrictions will be used in analyzing leasing proposals and determining the issuance of any leases (for example, geothermal steam, coal, sodium, oil shale, and phosphate). Green River RMP/JMH CAP: The known sodium leasing area is open to exploration and consideration for leasing and developments but is closed to prospecting permits. The remainder of the planning area is open to sodium prospecting except for areas that are closed to mineral leasing, surface mining, or</p>	(see above)	(see above)	(see above)	<p>Mountain WSA. No new sodium exploration and leasing will be considered for Rock Creek/Tunp and Bear River Divide management areas.</p> <p>Phosphate: All public lands (outside of the Raymond Mountain WSA and exceptions identified below) within the planning area are available for phosphate leasing consideration. Exploration for phosphate will be considered on a case-by-case basis. No new phosphate exploration and leasing will be considered for Rock Creek/Tunp and Bear River Divide management areas.</p> <p><u>Pinedale RMP:</u> Should interest in other leasable minerals materialize in the future, leasing will be considered on a case-by-case basis, and the RMP will be amended as appropriate and necessary. The same surface disturbance restrictions will</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>mechanical prospecting type activities (areas closed to drilling, off road vehicle use, and explosive charges).</p> <p>Sodium (trona) leasing will be considered on a case- by-case basis and is subject to the same conditional requirements as oil and gas and coal, and the general management direction applied in this RMP.</p>	(see above)	(see above)	(see above)	<p>be used in analyzing leasing proposals and determining the issuance of any leases (for example, geothermal steam, coal, sodium, oil shale, and phosphate).</p> <p><u>Green River RMP/JMH CAP:</u></p> <p>The known sodium leasing area is open to exploration and consideration for leasing and developments but is closed to prospecting permits.</p> <p>The remainder of the planning area is open to sodium prospecting except for areas that are closed to mineral leasing, surface mining, or mechanical prospecting type activities (areas closed to drilling, off road vehicle use, and explosive charges).</p> <p>Sodium (trona) leasing will be considered on a case-by-case basis and is subject to the same conditional requirements as oil and gas and coal, and the general</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	management direction applied in this RMP.
Locatable Mineral Activities				
<p><b>A- 79:</b> Portions of Greater Sage-Grouse core habitat are withdrawn from mineral entry for the protection of sensitive resources.</p>	<p><b>B- 79:</b> In priority habitat, withdrawal from mineral entry would be proposed based on risk to the Greater Sage-Grouse and its habitat from conflicting locatable mineral potential and development.</p> <p>Existing [mining] claims would be made within the withdrawal area subject to validity exams or buy out. Claims that have been subsequently determined to be null and void in the recommended withdrawal would be included.</p> <p>In plans of operations required prior to any proposed surface disturbing activities, the following would be included:</p> <p>I. Additional, effective mitigation in perpetuity for conservation (In accordance with</p>	<p><b>C- 79:</b> Same as Alternative B.</p>	<p><b>D- 79:</b> Same as Alternative A.</p>	<p><b>E-79: <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></b></p> <p>252,160 acres within SFAs (see management action 139 for identification of SFAs) would be recommended for withdrawal from the General Mining Act of 1872, subject to valid existing rights. 894,060 acres would be considered for recommendation for withdrawal from mineral entry, based on risk to Greater Sage-Grouse and its habitat from conflicting locatable mineral location and entry. A total of approximately 20,357,630 acres are open to locatable mineral location and entry. Operators may be requested to submit modifications to the accepted notice or</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	<p>existing policy, WO IM 2008-204). (Example: purchase private land and mineral rights or severed subsurface mineral rights within the priority area and deed to US Government).</p> <p>Seasonal restrictions would be considered if deemed effective.</p>	(see above)	(see above)	<p>approved plan of operations so that the operations minimally impact PHMAs. The AO may convey to the operator suggested conservation measures, based upon the notice or plan level operations and the geographic area of those operations [also called the project area which is defined in 43 CFR 3809.5 and 36 CFR 228.3.</p> <p>These suggested conservation measures include measures that support the overall goals and objectives of the core population area strategy, though measures listed for protection of Greater Sage-Grouse breeding, nesting, brood-rearing, and wintering may not be reasonable or applicable to the BLM's determination of whether the proposed operations will cause unnecessary or undue degradation under 43 CFR 3809.5 and 36</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>CFR 228.3. The request containing the suggested conservation measures must make clear that the operator's compliance is not mandatory.</p> <p>Notices or Plans of Operation, or modifications thereto, submitted following the issuance of this guidance: As part of the 15 day completeness review of notices [or modifications thereto] and 30 day completeness review of plans of operations [or modifications thereto], the proposed project area(s) where exploration, development, mining, access and reclamation would take place should be reviewed for overlap of PHMAs in the corporate GIS database. If there is overlap, the BLM AO may notify the operator of ways that they may minimize impacts to PHMAs and request the operator to</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>amend its notice or plan to include such measures. The request to amend the submitted notice or plan of operations must make clear that the operator's compliance is not mandatory and that including such measures is not a requirement for completeness of either the notice or a plan of operations, nor is it a condition of acceptance of the notice or approval of the plan of operations.</p> <p><b><u>For values other than Greater Sage-Grouse, the following RMP decisions remain in effect:</u></b></p> <p>1,785,230 acres are withdrawn from mineral entry for the protection of sensitive resources.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>Saleable Minerals</b>				
<b>A- 80:</b> Greater Sage-Grouse core habitat areas would be open to mineral material exploration, sales, and free use permits, except in areas that are unavailable due to the need to protect other resource values.	<b>B- 80:</b> Greater Sage-Grouse priority habitat areas would be closed to mineral material exploration, sales, and free use permits subject to valid existing rights.	<b>C- 80:</b> Same as Alternative B.	<b>D- 80:</b> Same as Alternative A.	<p><b>E- 80:</b> PHMAs would be open to mineral material exploration, sales, and free use permits, except in areas that are unavailable due to the need to protect other resource values.</p> <p>All salable mineral activities within PHMAs would be considered, provided they can be completed in compliance within surface occupancy, seasonal restrictions, and disturbance and density stipulations analyzed through the DDCT process.</p>
<b>A- 81:</b> Saleable mineral pits no longer in use will continue to be available for use for other resource uses.	<b>B- 81:</b> In Greater Sage-Grouse priority habitat, saleable mineral pits no longer in use would be restored to meet Greater Sage-Grouse habitat conservation objectives.	<b>C- 81:</b> Same as Alternative B	<b>D- 81:</b> Same as Alternative A	<b>E-81:</b> Within PHMAs closure and restoration of saleable mineral pits no longer in use would be considered to meet Greater Sage-Grouse habitat conservation objectives. Emphasis would be given to reclamation/restoration of PHMAs as a viable long-term goal to improve Greater Sage-Grouse habitat.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>Recreation and Visitor Services</b>				
<b>Outdoor Recreation Management</b>				
<p><b>A- 82:</b>  <u>Casper RMP:</u>  The entire planning area will remain open to dispersed recreation. The camping limit on public lands is set by BLM policy and is currently limited to 14 days. Emphasis will be placed on providing interpretive and information signs and materials for public land visitors, maintaining existing facilities to a high standard consistent with the recreational setting, and limiting development of additional facilities to those areas where public recreational use of surrounding public lands requires. Work with state, local groups, and adjacent landowners will be conducted to identify and develop recreational trails, both motorized and non- motorized, when the opportunities presents themselves. SRPs will be allowed for commercial,</p>	<p><b>B- 82:</b> BLM Special Recreation Permits (SRPs) and Forest Service Recreation Special Use Authorizations (RSUAs) would only be allowed in priority habitat where they would have neutral or beneficial effects to priority habitat areas.</p>	<p><b>C- 82:</b> Same as Alternative B</p>	<p><b>D- 82:</b> In addition to Alternative A: BLM SRPs and Forest Service Recreation SUAs would be approved in Greater Sage-Grouse core habitat on a case by case basis consistent with other resource values.</p>	<p><b>E- 82: <u>Specific to management for Greater Sage-Grouse or PHMA, all RMPs are amended as follows:</u></b>  BLM Special Recreation Permits (SRP) would be allowed in PHMAs, unless negative impacts to Greater Sage-Grouse cannot be adequately mitigated.</p> <p><b><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b></p> <p><u>Casper RMP:</u>  The entire planning area will remain open to dispersed recreation. The camping limit on public lands is set by BLM policy and is currently limited to 14 days. Emphasis will be placed on providing interpretive and information signs and materials for public land</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>noncommercial, and competitive events on a case-by-case basis. Cooperation will be maintained with a variety of user groups, especially in the local area, to provide diverse recreational opportunities for enjoyment of public lands. BLM will pursue acquisition of lands and interest in lands in the Rattlesnake Range and Pine Ridge areas, as well as promote and support recreation-based tourism.</p> <p><u>Kemmerer RMP:</u> Allow dispersed recreation and permit special recreational activities (e.g., outfitting and guiding permits and OHV events permitted on an annual basis after evaluation).</p> <p><u>Green River RMP:</u> Special recreation permits will be considered on a case-by-case basis. Appropriate mitigation will be included in special</p>	(see above)	(see above)	(see above)	<p>visitors, maintaining existing facilities to a high standard consistent with the recreational setting, and limiting development of additional facilities to those areas where public recreational use of surrounding public lands requires. Work with state, local groups, and adjacent landowners will be conducted to identify and develop recreational trails, both motorized and non-motorized, when the opportunities presents themselves. SRPs will be allowed for commercial, noncommercial, and competitive events on a case-by-case basis. Cooperation will be maintained with a variety of user groups, especially in the local area, to provide diverse recreational opportunities for enjoyment of public lands. BLM will pursue acquisition of lands and interest in lands in the Rattlesnake Range and Pine Ridge areas, as well as</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>recreation permits, commercial recreation uses, and major competitive recreation events to provide resource protection and public safety.</p> <p><u>JMH CAP:</u> Special recreation use permits for managed activities that occur in the JMH CAP planning area will be reviewed and subject to recommendations made by the Rock Springs Field Office. This will allow the Rock Springs Field Office to track the amount, location, and timing of organized activity occurring within the planning area to monitor resource pressure. The permit evaluation process will consider the nature of the event potential impacts to resources, conflicts with other events, and impacts to the quality of other visitors' experiences. Mitigation</p>	(see above)	(see above)	(see above)	<p>promote and support recreation-based tourism.</p> <p><u>Kemmerer RMP:</u> Allow dispersed recreation and permit special recreational activities (e.g., outfitting and guiding permits and off-highway vehicle (OHV) events permitted on an annual basis after evaluation).</p> <p><u>Green River RMP:</u> Special recreation permits will be considered on a case-by-case basis. Appropriate mitigation will be included in special recreation permits, commercial recreation uses, and major competitive recreation events to provide resource protection and public safety.</p> <p><u>JMH CAP:</u> Special recreation use permits for managed activities that occur in the JMH CAP planning area will be reviewed and subject to recommendations made by the Rock Springs Field</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>measures necessary to protect the resources will be included in any permit issued. A plan of operation will be required for all commercial recreational operators and outfitters. The plan will describe the type, extent, and location of the recreation use and the mechanisms by which the operator/outfitter will prevent impacts to environmental resources. Any requests in special recreation use permit applications to remove natural resources will be evaluated on a case-by-case basis after an environmental analysis process.</p> <p><u>TBNG LRMP:</u> To reduce disturbances to nesting Greater Sage-Grouse, do not authorize the following activities within 2.0 miles of active display grounds from March 1 to June 15: Permitted recreation</p>	(see above)	(see above)	(see above)	<p>Office. This will allow the Rock Springs Field Office to track the amount, location, and timing of organized activity occurring within the planning area to monitor resource pressure. The permit evaluation process will consider the nature of the event, potential impacts to resources, conflicts with other events, and impacts to the quality of other visitors' experiences. Mitigation measures necessary to protect the resources will be included in any permit issued. A plan of operation will be required for all commercial recreational operators and outfitters. The plan will describe the type, extent, and location of the recreation use and the mechanisms by which the operator/outfitter will prevent impacts to environmental resources. Any requests in special recreation use permit applications to remove natural resources will be evaluated on a case-by-case</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
events involving large groups of people.  Manage display ground viewing activities to reduce disturbances and adverse impacts to the birds on the display grounds.	(see above)	(see above)	(see above)	basis after an environmental analysis process.
<b>A-82a:</b> No similar action	<b>B-82a:</b> No similar action	<b>C-82a:</b> No similar action	<b>D-82a:</b> No similar action	<b>E-82a:</b> In PHMAs, do not construct new recreation facilities (e.g., campgrounds, trails, trailheads, staging areas) unless the development would have a net conservation gain to Greater Sage-Grouse habitat (such as concentrating recreation, diverting use away from critical areas, etc.), or unless the development is required for visitor health and safety or resource protection.
<b>A- 83:</b> No similar action	<b>B -83:</b> No similar action	<b>C- 83:</b> Camping and other non- motorized recreation would be seasonally prohibited within 4 miles of active Greater Sage-Grouse leks.	<b>D- 83:</b> No similar action	<b>E -83:</b> No action

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>Special Designations and Other Management Areas</b>				
<b>A- 84:</b> No similar action	<b>B- 84:</b> All Greater Sage-Grouse priority habitat areas would be designated as Greater Sage-Grouse conservation ACECs/SIAs.	<b>C- 84:</b> All Greater Sage-Grouse priority habitat areas and Audubon Important Bird Areas would be designated as Greater Sage-Grouse conservation ACECs/SIAs.	<b>D- 84:</b> New Greater Sage-Grouse conservation ACECs/SIAs would not be designated.	<b>E- 84:</b> New Greater Sage-Grouse conservation ACECs would not be designated.
<b>A- 85:</b> No similar action	<b>B- 85:</b> No similar action	<b>C -85:</b> Large ACECs/SIAs would be designated to preserve, protect, conserve, restore, and sustain Greater Sage-Grouse populations and the sagebrush ecosystem on which the Greater Sage-Grouse relies.	<b>D- 85:</b> No similar action	<b>E -85:</b> No action
<b>Travel Management</b>				
<b>A- 86:</b> The following areas would be managed as OHV “open” areas: 1. Casper Field Office: Poison Spider OHV Park (290 acres) 2. Rawlins Field Office: Dune Pond Cooperative Management Area (3,740 acres) 3. Rock Springs Field Office: Portion of the	<b>B- 86:</b> All OHV “open” areas within Greater Sage-Grouse priority habitat areas would be designated as limited to designated roads and trails. These areas would include the following: 1. Casper Field Office: Poison Spider OHV Park (290 acres)	<b>C- 86:</b> Same as Alternative B	<b>D- 86:</b> Same as Alternative A	<b>E- 86:</b> <u>Specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u>  1. Within PHMAs, designate the non-sand dune portions of the following OHV Open Areas as OHV Limited Area. The OHV limitation would ultimately be to “Designated Routes”

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
Greater Sand Dunes Recreation Area (530 acres).	<p>2. Rawlins Field Office: Dune Pond Cooperative Management Area (3,740 acres)</p> <p>3. Rock Springs Field Office: Portion of the Greater Sand Dunes Recreation Area (530 acres).</p> <p>4. The sand dune portions of these areas where roads do not exist would continue to be managed as OHV “open” areas.</p>	(see above)	(see above)	<p>as determined through a subsequent implementation/activity level Travel Management Plan. In the interim, motorized use on existing routes may occur; however, no new routes may be created without specific authorization:</p> <p>Rawlins Field Office: Dune Pond Cooperative Management Area.</p> <p>2. Rock Springs Field Office: Portion of the Greater Sand Dunes Recreation Area.</p> <p>The following RMP decisions remain in effect: The Casper Field Office Poison Spider OHV Park (290 acres) would remain as an “open” OHV area.</p>
<b>A- 87:</b> Limit motorized travel to existing roads, primitive roads, and trails at a minimum, until such time as travel management planning is	<b>B- 87:</b> Motorized travel would be limited to existing roads, primitive roads, and trails at a minimum, until such time as travel	<b>C- 87:</b> Same as Alternative B	<b>D- 87:</b> Same as Alternative A	<b>E- 87:</b> Within PHMAs and GHMAs, all motorized use (of which OHVs are a subset) would be limited to designated routes. Route designations will occur in

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>complete and routes are either designated or closed.</p>	<p>management planning is complete and routes are either designated or closed.</p> <p>Activity level travel plans would be completed within five years of the record of decision. During activity level planning, where appropriate, routes would be designated in priority habitat with current administrative/agency purpose or need to administrative access only.</p>	<p>(see above)</p>	<p>(see above)</p>	<p>subsequent implementation/activity level Travel Management Plans. In the interim motorized use on existing routes may occur; however, no new routes may be created without specific authorization. In PHMAs and GHMAs, temporary closures will be considered in accordance with 43 CFR subpart 8364 (Closures and Restrictions); 43 CFR subpart 8351 (Designated National Area); 43 CFR subpart 6302 (Use of Wilderness Areas, Prohibited Acts, and Penalties); 43 CFR subpart 8341 (Conditions of Use).</p> <p>Temporary closure or restriction orders under these authorities are enacted at the discretion of the Authorized Officer to resolve management conflicts and protect persons, property, and public lands and resources. Where an Authorized Officer determines that off-highway vehicles are causing</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	or will cause considerable adverse effects upon soil, vegetation, wildlife, wildlife habitat, cultural resources, historical resources, threatened or endangered species, wilderness suitability, other authorized uses, or other resources, the affected areas shall be immediately closed to the type(s) of vehicle causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent recurrence. (43 CFR 8341.2) A closure or restriction order should be considered only after other management strategies and alternatives have been explored. The duration of temporary closure or restriction orders should be limited to 24 months or less; however, certain situations may require longer closures and/or iterative temporary closures. This may include closure of routes or areas.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><b>A- 88:</b>  <u>Casper Field Office:</u>            Avoid surface disturbance or occupancy within 0.25 mile of the perimeter of occupied Greater Sage-Grouse leks.            Surface disturbing activity is restricted or prohibited within 0.75 miles of occupied Greater Sage-Grouse leks in Bates Hole and Fish Creek/Willow Creek.</p> <p>Occupied Greater Sage-Grouse leks in Bates Hole and Fish Creek/Willow Creek will have a 4-mile buffer. Within this buffer, surface disturbing activities will be avoided within 4 miles of occupied Greater Sage-Grouse leks in areas with sagebrush stands greater than 10% canopy cover.</p> <p>Avoid surface-disturbing and disruptive activities in suitable Greater Sage-Grouse nesting and early brood- rearing habitats</p>	<p><b>B -88:</b> No similar action</p>	<p><b>C- 88:</b> New road construction would be prohibited within 4 miles of active Greater Sage-Grouse leks, and new road construction would be avoided in Greater Sage-Grouse priority and general habitat.</p>	<p><b>D- 88:</b> New roads would be avoided within 0.25 miles of the perimeter of occupied Greater Sage-Grouse leks within Greater Sage-Grouse core habitat areas.</p>	<p><b>E- 88:</b> New primary and secondary roads would be avoided within 1.9 miles of the perimeter of occupied Greater Sage-Grouse leks within PHMAs. All new roads would be prohibited within 0.6 miles of the perimeter of occupied Greater Sage-Grouse leks within PHMAs.</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>within 2 miles of an occupied lek, or in identified Greater Sage-Grouse nesting and early brood-rearing habitats outside the 2-mile buffer from March 15 to July 15 (timing limitation stipulation [TLS]).</p> <p><u>Kemmerer Field Office:</u> Avoid surface disturbance or occupancy within 0.25 mile of the perimeter of occupied Greater Sage-Grouse leks.</p> <p><u>Newcastle Field Office:</u> Avoid surface disturbance or occupancy within 0.25 mile of the perimeter of occupied Greater Sage-Grouse leks.</p> <p><u>Pinedale Field Office:</u> Surface disturbing activities in Traditional Leasing Areas and Unavailable Areas are prohibited in suitable habitat within 0.25 mile of occupied leks.</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><u>Rawlins Field Office:</u> Surface disturbing activities or occupancy are prohibited on and within 0.25 mile of the perimeter of an occupied Greater Sage-Grouse lek.</p> <p><u>Green River RMP/JMH CAP:</u> Active grouse leks (sage- and sharp-tail grouse) and the area within a 0.25 mile of the perimeter of active leks are avoidance areas for surface disturbing activities. Surface occupancy (long-term or permanent aboveground facilities) in the Jack Morrow Hills planning area will be prohibited within 0.25 mile of the perimeter of Greater Sage-Grouse leks unless adverse impacts can be mitigated. Distances will be subject to change on a case-by-case basis dependent on applicable scientific research and site- specific analysis.</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><u>TBNG LRMP:</u> To help reduce adverse impacts to breeding Greater Sage-Grouse and their display grounds, prohibit construction of new oil and gas facilities within 0.25 mile of active display grounds. A display ground is no longer considered active if it's known to have been unoccupied during the past 5 breeding seasons. This does not apply to pipelines and underground utilities. Roads are included in oil and gas facilities.</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><b>A- 89:</b>  <u>Kemmerer RMP:</u>            Designated roads would not be upgraded. Any improvements to the roadways would require further analysis.</p>	<p><b>B- 89:</b> Within Greater Sage-Grouse priority habitat, no upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity would be allowed unless the upgrading would have minimal impact on Greater Sage-Grouse in Greater Sage-Grouse priority habitat, was necessary for motorist safety, or eliminated the need to construct a new road.</p>	<p><b>C- 89:</b> Within priority and general Greater Sage-Grouse habitat, no upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity would be allowed unless it was necessary for motorist safety or eliminated the need to construct a new road. Any impacts would be mitigated with methods that have been demonstrated to be effective to offset the loss of Greater Sage-Grouse habitat.</p>	<p><b>D- 89:</b> Within Greater Sage-Grouse core and general habitat, upgrading of existing routes would be allowed based on other resource uses.</p>	<p><b>E- 89:</b> Within PHMAs, no upgrading of existing routes that would change route category or capacity would be allowed unless the upgrading would have minimal impact on Greater Sage-Grouse in PHMAs, was necessary for motorist safety, or eliminated the need to construct a new road.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A- 90:</b> No similar action	<b>B -90:</b> In priority habitat, existing roads or realignments as described above would be used to access valid existing rights that are not yet developed. If valid existing rights could not be accessed via existing roads, any new road would be constructed to the absolute minimum standard necessary, and the surface disturbance would be added to the total disturbance in the priority area. If that disturbance exceeds 3% for that area, additional, effective mitigation necessary would be evaluated or implemented to offset the resulting loss of Greater Sage-Grouse habitat.	<b>C- 90:</b> Within priority and general Greater Sage-Grouse, route construction would be limited to realignments of existing designated routes if that realignment has a minimal impact on Greater Sage-Grouse habitat, eliminates the need to construct a new road, or is necessary for motorist safety.  Impacts would be mitigated with methods that have been demonstrated to be effective to offset the loss of Greater Sage-Grouse habitat.	<b>D- 90:</b> No similar action	<b>E- 90:</b> In PHMAs, existing roads or realignments would be used to access valid existing rights that are not yet developed. If valid existing rights could not be accessed via existing roads, any new road would be constructed to the absolute minimum standard necessary, and the surface disturbance would be added to the total disturbance in the PHMA.
<b>A -91:</b> <u>Kemmerer RMP:</u> Roads and two-track routes determined to be unauthorized or redundant and unnecessary for resource	<b>B -91:</b> In priority habitat, restoration of roads, primitive roads and trails not designated in travel management plans would be conducted. This would include primitive route/roads that were not designated in Wilderness	<b>C -91:</b> Same as Alternative B	<b>D -91:</b> Within Greater Sage-Grouse core and general habitat, natural deterioration of roads not designated in travel management plans would be allowed.	<b>E -91:</b> <u><b>Specific to management for Greater Sage-Grouse or PHMA, all RMPs are amended as follows:</b></u> For roads, primitive roads and trails not designated in travel management plans within PHMAs, natural

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>management purposes will be reclaimed to achieve surrounding native conditions.</p> <p><u>Rawlins RMP:</u> Roads or trails that are eroding beyond a reasonable level will be fixed or closed.</p> <p><u>JMH CAP:</u> Transportation planning will provide for access to achieve multiple-use goals while providing maximum protection for crucial habitats and sensitive resources and will consider: Closing and rehabilitating unused roads and trails and those causing resource damage. This will be subject to county review of existing rights-of-way needs.</p> <p><u>BTNF LRMP:</u> Minerals Reclamation Standard Disturbed area will be returned to near</p>	<p>Study Areas and within lands with wilderness characteristics that had been selected for protections in previous RMPs.</p>	<p>(see above)</p>	<p>(see above)</p>	<p>reclamation of roads and trails would be allowed in appropriate situations where additional resource damage is not foreseeable.</p> <p>This would include primitive route/roads that were not designated in wilderness study areas and within lands with wilderness characteristics that have been selected to be managed to retain those characteristics for protection.</p> <p>In PHMAs, locate new roads that will have relatively high levels of activity (accessing multiple wells, housing development) greater than 1.9 miles from the perimeter of occupied Greater Sage-Grouse leks. Locate new other roads used to provide facility site access and maintenance &gt;0.6 miles from the perimeter of occupied Greater Sage-Grouse leks.</p> <p><b><u>Outside of PHMA and/or for values other</u></b></p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
pre-construction conditions, unless changed conditions would benefit other resources.	(see above)	(see above)	(see above)	<p><b><u>than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b></p> <p><u>Kemmerer RMP:</u> Roads and two-track routes determined to be unauthorized or redundant and unnecessary for resource management purposes will be reclaimed to achieve surrounding native conditions.</p> <p><u>Rawlins RMP:</u> Roads or trails that are eroding beyond a reasonable level will be fixed or closed.</p> <p><u>JMH CAP:</u> Transportation planning will provide for access to achieve multiple-use goals while providing maximum protection for crucial habitats and sensitive resources and will consider:</p> <p>Closing and rehabilitating unused roads and trails and</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	those causing resource damage. This will be subject to county review of existing rights-of-way needs.
<b>A- 92:</b> <u>BTNF LRMP:</u> Soil, Water, Air - Rehabilitation Standard: Rehabilitation seed mixes or other plantings will be designed for each vegetation community type that meets desired future condition.	<b>B- 92:</b> Within Greater Sage-Grouse priority habitats, when reseeding roads, primitive roads and trails, appropriate seed mixes (appropriate for Greater Sage-Grouse ecological conditions) would be used and the use of transplanted sagebrush would be considered.	<b>C- 92:</b> Within Greater Sage-Grouse priority and general habitat, when reseeding closed roads, primitive roads and trails, appropriate native seed mixes and require the use of transplanted sagebrush would be used.	<b>D- 92:</b> Within Greater Sage-Grouse core and general habitat, natural reseeding would apply.	<b>E- 92:</b> Within PHMAs, when reseeding roads and trails, appropriate seed mixtures would be used, and the use of transplanted sagebrush would be considered.
<b>Vegetation Management</b>				
<b>A- 93:</b> <u>Casper RMP:</u> Bates Hole and Fish Creek/Willow Creek: The areas will have priority for vegetative treatments to improve Greater Sage-Grouse habitats and for vegetation monitoring to ensure residual herbaceous vegetation is maintained for nesting cover on public lands.	<b>B- 93:</b> In Greater Sage-Grouse priority habitat, the BLM and Forest Service would manage for vegetation composition and structure consistent with ecological site potential and within the reference state to achieve Greater Sage-Grouse seasonal habitat objectives.	<b>C- 93:</b> No similar action	<b>D- 93:</b> Within Greater Sage-Grouse core habitat, the BLM/Forest Service would manage for vegetation composition and structure that reflects desired plant community or comparable standard.	<b>E- 93:</b> Within PHMAs and GHMAs, the BLM would manage for vegetation composition and structure that reflects ESD or other methods that reference site potential or comparable standard to achieve Greater Sage-Grouse and other resource objectives.



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><u>TBNG LRMP:</u> Pastures will be managed for Greater Sage-Grouse/big sagebrush only if they contain sagebrush stands with 5% or more canopy cover of big sagebrush.</p> <p>During vegetation management projects, maintain or increase the size of big sagebrush patches in Greater Sage-Grouse habitat.</p> <p>When conducting vegetation management projects, maintain small opening within big sagebrush stands at a maximum ratio of 1 acre of opening to 3 acres of shrub.</p> <p>Manage for high vegetative structure in areas where it would enhance Greater Sage-Grouse nesting habitat. Emphasize areas characterized by: Presence of moderate to highly productive soils</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
and range sites; Plant composition dominated by mid and/or tall grasses, with sagebrush canopy cover of 15-25%; Proximity to Greater Sage-Grouse display grounds.	(see above)	(see above)	(see above)	(see above)
<p><b>A- 94:</b>  <u>TBNG LRMP:</u>            In big sagebrush and Greater Sage-Grouse wintering habitat, do not prescribe burn or treat with herbicides unless it can be demonstrated to be beneficial for local Greater Sage-Grouse populations. Treatments should not be conducted where shrub canopy cover of sagebrush averages less than 15%. Limit treatments to less than 80-acre patches and no more than 20% of the sagebrush stands in the wintering habitat. Big sagebrush stands within 100 yards of meadows, riparian areas, and other foraging habitats should not be burned or sprayed.</p>	<p><b>B- 94:</b> In priority habitat, fuels treatments would be designed and implemented with an emphasis on protecting existing sagebrush ecosystems.</p> <p>Sagebrush canopy cover would not be reduced to less than 15% (Connelly et al. 2000, Hagen et al. 2007) unless a fuels management objective requires additional reduction in sagebrush cover to meet strategic protection of priority Greater Sage-Grouse habitat and conserve habitat quality for the species. The benefits of the fuel break would be closely evaluated</p>	<p><b>C- 94:</b> Within priority and general Greater Sage-Grouse habitat, sagebrush canopy cover would not be reduced to less than 15% unless a fuels management objective requires additional reduction in sagebrush cover to meet strategic protection of priority and general Greater Sage-Grouse habitat and conserve habitat quality for the species.</p> <p>The benefits of the fuel break would be closely evaluated against the additional loss of sagebrush cover in the EA process.</p>	<p><b>D- 94:</b> No similar action</p>	<p><b>E- 94:</b> Within PHMAs in northeast Wyoming (as mapped in WY EO 2011-5), vegetation treatments in nesting and wintering habitat that would reduce sagebrush canopy to less than 15% would not be conducted.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	against the additional loss of sagebrush cover in future NEPA documents.	(see above)	(see above)	(see above)
<p><b>A- 95:</b>  <u>Green River RMP:</u>  Prescribed burns generally will be conducted in areas having greater than 35% sagebrush composition, 20% desirable grass composition, and greater than 10 inches of precipitation. Other vegetation manipulation methods will be considered on a case-by-case basis depending on objectives and cost benefits.</p> <p><u>Casper RMP:</u>  Decision 4053: The areas (Bates Hole and Fish Creek/Willow Creek) will have priority for vegetative treatments to improve Greater Sage-Grouse habitats and for vegetation monitoring to ensure residual herbaceous vegetation is</p>	<p><b>B- 95:</b> In priority habitat, only treatments that conserve, enhance or restore Greater Sage-Grouse habitat would be allowed (this includes treatments that benefit livestock as part of an AMP/Conservation Plan to improve Greater Sage-Grouse habitat).</p>	<p><b>C- 95:</b> In addition to Alternative A: Within Greater Sage-Grouse priority and general habitat, the BLM/Forest Service would ensure that vegetation treatments create landscape patterns which most benefit Greater Sage-Grouse.</p> <p>Only treatments that are demonstrated to benefit Greater Sage-Grouse and retain sagebrush height and cover consistent with Greater Sage-Grouse habitat objectives would be allowed (this includes treatments that benefit livestock as part of an AMP/Conservation Plan to improve Greater Sage-Grouse habitat).</p>	<p><b>D- 95:</b> In addition to Alternative A: For vegetation treatments in sagebrush within core habitat areas, refer to Attachment 6 WGFD Protocols for Treating Sagebrush to Benefit Greater Sage-Grouse (WGFD 2011, as updated). These recommended protocols would be used in determining whether proposed treatment constitutes a “disturbance” that will contribute toward the 9% threshold for habitat maintenance.</p> <p>Additionally, these protocols would be used to determine whether the proposed treatment configuration would be expected to have neutral or beneficial impacts for</p>	<p><b>E- 95: <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></b></p> <p>For vegetation treatments in sagebrush within PHMAs, refer to Appendix A, WGFD Protocols for Treating Sagebrush to Benefit Greater Sage-Grouse (WGFD 2011, as updated) and BLM Washington Office Instruction Memorandum 2013-128 (Greater Sage-Grouse Conservation Related to Wildland Fire and Fuels Management).</p> <p>These recommended protocols would be used in determining whether proposed treatment constitutes a “disturbance” that would contribute toward the</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>maintained for nesting cover on public lands.</p> <p><b><u>MBNF LRMP:</u></b> When managing vegetation, maintain existing, or move towards desired patch size, distribution, abundance, and/or edge-to-interior ratios, which are characteristic of natural disturbances (fire, insects, and diseases) representative of the cover types, measured at the Geographic Area scale.</p>	(see above)	(see above)	<p>core populations or if they represent additional habitat loss or fragmentation.</p> <p>Treatments to enhance sagebrush/grasslands habitat for Greater Sage-Grouse would be evaluated based upon habitat quality and the functionality/use of treated habitats post-treatment.</p> <p>The BLM/Forest Service would work collaboratively with partners at the state and local level to maintain and enhance Greater Sage-Grouse habitats in a manner consistent with the core population area strategy for conservation.</p>	<p>5% threshold within PHMA maintenance. Additionally, these protocols would be used to determine whether the proposed treatment configuration would be expected to have neutral or beneficial impacts for PHMA (core only) populations or if they represent additional habitat loss or fragmentation.</p> <p>Treatments to enhance sagebrush/grasslands habitat for Greater Sage-Grouse would be evaluated based upon habitat quality and the functionality/use of treated habitats post-treatment.</p> <p>The BLM would work collaboratively with partners at the state and local level to maintain and enhance Greater Sage-Grouse habitats.</p> <p><b><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the</u></b></p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p><b><u>following RMP decisions remain in effect with the modification described above:</u></b></p> <p><b><u>Green River RMP:</u></b></p> <p>Prescribed burns generally will be conducted in areas having greater than 35% sagebrush composition, 20% desirable grass composition, and greater than 10 inches of precipitation. Other vegetation manipulation methods will be considered on a case-by-case basis depending on objectives and cost benefits.</p> <p><b><u>Casper RMP:</u></b></p> <p>Decision 4053: The areas (Bates Hole and Fish Creek/Willow Creek) will have priority for vegetative treatments to improve Greater Sage-Grouse habitats and for vegetation monitoring to</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	ensure residual herbaceous vegetation is maintained for nesting cover on public lands.
<p><b>A-96:</b>  <u>Casper RMP:</u>  Bates Hole and Fish Creek/Willow Creek: As Greater Sage-Grouse winter habitats are designated, a TLS will restrict activities from November 15 to March 14. Within the designated winter habitats, CSU for surface disturbing activities in sagebrush stands of greater than 20% canopy cover.</p> <p><u>TBNG LRMP:</u>  In big sagebrush and Greater Sage-Grouse wintering habitat, do not prescribe burn or treat with herbicides unless it can be demonstrated to be beneficial for local Greater Sage-Grouse populations. Treatments should not be conducted where shrub canopy cover of sagebrush</p>	<p><b>B-96:</b> Treatments would not be allowed in known Greater Sage-Grouse winter range unless the treatments are designed to strategically reduce wildfire risk around or in the winter range and would maintain winter range habitat quality.</p>	<p><b>C-96:</b> Fuels treatments would not be allowed in known Greater Sage-Grouse winter range unless the treatments are designed to strategically reduce wildfire risk around or in the winter range and would maintain winter range habitat quality.</p>	<p><b>D-96:</b> No similar action</p>	<p><b>E-96:</b> For vegetation treatments in sagebrush within PHMAs, refer to Appendix A, WGFD Protocols for Treating Sagebrush to Benefit Greater Sage-Grouse (WGFD 2011, as updated). These recommended protocols, subject to seasonal conditions of approval, would be used in determining whether proposed treatment constitutes a “disturbance” that would contribute toward the 5% threshold for habitat maintenance. Additionally, these protocols would be used to determine whether the proposed treatment configuration would be expected to have neutral or beneficial impacts for PHMA (core only) populations or if they represent additional habitat loss or fragmentation.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
averages less than 15%. Limit treatments to less than 80-acre patches and no more than 20% of the sagebrush stands in the wintering habitat. Big sagebrush within 100 yards of meadows, riparian areas, and other foraging habitats should not be burned or sprayed.	(see above)	(see above)	(see above)	<p>Treatments to enhance sagebrush/grasslands habitat for Greater Sage-Grouse would be evaluated based upon habitat quality and the functionality/use of treated habitats post-treatment.</p> <p>The BLM would work collaboratively with partners at the state and local level to maintain and enhance Greater Sage-Grouse habitats.</p> <p>Seasonal restriction would be applied, as needed, for implementing fuels management treatments according to the type of seasonal habitat present.</p>
<p><b>A-97:</b>  <u>Pinedale RMP:</u>  Treated areas will generally be rested from livestock grazing for a minimum of two full growing seasons after treatment unless the appropriate level of environmental analysis determines that shorter durations are adequate. Analysis could indicate a</p>	<p><b>B-97:</b> Treated areas would be rested from grazing for two full growing seasons unless vegetation recovery dictates otherwise with no exceptions.</p>	<p><b>C-97:</b> No similar action</p>	<p><b>D-97:</b> Treated areas would not be rested from grazing.</p>	<p><b>E-97:</b> Within PHMA grazing would be deferred on treated areas for two full growing seasons unless vegetation objectives or vegetation recovery indicates a shorter or longer rest period is necessary based on vegetation monitoring results.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>need for a longer rest period.</p> <p><u>Green River RMP:</u> All treated areas will be rested a minimum of 2 growing seasons from livestock grazing. Burn areas will be fenced from livestock and big game animals if necessary. Prescribed fire will be restricted in areas with surface coal or other fossil fuel outcrops.</p> <p><u>JMH CAP:</u> Areas proposed for treatment with prescribed burns will be rested 1 full year prior to treatment (unless vegetation cover prior to burning has adequate fine fuels to carry the fire) and 24 months after treatment, unless an onsite analysis determines that this time frame should be expanded or reduced. Treatments in aspen communities may be fenced on a case-by-case basis.</p>	(see above)	(see above)	(see above)	(see above)



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-98:</b> No similar action	<b>B-98:</b> No similar action	<b>C-98:</b> Within Greater Sage-Grouse priority and general habitat, sagebrush reduction treatments to increase livestock or big game forage would be avoided and would include plans to restore high-quality habitat in areas with invasive species.	<b>D-98:</b> No similar action	<b>E-98:</b> For vegetation treatments in sagebrush within PHMAs, refer to Appendix A, WGFD Protocols for Treating Sagebrush to Benefit Greater Sage-Grouse (WGFD 2011, as updated).
<b>Vegetation Reclamation</b>				
<b>A-99:</b> Reclamation of surface disturbances in Greater Sage-Grouse habitats would be in accordance with the Wyoming Reclamation Policy (BLM 2009a).	<b>B-99:</b> Same as Alternative A	<b>C-99:</b> Same as Alternative A	<b>D-99:</b> Same as Alternative A	<b>E-99:</b> Reclamation of surface disturbances in PHMAs would be consistent with the Wyoming Reclamation Policy (BLM 2009a), vegetation objectives (Table 2-2 and 2-3) and Appendix C of the 2015 Final EIS.  A monitoring plan would be developed for each restoration or reclamation project and reporting progress and changes in resource condition.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><b>A-100:</b> No similar action</p>	<p><b>B-100:</b> Within Greater Sage-Grouse priority habitat: Areas for vegetation restoration and/or criteria that include state Greater Sage-Grouse conservation plans and appropriate local information would be identified; use of native seeds for restoration would be required unless probability for success is low (non-native seeds could be used as long as they meet Greater Sage-Grouse habitat objectives); restoration management would be designed to obtain long-term persistence. Reestablishment of sagebrush cover and desirable understory plants would be the highest priority for restoration efforts. Native plants and landscape patterns that most benefit Greater Sage-Grouse would be restored and created, considering potential changes in climate.</p>	<p><b>C-100:</b> Within Greater Sage-Grouse priority and general habitat, exotic seedings would be rehabbed, interseeded, and restored to recover sagebrush in areas to expand Greater Sage-Grouse priority and general habitats.</p>	<p><b>D-100:</b> No similar action</p>	<p><b>E-100:</b> Areas for vegetation restoration and/or restoration criteria that include state Greater Sage-Grouse conservation plans and appropriate local information would be identified. The use of native plants and seeds for restoration would be required unless the probability for success is low (non-native plants and seeds may be used as long as they meet Greater Sage-Grouse habitat objectives), and restoration management would be designed to obtain long-term persistence based on ESD.</p> <p>Reestablishment of sagebrush cover and desirable understory plants would be the highest priority for restoration efforts. Landscape patterns that most benefit Greater Sage-Grouse would be restored and created, considering potential changes in climate.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-101:</b> No similar action	<b>B-101:</b> Within Greater Sage-Grouse priority habitat, implementation of restoration projects would be prioritized based on environmental variables that improve chances for project success in areas most likely to benefit Greater Sage-Grouse. Restoration would be prioritized in seasonal habitats that are thought to be limiting Greater Sage-Grouse distribution and/or abundance.	<b>C-101:</b> Within Greater Sage-Grouse priority and general habitat, implementation of restoration projects would be prioritized based on environmental variables that improve chances for project success in areas most likely to benefit Greater Sage-Grouse. Restoration would be prioritized in seasonal habitats that are thought to be limiting Greater Sage-Grouse distribution and/or abundance and where factors causing degradation have already been addressed (e.g., changes in livestock management).	<b>D-101:</b> No similar action	<b>E-101:</b> Within PHMAs, implementation of restoration projects would be prioritized based on environmental variables that improve chances for project success in areas most likely to benefit Greater Sage-Grouse. Restoration would be prioritized in seasonal habitats that are thought to be limiting Greater Sage-Grouse distribution and/or abundance.
<b>A-102:</b> <u>Kemmerer RMP:</u> Require the use of certified weed-free seed and mulch for rehabilitation projects. <u>Pinedale RMP:</u> Disturbed areas will be reclaimed to native site plant composition. If reclamation of original plant composition is	<b>B-102:</b> Native seed allocation would be prioritized for use in Greater Sage-Grouse habitat in years when preferred native seed is in short supply. This may require reallocation of native seed from ES&R, BLM, and/or BAER (Forest Service) projects	<b>C-102:</b> Same as Alternative B	<b>D-102:</b> In addition to Alternative A: Within Greater Sage-Grouse core and connectivity habitat, use of native and non-native plant seeds for vegetation seedings would be allowed based on probability of success and	<b>E-102:</b> <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u> Where probability of success or native seed availability is low or where there is a specific identified purpose that cannot be met

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>impossible or not desirable, reclamation will achieve a native plant community that meets the Wyoming Standards for Rangeland Health.</p> <p><u>TBNG LRMP:</u> Allow only certified noxious weed seed- free products for animal feed or re- vegetation projects. This includes use of certified hay or straw, and heat-treated, or other appropriately processed products. Where technically and economically feasible, use genetically local (at the ecological sub-section level) native plant species in re-vegetation efforts. To prevent soil erosion, non-native annuals or sterile perennial species may be used while native perennials are becoming established.</p> <p><u>MBNF LRMP:</u> Use native species and desirable non- native species in seed mixtures;</p>	<p>outside of priority Greater Sage-Grouse habitat to those inside it. Within Greater Sage-Grouse priority habitat, the use of native plant seeds for ES&amp;R or BAER seedings would be required based on availability, adaptation (site potential), and probability of success.</p>	<p>(see above)</p>	<p>benefits to Greater Sage-Grouse habitats.</p>	<p>with natives, non- native seeds could be used provided they meet Greater Sage-Grouse habitat conservation and vegetation (see Tables 2-2 and 2-3) objectives.</p> <p>The use of native seeds for fuels management treatment would be prioritized based on availability, adaptation (site potential), and probability of success. Where probability of success or native seed availability is low, non-native seeds may be used to meet Greater Sage-Grouse habitat objectives to trend toward restoring the fire regime. When reseeding, use fire resistant native and non-native species, as appropriate, to provide for fuel breaks.</p> <p>Native seed allocation would be prioritized for use in Greater Sage-Grouse habitat.</p> <p><b><u>Outside of PHMA and/or for values other than Greater Sage-</u></b></p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
if non- natives are used to assure ground cover, select plants based on the likelihood that they will not persist beyond the rehabilitation period. Use genetically local (subsection level) plant species where technically and economically feasible.	(see above)	(see above)	(see above)	<p><b><u>Grouse, the following RMP decisions remain in effect with the modification described above:</u></b></p> <p><u>Kemmerer RMP:</u> Require the use of certified weed-free seed and mulch for rehabilitation projects.</p> <p><u>Pinedale RMP:</u> Disturbed areas will be reclaimed to native site plant composition. If reclamation of original plant composition is impossible or not desirable, reclamation will achieve a native plant community that meets the Wyoming Standards for Rangeland Health.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-103:</b> No similar action	<b>B-103:</b> Post ES&R and BAER management would be designed to ensure long-term persistence of seeded or pre-burn native plants. This may require temporary or long-term changes in livestock grazing, wild horse, and travel management, etc., to achieve and maintain the desired condition of ES&R and BAER projects to benefit Greater Sage-Grouse (Eiswerth and Shonkwiler 2006).	<b>C-103:</b> No similar action	<b>D-103:</b> No similar action	<b>E-103:</b> Post emergency stabilization and rehabilitation (ES&R) and burn area emergency rehabilitation BAER management would be designed to ensure long-term persistence of seeded or pre-burn native plants. This may require temporary or long-term changes in livestock grazing, wild horse, and travel management, etc., to achieve and maintain the desired condition of ES&R and BAER projects to benefit Greater Sage-Grouse (Eiswerth and Shonkwiler 2006).

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><b>A-104:</b> No similar action</p>	<p><b>B-104:</b> The role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to priority Greater Sage-Grouse habitats would be evaluated to determine if they should be restored to sagebrush or habitat of higher quality for Greater Sage-Grouse. If these seedings are part of an AMP/Conservation Plan or if they provide value in conserving or enhancing the rest of the priority habitats, no restoration would be necessary. The compatibility of these seedings would be assessed for Greater Sage-Grouse habitat or as a component of a grazing system during the land health assessments (or other analyses [Forest Service only]) (Davies et al. 2011).</p>	<p><b>C-104:</b> Within Greater Sage-Grouse priority and general habitat, the role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to Greater Sage-Grouse habitat would be evaluated to determine if they should be restored to sagebrush or habitat of higher quality for Greater Sage-Grouse. If these seedings provide value in conserving or enhancing Greater Sage-Grouse habitat, no restoration would be necessary. The compatibility of these seedings for Greater Sage-Grouse habitat would be assessed during the land health assessments.</p>	<p><b>D-104:</b> No similar action</p>	<p><b>E-104:</b> The role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to PHMAs would be evaluated to determine if they should be restored to sagebrush or habitat of higher quality for Greater Sage-Grouse. If these seedings are part of an AMP or if they provide value in conserving or enhancing the rest of the PHMAs (core only), no restoration would be necessary.</p> <p>The compatibility of these seedings for Greater Sage-Grouse habitat or as a component of a grazing system would be assessed during the land health assessments (Davies et al. 2011).</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><b>A-105:</b> No similar action</p>	<p><b>B-105:</b> Priority would be given for implementing specific Greater Sage-Grouse habitat restoration projects in annual grasslands first to sites that are adjacent to or surrounded by Greater Sage-Grouse priority habitats. Annual grasslands would be second priority for restoration when the sites are not adjacent to priority habitat but are within 2 miles of priority habitat. The third priority for annual grasslands habitat restoration projects would be sites beyond 2 miles of priority habitat. The intent would be to focus restoration outward from existing, intact habitat.</p>	<p><b>C-105:</b> No similar action</p>	<p><b>D-105:</b> Within Greater Sage-Grouse core and general habitat, Greater Sage-Grouse habitat restoration projects in annual grassland restoration would be prioritized commensurate with its threat to the region.</p>	<p><b>E-105:</b> Priority would be given for implementing specific Greater Sage-Grouse habitat restoration projects in areas invaded by annual grasses first to sites that are adjacent to or surrounded by PHMAs. Areas invaded by annual grasses would be second priority for restoration when the sites are not adjacent to PHMAs but are within 2 miles of PHMAs. The third priority for areas invaded by annual grasses habitat restoration projects would be sites beyond 2 miles of PHMAs. The intent would be to focus restoration outward from existing, intact habitat.</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-106:</b> No similar action	<b>B-106:</b> In fire prone areas where sagebrush seed is required for Greater Sage-Grouse habitat restoration, the BLM and Forest Service would consider establishing seed harvest areas that are managed for seed production and are a priority for protection from outside disturbances.	<b>C-106:</b> Same as Alternative B.	<b>D-106:</b> No similar action	<b>E-106:</b> In fire prone areas where sagebrush seed is required for Greater Sage-Grouse habitat restoration, the BLM would consider establishing seed harvest areas that are managed for seed production and are a priority for protection from outside disturbances.
<b>A-107:</b> No similar action	<b>B-107:</b> No similar action	<b>C-107:</b> Any vegetation treatment plan would include pretreatment data on wildlife and habitat condition, establish non-grazing exclosures, and include long-term monitoring where treated areas are monitored for at least three years before grazing returns. Monitoring would be continued for five years after livestock are returned to the area, and compared to treated, ungrazed exclosures, as well as untreated areas.	<b>D-107:</b> No similar action	<b>E-107:</b> Vegetation treatment proposals must include evaluation of soils, precipitation, invasive/exotic plants, as well as the current condition of PHMAs.  Avoid aerial pesticide/herbicide spraying in favor of ground applications to minimize drift into non-target areas in Greater Sage-Grouse habitat unless benefits of treatments are likely to outweigh impacts.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>Grasshopper/Mormon Cricket Control and Management</b>				
<b>A-108:</b> <u>Casper RMP:</u> Work with APHIS to control outbreaks of grasshoppers and Mormon crickets on public lands in the planning area in accordance with the MOU between US Department of the Interior and APHIS.	<b>B-108:</b> Grasshopper or cricket control would not occur in Greater Sage-Grouse priority habitat areas unless it can be demonstrated that it is beneficial to Greater Sage-Grouse.	<b>C-108:</b> No similar action	<b>D-108:</b> Grasshopper or cricket control would occur to enhance economic benefits to other resource objectives.	<p><b>E-108:</b> <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></p> <p>The BLM could implement treatments within PHMAs where outbreaks of grasshopper or Mormon cricket populations are expected to rise above economic levels. Treatments must be conducted only following reduced agent-area treatments (RAATS) protocols. The BLM would work collaboratively with partners at the federal, state, and local levels, including the Wyoming Weed and Pest Districts within the counties where the treatment is to occur, to maintain and enhance Greater Sage-Grouse habitats in a manner consistent with the core population area strategy for conservation.</p> <p>The BLM would be directed to utilize the Wyoming</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>Grasshopper and Mormon Cricket Control website as a resource for updated information when conducting analysis of grasshopper and Mormon cricket control in Greater Sage-Grouse habitats.</p> <p>Avoid aerial pesticide/herbicide spraying in favor of ground applications to minimize drift into non-target areas in Greater Sage-Grouse habitat unless benefits of treatments are likely to outweigh impacts.</p> <p><u>Outside of PHMA/or and for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></p> <p><u>Casper RMP:</u></p> <p>Work with Animal and Plant Health Inspection Service (APHIS) to control outbreaks of grasshoppers and Mormon crickets on public lands in the planning area in accordance with the MOU between US</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	Department of the Interior and APHIS.
<b>Wild Horse Management</b>				
<b>A-109: Green River RMP/JMH CAP:</b> Specific habitat objectives for herd management areas would be developed. Consideration will be given to desired plant communities, wildlife, watershed, livestock grazing, and other resource needs.	<b>B-109:</b> Within Greater Sage-Grouse priority habitat, BLM HMAPs and Forest Service Wild Horse Territory Plans would be developed or amended to incorporate Greater Sage-Grouse habitat objectives and management considerations for all BLM HMAs and Forest Service Wild Horse Territories (WHT).	<b>C-109:</b> Same as Alternative B	<b>D-109:</b> Wild horse populations would be managed at an appropriate management level, utilizing Greater Sage-Grouse core habitat condition as one key parameter for setting these levels, where BLM HMAs and core habitat overlap.	<b>E-109: <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></b> Within PHMAs, the BLM would review and consider amending BLM Herd Management Area Plans (HMAP) to incorporate Greater Sage-Grouse habitat objectives and management considerations for all BLM herd management areas (HMA). <b><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b> <u>Green River RMP/JMH CAP:</u> Specific habitat objectives for herd management areas would be developed. Consideration will be given

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	to desired plant communities, wildlife, watershed, livestock grazing, and other resource needs.
<b>A-110:</b> No similar action	<b>B-110:</b> For all BLM HMAs and Forest Service WHTs within priority Greater Sage-Grouse habitat, the evaluation of all AMLs would be prioritized based on indicators that address structure/condition/composition of vegetation and measurements specific to achieving Greater Sage-Grouse habitat objectives.	<b>C-110:</b> No similar action	<b>D-110:</b> The evaluation of all AMLs in Greater Sage-Grouse core and connectivity habitat would be prioritized based on Greater Sage-Grouse habitat objectives.	<b>E-110:</b> PHMA (core only) management objectives would be considered when evaluating appropriate management levels (AML).
<b>A-111:</b> No similar action	<b>B-111:</b> Within Greater Sage-Grouse priority habitat, land health assessments would be prioritized and conducted to determine existing structure/condition/composition of vegetation within all BLM HMAs and Forest Service WHTs.	<b>C-111:</b> Same as Alternative B	<b>D-111:</b> Land health assessments would be prioritized and conducted in BLM HMAs within Greater Sage-Grouse core and connectivity habitat areas.	<b>E-111:</b> PHMA (core only) management objectives would be considered when conducting land health assessments in BLM HMAs.

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><b>A-112:</b>  <u>Green River RMP:</u>  Water developments will be provided if necessary, to improve herd distribution and manage forage utilization.</p> <p><u>JMH CAP:</u>  Water developments will be provided if necessary, to improve herd distribution and manage forage utilization.  Water developments within sensitive wildlife habitats will be considered only if wildlife habitat and resource conditions will be improved or maintained.</p>	<p><b>B-112:</b> When conducting NEPA analysis for wild horse management activities, water developments or other rangeland improvements for wild horses in Greater Sage-Grouse priority habitat, the direct and indirect effects to Greater Sage-Grouse populations and habitat would be addressed. Water developments or rangeland improvements would be implemented using the criteria identified for domestic livestock identified above in priority habitats.</p>	<p><b>C-112:</b> Same as Alternative B</p>	<p><b>D-112:</b> No similar action</p>	<p><b>E-112:</b> When conducting NEPA analysis for wild horse management activities, water developments or other rangeland improvements for wild horses in PHMAs, the direct and indirect effects to Greater Sage-Grouse populations and habitat would be addressed. Water developments or rangeland improvements would be implemented using the criteria identified for domestic livestock identified above in PHMAs.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-113:</b> No similar action	<b>B-113:</b> The BLM and Forest Service would coordinate with other resources (Range, Wildlife, and Riparian) to conduct land health assessments to determine existing structure/condition/composition of vegetation within all BLM HMAs and Forest Service WHTs.	<b>C-113:</b> Same as Alternative B	<b>D-113:</b> No similar action	<b>E-113:</b> Coordinate with other resources (Range, Wildlife, and Riparian) to conduct land health assessments within all BLM HMAs.
<b>Wildland Fire and Fuels Management</b>				
<b>A-114:</b> <u>Casper RMP:</u> Utilize an integrated management technique approach (defined as prescribed fire, mechanical, chemical, or biological, followed by desired reseeding) to reduce fuels to protect high priority areas or resource values defined as, but not limited to the following: <ol style="list-style-type: none"> <li>1. Urban and industrial interface areas</li> <li>2. Developed recreation areas</li> <li>3. Commercial timber areas</li> <li>4. Wildlife habitats</li> </ol>	<b>B-114:</b> In priority habitat, fuels treatments would be designed and implemented with an emphasis on protecting existing sagebrush ecosystems.	<b>C-114:</b> Within Greater Sage-Grouse priority and general habitat, fuels treatments would be designed and implemented with an emphasis on protecting existing sagebrush ecosystems.	<b>D-114:</b> No similar action	<b>E-114:</b> In PHMAs, fuels treatments would be designed and implemented with an emphasis on protecting existing sagebrush ecosystems and enhancing and protecting future sagebrush ecosystems (refer to WGFD Protocols for Treating Sagebrush to Benefit Greater Sage-Grouse [WGFD 2011, as updated]) and Appendix A [of the 2015 Final EIS].  These recommended protocols would be used in determining whether proposed treatment constitutes a “disturbance”

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
5. Range-improvement facilities 6. Communication sites 7. Municipal watersheds.	(see above)	(see above)	(see above)	<p>that will contribute toward the 5% threshold for habitat maintenance.</p> <p>Fuel treatments would be designed through an interdisciplinary process to expand, enhance, maintain, and protect Greater Sage-Grouse habitat. Green strips (using native fire resistant/resilient species) and/or fuel breaks would be used, where appropriate, to protect seeding efforts from subsequent fire events.</p> <p>In coordination with the USFWS and relevant state agencies, BLM planning units (Districts) with large blocks of Greater Sage-Grouse habitat would develop, using the assessment process described in Appendix J [of the 2015 Final EIS], a fuels management strategy which considers an up-to-date fuels profile, land use plan direction, current and potential habitat fragmentation, sagebrush</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>and Greater Sage-Grouse ecological factors, and active vegetation management steps to provide critical breaks in fuel continuity, where appropriate. When developing this strategy, planning units would consider the risk of increased habitat fragmentation from a proposed action versus the risk of large-scale fragmentation posed by wildfires if the action is not taken.</p> <p>Utilizing an interdisciplinary approach, a full range of fuel reduction techniques would be available. Fuel reduction techniques such as grazing, prescribed fire, chemical, biological, and mechanical treatments would be acceptable.</p> <p>Upon project completion, fuels projects would be monitored and managed to ensure long-term success, including persistence of seeded species and/or other treatment</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>components. Invasive vegetation post-treatment would be controlled.</p> <p>Wildfire prevention plans would be developed that explain the resource value of Greater Sage-Grouse habitat and include fire prevention messages and actions to reduce human-caused ignitions.</p>
<p><b>A-115: Kemmerer RMP:</b> Implement BLM Emergency Stabilization and Rehabilitation standards located in the DOI Interagency Burned Area Emergency Response Guidebook and BLM Burned Area Emergency Stabilization and Rehabilitation Handbook on wildland fires to protect and sustain healthy ecosystems and protect life and property.</p> <p><b>Newcastle RMP:</b> All wildfires will be evaluated to determine the need for rehabilitation or restoration measures.</p>	<p><b>B-115:</b> Burned areas that are within priority Greater Sage-Grouse habitats would be restored and recovered. The BLM and Forest Service would bring in BAER and BAR teams who would work collaboratively with partners at the federal, state, and local level to maintain and enhance Greater Sage-Grouse habitats in a manner consistent with the priority habitat population area strategy for conservation. DDCT reviews would be conducted in coordination with the</p>	<p><b>C-115:</b> No similar action</p>	<p><b>D-115:</b> Same as Alternative A</p>	<p><b>E-115: <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></b></p> <p>Burned areas that are within PHMAs would be restored.</p> <p>Wildfire burns will be treated as disturbed if sagebrush is reduced below 5% unless there is an implementation plan outlining restoration efforts and 3 years of data showing a trend back to suitable habitat. The BLM could bring in burned area rehabilitation (BAR) and BAER teams who would work collaboratively with partners at the federal,</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Restoration of burned areas will be by natural succession unless a special need is identified to prevent further resource damage.</p> <p><u>Rawlins RMP:</u></p> <p>Rehabilitation and restoration efforts specific to a fire event will be undertaken to protect and sustain ecosystems, public health and safety, and to help communities protect infrastructure.</p>	<p>WGFD Habitat Protection Program located in Cheyenne, Wyoming, at the WGFD headquarters.</p> <p>Areas within Greater Sage-Grouse priority habitat would be high priority for restoration of Greater Sage-Grouse habitat beyond immediate response.</p>	(see above)	(see above)	<p>state, and local level to rehabilitate and restore Greater Sage-Grouse habitats in a manner consistent with the core habitat population area strategy for conservation. DDCT reviews would be conducted in coordination with the WGFD Habitat Protection Program located in Cheyenne, Wyoming at the WGFD headquarters. Areas within PHMAs would be high priority for restoration of Greater Sage-Grouse habitat beyond immediate response.</p> <p><b><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b></p> <p><u>Kemmerer RMP:</u></p> <p>Implement BLM Emergency Stabilization and Rehabilitation standards located in the Department of the Interior (DOI) Interagency Burned Area</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>Emergency Response Guidebook and BLM Burned Area Emergency Stabilization and Rehabilitation Handbook on wildland fires to protect and sustain healthy ecosystems and protect life and property.</p> <p><u>Newcastle RMP:</u></p> <p>All wildfires will be evaluated to determine the need for rehabilitation or restoration measures. Restoration of burned areas will be by natural succession unless a special need is identified to prevent further resource damage.</p> <p><u>Rawlins RMP:</u></p> <p>Rehabilitation and restoration efforts specific to a fire event will be undertaken to protect and sustain ecosystems, public health and safety, and to help communities protect infrastructure.</p>
<b>A-116:</b> <u>Casper RMP:</u> Use prescribed burning to achieve measurable 5th-order watershed objectives from (1)	<b>B-116:</b> Within Greater Sage-Grouse priority habitat, fire would not be used to treat sagebrush in less than 12-inch	<b>C-116:</b> Within Greater Sage-Grouse priority and general habitat, fire would not be used to treat sagebrush in less than 12-	<b>D-116:</b> Same as Alternative A	<b>E-116:</b> <u>Within PHMAs, specific to management for Greater Sage-</u>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>other resources, including, but not limited to, forestry, wildlife, range, vegetation, and watershed; (2) the reduction of hazardous fuels; and (3) the introduction of fire into fire-adapted ecosystems. <u>Green River RMP/JMH CAP:</u> Prescribed fire will generally be the preferred method of vegetation manipulation to convert decadent stands of brushland to grasslands and to stimulate sprouting of old, decadent aspen stands and/or shrub species. Prescribed burns are preferred in areas having greater than 35% sagebrush composition, 20% desirable grass composition, and greater than 10 inches of precipitation. <u>Rawlins RMP:</u> Fuel treatments, including prescribed fire, mechanical, chemical,</p>	<p>precipitation zones (e.g., Wyoming big sagebrush or other xeric sagebrush species). However, if as a last resort and after all other treatment opportunities have been explored and site-specific variables allow, the use of prescribed fire that would disrupt fuel continuity or enhance land health could be considered where cheatgrass is a very minor component in the understory.</p>	<p>inch precipitation zones (e.g., Wyoming big sagebrush or other xeric sagebrush species). However, if as a last resort and after all other treatment opportunities have been explored and site specific variables allow, the use of prescribed fire for fuel breaks that would disrupt the fuel continuity across the landscape could be considered in stands where cheatgrass is a very minor component in the understory.</p>	<p>(see above)</p>	<p><b><u>Grouse, all RMPs are amended as follows:</u></b></p> <p>For fuels management, the BLM would consider multiple tools for fuels reduction and would analyze in NEPA compliance documentation before electing to implement prescribed fire in PHMAs.</p> <p>If prescribed fire is used in Greater Sage-Grouse habitat, the NEPA analysis for the Burn Plan will address:</p> <ul style="list-style-type: none"> <li>• Why alternative techniques were not selected as a viable option</li> <li>• How Greater Sage-Grouse goals and objectives would be met by its use</li> <li>• How the COT Report objectives would be addressed and met</li> </ul> <p>A risk assessment to address how potential threats to Greater Sage-Grouse habitat would be minimized.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>and biological treatments will be used for fuels reduction and to meet other multiple-use resource objectives, including returning fire to its natural role in the ecosystem. WUI and communities at risk will receive priority for fuels reduction.</p>	(see above)	(see above)	(see above)	<p>Prescribed fire as a vegetation or fuels treatment shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Prescribed fire could be used to meet specific fuels objectives that would protect Greater Sage-Grouse habitat in PHMAs (e.g., creation of fuel breaks that would disrupt the fuel continuity across the landscape in stands where annual invasive grasses are a minor component in the understory, burning slash piles from conifer reduction treatments, used as a component with other treatment methods to combat annual grasses and restore native plant communities).</p> <p>Prescribed fire in known winter range shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Any prescribed fire in winter habitat would need to be</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>designed to strategically reduce wildfire risk around and/or in the winter range and designed to protect winter range habitat quality. Refer to Appendix A, WGFD Protocols for Treating Sagebrush to Benefit Greater Sage-Grouse (WGFD2011, as updated) and BLM Washington Office Instruction Memorandum 2013-128. If prescribed fire activities are not in compliance with these protocols, the treatment would be considered a PHMA disturbance.</p> <p><b><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b></p> <p><u>Casper RMP:</u></p> <p>Use prescribed burning to achieve measurable 5th-order watershed objectives from (1) other resources, including, but not limited to,</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>forestry, wildlife, range, vegetation, and watershed; (2) the reduction of hazardous fuels; and (3) the introduction of fire into fire-adapted ecosystems.</p> <p><u>Green River RMP/JMH CAP:</u></p> <p>Prescribed fire will generally be the preferred method of vegetation manipulation to convert decadent stands of brushland to grasslands and to stimulate sprouting of old, decadent aspen stands and/or shrub species. Prescribed burns are preferred in areas having greater than 35% sagebrush composition, 20% desirable grass composition, and greater than 10 inches of precipitation.</p> <p><u>Rawlins RMP:</u></p> <p>Fuel treatments, including prescribed fire, mechanical, chemical, and biological treatments will be used for fuels reduction and to meet other multiple-use resource objectives, including returning fire to its natural</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	role in the ecosystem. Wildland urban interfaces (WUI) and communities at risk will receive priority for fuels reduction.
<b>A-117:</b> No similar action	<b>B-117:</b> Within Greater Sage-Grouse priority habitat, post fuels management projects would be designed to ensure long-term persistence of seeded or pre-treatment native plants. This could require temporary or long-term changes in livestock grazing management, wild horse management, travel management, or other activities to achieve and maintain the desired condition of the fuels management project.	<b>C-117:</b> Within Greater Sage-Grouse priority and general habitat, post fuels management projects would be designed to ensure long-term persistence of seeded or pre-treatment native plants, including sagebrush. This could require temporary or long-term changes in livestock grazing management, wild horse management, travel management, or other activities to achieve and maintain the desired condition of the fuels management project.	<b>D-117:</b> No similar action	<b>E-117:</b> Within PHMAs, post fuels management projects would be designed to ensure long-term persistence of seeded or pre-treatment native plants (while controlling for erosion and treating infestation of invasive plant species), to return to suitable Greater Sage-Grouse habitat.
<b>A-118:</b> <u>Casper RMP:</u> Treat woodland encroachment in grassland, sagebrush, aspen, and other vegetative communities where it is determined to be detrimental to	<b>B-118:</b> No similar action	<b>C-118:</b> Within Greater Sage-Grouse priority and general habitat, lands will be managed to be in the good or better ecological condition to help minimize adverse impacts of fire.	<b>D-118:</b> No similar action	<b>E-118:</b> <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u>  Remove conifers encroaching into sagebrush habitats. Prioritize

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>other resource values or uses. Manage 630,180 acres of sagebrush communities toward DPC.</p>	(see above)	(see above)	(see above)	<p>treatments closest to occupied Greater Sage-Grouse habitats and near occupied leks, and where juniper encroachment is phase 1 or phase 2. Use of site-specific analysis and principles like those included in the FIAT report (Chambers et. al., 2014) and other ongoing modeling efforts to address conifer encroachment will help refine the location for specific priority areas to be treated.</p> <p><b><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b></p> <p><u>Casper RMP:</u></p> <p>Treat woodland encroachment in grassland, sagebrush, aspen, and other vegetative communities where it is determined to be detrimental to other resource values or uses.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	Manage 630,180 acres of sagebrush communities toward DPC.
<p><b>A-119: Pinedale RMP:</b> In the WUI or industrial interface, fuels reduction methods best suited to the area will be used to reduce the risk of catastrophic fire to these areas.</p> <p><b>Casper RMP:</b> Use prescribed burning to achieve measurable 5th-order watershed objectives from (1) other resources, including, but not limited to, forestry, wildlife, range, vegetation, and watershed; (2) the reduction of hazardous fuels; and (3) the introduction of fire into fire-adapted ecosystems. Utilize an integrated management technique approach (defined as prescribed fire, mechanical, chemical, or biological, followed by desired reseeding) to reduce fuels to protect high priority areas or</p>	<p><b>B-119:</b> Same as Alternative A</p>	<p><b>C-119:</b> Within Greater Sage-Grouse priority and general habitat, any fuels treatments would focus on interfaces with human habitation or significant existing disturbances.</p>	<p><b>D-119:</b> Same as Alternative A</p>	<p><b>E-119: The following RMP decisions remain in effect for both PHMAs and GHMAs:</b></p> <p><b>Pinedale RMP:</b> In the WUI or industrial interface, fuels reduction methods best suited to the area will be used to reduce the risk of catastrophic fire to these areas.</p> <p><b>Casper RMP:</b> Use prescribed burning to achieve measurable 5th-order watershed objectives from (1) other resources, including, but not limited to, forestry, wildlife, range, vegetation, and watershed; (2) the reduction of hazardous fuels; and (3) the introduction of fire into fire-adapted ecosystems. Utilize an integrated management technique approach (defined as prescribed fire, mechanical, chemical, or biological, followed by desired</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>resource values defined as, but not limited to the following:</p> <ol style="list-style-type: none"> <li>1. Urban and industrial interface areas</li> <li>2. Developed recreation areas</li> <li>4. Commercial timber areas</li> <li>5. Wildlife habitats</li> <li>6. Range-improvement facilities</li> <li>7. Communication sites</li> <li>8. Municipal watersheds.</li> </ol> <p>Decision 3008 Fuels Management</p> <p><u>Rawlins RMP:</u> A high priority for fire management activities will be given to areas identified as communities at risk, industrial interface areas, and areas containing resource values considered high priority within the RMP planning area.</p> <p><u>JMH CAP:</u> Appropriate management response to protect the basin big sagebrush/lemon</p>	(see above)	(see above)	(see above)	<p>reseeding) to reduce fuels to protect high priority areas or resource values defined as, but not limited to the following:</p> <ul style="list-style-type: none"> <li>• Urban and industrial interface areas</li> <li>• Developed recreation areas</li> <li>• Commercial timber areas</li> <li>• Wildlife habitats</li> <li>• Range-improvement facilities</li> <li>• Communication sites</li> <li>• Municipal watersheds.</li> </ul> <p>Decision 3008 Fuels Management.</p> <p><u>Rawlins RMP:</u> A high priority for fire management activities will be given to areas identified as communities at risk, industrial interface areas, and areas containing resource values considered high priority within the RMP planning area.</p> <p><u>JMH CAP:</u> Appropriate management response to protect the</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>scurfpea plant communities will be applied.</p> <p>Wildland and prescribed fires will be managed in all vegetation types to maintain or improve biological diversity and the overall health of the public lands. In particular, plant species and age class diversity will be a priority; thus, AMR for all wildland fires will be identified and implemented depending on the resources and management objectives for the area.</p> <p>Suppression techniques and hazardous fuels reduction activities will be identified to reduce wildland fire severity and occurrence on portions of the landscape where fire could cause undesirable changes in plant community composition and structure. A site-specific analysis will be prepared for sensitive resource</p>	(see above)	(see above)	(see above)	<p>basin big sagebrush/lemon scurfpea plant communities will be applied.</p> <p>Wildland and prescribed fires will be managed in all vegetation types to maintain or improve biological diversity and the overall health of the public lands. In particular, plant species and age class diversity will be a priority; thus, appropriate management response (AMR) for all wildland fires will be identified and implemented depending on the resources and management objectives for the area.</p> <p>Suppression techniques and hazardous fuels reduction activities will be identified to reduce wildland fire severity and occurrence on portions of the landscape where fire could cause undesirable changes in plant community composition and structure. A site-specific analysis will be prepared for sensitive resource areas, such as special status plant species</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
areas, such as special status plant species sites, heritage sites, historic trails, and ACECs, to determine the type of fire suppression activity that will be acceptable. Fire equipment and fire suppression techniques, such as vegetation clearing, will be limited to existing roads and trails in special status plant species habitat. As appropriate, the Fire Management Plan will be updated to reflect the appropriate suppression activity in sensitive resource areas.	(see above)	(see above)	(see above)	sites, heritage sites, historic trails, and ACECs, to determine the type of fire suppression activity that will be acceptable. Fire equipment and fire suppression techniques, such as vegetation clearing, will be limited to existing roads and trails in special status plant species habitat. As appropriate, the Fire Management Plan will be updated to reflect the appropriate suppression activity in sensitive resource areas.
<b>A-120:</b> No similar action	<b>B-120:</b> No similar action	<b>C-120:</b> Within Greater Sage-Grouse priority and general habitat, post fire recovery would include establishing adequately sized exclosures (free of livestock grazing) that could be used to assess recovery.	<b>D-120:</b> No similar action	<b>E-120:</b> No action

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-121:</b> No similar action	<b>B-121:</b> No similar action	<b>C-121:</b> Within Greater Sage-Grouse priority and general habitat, livestock grazing should be excluded from burned areas until woody and herbaceous plants achieve Greater Sage-Grouse habitat objectives.	<b>D-121:</b> No similar action	<b>E-121:</b> No action
<b>A-122:</b> No similar action	<b>B-122:</b> No similar action	<b>C-122:</b> Within Greater Sage-Grouse priority and general habitat where burned Greater Sage-Grouse habitat cannot be fenced from other unburned habitat, the entire area (e.g., allotment/pasture) should be closed to grazing until recovered.	<b>D-122:</b> No similar action	<b>E-122:</b> No action
<b>A-123:</b> No similar action	<b>B-123:</b> No similar action	<b>C-123:</b> Within Greater Sage-Grouse priority and general habitat, mowing of grass would be used in any fuel break fuels reduction project (roadsides or other areas).	<b>D-123:</b> No similar action	<b>E-123:</b> No action
<b>A-124:</b> <u>Casper RMP:</u> Appropriate management response will be used on all wildfires in the planning area.	<b>B-124:</b> In priority Greater Sage-Grouse habitat areas, suppression would be prioritized immediately after firefighter and public	<b>C-124:</b> Same as Alternative B	<b>D-124:</b> Same as Alternative A	<b>E-124:</b> <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Full protection strategies and tactics will be used in the following areas:</p> <ol style="list-style-type: none"> <li>1. WUI</li> <li>2. Wildland industrial interface</li> <li>3. Developed recreation sites</li> </ol> <p>Developed electronics sites of all types. In all other areas AMR strategies and tactics will be determined by (but not limited to) the following:</p> <ol style="list-style-type: none"> <li>1. Firefighter and public safety</li> <li>2. Resource values at risk</li> <li>3. Proximity to private land</li> <li>4. Firefighting resource availability. Tactical constraints follow: The use of retardant within 300 feet of surface water (standing or running) is prohibited. No trees are to be cut during suppression activities within 200 yards of an identified bald eagle roost.</li> </ol>	<p>safety to conserve the habitat. In general Greater Sage-Grouse habitat, a high priority for suppression would be assigned where wildfires threaten priority Greater Sage-Grouse habitat.</p>	(see above)	(see above)	<p>Fire fighter and public safety would be the highest priority. Greater Sage-Grouse habitat (PHMA) would be prioritized commensurate with property values and other important habitat to be protected, with the goal to restore, enhance, and maintain areas suitable for Greater Sage-Grouse.</p> <p>Greater Sage-Grouse habitat. (GHMA) would be prioritized commensurate with local fire plans, property values and other important habitat to be protected, with the goal to restore, enhance, and maintain areas suitable for Greater Sage-Grouse.</p> <p>Within PHMAs (and Priority Areas for Conservation (PAC), if so, determined by individual LUP efforts) would be the highest priority for conservation and protection during fire operations and fuels management decision making. The PHMAs (and</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>No heavy equipment will be used within the following areas, except when human safety is at risk:</p> <ol style="list-style-type: none"> <li>1. Areas of cultural resource sensitivity</li> <li>2. Riparian/wetland habitats</li> <li>3. Big game crucial winter range habitats</li> <li>4. Greater Sage-Grouse leks</li> <li>5. Areas of highly erosive soils.</li> </ol> <p>In areas not identified as full protection, heavy equipment usage will be limited to existing roads and trails or immediately adjacent to them.</p> <p><u>Kemmerer RMP:</u> In areas of high-density urban and (or) industrial interface with intermingled BLM-administered lands, suppression objectives will follow the AMR in an approved fire management plan for the planning area to provide first for human health and safety, while</p>	(see above)	(see above)	(see above)	<p>PACs, if so, determined by individual LUP efforts) would be viewed as more valuable than GHMAs when priorities are established. When suppression resources are widely available, maximum efforts would be placed on limiting fire growth in GHMA polygons as well. These priority areas will be further refined following completion of the Greater Sage-Grouse Landscape Wildfire and Invasive Species Habitat Assessments described in Appendix J [of the 2015 Final EIS].</p> <p><b><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b></p> <p><u>Casper RMP:</u> Appropriate management response will be used on all wildfires in the planning area. Full protection</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>minimizing loss of property and threats to other surface owners. Generally, wildland fires are suppressed in these areas. In areas of low-density urban and (or) industrial interface where BLM-administered lands occur in large contiguous blocks, fire suppression objectives will follow the AMR in an approved fire management plan for the planning area to provide first for human health and safety, while allowing for achievement of resource objectives.</p> <p><u>Newcastle RMP:</u> Full suppression will be used on fires endangering human life or that spread to within 0.25 mile of state or private lands, structures and facilities, oil and gas fields, important riparian habitat, or other sensitive resources. All wildfires will be evaluated to determine the need for</p>	(see above)	(see above)	(see above)	<p>strategies and tactics will be used in the following areas:</p> <ol style="list-style-type: none"> <li>1. WUI</li> <li>2. Wildland industrial interface</li> <li>3. Developed recreation sites</li> <li>4. Developed electronics sites of all types.</li> </ol> <p>In all other areas AMR strategies and tactics will be determined by (but not limited to) the following:</p> <ol style="list-style-type: none"> <li>1. Firefighter and public safety</li> <li>2. Resource values at risk</li> <li>3. Proximity to private land</li> <li>4. Firefighting resource availability. Tactical constraints follow: <ol style="list-style-type: none"> <li>1. The use of retardant within 300 feet of surface water (standing or running) is prohibited.</li> <li>2. No trees are to be cut during suppression activities within 200 yards of an identified bald eagle roost. No heavy equipment will be</li> </ol> </li> </ol>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>rehabilitation or restoration measures. Restoration of burned areas will be by natural succession unless a special need is identified to prevent further resource damage.</p> <p><u>Pinedale RMP:</u> Wildland fire mitigation and fuels activities will be managed to provide for firefighter and public safety as a first priority. Public lands within intermixed landownership areas will be managed in association with the adjoining and nearby private and state lands. Areas of mixed landownership, communities at risk as identified in the Federal Register, Volume 66, Number 160, 2001 (Antelope Run, Beaver Creek area, Boulder, Cottonwood Creek, Daniel, Forty Rod, Hoback Ranches, New Fork, Pinedale, Pocket Creek, and Upper</p>	(see above)	(see above)	(see above)	<p>used within the following areas, except when human safety is at risk:</p> <ol style="list-style-type: none"> <li>1. Areas of cultural resource sensitivity</li> <li>2. Riparian/wetland habitats</li> <li>3. Big game crucial winter range habitats</li> <li>4. Greater Sage-Grouse leks</li> <li>5. Areas of highly erosive soils.</li> </ol> <p>In areas not identified as full protection, heavy equipment usage will be limited to existing roads and trails or immediately adjacent to them.</p> <p><u>Kemmerer RMP:</u> In areas of high-density urban and (or) industrial interface with intermingled BLM-administered lands, suppression objectives will follow the AMR in an approved fire management plan for the planning area to provide first for human health and safety, while</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Green); urban and industrial interface areas; and areas containing high-priority resource values have high priority for response to wildland fires and/or for fuels reduction and mitigation. Wildland fire suppression activities will be based on the AMR.</p> <p><u>Rawlins RMP:</u> A high priority for fire management activities will be given to areas identified as communities at risk, industrial interface areas, and areas containing resource values considered high priority within the RMP planning area.</p> <p><u>Green River RMP:</u> Wildfire suppression will emphasize AMR. Immediate control actions will be used only in cases of arson, direct threat to public safety, or a strong potential threaten structural property.</p>	(see above)	(see above)	(see above)	<p>minimizing loss of property and threats to other surface owners. Generally, wildland fires are suppressed in these areas. In areas of low-density urban and (or) industrial interface where BLM-administered lands occur in large contiguous blocks, fire suppression objectives will follow the AMR in an approved fire management plan for the planning area to provide first for human health and safety, while allowing for achievement of resource objectives.</p> <p><u>Newcastle RMP:</u> Full suppression will be used on fires endangering human life or that spread to within 0.25 mile of state or private lands, structures and facilities, oil and gas fields, important riparian habitat, or other sensitive resources.</p> <p>All wildfires will be evaluated to determine the need for rehabilitation or restoration measures. Restoration of burned areas</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Fire suppression actions will be based on achieving the most efficient control and allowing historical acres burned to increase. Activity plans will be developed for designated fire management areas defining specific parameters for all fire occurrences.</p> <p><u>JMH CAP:</u> Appropriate management response to protect the basin big sagebrush/lemon scurfpea plant communities will be applied. Wildland and prescribed fires will be managed in all vegetation types to maintain or improve biological diversity and the overall health of the public lands. In particular, plant species and age class diversity will be a priority; thus, AMR for all wildland fires will be identified and implemented</p>	(see above)	(see above)	(see above)	<p>will be by natural succession unless a special need is identified to prevent further resource damage.</p> <p><u>Pinedale RMP:</u> Wildland fire mitigation and fuels activities will be managed to provide for firefighter and public safety as a first priority. Public lands within intermixed landownership areas will be managed in association with the adjoining and nearby private and state lands.</p> <p>Areas of mixed landownership, communities at risk as identified in the Federal Register, Volume 66, Number 160, 2001 (Antelope Run, Beaver Creek area, Boulder, Cottonwood Creek, Daniel, Forty Rod, Hoback Ranches, New Fork, Pinedale, Pocket Creek, and Upper Green); urban and industrial interface areas; and areas containing high-priority resource values have high priority for response to wildland fires</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>depending on the resources and management objectives for the area. Suppression techniques and hazardous fuels reduction activities will be identified to reduce wildland fire severity and occurrence on portions of the landscape where fire could cause undesirable changes in plant community composition and structure. A site-specific analysis will be prepared for sensitive resource areas, such as special status plant species sites, heritage sites, historic trails, and ACECs, to determine the type of fire suppression activity that will be acceptable. Fire equipment and fire suppression techniques, such as vegetation clearing, will be limited to existing roads and trails in special status plant species habitat. As appropriate, the Fire Management Plan will be</p>	(see above)	(see above)	(see above)	<p>and/or for fuels reduction and mitigation. Wildland fire suppression activities will be based on the AMR.</p> <p><u>Rawlins RMP:</u></p> <p>A high priority for fire management activities will be given to areas identified as communities at risk, industrial interface areas, and areas containing resource values considered high priority within the RMP planning area.</p> <p><u>Green River RMP:</u></p> <p>Wildfire suppression will emphasize AMR. Immediate control actions will be used only in cases of arson, direct threat to public safety, or a strong potential threaten structural property.</p> <p>Fire suppression actions will be based on achieving the most efficient control and allowing historical acres burned to increase. Activity plans will be developed for designated fire management areas defining specific parameters for all fire occurrences.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>updated to reflect the appropriate suppression activity in sensitive resource areas.</p> <p><u>TBNG LRMP:</u> Minimize impacts to paleontological and heritage resources, streams, stream banks, shorelines, lakes and associated vegetation, and habitat for threatened, endangered, proposed, and sensitive species from wildfire suppression efforts in the following ways: Prohibit the use of earth-moving equipment on known paleontological or heritage sites. Discourage the application of fire-retardant chemicals over riparian areas, wetlands, and open water. Prior to using earth-moving equipment, consult appropriate specialists for guidance. Notify USFWS when TES habitat is</p>	(see above)	(see above)	(see above)	<p><u>JMH CAP:</u> Appropriate management response to protect the basin big sagebrush/lemon scurfpea plant communities will be applied.</p> <p>Wildland and prescribed fires will be managed in all vegetation types to maintain or improve biological diversity and the overall health of the public lands. In particular, plant species and age class diversity will be a priority; thus, AMR for all wildland fires will be identified and implemented depending on the resources and management objectives for the area.</p> <p>Suppression techniques and hazardous fuels reduction activities will be identified to reduce wildland fire severity and occurrence on portions of the landscape where fire could cause undesirable changes in plant community composition and structure. A site-specific analysis will be prepared for sensitive resource areas, such as</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>threatened or impacted by fire.</p> <p><u>BTNF LRMP:</u></p> <p>Wildland fire suppression standards LRMP fire amendment, page 9 Wildland fire suppression standards: A full range of suppression tactics is authorized forest-wide, consistent with forest-wide and individual Desired Future Condition (DFC) management emphasis and direction.</p> <p>Wildland fire use standard, page 10, LRMP fire amendment: Wildland fire use is authorized forest wide, consistent with forest-wide and DFC emphasis and direction.</p> <p>The Fire Management Plan will designate areas of high resource values that will be protected during fire use. These sites include:</p> <ol style="list-style-type: none"> <li>1. Administrative sites</li> </ol> <p>Developed recreation sites</p>	(see above)	(see above)	(see above)	<p>special status plant species sites, heritage sites, historic trails, and ACECs, to determine the type of fire suppression activity that will be acceptable. Fire equipment and fire suppression techniques, such as vegetation clearing, will be limited to existing roads and trails in special status plant species habitat. As appropriate, the Fire Management Plan will be updated to reflect the appropriate suppression activity in sensitive resource areas.</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>2. Summer homes 3. Communication sites 4. Oil and gas sites 5. Utility corridors 6. Other sites containing capital improvements.</p> <p><b>MBNF LRMP:</b> When determining the appropriate fire management response, consider the following factors: a) proximity to other ownerships including all wildland-urban interfaces, b) values at risk such as suitable timber, structural improvements, and special interest areas, c) steep topography and motorized access to the area, d) protection of watersheds especially those that provide drinking water for local communities, e) concerns related to wildlife habitat management, and f) other multiple use, ecosystem management,</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
or agency policy objectives. Where fire suppression is necessary, use techniques that minimize soil and vegetation disturbance.	(see above)	(see above)	(see above)	(see above)
<b>Wildlife and Fisheries Habitat Management</b>				
<b>Monitoring Effectiveness</b>				
<b>A-125: Casper RMP:</b> Bates Hole and Fish Creek/Willow Creek: The areas will have priority for vegetative treatments to improve Greater Sage-Grouse habitats and for vegetation monitoring to ensure residual herbaceous vegetation is maintained for nesting cover on public lands.	<b>B-125:</b> Greater Sage-Grouse monitoring plans would be developed and implemented in coordination with the WGFD and partners, and Greater Sage-Grouse habitats and populations would be monitored to assess the effectiveness of conservation measures that are applied in achieving the conservation of Greater Sage-Grouse habitats. The directives contained in the LUP actions/decisions would be assessed to determine the effectiveness of their implementation. The BLM and Forest Service would establish monitoring protocols that	<b>C-125:</b> No similar action	<b>D-125:</b> Same as Alternative B	<b>E-125: <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u></b>  The BLM, in coordination with the State of Wyoming and its agencies, other local partners and stakeholders, would establish monitoring framework (Appendix D [of the 2015 Final EIS]) for Greater Sage-Grouse populations and habitat that would be incorporated into individual project approvals, including small and in-house projects, as appropriate and necessary.  <b><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain</u></b>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	would be incorporated into project approvals as necessary. The BLM and Forest Service would report annually to the BLM Wyoming State Director regarding Greater Sage-Grouse monitoring data and the directives contained in the LUP actions/decisions.	(see above)	(see above)	<b><u>in effect with the modification described above:</u></b> <b><u>Casper RMP:</u></b> Bates Hole and Fish Creek/Willow Creek: The areas will have priority for vegetative treatments to improve Greater Sage-Grouse habitats and for vegetation monitoring to ensure residual herbaceous vegetation is maintained for nesting cover on public lands.
Density and Disturbance				
<b>A-126:</b> No similar action	<b>B-126:</b> Priority Greater Sage-Grouse habitats would be managed so that discrete anthropogenic disturbances cover less than 3% of the total Greater Sage-Grouse habitat, regardless of ownership. Anthropogenic features would include but would not be limited to paved highways, graded gravel roads, transmission lines, substations, wind turbines, oil and gas wells, geothermal wells and	<b>C-126:</b> No similar action	<b>D-126:</b> Inside Greater Sage-Grouse core habitat areas, the density and disturbance goals would include the following: 1. The density of energy production (excluding coal and trona mining) and/or transmission structures (excluding buried pipelines or power lines) on the landscape would be managed. 2. An average of three energy production locations and/or transmission structures	<b>E-126:</b> In PHMAs (core only), the density of disturbance of an energy or mining facility (Appendix D [of the 2015 Final EIS]) would be limited to an average of one site per square mile (640 acres) within the DDCT, subject to valid existing rights. The one location and cumulative value of existing disturbances will not exceed 5 percent of suitable habitat of the DDCT area. Utilize the Greater Sage-Grouse

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	<p>associated facilities, pipelines, landfills, homes, and mines.</p> <p>In priority habitats where the 3% disturbance threshold is already exceeded from any source, no further anthropogenic disturbances would be permitted by the BLM or Forest Service until enough habitat has been restored to maintain the area under this threshold (subject to valid existing rights).</p> <p>In this instance, an additional objective would be designated for the priority area to prioritize and reclaim/restore anthropogenic disturbances so that 3% or less of the total priority habitat area is disturbed within 10 years.</p>	(see above)	<p>per 640 acres within the DDCT area would not be exceeded; and the combined value of existing and proposed disturbances within each DDCT would not exceed 9% loss of sagebrush habitat.</p>	<p>density disturbance calculation tool as described in Appendix D [of the 2015 Final EIS].</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>A-127:</b> No similar action	<b>B-127:</b> Inside Greater Sage-Grouse connectivity areas, the disturbance goals would include the following: <ol style="list-style-type: none"> <li>1. The existing level of density of disturbance would be managed on the landscape.</li> <li>2. Three percent habitat disturbance (up to 19.2 acres) per 640 acres would not be exceeded using the DDCT process.</li> </ol>	<b>C-127:</b> Same as Alternative B	<b>D-127:</b> Inside Greater Sage-Grouse connectivity areas, the disturbance goals would include: <ol style="list-style-type: none"> <li>1. The density of energy production (excluding coal and trona mining) and/or transmission structures (excluding buried pipelines or power lines) would be managed on the landscape.</li> <li>2. Nine percent habitat disturbance (up to 57.6 acres) per 640 acres would not be exceeded using the DDCT process.</li> </ol>	<b>E-127:</b> Inside PHMAs (connectivity only), all suitable habitat disturbed (any program area) will not exceed 5% of suitable habitat within the DDCT area using the DDCT process described in Appendix D [of the 2015 Final EIS].
<b>Onsite and Offsite Mitigation</b>				
<b>A-128:</b> <u>Pinedale RMP:</u> Offsite mitigation proposed by oil and gas or other operators could be considered and analyzed in future environmental documents as possible mitigation for proposed activities within the planning area. Proposed offsite mitigation will be described and analyzed	<b>B-128:</b> Within Greater Sage-Grouse priority habitat when permitting APDs on existing leases that are not yet developed, the proposed surface disturbance would not exceed 3% per section for that area. When necessary, additional, effective mitigation would be conducted in (1) Greater	<b>C-128:</b> Within Greater Sage-Grouse priority habitat when permitting APDs on existing leases that are not yet developed, the proposed surface disturbance would exceed 3% per section for that area. An exception would be considered if additional, effective mitigation is demonstrated to offset	<b>D-128:</b> Within Greater Sage-Grouse core and connectivity habitat when necessary, offsite mitigation would be conducted within the same population area where the impact occurs; and if that is not possible, mitigation would be conducted within the same Management Zone as the impact.	<b>E-128:</b> <u>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</u>  In undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>for effectiveness in detail on a project-specific basis. Planning for offsite mitigation will be performed in coordination with local government agencies. The need for offsite mitigation will be determined in conformance with current BLM policy, as updated. The order of use of mitigation methods from most to least preferred is as follows:</p> <ol style="list-style-type: none"> <li>1. Onsite mitigation directly resolving impacts created by the action.</li> <li>2. Offsite mitigation to the resources affected by the action that cannot be resolved onsite.</li> <li>3. Offsite mitigation to similar or related resources affected by the action that cannot be resolved onsite.</li> </ol> <p>The following stipulations apply to</p>	<p>Sage-Grouse priority habitat areas, or less preferably in (2) general Greater Sage-Grouse habitat (dependent upon the area-specific ability to increase Greater Sage-Grouse populations). Additional, effective mitigation would be conducted first within the same population area where the impact is realized; and if not possible, mitigation would be conducted within the same Management Zone as the impact, per 2006 WAFWA Strategy.</p>	<p>the resulting loss of Greater Sage-Grouse. When necessary, additional, effective mitigation would be conducted in Greater Sage-Grouse priority and general habitat (dependent upon the area-specific ability to increase Greater Sage-Grouse populations). Additional, effective mitigation would be conducted first within the same population area where the impact is realized; and if not possible, mitigation would be conducted within the same Management Zone as the impact, per 2006 WAFWA Strategy.</p>	<p>An exception to the 9% limit would be considered if additional mitigation is demonstrated to be capable of offsetting the resultant loss to Greater Sage-Grouse or their habitats.</p>	<p>loss and degradation in PHMA, the BLM will require and ensure mitigation that provides a net conservation gain to the species including accounting for any uncertainty associated with the effectiveness of such mitigation. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions.</p> <p>When compensatory mitigation is required, the BLM, in coordination with the State of Wyoming and its agencies and partners, will ensure an essential nexus and rough proportionality exists between the residual impacts that warrant compensatory mitigation and the compensatory mitigation actions, as determined by the best available science. This essential nexus and rough proportionality will be clearly described in the NEPA analysis, decision</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>offsite mitigation measures:</p> <ol style="list-style-type: none"> <li>1. Offsite mitigation will be used as a last choice when developing mitigation measures.</li> <li>2. Offsite mitigation proposals will describe the replacement or substitution activities or methods that are used to address potential impacts on specific resources or environments or both.</li> <li>3. Offsite mitigation must be as close to “in-kind” in replacement or substitution of resources, habitat function, or environments as practicable (e.g., elk habitat for elk habitat, historical properties for historical properties).</li> <li>4. Offsite mitigation practices must last as</li> </ol>	(see above)	(see above)	(see above)	<p>document, and land use authorization for a land-use authorization application.</p> <p>In-kind mitigation is generally preferred to out-of-kind mitigation, although there may be exceptions, including where out-of-kind mitigation would be more effective for achieving BLM’s resource, value, and function goals and objectives, as long as an essential nexus is maintained with the land use’s impacts. Where in-kind mitigation provides no net benefit to Greater Sage-Grouse, or where other habitat types are most limiting to populations, mitigation should focus on habitats that provide the greatest benefit to the species.</p> <p><b><u>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</u></b></p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>long as the impacts are expected to occur. Offsite mitigation practices are to be developed, conducted or performed, and funded by the project proponent.</p> <p>5. Offsite mitigation activities must be conducted subject to BLM review and approval that the mitigation will actually address the impacts occurring on the public lands.</p> <p>The priority order for mitigating resource impacts onsite or offsite is as follows:</p> <ol style="list-style-type: none"> <li>1. Onsite Mitigation Onsite (avoid, minimize, rectify, or reduce in time).</li> <li>2. Offsite Mitigation Local (unless greater resource benefits can be achieved through regional or interstate mitigation).</li> <li>3. Offsite Mitigation Regional (unless</li> </ol>	(see above)	(see above)	(see above)	<p><u>Pinedale RMP:</u></p> <p>Offsite mitigation proposed by oil and gas or other operators could be considered and analyzed in future environmental documents as possible mitigation for proposed activities within the planning area. Proposed offsite mitigation will be described and analyzed for effectiveness in detail on a project-specific basis. Planning for offsite mitigation will be performed in coordination with local government agencies. The need for offsite mitigation will be determined in conformance with current BLM policy, as updated.</p> <p>The order of use of mitigation methods from most to least preferred is as follows:</p> <ol style="list-style-type: none"> <li>1. Onsite mitigation directly resolving impacts created by the action.</li> <li>2. Offsite mitigation to the resources affected by</li> </ol>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>greater resource benefits can be achieved through interstate mitigation).</p> <p>4. Offsite Mitigation Interstate: The preferred area for conducting offsite mitigation is as near (local offsite mitigation) to the project or impacted area as possible or as scientific information and impact analysis suggests.</p> <p>5. Offsite Mitigation Interstate: The preferred area for conducting offsite mitigation is as near (local offsite mitigation) to the project or impacted area as possible or as scientific information and impact analysis suggests.</p>	(see above)	(see above)	(see above)	<p>the action that cannot be resolved onsite.</p> <p>3. Offsite mitigation to similar or related resources affected by the action that cannot be resolved onsite. The following stipulations apply to offsite mitigation measures: Offsite mitigation will be used as a last choice when developing mitigation measures.</p> <p>4. Offsite mitigation proposals will describe the replacement or substitution activities or methods that are used to address potential impacts on specific resources or environments or both.</p> <p>5. Offsite mitigation must be as close to “in-kind” in replacement or substitution of resources, habitat function, or environments as practicable (e.g., elk habitat for elk habitat,</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>historical properties for historical properties).</p> <p>6. Offsite mitigation practices must last as long as the impacts are expected to occur.</p> <p>7. Offsite mitigation practices are to be developed, conducted or performed, and funded by the project proponent.</p> <p>8. Offsite mitigation activities must be conducted subject to BLM review and approval that the mitigation will actually address the impacts occurring on the public lands.</p> <p>The priority order for mitigating resource impacts onsite or offsite is as follows:</p> <p>1. Onsite Mitigation Onsite (avoid, minimize, rectify, or reduce in time).</p> <p>2. Offsite Mitigation Local (unless greater resource benefits can be achieved</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>through regional or interstate mitigation).</p> <p>3. Offsite Mitigation Regional (unless greater resource benefits can be achieved through interstate mitigation).</p> <p>4. Offsite Mitigation Interstate: The preferred area for conducting offsite mitigation is as near (local offsite mitigation) to the project or impacted area as possible or as scientific information and impact analysis suggests.</p> <p>Offsite Mitigation Interstate: The preferred area for conducting offsite mitigation is as near (local offsite mitigation) to the project or impacted area as possible or as scientific information and impact analysis suggests.</p>
<b>Timing and Distance Restrictions</b>				
<b>A-129: Greater Sage-Grouse leks inside Greater Sage-Grouse core and connectivity habitat areas:</b>	<b>B-129: Greater Sage-Grouse leks inside Greater Sage-Grouse priority and</b>	<b>C-129:</b> Same as Alternative B	<b>D-129: Greater Sage-Grouse leks inside core and connectivity habitat areas:</b>	<b>E-129: Greater Sage-Grouse leks inside PHMAs:</b>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><u>Casper RMP:</u> Avoid surface disturbance or occupancy within 0.25 mile of the perimeter of occupied Greater Sage-Grouse leks. Surface disturbing activity is restricted or prohibited within 0.75 miles of occupied Greater Sage-Grouse leks in Bates Hole and Fish Creek/Willow Creek. Occupied Greater Sage-Grouse leks in Bates Hole and Fish Creek/Willow Creek will have a 4-mile buffer. Within this buffer, surface disturbing activities will be avoided within 4 miles of occupied Greater Sage-Grouse leks in areas with sagebrush stands greater than 10% canopy cover.</p> <p><u>Areas Outside of Bates Hole and Fish Creek/Willow Creek:</u> Avoid surface-disturbing and disruptive activities</p>	<p><b>connectivity habitat areas:</b> Provide the following conservation measures as terms and conditions of the approved RMP: New surface occupancy would not be allowed on federal leases within priority habitats. This would include winter concentration areas during any time of the year. The following exceptions would be considered:</p> <ol style="list-style-type: none"> <li>1. If the lease is entirely within priority habitats, a 4-mile NSO would be applied around the lek and permitted disturbances would be limited to 1 per section with no more than 3% surface disturbance in that section.</li> <li>2. If the entire lease is within the 4-mile lek perimeter, permitted disturbances would be limited to 1 per section with no more</li> </ol>	(see above)	<p>Surface occupancy or surface disturbing activities would be prohibited or restricted on or within 0.25-mile radius of the perimeter of occupied Greater Sage-Grouse leks.</p>	<p>Surface occupancy and surface disturbing activities would be prohibited on or within a 0.6-mile radius of the perimeter of occupied Greater Sage-Grouse leks.</p> <p>The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>in suitable Greater Sage-Grouse nesting and early brood-rearing habitats within 2 miles of an occupied lek, or in identified Greater Sage-Grouse nesting and early brood-rearing habitats outside the 2-mile buffer from March 15 to July 15 (TLS).</p> <p><u>Kemmerer RMP:</u> Avoid surface disturbance or occupancy within 0.25 mile of the perimeter of occupied Greater Sage-Grouse leks.</p> <p><u>Newcastle RMP:</u> Avoid surface disturbance or occupancy within 0.25 mile of the perimeter or occupied Greater Sage-Grouse leks.</p> <p><u>Pinedale RMP:</u> Surface disturbing activities in Traditional Leasing Areas and Unavailable Areas are prohibited in suitable habitat within 0.25 mile of occupied leks.</p>	<p>than 3% surface disturbance in that section.</p>	<p>(see above)</p>	<p>(see above)</p>	<p>(see above)</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><u>Rawlins RMP:</u> Surface disturbing activities or occupancy are prohibited on and within 0.25 mile of the perimeter of an occupied Greater Sage-Grouse or lek.</p> <p><u>Green River RMP:</u> Active grouse leks (Greater Sage-Grouse) and the area within a 0.25 mile of the perimeter of active leks are avoidance areas for surface disturbing activities.</p> <p>Surface occupancy (long-term or permanent aboveground facilities) in the Jack Morrow Hills planning area will be prohibited within 0.25 mile of the perimeter of Greater Sage-Grouse leks unless adverse impacts can be mitigated. Distances will be subject to change on a case-by-case basis dependent on applicable scientific research and site- specific analysis.</p> <p><u>TBNG LRMP:</u></p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>To help reduce adverse impacts to breeding Greater Sage-Grouse and their display grounds, prohibit construction of new oil and gas facilities within 0.25 mile of active display grounds. A display ground is no longer considered active if it's known to have been unoccupied during the past 5 breeding seasons. This does not apply to pipelines and underground utilities.</p> <p><u>MBNF LRMP:</u> Prohibit new disturbances such as construction, drilling, new recreation facilities, logging, or other concentrated intense activities. Short-term projects designed to improve habitat such as prescribed burning are permitted: Greater Sage-Grouse breeding complexes March 1 through June 30, 2 miles.</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><b>A-130: Greater Sage-Grouse leks outside core and connectivity habitat areas:</b>  <u>Casper RMP:</u>            Avoid surface disturbance or occupancy within 0.25 mile of the perimeter of occupied Greater Sage-Grouse leks.            Surface disturbing activity is restricted or prohibited within 0.75 mile of occupied Greater Sage-Grouse leks in Bates Hole and Fish Creek/Willow Creek.            Occupied Greater Sage-Grouse leks in Bates Hole and Fish Creek/Willow Creek will have a 4-mile buffer. Within this buffer, surface disturbing activities will be avoided within 4 miles of occupied Greater Sage-Grouse leks in areas with sagebrush stands greater than 10% canopy cover.</p>	<p><b>B-130:</b> No similar action</p>	<p><b>C-130:</b> No similar action</p>	<p><b>D-130: Greater Sage-Grouse leks outside core and connectivity habitat areas:</b>            Surface occupancy or surface disturbing activities would be restricted on or within a 0.25-mile radius of the perimeter of occupied Greater Sage-Grouse leks.</p>	<p><b>E-130: Greater Sage-Grouse leks outside PHMAs:</b>            Surface occupancy and surface disturbing activities would be prohibited on or within a 0.25-mile radius of the perimeter of occupied Greater Sage-Grouse leks.            The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse.</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Areas Outside of Bates Hole and Fish Creek/Willow Creek: Avoid surface-disturbing and disruptive activities in suitable Greater Sage-Grouse nesting and early brood-rearing habitats within 2 miles of an occupied lek, or in identified Greater Sage-Grouse nesting and early brood-rearing habitats outside the 2-mile buffer from March 15 to July 15 (TLS).</p> <p><u>Kemmerer RMP:</u> Avoid surface disturbance or occupancy within 0.25 mile of the perimeter of occupied Greater Sage-Grouse leks.</p> <p><u>Newcastle RMP:</u> Avoid surface disturbance or occupancy within 0.25 mile of the perimeter or occupied Greater Sage-Grouse leks.</p> <p><u>Pinedale RMP:</u> Surface disturbing activities inside Intensively Developed</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Fields will be designed and implemented to minimize impacts on Greater Sage-Grouse habitats to the extent practicable.</p> <p>Surface disturbing activities in Traditional Leasing Areas and Unavailable Areas are prohibited in suitable habitat within 0.25 mile of occupied leks.</p> <p><u>Rawlins RMP:</u> Surface disturbing activities or occupancy are prohibited on and within 0.25 mile of the perimeter of an occupied Greater Sage-Grouse lek.</p> <p><u>Green River RMP:</u> Active grouse leks (Greater Sage-Grouse) and the area within a 0.25 mile of the perimeter of active leks are avoidance areas for surface disturbing activities.</p> <p>Surface occupancy (long-term or permanent aboveground facilities) in the Jack Morrow Hills</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>planning area will be prohibited within 0.25 mile of the perimeter of Greater Sage-Grouse leks unless adverse impacts can be mitigated. Distances will be subject to change on a case-by-case basis dependent on applicable scientific research and site-specific analysis.</p> <p><u>BTNF LRMP:</u> Not directly addressed; There are numerous areas that are leased that have No Surface Occupancy, Timing-Limitation, and/or Controlled-Surface-Use stipulations. Leases are issued with unique wildlife protection stipulations. Lessees are required to keep an absolute minimum number of access, tote roads, and other travel ways necessary to conduct the lessee's operations, the location of which shall be designated by[forest] supervisor</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>prior to the time of their construction. Operations shall be conducted in a manner that will offer the least possible disturbance to wildlife on or adjacent to the leased land.</p> <p><u>MBNF LRMP:</u> Prohibit new disturbances such as construction, drilling, new recreation facilities, logging, or other concentrated intense activities according to the following table. Short-term projects designed to improve habitat such as prescribed burning are permitted: Greater Sage-Grouse breeding complexes March 1 through June 30, 2 miles.</p> <p><u>TBNG LRMP:</u> To help reduce adverse impacts to breeding Greater Sage-Grouse and their display grounds, prohibit construction of new oil and gas facilities within 0.25 mile of active</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
display grounds. A display ground is no longer considered active if it's known to have been unoccupied during the past 5 breeding seasons. This does not apply to pipelines and underground utilities.	(see above)	(see above)	(see above)	(see above)
<p><b>A-131: Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat inside core habitat areas:</b>  <u>Casper RMP:</u>            Avoid surface-disturbing and disruptive activities in suitable Greater Sage-Grouse nesting and early brood-rearing habitats within 2 miles of an occupied lek, or in identified Greater Sage-Grouse nesting and early brood-rearing habitats outside the 2-mile buffer from March 15 to July 15 (TLS).            Bates Hole and Fish Creek/Willow Creek: Occupied Greater Sage-Grouse leks will have a <math>\frac{3}{4}</math>- mile CSU buffer to</p>	<p><b>B-131: Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat inside priority habitat areas:</b>            A seasonal restriction on exploratory drilling that prohibits surface-disturbing activities during the nesting and early brood-rearing season would be applied in all Greater Sage-Grouse priority habitat during this period.</p>	<p><b>C-131: Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat in priority and general habitat areas:</b>            A seasonal restriction on exploratory drilling that prohibits surface-disturbing activities during the nesting and brood-rearing season would be applied in all occupied Greater Sage-Grouse habitat during this period. This seasonal restriction would also apply to related activities that are disruptive to Greater Sage-Grouse, including vehicle traffic and other human presence.</p>	<p><b>D-131: Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat inside core habitat areas:</b>            Surface disturbing and/or disruptive activities would be prohibited or restricted from March 15-June 30. This restriction would be applied to all identified nesting and early brood-rearing habitats inside core habitat areas within 2 miles of the lek within Greater Sage-Grouse core habitat areas.</p>	<p><b>E-131: Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat inside PHMAs (core only):</b>            Surface disturbing and/or disruptive activities would be prohibited from March 15-June 30 to protect Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat. This timing limitation would be applied throughout the PHMAs (core only). Activities in unsuitable habitats would be evaluated under the exception, waiver, and modification criteria and could be allowed on a case by case basis. Where credible data support different</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>protect breeding habitats. Human activity will be avoided between 8 p.m. and 8 a.m. from March 1 to May 15 (TLS) within this buffer. Leks, which are currently displayed as points, will be displayed as polygons. Occupied Greater Sage-Grouse leks will have a 4- mile buffer. Within this buffer, surface development or wildlife-disturbing activities will be restricted March 15 through July 15 (TLS). Also, within this 4- mile buffer (CSU), surface disturbing activities will avoid sagebrush stands of greater than 10% canopy cover. Within this 4-mile buffer, mitigate for power poles and other high-profile structures that may provide raptor perches. Avoid placement of these structures if possible or install devices to preclude</p>	(see above)	(see above)	(see above)	<p>timeframes for this seasonal restriction, dates could be shifted by up to 14 days prior to or subsequent to the above dates.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>raptor perching on the structures.</p> <p>Areas Outside of Bates Hole and Fish Creek/Willow Creek:</p> <p>Avoid surface disturbance or occupancy within 0.25 mile of the perimeter of occupied Greater Sage-Grouse leks. Avoid human activity between 8 p.m. and 8 a.m. from March 1 to May 15 (TLS) within 0.25 mile of the perimeter of occupied Greater Sage-Grouse leks.</p> <p><u>Kemmerer RMP:</u></p> <p>Avoid surface-disturbing and disruptive activities in suitable Greater Sage-Grouse nesting and early brood-rearing habitats within 2 miles of an occupied lek, or in identified Greater Sage-Grouse nesting and early brood-rearing habitats outside the 2-mile buffer from March 15 through July 15.</p> <p><u>Newcastle RMP:</u></p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Avoid surface disturbing activities in suitable Greater Sage-Grouse nesting and early brood-rearing habitat within two miles of an occupied lek or in identified Greater Sage-Grouse nesting and early brood-rearing habitat outside the two-mile buffer from March 15 through July 15.</p> <p><u>Pinedale RMP:</u> Surface disturbing activities inside Traditional Leasing Areas and Unavailable Areas will be avoided in suitable nesting and early brood-rearing habitat within 2 miles of occupied Greater Sage-Grouse leks from March 15 to July 15.</p> <p><u>Rawlins RMP:</u> Avoid surface disturbing and disruptive activities, geophysical surveys, and organized recreational activities (events) that require a SUP in suitable Greater Sage-Grouse nesting and early brood</p>	(see above)	(see above)	(see above)	(see above)



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>rearing habitat within 2 miles of the perimeter of an occupied Greater Sage-Grouse lek, or in identified Greater Sage-Grouse nesting and early brood rearing habitat, from March 1 to July 15.</p> <p><u>Green River RMP:</u></p> <p>To protect grouse nesting habitat, seasonal restrictions will apply within appropriate distances from the grouse lek. Appropriate distances (up to two miles) and time frames (usually from March 1 through July 15) will be determined on a case-by-case basis. Exceptions to seasonal restrictions may be granted, provided the criteria in can be met.</p> <p>No disruptive activities in the Jack Morrow Hills planning area are allowed in nesting and early brood-rearing habitats (March 15 to July 15). These limitations will be determined and applied</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>on a case-by- case basis. In addition, nesting and early brood-rearing habitats will be protected from habitat degradation, and measures will be taken to improve habitat quality.</p> <p><u>TBNG LRMP:</u></p> <p>To help reduce disturbances to nesting Greater Sage-Grouse, prohibit the following activities within 2 miles of active display grounds from March 1 to June 15:</p> <ol style="list-style-type: none"> <li>1. Construction (e.g., roads, water impoundments, oil and gas facilities)</li> <li>2. Reclamation</li> <li>3. Gravel mining operations</li> <li>4. Drilling of water wells</li> <li>5. Oil and gas drilling</li> <li>6. Training of hunting dogs.</li> </ol> <p>To reduce disturbances to nesting Greater Sage-Grouse, do not authorize the following</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>activities within 2 miles of active display grounds from March 1 to June 15:</p> <ol style="list-style-type: none"> <li>1. Construction (e.g., pipelines, utilities, fencing)</li> <li>2. Seismic exploration</li> <li>3. Workover operations for maintenance of oil and gas wells</li> <li>4. Permitted recreation events involving large groups of people.</li> </ol> <p>When constructing facilities or structures within 2 miles of a Greater Sage-Grouse active display ground, design them to discourage raptor perching by maintaining a low profile or using perch inhibitors. Manage display ground viewing activities to reduce disturbances and adverse impacts to the birds on the display grounds.</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><u>BTNF LRMP:</u> There are numerous areas that are leased that have No Surface Occupancy, Timing-Limitation, and/or Controlled- Surface-Use stipulations. Leases are issued with unique wildlife protection stipulations. Lessees are required to keep an absolute minimum number of access, tote roads, and other travel ways necessary to conduct the lessee's operations, the location of which shall be designated by [forest] supervisor prior to the time of their construction. Operations shall be conducted in a manner that will offer the least possible disturbance to wildlife on or adjacent to the leased land.</p> <p><u>MBNF LRMP:</u> Prohibit new disturbances such as construction, drilling, new recreation facilities, logging, or other</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
concentrated intense activities according to the following table. Short-term projects designed to improve habitat such as prescribed burning are permitted: Greater Sage-Grouse breeding complexes March 1 through June 30, 2 miles.	(see above)	(see above)	(see above)	(see above)
<b>A-132: Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat inside connectivity habitat areas:</b> <u>Casper RMP:</u> Avoid surface-disturbing and disruptive activities in suitable Greater Sage-Grouse nesting and early brood-rearing habitats within 2 miles of an occupied lek, or in identified Greater Sage-Grouse nesting and early brood-rearing habitats outside the 2-mile buffer from March 15 to July 15 (TLS).	<b>B-132:</b> No similar action	<b>C-132: Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat inside connectivity habitat areas:</b> A seasonal restriction on exploratory drilling that prohibits surface-disturbing activities during the nesting and brood-rearing season would be applied in all occupied Greater Sage-Grouse habitat during this period. This seasonal restriction shall also to apply to related activities that are disruptive to Greater Sage-Grouse, including vehicle traffic and other human presence.	<b>D-132: Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat inside connectivity habitat areas:</b> Surface disturbing and/or disruptive activities would be prohibited or restricted from March 15-June 30. This restriction would be applied to all identified nesting and early brood-rearing habitats inside core habitat areas within 2 miles of the lek.	<b>E-132: Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat inside PHMAs (connectivity only):</b> Surface disturbing and/or disruptive activities would be prohibited within PHMAs (connectivity only) from March 15–June 30 to protect breeding, nesting, and early brood-rearing habitats within 4 miles of the lek or lek perimeter of any occupied Greater Sage-Grouse lek within identified PHMAs (connectivity only). This timing limitation would be applied throughout the PHMAs (connectivity only). Activities in unsuitable

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p><u>Bates Hole and Fish Creek/Willow Creek:</u> Occupied Greater Sage-Grouse leks will have a <math>\frac{3}{4}</math>- mile CSU buffer to protect breeding habitats. Human activity will be avoided between 8 p.m. and 8 a.m. from March 1 to May 15 (TLS) within this buffer. Leks, which are currently displayed as points, will be displayed as polygons. Occupied Greater Sage-Grouse leks will have a 4- mile buffer. Within this buffer, surface development or wildlife-disturbing activities will be restricted March 15 through July 15 (TLS). Also, within this 4- mile buffer (CSU), surface disturbing activities will avoid sagebrush stands of greater than 10% canopy cover. Within this 4-mile buffer, mitigate for power poles and other high-profile structures that may provide raptor perches. Avoid placement of</p>	(see above)	(see above)	(see above)	<p>habitats would be evaluated under the exception, waiver, and modification criteria and may be allowed on a case-by-case basis.</p> <p>Where credible data support different timeframes for this seasonal restriction, dates could be shifted by 14 days prior or subsequent to the above dates.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>these structures if possible or install devices to preclude raptor perching on the structures.</p> <p><u>Areas Outside of Bates Hole and Fish Creek/Willow Creek:</u></p> <p>Avoid surface disturbance or occupancy within 0.25 mile of the perimeter of occupied Greater Sage-Grouse leks. Avoid human activity between 8 p.m. and 8 a.m. from March 1 to May 15 (TLS) within 0.25 mile of the perimeter of occupied Greater Sage-Grouse leks.</p> <p><u>Kemmerer RMP:</u></p> <p>Avoid surface-disturbing and disruptive activities in suitable Greater Sage-Grouse nesting and early brood-rearing habitats within 2 miles of an occupied lek, or in identified Greater Sage-Grouse nesting and early brood-rearing habitats outside the 2-mile buffer</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>from March 15 through July 15.</p> <p><u>Newcastle RMP:</u> Avoid surface disturbing activities in suitable Greater Sage-Grouse nesting and early brood-rearing habitat within two miles of an occupied lek or in identified Greater Sage-Grouse nesting and early brood-rearing habitat outside the two-mile buffer from March 15 through July 15.</p> <p><u>Pinedale RMP:</u> Surface disturbing activities inside Intensively Developed Fields will be designed and implemented to minimize impacts on Greater Sage-Grouse habitats to the extent practicable. Surface disturbing activities inside Traditional Leasing Areas and Unavailable Areas will be avoided in suitable nesting and early brood-rearing habitat within 2 miles of</p>	(see above)	(see above)	(see above)	(see above)



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>occupied Greater Sage-Grouse leks from March 15 to July 15.</p> <p><u>Rawlins RMP:</u> Avoid surface disturbing and disruptive activities, geophysical surveys, and organized recreational activities (events) that require a SUP in suitable Greater Sage-Grouse and nesting and early brood rearing habitat within 2 miles of the perimeter of an occupied Greater Sage-Grouse lek, or in identified Greater Sage-Grouse nesting and early brood rearing habitat, from March 1 to July 15.</p> <p><u>Green River RMP:</u> To protect grouse nesting habitat, seasonal restrictions will apply within appropriate distances from the grouse lek. Appropriate distances (up to two miles) and time frames (usually from March 1 through July 15) will be determined on a case-by-case basis. Exceptions</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>to seasonal restrictions may be granted, provided the criteria in can be met. No disruptive activities in the Jack Morrow Hills planning area are allowed in nesting and early brood-rearing habitats (March 15 to July 15). These limitations will be determined and applied on a case-by- case basis. In addition, nesting and early brood-rearing habitats will be protected from habitat degradation, and measures will be taken to improve habitat quality.</p> <p><u>TBNG LRMP:</u> To help reduce disturbances to nesting Greater Sage-Grouse, prohibit the following activities within 2 miles of active display grounds from March 1 to June 15:</p> <ol style="list-style-type: none"> <li>1. Construction (e.g., roads, water impoundments, oil and gas facilities)</li> <li>2. Reclamation</li> </ol>	(see above)	(see above)	(see above)	(see above)
3. Gravel mining operations	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>4. Drilling of water wells</p> <p>5. Oil and gas drilling</p> <p>6. Training of hunting dogs.</p> <p>To reduce disturbances to nesting Greater Sage-Grouse, do not authorize the following activities within 2 miles of active display grounds from March 1 to June 15:</p> <p>1. Construction (e.g., pipelines, utilities, fencing)</p> <p>2. Seismic exploration</p> <p>3. Workover operations for maintenance of oil and gas wells</p> <p>4. Permitted recreation events involving large groups of people.</p> <p>When constructing facilities or structures within 2 miles of a Greater Sage-Grouse active display ground, design them to discourage raptor perching by maintaining</p>				
a low profile or using perch inhibitors.	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>Manage display ground viewing activities to reduce disturbances and adverse impacts to the birds on the display grounds.</p> <p><u>MBNF LRMP:</u></p> <p>Prohibit new disturbances such as construction, drilling, new recreation facilities, logging, or other concentrated intense activities according to the following table. Short-term projects designed to improve habitat such as prescribed burning are permitted: Greater Sage-Grouse breeding complexes March 1 through June 30, 2 miles.</p>				
<p><b>A-133: Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat outside Greater Sage-Grouse core and connectivity habitat areas:</b></p> <p><u>Casper RMP:</u></p>	<p><b>B-133:</b> No similar action</p>	<p><b>C-133: Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat outside Greater Sage-Grouse priority and connectivity habitat areas:</b></p>	<p><b>D-133: Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat outside Greater Sage-Grouse core and connectivity habitat areas:</b></p>	<p><b>E-133: Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat outside PHMAs:</b></p> <p>Surface disturbing and/or disruptive activities would be prohibited from March</p>
<p>Avoid surface-disturbing and disruptive activities</p>	<p>(see above)</p>	<p>A seasonal restriction on exploratory drilling that</p>	<p>Surface disturbing and/or disruptive activities would</p>	<p>15–June 30 to protect Greater Sage-Grouse</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>in suitable Greater Sage-Grouse nesting and early brood-rearing habitats within 2 miles of an occupied lek, or in identified Greater Sage-Grouse nesting and early brood-rearing habitats outside the 2-mile buffer from March 15 to July 15 (TLS).</p> <p><u>Bates Hole and Fish Creek/Willow Creek:</u> Occupied Greater Sage-Grouse leks will have a <math>\frac{3}{4}</math>- mile CSU buffer to protect breeding habitats. Human activity will be avoided between 8 p.m. and 8 a.m. from March 1 to May 15 (TLS) within this buffer. Leks, which are currently displayed as points, will be displayed as polygons. Occupied Greater Sage-Grouse leks will have a 4- mile buffer. Within this buffer, surface development or wildlife-disturbing activities will</p>		<p>prohibits surface-disturbing activities during the nesting and brood-rearing season would be applied in all occupied Greater Sage-Grouse habitat during this period. This seasonal restriction would also apply to related activities that are disruptive to Greater Sage-Grouse, including vehicle traffic and other human presence.</p>	<p>be prohibited or restricted from March 15–June 30. This restriction would be applied to all identified nesting and early brood-rearing habitats outside core habitat areas within 2 miles of the lek.</p>	<p>nesting and early brood rearing habitats within 2 miles of the lek or lek perimeter of any occupied lek located outside PHMAs. Where credible data support different timeframes for this restriction, dates could be shifted by 14 days prior or subsequent to the above dates.</p>
<p>be restricted March 15 through July 15 (TLS).</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
Also, within this 4- mile buffer (CSU), surface disturbing activities will avoid sagebrush stands of				
<p><b>A-134: Greater Sage-Grouse winter concentration areas:</b>  <u>Casper RMP:</u>  As Greater Sage-Grouse winter habitats are designated, a TLS will restrict activities from November 15 to March 14. Within the designated winter habitats, CSU for surface disturbing activities in sagebrush stands of greater than 20% canopy cover.  <u>Newcastle RMP:</u>  To protect important raptor and/or sage- and sharp-tailed grouse nesting habitat, activities or surface use will not be allowed from February 1 through July 31 within certain areas encompassed by the authorization.</p>	<p><b>B-134: Greater Sage-Grouse winter concentration areas:</b>  In priority habitat, the following conservation measures would be provided as terms and conditions of the approved RMP:  New surface occupancy would not be allowed on federal leases within priority habitats during any time of the year.</p>	<p><b>C-134:</b> Same as Alternative B</p>	<p><b>D-134: Greater Sage-Grouse winter concentration areas:</b>  Surface disturbing and/or disruptive activities in mapped Greater Sage-Grouse winter concentration areas within Greater Sage-Grouse core and connectivity habitat areas would be prohibited from November 15-March 14.  Surface disturbing and/or disruptive activities in mapped Greater Sage-Grouse winter concentration areas supporting connectivity populations would be prohibited from November 15-March 14.</p>	<p><b>E-134: Greater Sage-Grouse winter concentration areas:</b>  Surface disturbing and/or disruptive activities in mapped Greater Sage-Grouse winter concentration areas, to be mapped by the WGFD, would be prohibited from December 1–March 14 to protect PHMA (core only) populations of Greater Sage-Grouse that use these winter concentration habitats. This timing limitation would be applied to all winter concentration areas within PHMAs.  Activities in unsuitable habitats within PHMAs would be evaluated under the exception, waiver, and modification criteria and could be allowed on a case-by-case basis.</p>
Surface disturbing and disruptive activities would	(see above)	(see above)	(see above)	Protection of additional mapped winter

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>be avoided in Greater Sage-Grouse winter habitat from November 15 through March 14.</p> <p><u>Pinedale RMP:</u> All surface disturbing activities in Traditional Leasing Areas and Unavailable Areas are prohibited in Greater Sage-Grouse winter concentration areas from November 15 through March 15.</p> <p><u>Rawlins RMP:</u> Surface disturbing and disruptive activities potentially disruptive to delineated Greater Sage-Grouse and sharp-tailed grouse winter concentration areas are prohibited during the period of November 15 to March 14 for the protection of Greater Sage-Grouse and sharp-tailed grouse winter concentration areas.</p> <p><u>Green River RMP:</u> Seasonal restrictions for Greater Sage-Grouse</p>				<p>concentration areas in GHMAs would be implemented where winter concentration areas are identified as supporting populations of Greater Sage-Grouse that attend leks within PHMAs (core only). Appropriate seasonal timing restrictions and habitat protection measures would be considered and evaluated in all identified winter concentration areas.</p>
winter concentration areas may be identified on	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>a case by case basis. Should additional seasonal restrictions be identified, exceptions would be handled on a case by case basis and include site specific analysis. Disruptive activities in the Jack Morrow Hills planning area will be prohibited in Greater Sage-Grouse winter concentration areas typically from November 15 to March 14. These areas and/or dates are subject to change based on new data and scientific information.</p> <p><u>BTNF LRMP:</u> There are numerous areas that area leased that have No Surface Occupancy, Timing-Limitation, and/or Controlled- Surface-Use stipulations. Leases are issued with unique wildlife protection stipulations.</p>				
<b>Predation</b>				
<b>A-135:</b> The BLM and Forest Service would support other agencies in	<b>B-135:</b> No similar action	<b>C-135:</b> No similar action	<b>D-135:</b> In addition to Alternative A: The BLM and Forest Service would implement	<b>E-135:</b> The BLM would support other agencies in



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>their efforts to minimize impacts from predators.</p> <p><u>TBNG LRMP:</u></p> <p>Under a Memorandum of Understanding, the APHIS has primary responsibility for predator damage control on most National Forest System lands for actions initiated by APHIS. This includes responsibilities for ensuring compliance with the National Environmental Policy Act and the Endangered Species Act. To date, APHIS has completed and issued a Record of Decision and Final Environmental Impact Statement for their national animal damage control program and have also issued several statewide Decision Notices and Environmental Assessments for predator damage control.</p>			<p>strategies and techniques in land management decisions that address predators shown to pose a threat to Greater Sage-Grouse (Appendix F [of the 2015 Final EIS]).</p> <p>The BLM and Forest Service would support and encourage other agencies in their efforts to minimize impacts from predators on Greater Sage-Grouse where needs have been documented.</p>	<p>their efforts to minimize impacts from predators.</p> <p>The BLM would implement strategies and techniques in land management decisions that address predators shown to pose a threat to Greater Sage-Grouse (Appendix F [of the 2015 Final EIS]).</p> <p>The BLM would support and encourage other agencies in their efforts to minimize impacts from predators on Greater Sage-Grouse where needs have been documented.</p>
Forest Service responsibilities in predator damage control on National Forest	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
System lands are primarily limited to ensuring that APHIS programs comply with direction in LRMPs for visitor and user safety, mitigation for sensitive wildlife species, and pesticide use.				
<b>Noise</b>				
<b>A-136: Kemmerer RMP:</b> Locate facilities or use BMPs to minimize impacts of continuous noise on species relying on aural cues for successful breeding. This requirement is based on current information but may be subject to change in the future based upon new information. <b>Pinedale RMP:</b> Noise generating activities in Traditional Leasing Areas and Unavailable Areas will be minimized through the application of BMPs,	<b>B-136:</b> Noise would be limited to less than 10 decibels above ambient measures (20-24 dBA) at sunrise at the perimeter of a lek during active lek season.	<b>C-136:</b> Same as Alternative B	<b>D-136:</b> Same as Alternative A	<b>E-136:</b> The BLM would work with proponents to limit project related noise where it would be expected to reduce functionality of habitats that support PHMA populations.  The BLM would evaluate the potential for limitation of new noise sources on a case-by-case basis as appropriate. BLM's near-term goal would be to limit noise sources that would be expected to negatively impact PHMA populations and to continue to support the establishment of ambient baseline noise
such as high-efficiency mufflers. <b>TBNG LRMP:</b> To help prevent reproductive failure,	(see above)	(see above)	(see above)	levels for occupied PHMA leks.  As additional research and information emerges,

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>limit noise on Greater Sage-Grouse display grounds from nearby facilities and activities to 49 decibels (10 dBA above background noise) from March 1 to June 15.</p> <p>Prohibit development or operations of facilities within 2 miles of a Greater Sage-Grouse display ground if these activities would exceed a noise level of more than 10 decibels above the background noise level (39 dB), at 800 feet from the noise source, from March 1 to June 15.</p> <p>Limit noise levels from oil and gas production facilities within 0.25 mile of developed recreation sites to be no more than 70 decibels, as measured by the A-weighted Sound level (dBA) system of</p>				<p>specific new limitations appropriate to the type of projects being considered would be evaluated and appropriate limitations would be implemented where necessary to minimize potential for noise impacts on PHMA population behavioral cycles.</p> <p>As new research is completed, new specific limitations would be coordinated with the WGFD and partners. Noise levels at the perimeter of the lek should not exceed 10 A-weighted Decibels (dBA) above ambient noise.</p>
<p>measurements, at the edge of the developed site. This standard applies only to constant, routine, day-to-day</p>	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<p>production noises. It doesn't apply to noise from drilling and testing of production nor temporary noises such as work-over rigs and maintenance or repair tasks.</p> <p><u>BTNF LRMP:</u> Not directly addressed: Leases are issued with unique wildlife protection stipulations. Operations shall be conducted in a manner that will offer the least possible disturbance to wildlife on or adjacent to the leased land.</p>				
<b>Adaptive Management</b>				
<b>A-137:</b> No similar action	<b>B-137:</b> No similar action	<b>C-137:</b> No similar action	<b>D-137:</b> No similar action	<b>E-137:</b> The Greater Sage-Grouse adaptive management plan (Appendix D [of the 2015 Final EIS]) provides a means of addressing and responding to unintended negative impacts to Greater
(see above)	(see above)	(see above)	(see above)	Sage-Grouse and its habitat will be addressed before consequences become severe or irreversible. The Wyoming Greater Sage-

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
				Grouse LUP Amendments will include the requirement for projects requiring an EIS to develop adaptive management strategies in support of the population management objectives for Greater Sage-Grouse set by the State of Wyoming. Wyoming ADPPs will include an adaptive management plan, as reviewed by the BLM WO, SOL, and USFWS, which includes: Upon determination that a hard trigger is tripped, the BLM and/or the Forest Service will immediately defer issuance of discretionary authorizations for new actions for a period of 90 days. In addition, within 14 days of a determination, the Adaptive Management Working Group will convene to develop an interim response strategy and initiate an assessment
(see above)	(see above)	(see above)	(see above)	to determine the causal factors. Adaptive management triggers are essential for

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
				<p>identifying when potential management changes are needed in order to continue meeting Greater Sage-Grouse conservation objectives. With respect to Greater Sage-Grouse, all regulatory entities in Wyoming, including the BLM and Forest Service, use soft and hard triggers. Soft and hard triggers are focused on three metrics: 1) number of active leks, 2) acres of available habitat, and 3) population trends based on annual lek counts.</p> <p>In making amendments to this plan, the BLM will coordinate with the USFWS as BLM continues to meet its objective of conserving, enhancing and restoring Greater Sage-Grouse habitat by reducing, minimizing or eliminating threats to that habitat.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p><u>Soft Triggers:</u></p> <p>Soft triggers are indicators that management or specific activities may not be achieving the intended results of conservation action or that unanticipated changes to populations or habitats have occurred that have the potential to place habitats or populations at risk. The soft trigger is any deviation from normal trends in habitat or population in any given year. Metrics include, but are not limited to, annual lek counts, wing counts, aerial surveys, habitat monitoring, and DDCT evaluations. BLM and/or Forest Service field offices, with the assistance of their respective land and resource management plan implementation groups, local WGFD offices, and local Greater Sage-Grouse working groups will evaluate the metrics with the Adaptive Management Working Group (AMWG) on an annual basis. The</p>

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	<p>purpose of these strategies is to address localized Greater Sage-Grouse population and habitat changes by providing the framework in which management will change if monitoring identifies negative population and habitat anomalies in order to avoid crossing a hard trigger threshold.</p> <p><u>Hard Triggers:</u></p> <p>Hard triggers are indicators that management is not achieving desired conservation results. Hard triggers would be considered a catastrophic indicator that the species is not responding to conservation actions, or that a larger-scale impact or set of impacts is having a negative effect. Within the range of normal population variables, hard triggers shall be determined to take effect when two of the three metrics exceeds 60 percent of normal variability for the area under management in a</p>



Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
(see above)	(see above)	(see above)	(see above)	single year, or when any of the three metrics exceeds 40% of normal variability for a three year time period within a five-year range of analysis. A minimum of three consecutive years in a five-year period is used to determine trends (i.e., Y1-2-3, Y2-3-4, Y3-4-5).
<b>Sagebrush Focal Areas</b>				
<b>A-138:</b> No similar action	<b>B-138:</b> No similar action	<b>C-138:</b> No similar action	<b>D-138:</b> No similar action	<b>E-138:</b> Designate SFAs (1,915,990 acres). SFAs will be managed as PHMA, with the following additional management: <ol style="list-style-type: none"> <li>1) Recommended for withdrawal from the General Mining Act of 1872, subject to valid existing rights (252,160 acres).</li> <li>2) Prioritized for management and conservation actions in these areas, including, but not limited to review of livestock grazing permits/leases (see livestock grazing section for additional actions).</li> </ol>

**Table 2-4b.** Alternatives analyzed in detail during the 2015 planning effort and incorporated into the 2019 process. **Table 2-4b** is in two parts. Part I are the LUP 2015 ARMPA Goals and Objectives by Alternative analyzed in 2015 and Part II are the Management Actions analyzed in 2015.

**Table 2-4b**  
**Part I 2015 Bighorn Basin RMP Revision Goals and Objectives by Alternative**

Alternative A	Alternative B	Alternative C	Alternative D/ Proposed Plan	Alternative E	Alternative F
<b>Goals</b>					
<b>PR:3.</b> Maintain or improve soil health (e.g., chemical, physical, and biotic properties) while focusing on making significant progress toward meeting the <i>Wyoming Standards for Healthy Rangelands</i> (Appendix N).					
<b>MR:1</b> Provide opportunities for mineral extraction and energy exploration and development to meet national and local needs, while avoiding or mitigating impacts on other resources					
<b>MR:2</b> Manage leasable fluid mineral resources (oil, gas, CBNG, geothermal) in the Planning Area to meet the Nation's energy needs, without compromising long-term health and diversity of public lands and resources.					
<b>MR:3</b> Manage solid leasable mineral resources (coal, oil shale, tar sands, phosphate, sodium, etc.) to help meet local and regional needs, while avoiding or mitigating effects on other resources.					
<b>MR:4</b> Manage salable mineral materials to meet local and regional needs, while avoiding or mitigating effects on other resources.					
<b>MR:5</b> Manage locatable minerals activities on lands open to mineral entry, while preventing unnecessary and undue degradation of public lands as defined in 43 CFR 3809.5, and while avoiding or mitigating effects of exploration and production on other resources.					
<b>FM:1</b> Reducing risk to firefighters and the public is the first priority in every fire management activity. Protect life, property, and resource values by responding to wildland fires based on ecological and social consequences of the fire and the circumstances under which it occurs.					
<b>FM:2</b> Restore natural fire regimes and frequencies to the landscape and utilize fire and vegetation treatments to accomplish DPC objectives.					
<b>BR:1</b> Maintain, enhance, or restore forest stand community health, composition, and diversity taking into account density, basal area, canopy cover, age class, stand health, and understory components.					
<b>BR:2</b> Manage vegetation resources to meet DPC objectives.					
<b>BR:3</b> Manage riparian/wetland areas to provide a natural combination of vegetation and landform to provide the habitat and the water conditions necessary for aquatic and terrestrial species.					
<b>BR:4</b> Manage for healthy native plant communities by reducing, preventing expansion of, or eliminating the occurrence of undesirable invasive, nonnative species, undesirable, nonnative, or noxious weeds (predatory plant pests or disease) by implementing management actions consistent with national guidance and state and local weed management plans.					
<b>BR:5</b> In compliance with the Wyoming Standards for Healthy Rangelands, manage for the biological integrity of terrestrial and aquatic ecosystems to sustain or enhance fish and wildlife habitat, while providing for multiple uses of BLM-administered lands.					
<b>BR:6</b> Manage environmental risks and associated impacts in a manner compatible with sustaining plant, fish, and wildlife populations.					

Alternative A	Alternative B	Alternative C	Alternative D/ Proposed Plan	Alternative E	Alternative F
<b>BR:7</b> WILDLIFE Manage for the biological integrity and habitat functionality to facilitate the conservation, recovery, and maintenance of populations of fish and wildlife to avoid contributing to the listing of or jeopardizing the continued existence or recovery of special status species and their habitats.					
<b>BR:8</b> PLANTS Manage for the biological integrity and habitat function to facilitate the conservation, recovery, and maintenance of populations of BLM special status plant species and to avoid contributing to the listing of or jeopardizing the continued existence or recovery of special status species and their habitats.					
<b>BR:9</b> SAGE-GROUSE Sustain the integrity of the sagebrush biome to provide the amount, continuity, and quality of habitat that is necessary to maintain sustainable populations of Greater Sage-Grouse and other species by achieving the objectives below.					
<b>BR:10</b> Identify the amount of habitat that should undergo restoration and/or rehabilitation during the life of the plan and initiate restoration and/or rehabilitation by achieving the objective below.					
<b>BR:11</b> Manage and maintain healthy wild horses and herds inside HMAs in a thriving natural ecological balance within the productive capacity of their habitat while preserving multiple use relationships.					
<b>LR:1</b> Manage the acquisition, disposal, withdrawal, and use of public lands to meet the needs of internal and external customers and to preserve important resource values.					
<b>LR:3</b> Manage public lands to meet transportation and ROW needs consistent with goals and objectives of other resources.					
<b>LR:4</b> Utilize a comprehensive approach to travel planning and management to sustain and enhance use.					
<b>LR:6</b> Utilize adaptive trails and travel management to protect public land natural resources and settings, promote safety for all public land users, and minimize conflicts among OHV users and various other uses of public lands.					
<b>LR:7</b> Respond to distinct recreation customer demand by providing for customer realization of diverse activity, experience, and benefit opportunities.					
<b>LR:8</b> Develop and maintain appropriate recreational facilities, balancing public demand, protection of public land resources, and fiscal responsibility.					
<b>LR:10</b> Continue ecosystem benefits of herbivory by providing opportunities for livestock grazing to support and sustain local communities consistent with goals and objectives of other resources and overall land health.					
<b>SD:1</b> Protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or process, or to protect life and safety from natural hazards.					
<b>Objectives</b>					
<b>PR:3.1</b> Apply guidelines and appropriate measures to all management actions (including reclamation) affecting soil health to decrease erosion and sedimentation, to achieve and maintain stability, and to support the hydrologic cycle by providing for water capture, storage, and release.					
<b>MR:1.1</b> Provide opportunities to explore for, sell and/or permit, and develop leasable, salable, and locatable mineral resources.					
<b>MR:1.2</b> Encourage sound, balanced exploration and development of mineral resources in the Planning Area.					
<b>MR:2.1</b> Provide opportunities to explore and develop federal oil and gas resources and other leasable minerals.					

Alternative A	Alternative B	Alternative C	Alternative D/ Proposed Plan	Alternative E	Alternative F
<b>MR:2.3</b> Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMA and GHMA. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA and GHMA, and subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority will be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse. The implementation of these priorities will be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 U.S.C. 226(p) and 43 C.F.R. 3162.3-1(h).					
<b>MR:2.4</b> Where a proposed fluid mineral development project on an existing lease could adversely affect Greater Sage-Grouse populations or habitat, the BLM will work with the lessees, operators, or other project proponents to avoid, reduce and mitigate adverse impacts to the extent compatible with lessees' rights to drill and produce fluid mineral resources. The BLM will work with the lessee, operator, or project proponent in developing an APD for the lease to avoid and minimize impacts to sage-grouse or its habitat and will ensure that the best information about the Greater Sage-Grouse and its habitat informs and helps to guide development of such Federal leases.					
<b>MR:3.1</b> Provide opportunities for exploration, leasing, and development of solid leasable minerals consistent with goals and objectives of other natural and cultural resources and values.					
<b>MR:4.1</b> Anticipate need and identify areas suitable for ongoing and future mineral materials disposals to meet needs.					
<b>MR:4.2</b> Provide opportunities for exploration and development of salable minerals in suitable locations while avoiding or mitigating effects to other resources.					
<b>MR:5.1</b> Provide opportunities for exploration and development of locatable minerals while reducing and mitigating effects of mining on other natural resources.					
<b>FM:1.5</b> Following wildland fires, conduct appropriate emergency stabilization and rehabilitation when and where needed. In priority sage-grouse habitat areas, prioritize suppression immediately after life and property to conserve the habitat. In general sage-grouse habitat, prioritize suppression where wildfires threaten priority sage-grouse habitat.					
<b>FM:2.1</b> Consult and cooperate with adjacent landowners, state and local governments, and other stakeholders to plan and implement prescribed fire and other vegetation treatments across the landscape. In areas of general sage-grouse habitat, design and implement fuels treatments with an emphasis on protecting existing sagebrush ecosystems.					
<b>FM:2.2</b> Implement and maintain an FMP for the Planning Area; the FMP identifies the site-specific fire management practices and fuels treatment actions needed to meet this RMP's goals and objectives and includes a focus on restoring natural fire regimes and frequencies or accomplishing DPC objectives.					
<b>BR:1.1</b> Maintain overall forest health by managing forest and woodland stands for endemic populations of native insects and disease.					
<b>BR:2.1</b> Manage native plant communities to restore, maintain, or enhance vegetation community health, composition, and diversity to provide a mix of successional stages that incorporate diverse structure and composition into the desired vegetation types.					
<b>BR:2.2</b> Maintain, improve, enhance, or restore native plant communities to facilitate the conservation, recovery, and maintenance of populations of native and desirable nonnative plant species and wildlife habitat.					
<b>BR:2.3</b> Maintain, improve, or enhance areas of ecological importance, priority plant species and habitats, and unique plant associations with native plant communities					

Alternative A	Alternative B	Alternative C	Alternative D/ Proposed Plan	Alternative E	Alternative F
<b>BR:2.4</b> Manage native plant communities across landscapes through cooperation with adjacent landowners, state and local governments, and other stakeholders.					
<b>BR:2.6</b> In PHMAs, the desired condition is to maintain a minimum of 70% of lands capable of producing sagebrush with 10 to 30% sagebrush canopy cover. The attributes necessary to sustain these habitats are described in Interpreting Indicators of Rangeland Health (BLM Technical Reference 1734-6 [BLM2005c]).					
<b>BR:3.1</b> Manage vegetation, soil, landform, and water to meet PFC.					
<b>BR:3.2</b> Manage priority riparian/wetland areas to attain desired future conditions unique to the landscape setting.					
<b>BR:3.4</b> Manage riparian/wetland areas in consideration of the working landscape.					
<b>BR:3.5</b> Manage riparian/wetland vegetation communities to attain an appropriate mix of wetland plant species and age-classes, with high vigor and extensive root systems, capable of withstanding high streamflow events.					
<b>BR:4.1</b> Maintain internal (BLM) and external support for managing invasive species using an integrated approach for the detection, control, or eradication of new infestations.					
<b>BR:4.2</b> Maintain adequate baseline information regarding the extent and control of invasive species to make informed decisions, evaluate effectiveness of management actions, and assess progress toward goals to improve invasive species management.					
<b>BR:4.3</b> Continue coordination of invasive species detection and control activities across the working landscape including non-BLM-administered lands and include provisions for invasive species management for all BLM-funded or authorized actions.					
<b>BR:5.1</b> Manage habitat to conserve, recover, and maintain fish and wildlife consistent with appropriate local, state, and federal management plans.					
<b>BR:5.2</b> Work cooperatively with the WGFD to recommend adjustments to herd objectives based upon habitat condition trends and recommend wildlife use adjustments if monitoring data indicate adjustments are necessary.					
<b>BR:5.3</b> Manage fish and wildlife habitats in consideration of the working landscape.					
<b>BR:6.1</b> Minimize, avoid, and mitigate impacts of environmental risks on fish and wildlife.					
<b>BR:7.1</b> Maintain or enhance areas of ecological importance for special status wildlife species.					
<b>BR:7.2</b> Conserve and recover special status wildlife species by determining and implementing conservation strategies including restoration opportunities, use restrictions, and management actions.					
<b>BR:7.3</b> Manage specific environmental hazards, risks, and impacts in a manner compatible with special status wildlife species health.					
<b>BR:7.4</b> Maintain sufficient undisturbed or minimally disturbed habitats to protect special status wildlife species resource values while providing for multiple use management.					
<b>BR:7.6</b> Manage special status fish and wildlife species in consideration of the working landscape.					
<b>BR:8.1</b> Manage the habitats of special status plants to meet or exceed the Wyoming Standard #4 for Healthy Rangelands.					
<b>BR:8.2</b> Protect or enhance habitat for BLM special status plant species.					
<b>BR:8.3</b> Maintain sufficient undisturbed or minimally disturbed habitats to protect special status plant species resource values while providing for multiple use management.					

Alternative A	Alternative B	Alternative C	Alternative D/ Proposed Plan	Alternative E	Alternative F
<b>BR:8.4</b> Manage specific environmental hazards, risks, and impacts in a manner compatible with BLM special status plant species' health.					
<b>BR:8.5</b> Manage BLM special status plant species in consideration of the working landscape.					
<b>BR:9.1</b> Maintain large patches of high-quality sagebrush habitats, with emphasis on patches occupied by Greater Sage-Grouse.					
<b>BR:9.2</b> Maintain connections between sagebrush habitats, with emphasis on connections between habitats occupied by Greater Sage-Grouse.					
<b>BR:10.1</b> Reconnect large patches of sagebrush habitat with emphasis on reconnecting patches occupied by stronghold and isolated populations of Greater Sage-Grouse.					
<b>BR:11.1</b> Adjust and maintain wild horse numbers and HMAs to comply with federal policies.					
<b>LR:1.1</b> Develop and maintain a land-ownership pattern that will provide access for managing and protecting public lands.					
<b>LR:1.2</b> Use appropriate actions such as disposal and acquisition to resolve issues related to intermixed land-ownership patterns and to acquire non-federal land having high resource/recreation value(s).					
<b>LR:1.3</b> Maintain availability of public lands to meet the habitation, trade, mineral development, recreation, and manufacturing needs of external customers and the general public.					
<b>LR:3.1</b> Provide opportunities to meet ROW demands while protecting important resources.					
<b>LR:4.1</b> All BLM-administered lands will be classified as open, limited, or closed to motorized travel in consideration of other resource program goals and objectives, primary travelers, objectives for allowing travel in the area, setting (recreation, visual, archeological) characteristics that are to be maintained, and primary means of travel.					
<b>LR:6.3</b> Promote user safety and minimize user conflict.					
<b>LR:7.4</b> Manage areas outside of RMAs (i.e., not within an SRMA or ERMA) in a custodial manner so as to maintain public health and safety, use and user conflicts, and resource protection.					
<b>LR:7.5</b> Increase awareness understanding and a sense of stewardship in recreational activity participants, so their conduct safeguards cultural and natural resources as defined by Wyoming Standards for Public Land and Health or reach specific objectives.					
<b>LR:7.6</b> Ensure visitors are not exposed to unhealthy or unsafe human created conditions.					
<b>LR:7.7</b> Manage the direct indirect and cumulative impacts so as to maintain a minimal level of user conflict.					
<b>LR:10.1</b> Manage livestock grazing consistent with multiple use needs, sustained yield, and the Wyoming Standards for Healthy Rangelands. Adjust management based on assessments and evaluations.					
<b>LR:10.2</b> Provide for the establishment of voluntary reserve common allotments as opportunities arise within the Planning Area to facilitate rangeland restoration, recovery, and management objectives (in accordance with existing policy, WO IM 2013-184).					
<b>LR:10.3</b> Manage levels of livestock use in a manner that strives to maintain or restore permitted use based on forage availability consistent with multiple use.					
<b>SD:1.1</b> Utilize special designations to meet resource protection needs within appropriate geographical areas.					
<b>SD:1.2</b> Provide for appropriate interpretation of sites of high public interest.					

**Table 2-4b**  
**Part II 2015 Bighorn Basin RMP Revision Management Actions by Alternative**

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Management Actions Common to All Resources</b>					
<b>A, B, C, D, E, F-0001:</b> Surface-disturbing activities are subject to the <i>Wyoming BLM Mitigation Guidelines for Surface-Disturbing and Disruptive Activities, the Wyoming BLM Reclamation Policy, and the Wyoming DEQ-WQD's Storm Water Permitting Program.</i>					
<b>A, B, C, D, E, F-0002:</b> The BLM may pursue a withdrawal from appropriation under the mining laws for locatable minerals within ACECs, recommended WSR suitable waterway segments, and special status species habitat on a case-by-case basis.					
<b>A, B, C, D, E, F-0003:</b> Utilize recommendations found in WGFD documents Recommendations for Development of Oil and Gas Resources within Crucial and Important Wildlife Habitats (WGFD 2010b), Wildlife Protection Recommendations for Wind Energy Development in Wyoming (WGFD 2010c), and similar documents updated over time where determined applicable and consistent with valid existing rights.					
<b>Physical Resources Soil</b>					
<b>A, B, C, D, E, F -1008:</b> Develop appropriate mitigation for surface-disturbing and disruptive activities associated with wildlife and fish management through use of the mitigation guidelines described in Appendix H.					
<b>A-1016:</b> Allow seeding of areas disturbed by surface-disturbing activities (as part of interim and final reclamation) or areas not meeting resource objectives using approved BLM seed mixtures of native species.	<b>B-1016:</b> Same as Alternative A.	<b>C-1016:</b> Allow seeding of areas not meeting resource objectives using approved nonnative and native species.	<b>D-1016:</b> Allow seeding of areas disturbed by surface-disturbing activities (as part of interim and final reclamation) and areas not meeting resource objectives using approved BLM seed mixtures.	<b>E-1016:</b> Same as Alternative A.	<b>F-1016:</b> Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>A-1017:</b> Routinely seed disturbed areas with native plant species.	<b>B-1017:</b> In disturbed areas, reestablish healthy native plant communities based on preexisting composition or other species, as identified in an approved management plan.	<b>C-1017:</b> In disturbed areas, reestablish plant communities to increase commodity production to meet other resource objectives.	<b>D-1017:</b> In disturbed areas, reestablish healthy native or desired plant communities based on pre-disturbance/desired plant species composition.	<b>E-1017:</b> Same as Alternative B.	<b>F-1017:</b> Same as Alternative D.
<b>A-1019:</b> Reestablish vegetation cover over disturbed soils within 5 years of initial seeding. Require reclamation in compliance with BLM policy, including Wyoming BLM Reclamation Policy and similar guidance updated over time.	<b>B-1019:</b> Require 50 percent pre-disturbance of desired vegetative cover within three growing seasons. Require 80 percent pre-disturbance vegetative cover within 5 years of initial seeding. Interim and final reclamation will begin at the earliest feasible time.	<b>C-1019:</b> Require 30 percent desired vegetative cover within three growing seasons. Require reclamation in compliance with BLM policy, including Wyoming BLM Reclamation Policy and similar guidance updated over time.	<b>D-1019:</b> Interim and final reclamation will begin at the earliest feasible time.  Successful final reclamation of the desired vegetative cover will be considered achieved if conditions are equal to or better than pre-disturbance site condition. Require reclamation in compliance with BLM policy, including Wyoming BLM Reclamation Policy and similar guidance updated over time.	<b>E-1019:</b> Same as Alternative B.	<b>F-1019:</b> Same as Alternative D.



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Leasable Minerals Coal</b>					
<p><b>A, B, C, D, E, F - 2004:</b> Consider interest in exploration for, or leasing of, federal coal, if any on a case-by-case basis. Allow coal exploration licenses subject to the regulations of 43 CFR 3410, and subject to guidance mitigating for surface-disturbing activities in the Wyoming BLM Standard Oil and Gas-Lease Stipulations (Appendix I). Before issuing a coal exploration license, require the authorized officer to prepare an environmental assessment or environmental impact statement, if necessary, of the potential effects of the proposed exploration on the natural and socio- economic environment of the affected area.</p> <p>If an application for a federal coal lease is received, conduct an appropriate land use and environmental analysis, including the coal screening process, to determine whether the area(s) proposed for leasing is (are) acceptable for coal development and leasing (as per 43 CFR 3425). If public lands are determined to be acceptable for further consideration for coal leasing, amend the land use plan as necessary. Only accept federal coal lease applications on those federal coal lands with development potential identified as suitable for further leasing consideration, after application of the coal screens and unsuitability criteria. At the time an application for a new coal lease or lease modification is submitted to the BLM, the BLM will determine whether the lease application area is "unsuitable" for all or certain coal mining methods pursuant to 43 CFR 3461.5. PHMA is essential habitat for maintaining Greater Sage- Grouse for purposes of the suitability criteria set forth at 43 CFR 3461.5(o)(1).</p>					
<b>Leasable Minerals Geothermal</b>					
<p><b>A, B, C, D, E, F -2005:</b> Unless otherwise noted, BLM-administered land in the Planning Area that is open to oil and gas leasing is open to geothermal leasing, subject to appropriate mitigation developed through use of the mitigation guidelines described in Appendix H. Unless otherwise noted, those lands identified as closed to oil and gas leasing are closed to geothermal leasing.</p> <p><b>A, B, C, D, E, F -2007:</b> Protect important resources, including in areas closed to leasing on existing leases to the extent this restriction does not violate the leaseholder/operator lease rights, by applying an NSO restriction and prohibiting surface-disturbing activities. In areas identified as available for leasing, additional planning, analysis, and decision making may be necessary prior to lease issuance under the following criteria: 1) when oil and gas development is resulting in unacceptable multiple-use or natural/cultural resources conflicts, 2) new information evidences increased oil and gas development densities or surface disturbance, or 3) at the discretion of the Field Manager, District Manager, or State Director. Areas closed for oil and gas leasing may be leased with an NSO stipulation to deal with drainage of these resources from federal mineral estate.</p>					

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Leasable Minerals Oil and Gas CBNG Exploration and Development</b>					
<p><b>A, B, C, D, E, F -2008:</b> Determine the routing of access roads and location of well pads after considering the views of the surface owner on split-estate lands (private surface-federal minerals/oil and gas), where possible.</p> <p>Where the federal government owns the mineral estate, and the surface is in non-federal ownership, apply the same stipulations, COAs, and/or conservation measures and RDFs applied if the mineral estate is developed on BLM-administered lands in that management area, to the maximum extent permissible under existing authorities, and in coordination with the landowner.</p> <p>Where the federal government owns the surface and the mineral estate is in non-federal ownership, apply appropriate surface use COAs, stipulations, and mineral RDFs through ROW grants or other surface management instruments, to the maximum extent permissible under existing authorities, in coordination with the mineral estate owner/lessee.</p>					
<p><b>A, B, C, D, E, F -2010:</b> Unless otherwise noted, areas that are open to oil and gas leasing are open to geophysical exploration subject to appropriate mitigation developed through use of the mitigation guidelines described in Appendix I. Areas closed to oil and gas leasing are closed to geophysical exploration. However, geophysical exploration may be permitted on a case-by-case basis so long as the resource goals and objectives under which the area was closed are not compromised.</p>					
<p><b>A, B, C, D, E, F -2011:</b> In cases where federal oil and gas leases are or have been issued without stipulated restrictions or requirements that are later found to be necessary, or with stipulated restrictions or requirements that are later found to be insufficient, consider their inclusion before approving subsequent exploration and development activities. Include these restrictions or requirements only as reasonable measures or as conditions of approval in authorizing APDs or Master Development Plans.</p> <p>Conversely, in cases where leases are or have been issued with stipulated restrictions or requirements that are later found to be excessive or unnecessary, the stipulated restrictions or requirements may be appropriately modified, excepted or waived in authorizing actions. Both the application of reasonable measures or COAs and the modification, exception, or waiver of stipulated restrictions or requirements must first be based upon site-specific analysis including the necessary supporting NEPA compliance.</p>					
<p><b>A, B, C, D, E, F -2013:</b> Utilize BMPs in the exploration, development, production, and abandonment of oil and gas resources.</p>					
<b>Leasable Minerals Other Solid Leasable Minerals</b>					
<p><b>A, B, C, D, E, F - 2015:</b> Lease solid minerals such as phosphates or sodium, consistent with other resources, on a case-by-case basis.</p>					

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Salable Minerals</b>					
<b>A, B, C, D, E, F - 2016:</b> Existing BLM-approved mineral material sites are open to mineral materials disposal. New mineral material disposal sites in areas open to mineral materials disposal are subject to site-specific analysis prior to approval. Ensure that each community pit has an updated site-specific reclamation fee based on a current mining and reclamation plan. Ensure that reclamation occurs in mined-out areas of community pits.					
<b>A, B, C, D, E, F - 2017:</b> Dispose of mineral materials on a case-by-case basis, subject to site-specific analysis and appropriate mitigation prior to approval, in areas open to mineral materials disposal.					
<b>Leasable Minerals Oil and Gas Management Areas, Master Leasing Plan Areas, and Other Areas</b>					
<b>A-2029:</b> No similar action.	<b>B-2029:</b> Do not delineate <b>Oil and Gas Management Areas</b> . However, continue to consider surface resources such as wildlife habitat and livestock forage within existing intensively-developed fields and adjacent areas during review and approval of fluid minerals actions.	<b>C-2029:</b> Delineate <b>Oil and Gas Management Areas</b> (566,345 acres of federal mineral estate) around intensively-developed existing fields, using a buffer zone of up to 2 miles from the outer boundary of the existing field. Within these areas, manage primarily for oil and gas exploration and development; consider all other surface uses secondary.	<b>D-2029:</b> Delineate <b>Oil and Gas Management Areas</b> (441,662 acres of federal mineral estate) around the existing intensively-developed fields, applying a 2-mile buffer from the outer boundary of the existing field; adding enhanced oil recovery areas identified by the Governor's Office Enhanced Oil Recovery Institute and excluding Greater Sage-Grouse PHMAs. Manage these areas primarily for oil and	<b>E-2029:</b> Same as Alternative B, except apply NSO conditions of approval on existing leases to the extent consistent with valid existing rights in Greater Sage-Grouse Key Habitat Areas.	<b>F-2029:</b> Same as Alternative D, except apply NSO conditions of approval on existing leases to the extent consistent with valid existing rights in Greater Sage-Grouse PHMAs.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	gas exploration and development. Oil and gas development within Oil and Gas Management Areas is allowed to take place at the same level and density of the existing field development and will include enhanced oil recovery research and development operations, except in the Oregon Basin Oil Field, where new development will not exceed the current disturbance levels. Levels and densities beyond the existing field development may require additional NEPA analysis, reclamation, or compensatory off-site mitigation. As oil and gas fields expand or exploration reaches beyond the Oil and	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	<p>Gas Management Areas, Oil and Gas Management Areas may be enlarged as appropriate. To enlarge Oil and Gas Management Areas, the expansion area would:</p> <ul style="list-style-type: none"> <li>i) have to be adjacent to the field and under valid oil and gas lease(s) with stipulations allowing surface occupancy and development;</li> <li>ii) have to have a surface density of, on average, at least four well pads per 640-acres; a determination that additional well density is required to efficiently and adequately produce the oil or gas resource;</li> <li>iii) have a project-specific</li> </ul>	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	environmental analysis prepared to analyze the impacts and determine operating methods, mitigation, and BMPs to be used in the efficient and comprehensive development of the field; and iv) need surface resources to be satisfactorily mitigated; v) need commitment to accelerate reclamation as required by the authorized officer.	(see above)	(see above)
<b>Fire and Fuels Management</b>					
<b>A, B, C, D, E, F -3002:</b> Implement the BLM Emergency Stabilization and Rehabilitation standards located in the BLM Burned Area Emergency Stabilization and Rehabilitation Handbook (BLM 2007a).					

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<p><b>A, B, C, D, E, F -3008:</b> Suppress fires threatening Greater Sage-Grouse habitats and crucial winter wildlife habitat within Wyoming big sagebrush communities. Where fire would be utilized to meet resource objectives, work closely with resource specialists to protect and improve Greater Sage-Grouse habitat.</p> <p>If prescribed fire is used in Greater Sage-Grouse habitat, the NEPA analysis for the Burn Plan will address:</p> <ul style="list-style-type: none"> <li>• why alternative techniques were not selected as a viable option;</li> <li>• how Greater Sage-Grouse goals and objectives would be met by its use;</li> <li>• how the COT Report objectives would be addressed and met; and</li> <li>• a risk assessment to address how potential threats to Greater Sage-Grouse habitat would be minimized.</li> </ul> <p>Prescribed fire as a vegetation or fuels treatment shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Prescribed fire could be used to meet specific fuels objectives that would protect Greater Sage-Grouse habitat in PHMAs (e.g., creation of fuel breaks that would disrupt the fuel continuity across the landscape in stands where annual invasive grasses are a minor component in the understory, burning slash piles from conifer reduction treatments, used as a component with other treatment methods to combat annual grasses and restore native plant communities).</p> <p>Prescribed fire in known winter range shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Any prescribed fire in winter habitat would need to be designed to strategically reduce wildfire risk around and/or in the winter range and designed to protect winter range habitat quality.</p>					
<b>A-3015:</b> Utilize wildland fires (wildfires managed for resource benefit and prescribed fires) to restore fire-adapted ecosystems and reduce hazardous fuels.	<b>B-3015:</b> Utilize wildland fires (wildfires managed for resource benefit and prescribed fires) and other vegetation treatments to restore fire-adapted ecosystems for natural resource systems and reduce hazardous fuels.	<b>C-3015:</b> Utilize wildland fires (wildfires managed for resource benefit and prescribed fires) and other vegetation treatments to restore fire-adapted ecosystems and enhance forage for commodity production and reduce hazardous fuels.	<b>D-3015:</b> Utilize wildland fires (wildfires managed for resource benefit and prescribed fires) and other vegetation treatments to restore fire-adapted ecosystems, reduce hazardous fuels, and accomplish resource management objectives.	<b>E-3015:</b> Same as Alternative B.	<b>F-3015:</b> Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Biological Resources Vegetation Forests, Woodlands, and Forest Products</b>					
<b>A, B, C, D, E, F -4014:</b> Manage species including limber pine, subalpine fir, white bark pine, cottonwood, willow, Rocky Mountain juniper, Utah juniper, and aspen, to enhance resources or resource uses, such as wildlife habitat, recreation opportunities, livestock grazing, watersheds, and scenic values.					
<b>A, B, C, D, E, F -4028:</b> Manage native plant communities in accordance with Wyoming Standards for Healthy Rangelands. Continue to use ecological site descriptions, resource objectives, and specific management practices to maintain or achieve the standards that consider all reasonable and practical options available to achieve desired results.					
<b>A, B, C, D, E, F -4029:</b> Continue to monitor and evaluate climatic and vegetative data. Compile and share data with other land management agencies and partners within the Planning Area using a cooperative collaborative approach. Should the analysis of data indicate that the vegetative resource is either not meeting or making significant progress towards meeting the Wyoming Standards for Healthy Rangelands or other site specific vegetative objectives, specific management practices will be developed and would consider all reasonable and practical options available to achieve desired results.					
<p><b>A-4030:</b> Implement DPC objectives for Watershed Protection, Forestland Management, and Livestock Grazing.</p> <p>Use the following DPC objectives to emphasize watershed protection, forestland health, and livestock grazing on at least 600,000 acres of BLM-administered land in the Planning Area not containing important wildlife</p>	<p><b>B-4030:</b> Manage to achieve or make progress towards the reference state plant community based on the ESD for the site.</p> <p>The appropriate functional structural plant groups must be present for the site. Manage areas at a lower level of ecological status to provide preferred habitat for wildlife species with unique habitat requirements on a case- by-case basis.</p>	<p><b>C-4030:</b> Manage to achieve or make progress toward the appropriate community phase for the site.</p> <p>Manage areas at a lower level of ecological status to provide preferred habitat for wildlife species with unique habitat requirements on a case- by-case basis.</p>	<p><b>D-4030:</b> In plant communities determined to be meeting Wyoming Standards for Healthy Rangelands, manage to maintain or improve those communities. The appropriate functional structural plant groups must be present for the site.</p> <p>Potentially manage some areas for a higher plant community state or phase (based on state and transition</p>	<b>E-4030:</b> Same as Alternative B.	<b>F-4030:</b> Same as Alternative D.



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<p>habitat (all percentages listed below are expressed in terms of composition by weight):</p> <ul style="list-style-type: none"> <li>•Salt Desert Shrub Communities: shrubs 30 to 60 percent, grasses 30 to 60 percent, forbs 5 to 15 percent, with shrubs increasing on high saline sites</li> <li>•Salt Bottom Communities: shrubs 20 to 40 percent, grasses 50 to 70 percent, forbs 5 to 15 percent</li> <li>•Basin Grassland/Shrub Communities: shrubs 10 to 20 percent, grasses 60 to 80 percent, forbs 10 to 20 percent</li> <li>•Foothills-Mountain Grassland/Shrub Communities: shrubs 10 to 30 percent, grasses 60 to 80 percent, forbs 10 to 20 percent</li> </ul>	(see above)	(see above)	<p>models in ESDs) where site-specific management objectives determine that a higher plant community state or phase is desirable. In these areas the desired plant community states or phases will be determined on a site-specific basis at the implementation level. Potentially manage some areas for lower plant community states or phases to provide preferred habitat for species.</p>	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<ul style="list-style-type: none"> <li>•Low Gradient/Alluvial Riparian Communities: shrubs 0 to 15 percent, grasses and grass-likes 70 to 90 percent, forbs 5 to 15 percent</li> <li>•Intermediate Riparian Communities: trees and shrubs 10 to 30 percent, grasses and grass-likes 50 to 70 percent, forbs 10 to 30 percent</li> <li>•Desert Cottonwood Riparian Communities: trees and shrubs 10 to 30 percent, grasses and grass-likes 50 to 70 percent, forbs 10 to 30 percent</li> <li>•Woodland Communities: Same as Foothills-Mountain Grassland/Shrub Communities on areas where invasion of limber pine and</li> </ul>	(see above)	(see above)	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
juniper has occurred on deeper soils (there is no specific objective where woodlands occur on very shallow soils)	(see above)	(see above)	(see above)	(see above)	(see above)
<b>A-403 I:</b> No similar action.	<b>B-403 I:</b> Manage to maintain contiguous blocks of native plant communities and minimize fragmentation; allow for appropriate mosaic of interrelated plant communities while allowing for other resource uses.	<b>C-403 I:</b> Same as Alternative A.	<b>D-403 I:</b> Manage to maintain contiguous blocks of native plant communities and minimize fragmentation; allow for appropriate mosaic of interrelated plant communities while allowing for other resource uses.	<b>E-403 I:</b> Same as Alternative B.	<b>F-403 I:</b> Same as Alternative B.
<b>Conifer Encroachment</b>					
<b>A, B, C, D, E, F -4106:</b> Reintroduce appropriate fire regimes to limit conifer encroachment into the sagebrush plant communities. Take into account invasive herbaceous species and Fire Regime Group and FRCC (measure of departure from historic fire regime) with treatments. Where possible, achieve a balance between treating areas that have significantly departed from the historic fire regime (Condition Class 3) and areas that are functioning within an appropriate fire regime (Condition Class 1).					
<b>A, B, C, D, E, F -4107:</b> Remove conifers encroaching into sagebrush habitats. Prioritize treatments closest to occupied sage-grouse habitats and near occupied leks, and where juniper encroachment is phase 1 or phase 2. Use of site-specific analysis and principles like those included in the Fire and Invasives Assessment Team report (Chambers et. al., 2014) and other ongoing modeling efforts to address conifer encroachment will help refine the location for specific priority areas to be treated.					

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>A-4024:</b> Manage conifer encroachment to improve wildlife habitat and forest health conditions.	<b>B-4024:</b> Same as Alternative A.	<b>C-4024:</b> Manage conifer encroachment to enhance livestock grazing.	<b>D-4024:</b> Manage conifer encroachment to improve wildlife habitat and forest health conditions, use Ecological Site Descriptions to help determine potential natural communities.	<b>E-4024:</b> Same as Alternative B.	<b>F-4024:</b> Same as Alternative A.
<b>Biological Resources Invasive Species and Pest Management</b>					
<b>A, B, C, D, E, F -4038:</b> Manage invasive plant species in the Planning Area in conjunction with local counties and other stakeholders consistent with the ROD for the Final PEIS addressing Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (BLM 2007b), and current with policy and similar guidance updated over time.					
<b>A, B, C, D, E, F -4039:</b> Manage invasive plant species using an Integrated Pest Management approach consistent with DOI Manual 517, Integrated Pest Management (DOI 2007).					
<b>A, B, C, D, E, F -4042:</b> Use certified noxious weed-seed free vegetation products on all BLM-administered land in the Planning Area.					
<b>A, B, C, D, E, F -4044:</b> Develop and maintain an invasive species and pest management plan. If necessary, review and update this plan annually based on available funding and input from other agencies, organizations, and interested stakeholders.					
<b>A, B, C, D, E, F -4045:</b> Reduce and prevent the expansion of cheatgrass through cooperation with other agencies, organizations, and interested stakeholders.					

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
Biological Resources Vegetation - Riparian/Wetland Resources					
<b>A-4035:</b> Manage all riparian/wetland areas (23,957 acres) to meet or make progress towards PFC.	<b>B-4035:</b> Manage all riparian/wetland areas (23,957 acres) to achieve DPC. Prioritize those areas not meeting PFC.	<b>C-4035:</b> Manage all riparian/wetland areas to meet or make progress towards PFC giving priority to those areas that are functioning at risk with a downward trend or that are in non-functioning condition.	<b>D-4035:</b> Manage all riparian/wetland areas to meet or make progress towards PFC giving priority to those areas that are functioning at risk with a downward trend or that are in non-functioning condition, plus manage streams with unique recreational or aquatic values to obtain PFC.	<b>E-4035:</b> Same as Alternative B.	<b>F-4035:</b> Same as Alternative D.
<b>A-4036:</b> Prohibit surface- disturbing activities within 500 feet of surface water and riparian/wetland areas (70,715 acres) except when such activities are necessary and when their impacts can be mitigated.	<b>B-4036:</b> Prohibit surface-disturbing activities within ¼ mile of or within riparian/wetland areas (162,887 acres).  Allow sediment reduction structures on a case-by- case basis.	<b>C-4036:</b> Allow surface-disturbing activities in flood plains or riparian/wetland areas on a case-by-case basis.	<b>D-4036:</b> Prohibit surface-disturbing activities within 500 feet of surface water and riparian/wetland areas (70,715 acres) except when such activities are necessary and when their impacts can be mitigated.	<b>E-4036:</b> Same as Alternative B.	<b>F-4036:</b> Same as Alternative D.

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<b>Biological Resources Fish and Wildlife Resources Wildlife</b>					
<b>A, B, C, D, E, F -4060:</b> Maintain or improve important wildlife habitats through vegetative manipulations, habitat improvement projects, livestock grazing strategies and the application of The Wyoming Guidelines for Managing Sagebrush Communities with Emphasis on Fire Management (Wyoming Interagency Vegetation Committee 2002) and the Wyoming BLM Standard Mitigation Guidelines for Surface-Disturbing Activities (Appendix H), and similar guidance updated over time.					
<b>A, B, C, D, E, F -4071:</b> In cooperation with the WGFD and other stakeholders, work to develop water sources for wildlife and special status species in coordination with the WGFD and the BLM Water Development Handbook (H-1741-2).					
<b>A-4073:</b> Modify identified hazard fences and analyze and construct new fences in accordance with appropriate wildlife needs and the BLM Fencing Handbook 1741-1.	<b>B-4073:</b> When opportunities arise due to fire or permittee interest, modify identified hazard fences and analyze and construct new fences in accordance with appropriate wildlife needs and the BLM fencing handbook, 1741-1.	<b>C-4073:</b> Same as Alternative A.	<b>D-4073:</b> Modify identified hazard fences, and analyze and construct new fences in accordance with appropriate wildlife needs, the BLM Fencing Handbook 1741-1, and WO IM 2010-022 Managing Structures for the Safety of Sage-grouse, Sharp-tailed grouse, and Lesser Prairie-chicken, and similar guidance and policy as updated over time.	<b>E-4073:</b> Same as Alternative B.	<b>F-4073:</b> Same as Alternative D.
<b>A-4075:</b> Pursue exchanges to enhance public access or improve management of important wildlife habitat areas by	<b>B-4075:</b> Same as Alternative A, plus in cooperation with willing sellers and other stakeholders, consider all land tenure adjustment	<b>C-4075:</b> Do not acquire lands or interest in lands to enhance public access or improve management of	<b>D-4075:</b> Pursue exchanges to enhance public access or improve management of important wildlife habitat areas by	<b>E-4075:</b> Same as Alternative B.	<b>F-4075:</b> Same as Alternative B.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
consolidating public land. Emphasize the acquisition of access to public lands on the Bighorn, Shoshone, Clarks Fork of the Yellowstone, and Greybull rivers; Gooseberry Creek; the upper portions of Cottonwood and Grass Creeks; and on lands where other riparian areas occur.	authorities for the acquisition of, and interest in, lands for the improved management of important wildlife habitat.	important wildlife habitat.	consolidating public land.  Emphasize the acquisition of access to public lands on the Bighorn, Shoshone, Clarks Fork of the Yellowstone, and Greybull rivers; Gooseberry Creek; the upper portions of Cottonwood and Grass Creeks; and on lands where other riparian areas occur. Plus, in cooperation with willing sellers and other stakeholders, pursue all land tenure adjustment authorities for the acquisition of, and interest in, lands for the improved management of important wildlife habitat.	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>A-4078:</b> Prohibit water developments for livestock in elk crucial winter range unless adverse effects can be avoided, minimized and/or compensated based on site-specific analysis. Allow existing uses pending site-specific analysis.	<b>B-4078:</b> Prohibit new livestock water development projects in big game crucial winter range, Greater Sage-Grouse nesting habitat, and areas important for special status species unless no negative effect on wildlife can be demonstrated.	<b>C-4078:</b> Allow new livestock water development projects in big game crucial winter range, Greater Sage-Grouse nesting habitat, and areas important for special status species to meet multiple use objectives.	<b>D-4078:</b> Allow water development projects in crucial elk winter range and in Greater Sage-Grouse nesting habitat with 10 inches or less annual precipitation only when adverse effects can be avoided or mitigated based on site-specific analysis. Allow existing uses pending site-specific analysis on a priority basis.	<b>E-4078:</b> Same as Alternative B.	<b>F-4078:</b> Same as Alternative D.



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>A-4082:</b> Manage the location of wind energy projects on a case-by-case basis consistent with the Wind Energy Programmatic EIS ROD (BLM 2005a) and IM 2009-043, Wind Energy Development Policy.	<b>B-4082:</b> Avoid wind energy projects in big game crucial winter range, raptor concentration areas, and Greater Sage-Grouse nesting, brood-rearing, and winter areas.	<b>C-4082:</b> Allow wind energy projects on a case-by-case basis in big game winter crucial range, raptor concentration areas, and Greater Sage-Grouse nesting, brood-rearing, and winter areas.	<b>D-4082:</b> Avoid wind energy projects in big game crucial winter range and raptor concentration areas. Wind-energy development would be avoided in age-grouse PHMAs, unless it can be sufficiently demonstrated that the development activity would not result in declines of sage-grouse PHMA populations. Sufficient demonstration of “no declines” should be coordinated with the WGFD and USFWS.	<b>E-4082:</b> Same as Alternative B.	<b>F-4082:</b> Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>A-4083:</b> Use produced water, where reasonable and practical, to develop and enhance waterfowl, special status species, and other wildlife habitats.	<b>B-4083:</b> Do not use produced water to develop and enhance waterfowl, special status species, and other wildlife habitats (Refer to 1043).	<b>C-4083:</b> At the discretion of the BLM and its stakeholders, use produced water to develop and enhance waterfowl, special status species, and other wildlife habitats in accordance with federal, state, and local laws and regulations.	<b>D-4083:</b> At the discretion of the BLM and its stakeholders, use produced water to develop and enhance waterfowl, special status species, and other wildlife habitats in accordance with federal, state, and local laws and regulations.	<b>E-4083:</b> Same as Alternative B.	<b>F-4083:</b> Same as Alternative C.
<b>Biological Resources Fish and Wildlife Resources Special Status Species</b>					
<b>A, B, C, D, E, F -4085:</b> Postpone or modify projects that may affect special status species to protect these species. Consult with USFWS in such cases, as required by the Endangered Species Act.					
<b>A, B, C, D, E, F -4086:</b> Consult with stakeholders early in the permitting process to design projects in a manner that would minimize or avoid potential adverse effects to special status species.					
<b>A, B, C, D, E, F -4087:</b> Assist authorized agencies in the restoration, reintroduction, augmentation, or re-establishment of threatened, endangered, and other special status species populations and/or habitats.					
<b>Biological Resources Fish and Wildlife Resources Special Status Species Greater Sage-Grouse</b>					
<b>A, B, C, D, E, F -4089:</b> Discourage the use of broad-spectrum insecticides where insect control is required. Target pest control toward key problem areas and schedule applications to be effective in minimum doses in Greater Sage-Grouse brood-rearing areas. Field Offices may implement treatments within sage-grouse habitat utilizing reduced agent-area treatments (RAATS) protocols.					
<b>A, B, C, D, E, F -4090:</b> Avoid aerial pesticide spraying in favor of ground applications to minimize drift into non-target areas in Greater Sage-Grouse habitat unless benefits of treatments are likely to outweigh impacts.					
<b>A, B, C, D, E, F -4091:</b> Avoid applying pesticides to Greater Sage-Grouse breeding habitat during the nesting and early brood-rearing season (March 15 through June 30) to reduce the loss of food supply to chicks and avoid the chance of secondary poisoning unless benefits of treatments are likely to outweigh impacts.					

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>A, B, C, D, E, F -4092:</b> Maintain seeps, springs, wet meadows, and riparian vegetation in a functional and diverse condition for young Greater Sage-Grouse and other species that depend on forbs and insects associated with these areas. Consider management actions if desirable green vegetation associated with these wet areas is not available, accessible, or cannot be maintained with current livestock, wildlife, or wild horse use, and the impacts are outweighed by the improved habitat quality.					
<b>A, B, C, D, E, F -4093:</b> Restore Greater Sage-Grouse brood-rearing habitats in riparian/wetland areas.					
<b>A, B, C, D, E, F -4094:</b> Restore lost riparian functioning systems by repairing abnormally incised drainages to raise water tables and increase water storage and brood-rearing habitats within Greater Sage-Grouse habitat.					
<b>A, B, C, D, E, F -4095:</b> Manage vegetation diversity and structure to provide suitable habitat and adequate cover for Greater Sage-Grouse during nesting periods, determined by ecological site description.					
<b>A, B, C, D, E, F -4096:</b> Maintain sagebrush and understory diversity (relative to ecological site description) in crucial seasonal Greater Sage-Grouse habitats unless such removal is necessary to achieve Greater Sage-Grouse habitat management objectives. For example, thinning small patches of dense sagebrush may increase desirable forbs in early brood-rearing habitat.					
<b>A, B, C, D, E, F -4097:</b> Increase the composition and canopy cover of Wyoming big sagebrush, within existing nonnative grass seedings with less than 5 percent sagebrush canopy cover, to greater than or equal to neighboring sagebrush communities or historical levels. (See Shrubland-Salt Desert/Salt Bottom; deeper soiled, and gentler sloped portions of the Shrubland-Salt Desert/Salt Bottom, colored in pink, would be those areas where sagebrush restoration efforts could be conducted.)					
<b>A, B, C, D, E, F -4098:</b> Investigate opportunities to increase sagebrush in lower precipitation zones.					
<b>A, B, C, D, E, F -4099:</b> Plan and construct mining and mineral development activities, to the degree possible given state water rights, to minimize disturbances that would result in alterations to springs and riparian Greater Sage-Grouse habitat. Alternative water sources may be developed to replace natural sources that have been affected or destroyed during these development activities.					
<b>A, B, C, D, E, F -4100:</b> Treat constructed or non-natural water storage impoundments to control mosquito breeding (and the associated spread of West Nile virus), to prevent disease spread to Greater Sage-Grouse on priority basis.					
<b>A, B, C, D, E, F -4101:</b> In cooperation with stakeholders, manage to promote the growth and persistence of native shrubs, grasses, and forbs needed by Greater Sage-Grouse for seasonal food and concealment.					
<b>A, B, C, D, E, F -4102:</b> In cooperation with stakeholders, design and locate fences so as not to disturb important Greater Sage-Grouse habitat areas. Increase the visibility of existing fences in these areas to reduce hazards to flying Greater Sage-Grouse.					
<b>A, B, C, D, E, F -4103:</b> Conduct fire management activities to minimize overall wildfire size and frequency in sagebrush plant communities where Greater Sage-Grouse habitat objectives are at risk. General priorities for habitat protection: Priority # 1 - Protection of Greater Sage-Grouse PHMAs. Priority # 2 - Wyoming big sagebrush communities outside Greater Sage-Grouse PHMAs and habitats recovering from disturbance within or adjacent to Greater Sage-Grouse PHMAs.					

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>A, B, C, D, E, F -4104:</b> Annually Maintain FMPs to incorporate updated sagebrush habitat information as well as fire suppression priorities in sagebrush habitats. Incorporate fire management objectives for the management of sagebrush ecosystems into FMPs. Provide fire management objectives for sagebrush ecosystems to initial attack personnel at the beginning of each fire season.					
<b>A, B, C, D, E, F -4105:</b> Establish fuels treatment projects at strategic locations to minimize size of wildfires and limit loss of Greater Sage-Grouse habitat.					
<b>A, B, C, D, E, F -4106:</b> Reintroduce appropriate fire regimes to limit conifer encroachment into late brood-rearing habitats within Mountain sagebrush plant communities. Take into account invasive herbaceous species and Fire Regime Group and FRCC (measure of departure from historic fire regime) with treatments. Where possible, achieve a balance between treating areas that have significantly departed from the historic fire regime (Condition Class 3) and areas that are functioning within an appropriate fire regime (Condition Class 1).					
<b>A, B, C, D, E, F -4107:</b> Remove conifers encroaching into sagebrush habitats. Prioritize treatments closest to occupied sage-grouse habitats and near occupied leks, and where juniper encroachment is phase 1 or phase 2. Use of site-specific analysis and principles like those included in the Fire and Invasives Assessment Team report (Chambers et. al., 2014) and other ongoing modeling efforts to address conifer encroachment will help refine the location for specific priority areas to be treated.					
<b>A, B, C, D, E, F -4108:</b> The BLM will collaborate with appropriate Federal agencies, and the State of Wyoming as contemplated under Governor Executive Order 2013-3, to: 1) develop appropriate conservation objectives; 2) define a framework for evaluating situations where Greater Sage-Grouse conservation objectives are not being achieved on federal land, to determine if a causal relationship exists between improper grazing (by wildlife or wild horses or livestock) and Greater Sage-Grouse conservation objectives; and 3) identify appropriate site-based action to achieve Greater Sage-Grouse conservation objectives within the framework.					
<b>A-4117:</b> Apply a CSU stipulation for discretionary actions to prohibit surface-disturbing and disruptive activities within ¼ mile of occupied Greater Sage-Grouse leks (21,352 acres).	<b>B-4117:</b> Prohibit surface-disturbing and disruptive activities and apply an NSO restriction within a 0.6-mile radius of the perimeter of occupied Greater Sage-Grouse leks (117,398 acres). For discretionary actions, manage areas within a 0.6- mile radius of the	<b>C-4117:</b> Same as Alternative A.	<b>D-4117: Inside PHMAs</b> The BLM's goal inside sage-grouse PHMAs is to maintain or enhance seasonal habitats thereby providing support for sage-grouse population management objectives of the State of Wyoming.	<b>E-4117:</b> Same as Alternative B.	<b>F-4117:</b> Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	<p>perimeter of occupied Greater Sage-Grouse leks (117,398 acres) as ROW exclusion areas.</p> <p>Apply a CSU stipulation for all Greater Sage-Grouse seasonal habitats (nesting and early brood-rearing habitat and winter concentration areas) to allow only 1 to 15 acres of well location, or 15 acres of habitat removal, per 640-acre section. The one location and cumulative disturbance value will not exceed 5 percent of sagebrush habitat within those same 640 acres.</p> <p>Key Habitat Areas (1,232,583 acres) are closed to mineral leasing and are managed as ROW avoidance areas.</p>	(see above)	<p>Surface occupancy and surface-disturbing activities would be prohibited on or within 0.6-mile radius of the perimeter of occupied sage-grouse leks. The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse.</p> <p>Leases should be a minimum of 640 contiguous acres of federal mineral estate. Smaller parcels may be leased only when 640 contiguous acres of</p>	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	<p>federal mineral estate is not available and leasing is necessary to remain in compliance with laws, regulations and policy; for example, to protect the federal mineral estate from drainage or to commit the federal mineral estate to unit or communitization agreements.</p> <p>Preliminary parcels reviewed for possible offering in a lease sale should comply with this minimum lease size.</p> <p>Expressions of interest that are less than this minimum lease size would be evaluated and modified by the BLM to meet the minimum lease size, where possible, prior to review for possible offering in a lease sale.</p>	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	<p><b>Outside PHMAs</b> Outside sage-grouse PHMAs, the BLM's goal is to sustain important habitats that support core populations and to maintain lek persistence over the long term in sufficient proportions of the sage-grouse population to facilitate movement and genetic transfer between core populations, including those found in adjacent states.</p> <p>Apply an NSO stipulation to prohibit or restrict surface-disturbing activities or surface occupancy within 1/4-mile radius of the perimeter of occupied sage-grouse leks.</p>	(see above)	(see above)
<b>A-4118:</b> Apply a TLS to avoid surface-disturbing and disruptive activities in Greater Sage-	<b>B-4118:</b> Apply a TLS to avoid surface-disturbing and disruptive activities in Greater Sage-	<b>C-4118:</b> Apply a TLS to avoid surface-disturbing and disruptive activities in Greater Sage-	<p><b>D-4118: Inside PHMAs</b> Apply a TLS to restrict disruptive activity within 0.6-</p>	<b>E-4118:</b> Same as Alternative B.	<b>F-4118:</b> Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
Grouse nesting and early brood- rearing habitats within 2 mile radius of the perimeter of the occupied Greater Sage-Grouse leks (834,543 acres), or in identified Greater Sage-Grouse nesting and brood- rearing habitat outside the 2 mile buffer (626,564 acres) from March 15 to July 15 (CYFO seasonal restrictions are from Feb 1 to July 31).	Grouse nesting and early brood- rearing habitat within a 3-mile radius of the perimeter of occupied Greater Sage-Grouse leks (1,215,528 acres), or in identified nesting and early brood-rearing habitat outside the 3-mile lek buffer (310,749 acres), from February 1 to July 31.	Grouse nesting and early brood- rearing habitat within a 2-mile radius of the perimeter of occupied leks (834,543 acres), or in identified Greater Sage-Grouse nesting and brood- rearing habitat outside the 2-mile lek buffer (626,564 acres) from March 15 to July 15.  Exempt Oil and Gas Management Areas and ROW corridors from discretionary wildlife seasonal stipulations.	<p>mile radius of the perimeter of occupied sage-grouse leks from March 15 to June 30.</p> <p><b>Outside PHMAs</b> Apply a TLS to restrict disruptive activity within ¼ mile of occupied sage-grouse leks from March 15 to June 30.</p> <p><b>Inside PHMAs</b> Apply a TLS to prohibit or restrict surface-disturbing and/or disruptive activities in sage-grouse nesting and early brood-rearing habitat within PHMAs, regardless of distance from the lek from March 15 to June 30.</p> <p><b>Outside PHMAs</b> Apply a TLS to prohibit or restrict</p>	(see above)	(see above)



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	surface-disturbing and/or disruptive activities in sage-grouse nesting and early brood-rearing habitat within 2 miles of the lek or lek perimeter of any occupied lek from March 15 to June 30.	(see above)	(see above)
<b>A-4119:</b> Apply a TLS to avoid surface-disturbing and disruptive activities within Greater Sage-Grouse winter concentration areas (172,779 acres) from November 15 to March 14.	<b>B-4119:</b> Avoid surface-disturbing and disruptive activities and apply an NSO restriction within Greater Sage-Grouse winter concentration areas (172,779 acres) from November 15 to March 14.	<b>C-4119:</b> Same as Alternative A, except exempt Oil and Gas Management Areas and ROW corridors from discretionary wildlife seasonal stipulations.	<b>D-4119:</b> Apply a TLS to prohibit or restrict surface-disturbing and disruptive activities in mapped sage-grouse winter habitats/concentrations on areas from December 1 to March 14.	<b>E-4119:</b> Same as Alternative B.	<b>F-4119:</b> Same as Alternative D.
<b>A-4120:</b> No similar action.	<b>B-4120:</b> Same as Alternative A.	<b>C-4120:</b> Same as Alternative A.	<b>D-4120: Density of Disturbances</b> In Greater Sage-Grouse PHMAs, the density of disturbance of energy or mining facilities would be limited to an average of one site per square mile (640 acres) within the	<b>E-4120:</b> Same as Alternative A.	<b>F-4120:</b> Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	<p>DDCT, subject to valid existing rights. The one location and cumulative value of existing disturbances would not exceed 5 percent of habitat. Utilize the Greater Sage-Grouse density disturbance calculation tool as described in Appendix Y. Inside PHMA, all suitable habitat disturbed (any program area) will not exceed 5% within the DDCT area using the DDCT process.</p> <p>Consolidate anthropogenic features from development and transmission on the landscape. Allow on a case-by-case basis high profile structures within Greater Sage-Grouse nesting habitat.</p>	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	<p>Manage PHMAs (1,232,583 acres) as ROW avoidance areas. Work with proponents to design ROW applications to protect Greater Sage-Grouse. Buried utilities constructed in designated utility corridors would not require that a DDCT be conducted.</p> <p>Sagebrush Treatment: Sagebrush eradication is considered disturbance and will contribute to the 5% disturbance factor. In stands with less than 15% cover, treatment should be designed to maintain or improve sagebrush habitat.</p> <p>Sagebrush treatments that maintain sagebrush</p>	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	<p>canopy cover at or above 15% total canopy cover within the treated acres will not be considered disturbance. Treatments that reduce sagebrush canopy cover below 15% will be allowed if all such treated areas make up less than 20% of the suitable sagebrush habitat within the DDCT, and any point within the treated area is within 60 meters of sagebrush habitat with 5% or greater canopy cover. Treatments to enhance sagebrush/grassland will be evaluated based upon the existing habitat quality and the functional level post-treatment. Wildfire burns will be treated as disturbed if</p>	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	sagebrush is reduced below 5 percent unless there is an implementation plan outlining restoration efforts and 3 years of data showing a trend back to suitable habitat. Although seasonal restrictions on activities may apply, vegetation treatments that do not make the habitat unsuitable for Greater Sage-Grouse are not considered in the density calculation.	(see above)	(see above)
<b>A-4121:</b> No requirements to locate facilities or reduce noise levels of equipment to minimize the impacts of continuous noise on Greater Sage-Grouse or other species relying on aural cues for successful breeding currently exist.	<b>B-4121:</b> Limit new noise levels to 10 dBA above ambient noise measured at the perimeter of a lek from 6 PM to 8 AM during initiation of breeding (March 1 to May 15).  Actual thresholds may be adjusted upon evaluation and	<b>C-4121:</b> Limit noise sources to 10 dBA above natural, ambient noise measured at the perimeter of occupied Greater Sage-Grouse leks from March 1 to May 15.  Exempt Oil and Gas Management Areas.	<b>D-4121:</b> The BLM would work with proponents to limit project-related noise where it would be expected to reduce functionality of habitats that support PHMA populations. The BLM would evaluate the potential or limitation of new	<b>E-4121:</b> Same as Alternative B.	<b>F-4121:</b> Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	acceptance of ongoing research.	(see above)	noise sources on a case-by-case basis as appropriate. The BLM's near-term goal would be to limit noise sources that would be expected to negatively impact PHMA sage-grouse populations and to continue to support the establishment of ambient baseline noise levels for occupied PHMA leks. As additional research and information emerges, specific new limitations appropriate to the type of projects being considered would be evaluated and appropriate limitations would be implemented where necessary to minimize potential for noise impacts on sage-grouse PHMA population behavioral cycles. As	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	new research is completed, new specific limitations would be coordinated with the WGFD and partners. Noise levels at the perimeter of the lek should not exceed 10 dBA above ambient noise.	(see above)	(see above)
<b>A-4122:</b> No similar action.	<p><b>B-4122:</b> Motorized vehicle use is limited to designated roads and trails in Greater Sage-Grouse Key Habitat Areas with a seasonal closure from February 1 to July 31.</p> <p>Manage new road construction in and adjacent to Greater Sage-Grouse habitat consistent with applicable restrictions on surface-disturbing and disruptive activities.</p>	<p><b>C-4122:</b> Allow motorized vehicle use in Greater Sage-Grouse PHMAs consistent with other resource objectives.</p> <p>Manage new road construction in and adjacent to Greater Sage-Grouse habitat consistent with applicable restrictions on surface-disturbing and disruptive activities.</p>	<p><b>D-4122:</b> Allow motorized vehicle use in Greater Sage-Grouse PHMAs consistent with other resource objectives, and locate new roads that will have relatively high levels of activity (i.e., accessing multiple wells, housing developments, etc.) greater than 1.9 miles from the perimeter of occupied sage-grouse leks within PHMAs. Locate other new roads greater than 0.6</p>	<b>E-4122:</b> Same as Alternative B.	<b>F-4122:</b> Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	miles from the perimeter of occupied sage-grouse leks within PHMAs. Construct roads to minimum design standards needed for production activities.	(see above)	(see above)
<b>Biological Resources Raptors</b>					
<b>A, B, C, D, E, F -4110:</b> Work with proponents to design powerlines following USFWS guidelines to protect raptors from electrocution and to reduce predation on other special status species. Work with ROW holders to retrofit existing lines.					
<b>Wild Horses</b>					
<b>A, B, C, D, E, F -4145:</b> Base future adjustments to the appropriate management level on monitoring information and multiple use considerations through development of and/or revisions to HMA Plans. Update HMA plans to include Greater Sage-Grouse objectives.					
<b>A, B, C, D, E, F -4146:</b> Manage BLM-administered land within the Fifteenmile and McCullough Peaks HMAs to maintain or enhance conformance with the Wyoming Standards for Healthy Rangelands.					
<b>Land Resources Lands and Realty</b>					
<b>A, B, C, D, E, F -6001:</b> Consider land use authorizations (permits, leases, etc.) on a case-by-case basis consistent with other resource objectives. Do not classify, open, or make available any BLM-administered lands for agricultural leasing or agricultural entry under the Desert Land Entry for one of more of the following reasons: unsuitable topography, presence of sensitive resources or resource conflicts, lack of water or access, small parcel size, or unsuitable soils.					
<b>A, B, C, D, E, F -6010:</b> Acquire private or state lands or interest in land from willing sellers on a case-by-case basis to consolidate land ownership and enhance the ability to manage important recreation opportunities and wildlife habitats such as migration corridors, crucial big game habitat, and riparian/wetland areas. Except for lands acquired using monies from the Westside Irrigation project conveyance described below, exchange is the preferred method of acquisition.					



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<p><b>A-6017:</b> Retain approximately 3,071,909 acres of BLM- administered land. 115,905 acres of BLM-administered land are available for disposal by sale, exchange or other means (Appendix M). Disposal can include none, some, or all of the mineral estate as allowed by 43 CFR 2720 and FLPMA Section 209(b)(1). A mineral potential report would determine if a surface estate disposal includes none, some, or all of the mineral estate.</p>	<p><b>B-6017:</b> Retain approximately 3,164,261 acres of BLM- administered land. 24,042 acres of BLM- administered land are available for disposal by sale, exchange or other means (Appendix M). Disposal can include none, some, or all of the mineral estate as allowed by 43 CFR 2720 and FLPMA Section 209(b)(1). Note: All land actions to acquire or dispose of lands would require a site-specific analysis under NEPA.</p>	<p><b>C-6017:</b> Retain approximately 3,069,967 acres of BLM- administered land. 117,845 acres of BLM- administered land are available for disposal by sale, exchange or other means (Appendix M). Disposal can include none, some, or all of the mineral estate as allowed by 43 CFR 2720 and FLPMA Section 209(b)(1). Note: All land actions to acquire or dispose of lands would require a site-specific analysis under NEPA.</p>	<p><b>D-6017:</b> Retain approximately 3,121,558 acres of BLM-administered land. 66,363 acres of BLM-administered land are available for disposal by sale, exchange or other means (Appendix M). Disposal can include none, some, or all of the mineral estate as allowed by 43 CFR 2720 and FLPMA Section 209(b)(1). A mineral potential report would determine if a surface estate disposal includes none, some, or all of the mineral estate.</p> <p>Lands classified as PHMA for Greater Sage-Grouse will be retained in federal management unless: (1) the agency can demonstrate that disposal of the lands will provide a net</p>	<p><b>E-6017:</b> Same as Alternative B.</p>	<p><b>F-6017:</b> Same as Alternative D.</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	conservation gain to the Greater Sage-Grouse or (2) the agency can demonstrate that the disposal of the lands will have no direct or indirect adverse impact on conservation of the Greater Sage-Grouse. For lands in GHMA that are identified for disposal, the BLM will only dispose of such lands consistent with the goals and objectives of this plan, including, but not limited to, the land use plan objective to maintain or increase Greater Sage-Grouse abundance and distribution. Note: All land actions to acquire or dispose of lands would require a site-specific analysis under NEPA.	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
Land Resources Rights-of-Way and Corridors					
<b>A-6033:</b> Designate ROW corridors as shown on Map 63.	<b>B-6033:</b> Designate ROW corridors as shown on Map 64.	<b>C-6033:</b> Designate ROW corridors as shown on Map 65.	<b>D-6033:</b> Designate ROW corridors as shown on Map 66. In PHMA, major overhead powerlines will not be authorized unless co-located with an existing 115 kilovolt or greater powerline, as close as technically feasible, not to exceed 0.5 miles or within a designated corridor authorized for overhead powerlines. Distribution lines may be authorized when effectively mitigated to protect Greater Sage-Grouse and the Authorized Officer determines that overhead installation is the action alternative with the fewest adverse impacts. Agricultural and residential lines	<b>E-6033:</b> Designate ROW corridors as shown on Map 67.	<b>F-6033:</b> Designate ROW corridors as shown on Map 68.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	will be considered to be adequately mitigated for Greater Sage-Grouse if constructed at least 0.6 mile from the lek perimeter with appropriate timing constraints and installation of raptor deterrents. These ROW authorizations will be subject to approval by the State Director.	(see above)	(see above)
<b>A-6036:</b> Avoid placement of above-ground facilities, such as powerlines, along major transportation routes.	<b>B-6036:</b> Where possible, concentrate placement of above-ground facilities along major transportation routes. Where not possible, do not construct above-ground facilities in exclusion areas, and apply adequate mitigation in consideration of resource values within avoidance areas.	<b>C-6036:</b> Same as Alternative A.	<b>D-6036:</b> Avoid placement of above-ground powerlines within one mile on each side of the Greybull Highway (14-16-20) from the City of Cody to the intersection with Highway 32 near the community of Emblem.  Avoid placement of above-ground powerlines within one mile on each side of Highway 32	<b>E-6036:</b> Same as Alternative B.	<b>F-6036:</b> Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	<p>between Emblem and the BLM-BOR boundary to the north.</p> <p>Avoid placement of above-ground powerlines within one mile on each side of Highway 120 between the City of Cody and the Wyoming-Montana state line.</p> <p>Avoid placement of above-ground powerlines within one mile on each side of Highway 120 between the City of Cody and the Meeteetse Rim to the south.</p> <p>Avoid placement of above-ground powerlines within one mile on each side of Highway 14-16-20 between the City of Cody and the community of Wapiti.</p>	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Land Resources Comprehensive Travel and Transportation Management</b>					
<p><b>A, B, C, D, E, F -6038:</b> Unless otherwise specified in other management actions, motorized vehicle use on BLM-administered land is limited to existing roads and trails on an interim basis until completion of travel management planning. Designation changes from “limited to existing roads and trails” to “limited to designated roads and trails” upon the completion of a travel management plan. Terms “interim existing roads and trails”, or “existing roads and trails” are used throughout the document to identify areas of low travel management planning priority. Interim existing roads and trails may be maintained for continued access until completion of a travel management plan.</p>					
<p><b>A, B, C, D, E, F -6047:</b> Allow temporary closures to motorized vehicle use in areas that pose public health and safety risks, and/or where resource damage is imminent. In PHMA and GHMA, temporary closures will be considered in accordance with 43 CFR subpart 8364 (Closures and Restrictions); 43 CFR subpart 8351 (Designated National Area); 43 CFR subpart 6302 (Use of Wilderness Areas, Prohibited Acts, and Penalties); 43 CFR subpart 8341 (Conditions of Use).</p> <p>Temporary closure or restriction orders under these authorities are enacted at the discretion of the authorized officer to resolve management conflicts and protect persons, property, and public lands and resources. Where an authorized officer determines that off-highway vehicles are causing or will cause considerable adverse effects upon soil, vegetation, wildlife, wildlife habitat, cultural resources, historical resources, threatened or endangered species, wilderness suitability, other authorized uses, or other resources, the affected areas shall be immediately closed to the type(s) of vehicle causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent recurrence. (43 CFR 8341.2) A closure or restriction order should be considered only after other management strategies and alternatives have been explored. The duration of temporary closure or restriction orders should be limited to 24 months or less; however, certain situations may require longer closures and/or iterative temporary closures. This may include closure of routes or areas.</p>					
<b>A-6051:</b> To protect resource values until each route is designated as open or closed in a corresponding travel management plan, motorized vehicle use is limited to existing roads and trails on approximately 2,315,896 acres of BLM-administered	<b>B-6051:</b> To protect resource values until each route is designated as open or closed in a corresponding travel management plan, motorized vehicle use is limited to existing roads and trails on approximately 592,563 acres of BLM- administered	<b>C-6051:</b> To protect resource values until each route is designated as open or closed in a corresponding travel management plan, motorized vehicle use is limited to existing roads and trails on approximately 2,137,574 acres of BLM- administered	<b>D-6051:</b> To protect resource values, until each route is designated as open or closed in a corresponding travel management plan, motorized vehicle use is limited to existing roads and trails on approximately 1,955,943 acres of BLM-administered	<b>E-6051:</b> Same as Alternative B.	<b>F-6051:</b> To protect resource values until each route is designated as open or closed in a corresponding travel management plan, motorized vehicle use is limited to existing roads and trails on approximately 1,295,072 acres of BLM- administered

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
land in the Planning Area.  Areas where motorized vehicle use is limited to existing roads and trails are defined in the corresponding special designation and resource alternatives, and also includes: • Gebo/Crosby Area (13,350 acres)	land in the Planning Area.  Areas where motorized vehicle use is limited to existing roads and trails are defined in the corresponding special designation and resource alternatives.	land in the Planning Area.  Areas where motorized vehicle use is limited to existing roads and trails are defined in the corresponding special designation and resource alternatives, and also includes: • Gebo/Crosby Area (13,350 acres)	land in the Planning Area.	(see above)	land in the Planning Area.
<b>Land Resources Recreation</b>					
<b>A, B, C, D, E, F -6059:</b> Manage recreational use to maintain or improve wetland habitat conditions along intensively used streams and reservoirs, consistent with the Wyoming Standards for Healthy Rangelands or other guidance (see Appendix N).					
<b>A, B, C, D, E, F -6061:</b> Design recreational sites, recreation facility development, and recreational access to avoid riparian habitat areas or develop and manage them in a manner that minimizes effects on riparian habitats. In PHMAs, do not construct new recreation facilities (e.g., campgrounds, trails, trailheads, staging areas) unless the development would have a net conservation gain to Greater Sage-Grouse habitat (such as concentrating recreation, diverting use away from important habitat areas, etc.), or unless the development is required for visitor health and safety or resource protection.					
<b>Land Resources Livestock Grazing Management</b>					
<b>A, B, C, D, E, F -6267:</b> In cooperation, consultation, and coordination with permittees/lessees, cooperators, and interested public, develop and implement appropriate livestock grazing management actions to enhance land health, improve forage for livestock, and meet other multiple use objectives by using the Wyoming Guidelines for Livestock Grazing Management, other appropriate BMPs (see Appendices L and W), and development of appropriate range improvements. The BLM will prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in PHMAs. In setting workload priorities, precedence will be given to existing permits/leases in these areas not meeting Land Health Standards, with focus on those containing riparian areas, including wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (ex., fire) and legal obligations.					

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>A, B, C, D, E, F -6271:</b> Utilize a rangeland health assessment, resource monitoring, or analysis to determine if livestock grazing adjustments in amounts, kinds, or season are necessary. The NEPA analysis for renewals and modifications of livestock grazing permits/leases that include lands within PHMAs will include specific management thresholds based on Greater Sage-Grouse Habitat Objectives Table and Land Health Standards (43 CFR 4180.2) and one or more defined responses that will allow the authorizing officer to make adjustments to livestock grazing that have already been subjected to NEPA analysis.					
<b>A-6274:</b> Monitor all "I" category allotments and AMPs. Treat monitoring of "M" and "C" category allotments as a low priority. Continue monitoring following any adjustments in grazing use to assure allotment management objectives are being met.	<b>B-6274:</b> Monitor livestock grazing only on those allotments not meeting land health standards due to currently permitted livestock grazing.	<b>C-6274:</b> Vary the intensity of livestock grazing monitoring, with higher priority given to "I" category allotments and those allotments not meeting land health standards due to current livestock grazing.	<b>D-6274:</b> Vary the intensity of livestock grazing monitoring, with higher priority given to "I" category allotments and those allotments not meeting land health standards due to livestock grazing.	<b>E-6274:</b> Same as Alternative B.	<b>F-6274:</b> Same as Alternative D.
<b>A-6276:</b> Apportion additional sustained yield forage to meet multiple-use objectives and to satisfy suspended permitted use of permittees/lessees in the allotment where the forage is available (43 CFR 4110.1-3b).	<b>B-6276:</b> Apportion additional sustained yield forage primarily to wild horses and wildlife.	<b>C-6276:</b> Apportion additional sustained yield forage primarily to satisfy suspended permitted use of permittees/lessees in the allotment where the forage is available.	<b>D-6276:</b> Apportion additional sustained yield forage, based on monitoring, to satisfy suspended permitted use of permittees/lessees in the allotment and to meet multiple-use objectives where the forage is available.	<b>E-6276:</b> Same as Alternative B.	<b>F-6276:</b> Same as Alternative D.



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>A-6277:</b> On a case-by-case basis, allow issuance of permits/leases for livestock grazing for parcels that are not included in a grazing allotment.	<b>B-6277:</b> Do not allow issuance of permits/leases on parcels that are not included in a grazing allotment. Allocate forage on such parcels to watershed protection, habitat, or other resource uses.	<b>C-6277:</b> Same as Alternative A.	<b>D-6277:</b> On a case-by-case basis, allow issuance of permits/leases for livestock grazing for parcels that are not included in a grazing allotment, and where such permits/leases are not issued, allocate forage on such parcels to meet other multiple-use objectives.	<b>E-6277:</b> Same as Alternative B.	<b>F-6277:</b> Same as Alternative D.
<b>A-6278:</b> Management of reserve common allotments is not considered.	<b>B-6278:</b> Establish and manage future reserve common allotments as opportunities arise within the Planning Area on a voluntary basis.	<b>C-6278:</b> Do not establish reserve common allotments within the Planning Area.	<b>D-6278:</b> Establish and manage future reserve common allotments as opportunities arise within the Planning Area on a voluntary basis, plus establish and manage reserve common allotments on abandoned allotments on a case-by-case basis and attempt to utilize each allotment at least every five years.	<b>E-6278:</b> Same as Alternative B.	<b>F-6278:</b> Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	At the time a permittee or lessee voluntarily relinquishes a permit or lease, the BLM will consider whether the public lands where that permitted use was authorized should remain available for livestock grazing or be used for other resource management objectives, such as reserve common allotments or fire breaks.	(see above)	(see above)
<b>A-6279:</b> Prohibit the placement of salt, mineral, or forage supplements within ¼ mile of water, wetlands, riparian areas, reclaimed or reforested areas, or as determined by the authorized officer.	<b>B-6279:</b> Same as Alternative A but prohibit within a ½ mile buffer.	<b>C-6279:</b> Allow placement of salt, mineral, or forage supplements to maximize livestock use.	<b>D-6279:</b> Prohibit the placement of salt, mineral, or forage supplements within ¼ mile of water, wetlands, riparian areas, reclaimed or reforested areas, or as determined by the authorized officer.	<b>E-6279:</b> Same as Alternative B.	<b>F-6279:</b> Same as Alternative A.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>A-6281</b> Design range improvement projects, including vegetation treatments, to meet multiple-use objectives, mitigate impacts to other resource values, and meet allotment management objectives.	<b>B-6281:</b> In cooperation with interested public, design range improvement projects, including vegetation treatments, to maximize multiple use benefits. Strive to maximize funding by utilizing, leveraging, and partnering with outside funding sources.	<b>C-6281:</b> In cooperation with permittees and interested public, design range improvement projects, including vegetation treatments, to maximize livestock forage use while meeting multiple-use objectives. Strive to maximize funding by utilizing, leveraging, and partnering with outside funding sources.	<b>D-6281:</b> Design range improvement projects, including vegetation treatments, to meet multiple-use objectives, mitigate impacts to other resource values, and meet allotment management objectives.	<b>E-6281:</b> Same as Alternative B.	<b>F-6281:</b> Same as Alternative A.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>A-6283:</b> No similar action.	<b>B-6283:</b> Same as Alternative A.	<b>C-6283:</b> Same as Alternative A.	<b>D-6283:</b> Allotments within PHMAs, focusing on those containing riparian areas, including wet meadows, will be prioritized for field checks to help ensure compliance with the terms and conditions of the grazing permits. Field checks could include monitoring for actual use, utilization, and use supervision.	<b>E-6283:</b> Same as Alternative A.	<b>F-6283:</b> Same as Alternative D.
<b>Special Designations ACECs Proposed Greater Sage-Grouse Priority Habitat Area ACECs</b>					
<b>A-7179:</b> No ACEC currently exists.	<b>B-7179:</b> No ACEC would be designated.	<b>C-7179:</b> Same as Alternative B.	<b>D-7179:</b> No ACEC would be designated, however, implement mitigation and minimization guidelines and required design features, including specific measures for Greater Sage-Grouse (refer to Appendix L).  Incorporate Greater Sage-Grouse specific	<b>E-7179:</b> Implement mitigation and minimization guidelines and required design features, including specific measures for greater sage-grouse (refer to Appendix L). Incorporate greater sage- grouse specific measures into project proposals as required design features.	<b>F-7179:</b> Same as Alternative E.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	measures into project proposals as required design features or mitigation for any authorized federal action, regardless of surface ownership. Require the development of a wildlife resource monitoring and mitigation plan to address potential impacts from mineral development on wildlife populations and/or habitat on a case-by- case basis.	(see above)	(see above)
<b>A-7230:</b> No ACEC currently exists.	<b>B-7230:</b> No ACEC would be designated.	<b>C-7230:</b> Same as Alternative B.	<b>D-7230:</b> No ACEC would be designated, except using the following travel management criteria: •During subsequent travel management planning, all routes within PHMAs would undergo a route evaluation to determine its purpose and need	<b>E-7230:</b> Complete activity level travel plans within 5 years of the record of decision. During activity level planning, where appropriate, designate routes in the Greater Sage-Grouse Key Habitat Areas ACEC with current administrative/agency purpose or need to administrative access	<b>F-7230:</b> Same as Alternative E, except applies to the Greater Sage-Grouse PHMAs ACEC.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	<p>and the potential resource and/or user conflicts from motorized travel. Where resource and/or user conflicts outweigh the purpose and need for the route, the route would be considered for closure or considered for relocation outside of sensitive greater sage-grouse habitat.</p> <ul style="list-style-type: none"> <li>•During implementation-level travel planning, threats to greater sage-grouse and their habitat would be considered when evaluating route designations and/or closures.</li> <li>•During subsequent travel management planning, routes within PHMAs that do not have a purpose or need would be</li> </ul>	<p>only. Route by route analysis (referred also as minimization or designation criteria as stated in 43 CFR 8342.1) in sage-grouse Key Habitat Areas will recognize sage-grouse habitat as a predominant management objective, as well as the priority resource to manage. The route by route analysis will determine future travel management plans within sage-grouse Key Habitat Areas, which would be designed to minimize impacts to sage-grouse habitat. Travel management planning will evaluate the need for closures of routes not desired for public purposes, including seasonal closures, and designate routes with current administrative/agency purpose or need to</p>	(see above)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	<p>considered for closure.</p> <ul style="list-style-type: none"> <li>•During subsequent travel management planning, routes within PHMAs that are duplicative parallel, or redundant would be considered for closure.</li> <li>•During subsequent travel management planning, OHV timing limitations would be considered in important seasonal habitats where OHV use is a threat.</li> <li>•During subsequent travel management planning, consider limiting snow machine travel to designated routes or consider seasonal closures in greater sage-grouse wintering areas from November 1 through March 31.</li> <li>•During subsequent travel management</li> </ul>	<p>administrative access only as well as seasonal closures. Routes designated as closed will be restored when necessary using appropriate seed mixtures for sage-grouse ecological conditions.</p>	(see above)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	<p>planning, routes in PHMAs not required for public access or recreation with a current administrative/agency purpose or need would be evaluated for administrative access only.</p> <ul style="list-style-type: none"> <li>•During subsequent travel management planning, prioritize restoration of routes not designated in a Travel Management Plan within PHMAs.</li> <li>•During subsequent travel management planning, consider using seed mixes or transplant techniques that will maintain or enhance greater sage-grouse habitat when rehabilitating linear disturbances.</li> <li>•During subsequent travel management planning, consider scheduling road maintenance to</li> </ul>	(see above)	(see above)



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	avoid disturbance during sensitive periods and times to the extent practicable. Use time of day limits (after 10:00 AM to 7:00 PM) to reduce impacts on greater sage-grouse during breeding and nesting periods.	(see above)	(see above)
<b>A-7287:</b> No ACEC currently exists.	<b>B-7287:</b> No ACEC would be designated.	<b>C-7287:</b> Same as Alternative B.	<p><b>D-7287:</b> The Greater Sage-Grouse adaptive management plan provides regulatory assurance that unintended negative impacts to Greater Sage-Grouse habitat will be addressed before consequences become severe or irreversible.</p> <p>Adaptive management triggers are essential for identifying when potential management changes are needed</p>	<b>E-7287:</b> This RMP includes the requirements for the development of EIS/project level adaptive management strategies in support of the population management objectives for greater sage-grouse set by the State of Wyoming (State of Wyoming Office of the Governor, EO 2011-5 [Wyoming Office of the Governor 2011]). These adaptive management strategies will be developed in partnership with the WGFD, project	<b>F-7287:</b> Same as Alternative E.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	<p>in order to continue meeting Greater Sage-Grouse conservation objectives. With respect to sage-grouse, all regulatory entities in Wyoming, including the BLM and FS, use soft and hard triggers. Soft and hard triggers are focused on three metrics: 1) number of active leks, 2) acres of available habitat, and 3) population trends based on annual lek counts. See Appendix Y for more information on soft and hard triggers.</p> <p><b>Soft Triggers Response</b> Soft triggers require immediate monitoring and surveillance to determine causal factors and may</p>	<p>proponents, partners, and stakeholders, incorporating the best available science. The purpose of these strategies will be to ensure amelioration of greater sage-grouse population declines by providing the framework in which management will be changed if negative impacts are detected through a rigorous monitoring program. Wyoming BLM typically manages the public lands to meet objectives of the State of Wyoming. At this time the population objective is to maintain at least 67 percent of the 2005-2008 Greater Sage-Grouse Core Area Population within the State of Wyoming. Wyoming BLM and USFS will coordinate with the State of Wyoming in implementation</p>	(see above)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	<p>require curtailment of activities in the short or long term, as allowed by law. The project level adaptive management strategies will identify appropriate responses where the project's activities are identified as the causal factor. The management agency (BLM and/or FS) and the adaptive management working group will implement an appropriate response strategy to address causal factors not attributable to a specific project or to make adjustments at a larger regional or statewide level.</p> <p><b>Hard Trigger Response</b> Upon determination that a hard trigger</p>	<p>planning to develop a statewide adaptive management plan, including mitigation where appropriate, and a framework to evaluate causal factors. The adaptive management plan will identify adaptive management triggers; indicators to be measured; and appropriate mitigation, restoration, and reclamation actions, including targets and benchmarks for responses. The plan will include both short-term and long-term monitoring. The adaptive management plan will guide the development of project level adaptive management strategies.</p>	(see above)

2. Alternatives (Table 2-4b. Part II 2015 Bighorn Basin RMP Revision Management Actions by Alternative)

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	has been tripped, the BLM and/or USFS will immediately defer issuance of discretionary authorizations for new actions within the Biologically Significant Unit for a period of 90 days. In addition, within 14 days of a determination that a hard trigger has been tripped, the AMWG will convene to develop an interim response strategy and initiate an assessment to determine the causal factor or factors (hereafter called the causal factor assessment).	(see above)	(see above)

**Table 2-4c.** Alternatives analyzed in detail during the 2015 planning effort and incorporated into the 2019 process. **Table 2-4c** is in two parts. Part I are the LUP 2015 ARMPA Goals and Objectives by Alternative analyzed in 2015 and Part II are the Management Actions analyzed in 2015.

**Table 2-4c**  
**Part I 2015 Buffalo RMP Revision Goals and Objectives by Alternative**

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>Goals</b>				
<b>PR:2</b> Soil quality is maintained, improved, or restored while supporting other resource values.				
<b>PR:3</b> Watershed, surface water, and groundwater resources are consistent with applicable state and federal standards and regulations.				
<b>FM:1</b> Life, property, and resource values are protected.				
<b>FM:2</b> Plant community and hazardous fuel objectives are achieved.				
<b>BR:1</b> Vegetation resources sustained in desired ecological conditions.				
<b>BR:3</b> A diverse landscape of native grasslands and shrublands sustained in desired ecological conditions.				
<b>BR:4</b> Health and functional capabilities in riparian/wetland systems.				
<b>BR:5</b> Healthy native communities with manageable levels of pathogens, undesirable, invasive, non-native, or noxious species.				
<b>BR:6</b> Distribution and abundance of all native and desirable non-native species are optimized.				
<b>BR:7</b> Sufficient functional habitat for native and desirable non-native species.				
<b>BR:8</b> Fish and wildlife are able to move between areas of functionally intact habitat.				
<b>BR:10</b> Distribution and abundance of all special status species are optimized.				
<b>BR:11</b> Sustainable sagebrush habitats that provide the quantity, quality, and connectivity that is necessary to maintain sustainable populations of Greater Sage-Grouse and other special status species.				
<b>BR:12</b> Successful restoration and rehabilitation of potential Greater Sage-Grouse habitat across the planning area.				
<b>LR:2</b> Manage land tenure adjustments and land use authorizations to meet the needs of the customers while protecting other resource values.				
<b>LR:4</b> Primary infrastructure corridors and subsidiary routes consistent with other resource values.				
<b>LR:5</b> A safe transportation network that supports other resource values.				
<b>LR:8</b> Recreation facilities balance public demand with other resource values.				
<b>LR:11</b> Public rangelands provide for a sustainable level of livestock grazing consistent with other resource values and sustained yield.				

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>Objectives</b>				
<b>PR:2.1</b> Achieve and maintain Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming.				
<b>PR:2.3</b> Rehabilitate all surface-disturbing activities consistent with applicable laws, regulations, and policies.				
<b>PR:3.1</b> BLM actions maintain or improve watershed, wetland, and riparian functions to support desired surface-flow regimes and water quality.				
<b>MR:1.1</b> Provide opportunities for the exploration and development of locatable minerals, as well as mill and tunnel site operations, while avoiding or mitigating the effects of these activities on other resource values so that unnecessary or undue degradation is prevented.				
<b>MR:2.1</b> Maintain coal leasing and exploration, while minimizing impacts to other resource values.				
<b>MR:5.1</b> Provide opportunities for exploration and development of salable minerals while avoiding or mitigating effects to other resource values.				
<b>BR:1.1</b> Manage communities for a diversity of native species, habitats, seral stages and distribution.				
<b>BR:1.2</b> Manage for healthy vegetation communities to ensure their capability to provide sufficient plant composition, cover and litter accumulation to protect soils from wind and water erosion and enhance nutrient cycling and productivity.				
<b>BR:1.3</b> Reclaim areas affected by surface-disturbing activities to promote healthy functioning native plant communities.				
<b>BR:1.4</b> Manage habitat to facilitate the conservation, recovery and maintenance of populations of native, desirable non-native, and special status plant species consistent with appropriate local, state, and federal conservation requirements and management plans.				
<b>BR:1.5</b> Manage for healthy native plant communities by reducing and managing invasive, nonnative noxious species.				
<b>BR:3.1</b> Manage for a full range of sagebrush, shrub, and grassland communities with diverse native species and subspecies, composition, canopies, densities, and age classes across the landscape.				
<b>BR:4.1</b> Manage lotic and lentic wetland/riparian systems at a minimum to achieve and/or maintain PFC.				
<b>BR:4.2</b> Improve riparian systems and wetlands in systems operating at less than PFC.				
<b>BR:4.3</b> Manage contributing watersheds to sustain riparian health and water quality.				
<b>BR:4.4</b> Manage and enhance riparian and wetland systems for plant, insect, fish and wildlife species that depend on these systems for their health and well being				
<b>BR:4.5</b> CBNG created riparian and wetland systems will be evaluated, retained, or reclaimed to support vegetation and other resource values.				
<b>BR:5.1</b> Develop and maintain baseline information regarding the extent, location and potential impact(s) of pest species. From this baseline information develop and implement an Integrated Pest Management Plan. Integrated management would be used to control, suppress, and eradicate, where possible, noxious and invasive species per BLM Handbook H-1740-2. Manage noxious or invasive species treatments to maintain or improve Greater Sage-Grouse habitat. Apply Required Design Features as Conditions of Approval, such as those in Appendix B. Encourage the use of voluntary BMPs.				

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>BR:5.2</b> Facilitate support for an integrated approach for the detection, management, or eradication of new and minor infestations.				
<b>BR:5.3</b> Develop, implement, and maintain a management program for annual bromes and other invasive or undesirable species not listed as noxious, utilizing the best available science and BMPs.				
<b>BR:5.4</b> Coordinate with APHIS to facilitate pest and predator management.				
<b>BR:6.1</b> BLM actions prevent and/or reduce impacts to desirable species.				
<b>BR:6.2</b> In coordination with cooperating agencies, develop and implement an achievable Wildlife Monitoring and Protection Plan.				
<b>BR:6.3</b> Maintain, restore, or improve the continuity and productivity of fish and wildlife habitats to support WGFD population objectives.				
<b>BR:6.4</b> Develop and implement an adaptive conservation and management strategy.				
<b>BR:7.1</b> Evaluate, update, and revise as necessary existing Wildlife Habitat Management Plans.				
<b>BR:7.2</b> Develop Wildlife Habitat Management Plans for areas with important habitats.				
<b>BR:7.3</b> Manage habitat consistent with local, state, and federal management plans, as applicable.				
<b>BR:7.4</b> Continue to gather habitat and population data while concurrently monitoring human and natural disturbance dynamics to improve habitat management.				
<b>BR:7.5</b> Provide security habitat, sufficient in amount and distribution, to support WGFD population objectives for fish and wildlife to escape from disruptive activities.				
<b>BR:7.6</b> Maintain and provide functioning sagebrush habitat to sustain sagebrush obligates and other sagebrush dependent species.				
<b>BR:8.1</b> Develop Travel Management Plans for areas important for fish and wildlife while supporting other resource values.				
<b>BR:8.2</b> Develop a ROW Management Plan for utility corridors to manage impacts to areas of habitat important to fish and wildlife consistent with other resource values.				
<b>BR:8.3</b> Land acquisitions should support desirable fish and wildlife populations or habitat.				
<b>BR:8.4</b> Restore functionality to areas of degraded habitat important to fish and wildlife populations consistent with other resource values.				
<b>BR:10.2</b> Manage BLM-administered lands to maintain or restore populations and habitat consistent with conservation requirements for special status species.				
<b>BR:10.3</b> Develop effective conservation and cooperative management plans, strategies, and agreements with stakeholders.				
<b>BR:11.1</b> Maintain large patches of high-quality interconnected sagebrush habitats, with emphasis on patches occupied by Greater Sage-Grouse.				
<b>BR:11.2</b> Maintain connectivity between and within sagebrush habitats with emphasis on communities occupied by Greater Sage-Grouse.				
<b>BR:12.1</b> Reestablish sagebrush corridors, where feasible, between Greater Sage-Grouse occupied habitats.				
<b>BR:12.2</b> Reconnect large patches of sagebrush habitat with emphasis on reconnecting patches occupied by stronghold and isolated populations of Greater Sage-Grouse.				

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E Proposed Plan
<b>LR:2.1</b> Develop and maintain a land-ownership pattern that improves access for public use, and improves management and protection of BLM-administered lands by: <ol style="list-style-type: none"> <li>1. Acquiring legal easements to BLM-administered lands for recreational opportunities and administrative use.</li> <li>2. Responding to requests for land authorizations for access needs.</li> <li>3. Responding to requests for land transfers.</li> <li>4. Giving priority to land exchanges and/or sales on custodial grazing allotments while supporting other resource values.</li> </ol>				
<b>LR:4.1</b> Manage public lands to meet the needs of ROW customers while supporting other resource values.				
<b>LR:4.3</b> Identify infrastructure corridors consistent with other resource values.				
<b>LR:4.4</b> Make opportunities available for exploration and development of CO2 sequestration research and activities, while avoiding or mitigating impacts of these activities on other resource values.				
<b>LR:5.1</b> Utilize a comprehensive travel management approach to sustain and enhance access, recreational experiences, and support other resource values.				
<b>LR:5.3</b> Designate all BLM-administered lands as Open, Limited, or Closed to OHV use, in consideration of other resource values.				
<b>LR:5.4</b> Provide for acceptable modes of legal public access that supports other resources, reduces conflicts, and provides for diverse recreation opportunities.				
<b>LR:7.2</b> Manage recreation to protect resources, maintain public health and safety, and to provide a diverse array of benefits to the public.				
<b>LR:8.1</b> Design and maintain recreation sites to meet acceptable health and safety standards while supporting other resource values.				
<b>LR:11.2</b> Manage forage to maintain or improve ecological states and achieve and/or maintain Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming.				
<b>LR:11.3</b> Monitor and evaluate rangeland health and condition in coordination with cooperators, and lessees to determine if, and what additional management is needed to achieve desired ecological state.				



**Table 2-4c**  
**Part II 2015 Buffalo RMP Revision Management Actions by Alternative**

Alternative A	Alternative B	Alternative C	Alternative D
<b>Physical Resources Soil</b>			
<b>A, B, C, D Soil -1002:</b> Evaluate the effects of a proposed surface-disturbing activity to the soil resource using NRCS Soil Survey data and/or onsite investigation. Apply mitigation measures if necessary, relocate the activity to a more suitable soil type, or deny the authorization.			
<b>Physical Resources Water</b>			
<b>A, B, C, D Water 1007:</b> Design and manage land use and surface-disturbing activities to reduce channel and bank erosion and the associated loss of riparian habitats.			
<b>A Water 1013:</b> Prohibit surface disturbance within 500 feet of any spring, reservoir, water well, or perennial stream, unless the prohibition is waived by the authorized officer.	<b>B Water 1013:</b> Prohibit surface-disturbing activities within 500 feet of springs, non-CBNG reservoirs, water wells, or perennial streams and associated riparian habitat.	<b>C Water 1013:</b> Allow surface-disturbing activities within 500 feet of springs, non-CBNG reservoirs, water wells, or perennial streams and associated riparian habitat.	<b>D- Water 1013:</b> Allow surface disturbance within 500 feet of springs, non-CBNG reservoirs, water wells, or perennial streams where water and other resource objectives (including, but not limited to soil, slope, and vegetation) can be met.
<b>A Water 1016:</b> No previous decision; considered on a project-specific basis.	<b>B Water 1016:</b> Require removal and reclamation of unneeded CBNG reservoirs for removal and reclamation.	<b>C Water 1016:</b> Require removal and reclamation of unneeded CBNG reservoirs on BLM surface and where requested on private surface.	<b>D Water 1016:</b> Evaluate unneeded reservoirs for removal and reclamation.
<b>Mineral Resources Leasable Minerals Oil/Gas and Geothermal</b>			
<b>A, B, C, D O&amp;G 2001:</b> Continue to require lessees to conduct operations in a manner that minimizes adverse impacts to other resources and other land uses and users.			
Where the federal government owns the mineral estate in Greater Sage-Grouse habitat and the surface is in non-federal ownership, apply to BLM authorizations regulating the Federal lessee the same stipulations, COAs, and/or conservation measures and RDFs applied if the mineral estate is developed on BLM-administered surface lands in that management area, to the maximum extent permissible under existing authorities, and in coordination with the landowner.			
Where the federal government owns the surface and the mineral estate is in non-federal ownership in Greater Sage-Grouse habitat, apply appropriate surface use COAs, stipulations, and mineral RDFs through ROW grants or other surface management instruments, to the maximum extent permissible under existing authorities, in coordination with the mineral estate owner/lessee.			

Alternative A	Alternative B	Alternative C	Alternative D
<b>Fire and Fuels Management</b>			
<b>A, B, C, D Fire 3001:</b> A Fire Management Plan for the Wyoming High Plains District will be maintained that more specifically outlines management response and implementation actions for wildland fire response of public lands.			
<b>A, B, C, D Fire 3002:</b> A resource advisor appropriate to the potentially affected resource will be consulted, or assigned, to all wildland fires that involve or threaten BLM-administered lands.			
<b>A, B, C, D Fire 3006:</b> Implement the BLM Emergency Stabilization and Burned Area Rehabilitation standards located in the DOI Interagency Burned Area Emergency Response Guidebook (DOI 2004) and BLM Burned Area Emergency Stabilization and Rehabilitation Handbook (BLM 2007c) as needed.			
<b>A, B, C, D Fire 3007:</b> Use the District Fire Management Plan to implement the objectives of this RMP; to address fire management on a landscape scale, to maintain or improve conditions in fire-adapted landscapes, and to accomplish resource management objectives.			
<p><b>A Fire 3011:</b> All fires are suppressed, though variable strategies are used. Priority response is given to wildfires where there are high value resources or where fires may spread to other land ownerships. Full protection is used in high value areas such as developed areas or where sensitive resources would be adversely affected by fire. Appropriate suppression actions are used in low value areas or where fire control is very difficult or extremely hazardous to firefighting personnel.</p> <p>No portion of the planning area is available to manage fires for multiple objectives.</p>	<p><b>B Fire 3011:</b> Response to wildland fires varies from full protection in areas where fire is undesirable to monitoring fire behavior in areas where fire can be managed to accomplish other resource objectives.</p> <p>The entire planning area is available to manage wildfire for multiple objectives.</p>	<p><b>C Fire 3011:</b> Use full protection strategies and tactics across the entire planning area.</p> <p>No portion of the planning area is available to manage fires for multiple objectives</p>	<p><b>D Fire 3011:</b> Response to wildfire varies from full protection in areas where fire is undesirable to monitoring fire behavior in areas where fire can be managed to accomplish other resource objectives.</p> <p>The entire planning area is available to manage wildfire for multiple objectives.</p>

Alternative A	Alternative B	Alternative C	Alternative D
<b>A Fire 3012:</b> Restrict the use of some types of suppression equipment in some areas.	<b>B Fire 3012:</b> Limit heavy equipment usage to existing roads and trails, or immediately adjacent to them, in areas not identified as full protection.	<b>C Fire 3012:</b> Utilize heavy equipment with few constraints and consistent with other resource values.	<p><b>D Fire 3012:</b> Prohibit heavy equipment use within the following areas, except when human safety is at risk or if the expected fire effects would cause more resource damage than the use of heavy equipment:</p> <ul style="list-style-type: none"> <li>• Areas of cultural resource sensitivity</li> <li>• Riparian/wetland habitats</li> <li>• Identified</li> </ul> <p>Greater Sage-Grouse important habitats: Core Population Area, nesting, brood-rearing, Connectivity Corridor, or winter habitat</p> <ul style="list-style-type: none"> <li>• Areas of highly erosive soils</li> <li>• Lands with wilderness characteristics</li> </ul> <p>Limit heavy equipment usage to existing roads and trails, or immediately adjacent to them, in areas not identified as full protection.</p>
<b>A Fire 3013:</b> Give priority to suppressing fires in or threatening higher value resources (commercial timber areas, developed recreation sites, and WUI areas) and keeping fires from spreading onto private, state, or other federal lands.	<p><b>B Fire 3013:</b> Use protection strategies in the following areas:</p> <ul style="list-style-type: none"> <li>• WUI</li> <li>• Wildland Industrial Interface</li> <li>• Developed recreation sites</li> <li>• Commercial timber areas</li> <li>• Where sensitive resources would be adversely affected by fire (i.e., within 4.0 miles of Greater Sage-Grouse leks or winter concentration areas)</li> </ul>	<b>C Fire 3013:</b> Use full protection strategies across the entire planning area.	<p><b>D Fire 3013:</b> Use protection strategies in the following areas:</p> <ul style="list-style-type: none"> <li>• WUI</li> <li>• Wildland Industrial Interface</li> <li>• Developed recreation</li> <li>• Developed electronic/ communication sites of all types</li> <li>• Where sensitive or high value resources would be adversely affected by fire (i.e., Greater Sage-Grouse Core Population Area and Connectivity Corridor)</li> </ul>

Alternative A	Alternative B	Alternative C	Alternative D
<b>A Fire 3014:</b> Rehabilitate fire-damaged lands to meet resource objectives; repair suppression damages as necessary.	<b>B Fire 3014:</b> Rehabilitate all fire-damaged lands; repair all suppression damages.	<b>C Fire 3014:</b> Repair suppression related damages only.	<b>D Fire 3014:</b> Evaluate all fires and rehabilitate fire-damaged lands as needed to meet resource objectives. Repair suppression damages as necessary.
<b>A Fire 3015:</b> Use wildland fire and other vegetation treatments to support vegetation and wildlife habitat objectives.	<b>B Fire 3015:</b> Use wildland fire and other vegetation treatments to restore fire-adapted ecosystems and to reduce hazardous fuels.	<b>C Fire 3015:</b> Use wildland fire and other vegetation treatments to restore fire-adapted ecosystems, enhance forage for commodity production, and to reduce hazardous fuels.	<b>D Fire 3015:</b> Use wildland fire and other vegetation treatments to meet desired management objectives.
<b>Biological Resources Vegetation Forests and Woodlands</b>			
<b>A Forest-4006:</b> No previous decision; woodland encroachment evaluated on a project-specific basis.	<b>B Forest-4006:</b> Allow woodlands to expand into other communities.	<b>C Forest-4006:</b> Actively manage woodlands to prevent expansion into other communities.	<b>D Forest-4006:</b> Actively manage woodlands to prevent expansion into other communities consistent with multiple resource values, on a project-specific basis.
<b>Biological Resources Vegetation Grassland and Shrubland Communities</b>			
<b>A, B, C, D GS 4001:</b> Manage vegetative communities in accordance with Wyoming Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming.			
<b>A, B, C, D GS 4002:</b> Complete vegetation inventories. When applicable do so in coordination with stakeholders.			
<b>A, B, C, D GS 4005:</b> Manage grasslands and shrublands to protect, preserve, or enhance plant communities.			
<b>A, B, C, D GS 4006:</b> Manage the siting of facilities and related infrastructure (utility corridors, roads) to reduce impacts to vegetation resources.			
<b>A, B, C, D GS 4007:</b> Manage the planning and development of travel routes, recreational uses, mineral exploration and development sites, and ROW to reduce impacts to the vegetation resource.			
<b>A, B, C, D GS 4008:</b> Develop a contingency plan addressing catastrophic natural events such as drought, wildfires, and large-scale pest infestations, incorporating strategies that best protect vegetation resources.			
<b>A, B, C, D GS 4009:</b> Work with landowners on split estate lands to reestablish disturbed sites to healthy plant communities in accordance with the ecological site potential.			

Alternative A	Alternative B	Alternative C	Alternative D
<b>Biological Resources Vegetation Riparian and Wetland Communities</b>			
<b>A, B, C, D Riparian 4002:</b> Prioritize, and develop activity and implementation plans to manage riparian systems to be at or above, or continue to be improving toward, PFC while achieving the Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming.			
<b>A, B, C, D Riparian 4003:</b> Manage riparian and wetland systems to enhance forage conditions and improve water quality. Manage all riparian systems with sensitive species concerns to a succession stage appropriate for that system, including vertical as well as horizontal vegetative structure and composition.			
<b>A, B, C, D Riparian 4004:</b> Expand and enhance riparian/wetland systems and habitat in cooperation with stakeholders.			
<b>A, B, C, D Riparian 4005:</b> Prevent degradation, loss, or destruction of riparian/wetland habitat.			
<b>A Riparian 4008:</b> Prohibit surface-disturbing activities within 500 feet of springs, reservoirs, water wells, or perennial streams unless the prohibition is waived by the authorized officer.	<b>B Riparian 4008:</b> Prohibit surface-disturbing and disruptive activities within 500 feet of riparian/wetlands systems, aquatic habitats, and floodplains.	<b>C Riparian 4008:</b> Allow surface-disturbing and disruptive activities within 500 feet of riparian/wetlands systems, aquatic habitats, and floodplains consistent with other resource values.	<b>D Riparian 4008:</b> Allow surface disturbance within 500 feet of riparian/wetlands systems and aquatic habitats where riparian/wetland and other resource objectives (including, but not limited to soil, slope, and vegetation) can be met.
<b>A Riparian 4010:</b> No previous decision; considered on a project-specific basis.	<b>B Riparian 4010:</b> Identify and manage systems capable of achieving DFC.	<b>C Riparian 4010:</b> Do not identify and manage systems capable of achieving DFC.	<b>D Riparian 4010:</b> Identify and manage systems capable of achieving DFC.
<b>A Riparian 4011:</b> No previous decision; considered on a project-specific basis.	<b>B Riparian 4011:</b> Restore vegetation in all CBNG supported wetland and riparian systems.	<b>C Riparian 4011:</b> Restore vegetation only on direct CBNG disturbance areas (e.g., dams, reservoirs, etc.).	<b>D Riparian 4011:</b> Restore vegetation in CBNG supported wetland and riparian systems on BLM surface and/or lease in accordance with the ecological site potential.
<b>Biological Resources Vegetation Invasive Species and Pest Management</b>			
<b>A, B, C, D Pest 4002:</b> Manage designated pests on public surface lands using an Integrated Pest Management Approach consistent with DOI Manual 517 (BLM 2007f).			
<b>A, B, C, D Pest 4003:</b> Limit surface disturbance to the minimum needed for safe project completion to limit the spread of noxious weeds.			
<b>A, B, C, D Pest 4004:</b> Use certified noxious weed seed-free products on all BLM-administered projects and lands.			
<b>A, B, C, D Pest 4005:</b> Implement and maintain cooperative integrated pest management programs with county weed and pest districts, state agencies, private industry, grazing lessees, and other stakeholders in conjunction with BLM weed and pest control work on public lands adjoining deeded and state lands.			

Alternative A	Alternative B	Alternative C	Alternative D
<b>A, B, C, D Pest 4006:</b> Require surface or vegetation disturbance areas, including areas formerly receiving or holding water, be treated for invasive species and revegetated.			
<b>A Pest 4009:</b> Control noxious weeds on public lands in cooperation with county weed and pest districts.	<b>B Pest 4009:</b> Treat those plants on the State of Wyoming Designated list, the appropriate county lists, and other species of concern as determined by BLM resource specialists. Priority treatments are those areas where infestations on private land are threatening public lands.	<b>C Pest 4009:</b> Treat only those plants on the State of Wyoming Designated list. Priority treatments are those areas where infestations on public land are threatening private lands.	<b>D Pest 4009:</b> Treat those plants on the State of Wyoming Designated list, the appropriate county lists, and other species of concern as determined by BLM resource specialists. Note: Priority treatments are those areas where infestations on private land are threatening public lands.
<b>A Pest 4010:</b> No previous decision; determine whether to treat annual brome species on a project-specific basis.	<b>B Pest 4010:</b> Treat annual brome species throughout the planning area	<b>C Pest 4010:</b> Designate and prioritize areas for the treatment of annual brome species.	<b>D Pest 4010:</b> Designate and prioritize areas for the treatment of annual brome species.
<b>Biological Resources Fish &amp; Wildlife Resources</b>			
<b>A Fish 4008:</b> Reservoirs and riparian areas are sometimes maintained to improve or enhance potential fisheries.	<b>B Fish 4008:</b> Manage reservoirs and riparian areas to improve or enhance potential fisheries.	<b>C Fish 4008:</b> Manage reservoirs and riparian areas to improve or enhance other resource values first and potential fisheries second.	<b>D Fish 4008:</b> Maintain or enhance streams and riparian areas associated with Class I and II streams, (WGFD classifications), Powder River, Tongue River, and other appropriate areas for desired fisheries potential.
<b>A Fish 4012:</b> No previous decision; considered on a project-specific basis.	<b>B Fish 4012:</b> Prohibit surface-disturbing and disruptive activities within 0.25 mile of naturally occurring water bodies containing native and desirable non-native fish species.	<b>C Fish 4012:</b> Allow surface-disturbing activities within 0.25 mile of naturally occurring water bodies consistent with other resource values.	<b>D Fish 4012:</b> Allow surface-disturbing activities within 0.25 mile of naturally occurring water bodies containing native and desirable non-native fish species where fish resource objectives can be met.

Alternative A	Alternative B	Alternative C	Alternative D
<b>A, B, C, D WL 4001:</b> Develop appropriate mitigation for surface-disturbing and disruptive activities associated with wildlife habitat management through use of the mitigation guidelines described in Appendix J (p. 2155).			
<b>A, B, C, D WL 4002:</b> Maintain or improve important wildlife habitats through vegetative manipulations, habitat improvement projects, livestock grazing strategies and the application of The Wyoming Guidelines for Managing Sagebrush Communities with Emphasis on Fire Management (Wyoming Interagency Vegetation Committee 2002) and Appendix J (p. 2155), WGFD Strategic Habitat Plan (WGFD 2001b), State Wildlife Action Plan (SWAP) (WGFD 2010), and similar guidance updated over time.			
<b>A, B, C, D WL 4003:</b> Continue to use existing Habitat Management Plans and update as necessary to include management objectives and prescriptions for wildlife: South Bighorns Habitat Management Plan (BLM 1986c), including a portion or all of the Gardner Mountain and North Fork WSAs; Wetlands Habitat Management Plan (BLM 1986b); and Middle Fork Powder River Habitat Management Plan (BLM 1980).			
<b>A, B, C, D WL 4005:</b> Consult with the WGFD and USFWS, in accordance with MOUs, when applying mitigation for wildlife and before waiving, allowing exceptions to, or modifying wildlife-related land use restrictions and mitigation.			
<b>A, B, C, D WL 4006:</b> Provide, to the extent possible, suitable habitat and forage to support wildlife population objectives as defined by WGFD. BLM will cooperatively consider proposals by the WGFD to change population objective levels based on habitat capability and availability.			
<b>A, B, C, D WL 4007:</b> Manage access to protect crucial habitats in cooperation with WGFD and other stakeholders.			
<b>A, B, C, D WL 4008:</b> Utilize current research, management and conservation plans, and similar related documents to guide wildlife habitat management.			
<b>A, B, C, D WL 4009:</b> Construct new fences to avoid adverse impacts to wildlife and in accordance with BLM Fencing Handbook 1741-I (BLM 1989) and WO IM 2010-022: Managing Structures for the Safety of Greater Sage-Grouse, Sharp-tailed grouse, and Lesser prairie chicken (BLM 2009e).			
<b>A WL 4012:</b> No previous decision.	<b>B WL 4012:</b> Modify existing fences preventing wildlife movement in accordance with appropriate wildlife needs and the BLM Fencing Handbook 1741-I.	<b>C WL 4012:</b> Do not modify existing fences preventing wildlife movement.	<b>D WL 4012:</b> Inventory, record, and report existing type, condition and location of BLM fences. Prioritize fence projects and annually implement modifications in accordance with appropriate wildlife needs and the BLM Fencing Handbook 1741-I.
<b>A WL 4013:</b> No previous decision; considered on a project-specific basis.	<b>B WL 4013:</b> Apply appropriate wildlife seasonal restrictions on surface-disturbing and disruptive activities to maintenance and operation of developed projects.	<b>C WL 4013:</b> Do not apply wildlife seasonal restrictions on surface-disturbing and disruptive activities to maintenance and operation of developed projects.	<b>D WL 4013:</b> Allow surface-disturbing and disruptive activities to occur throughout the entire life of projects during seasons important for wildlife when wildlife resource objectives can be met.

Alternative A	Alternative B	Alternative C	Alternative D
<b>A WL 4014:</b> No previous decision; considered on a project-specific basis.	<b>B– WL 4014:</b> Require burial of all new low voltage utility lines and installation of BLM-approved anti-perch devices on all new high voltage utility lines.	<b>C WL 4014:</b> Do not require burial of all new low voltage utility lines or installation of BLM-approved anti-perch devices on all new high voltage utility lines.	<b>D WL 4014:</b> Powerlines (distribution and transmission) will be designed to minimize wildlife related impacts and constructed to the latest APLIC standards.  Prohibit above ground distribution powerlines unless identified in an approved distribution plan.
<b>Biological Resources (BR) Fish &amp; Wildlife Resources Special Status Species</b>			
<b>A, B, C, D SS WL 4001:</b> Utilize current research, management and conservation plans, and similar related documents to guide special status species habitat management.			
<b>A, B, C, D SS WL 4002:</b> Implement actions set forth in recovery plans, conservation measures, terms and conditions, protection measures, and appropriate BMPs and reasonable and prudent measures within biological opinions for Threatened and/or Endangered wildlife species, including those specific to this RMP and any future statewide programmatic biological opinions.			
<b>A SS WL 4003:</b> Manage vegetation resources to comply with the ESA and BLM policy associated with management of habitat for special status species.	<b>B SS WL 4003:</b> Enlarge and enhance habitat and habitat connectivity for special status species.	<b>C SS WL 4003:</b> Maintain current habitat utilized by special status species.	<b>D SS WL 4003:</b> Maintain (size and quality) or enhance current habitat utilized by special status species. Enlarge/restore habitat on a site-specific basis.
<b>A SS WL 4004:</b> No previous decision; considered on a project-specific basis.	<b>B SS WL 4004:</b> Maintain the integrity of traditional wildlife migration and travel corridors.	<b>C SS WL 4004:</b> Manage traditional wildlife migration and travel corridors consistent with other resource values.	<b>D SS WL 4004:</b> Maintain or enhance the integrity of identified special status wildlife species migration corridors.  Manage identified special status wildlife species travel corridors consistent with other resource values.
<b>A SS WL 4005:</b> No previous decision; considered on a project-specific basis.	<b>B SS WL 4005:</b> Locate and manage facilities to minimize noise impacts on special status species.	<b>C SS WL 4005:</b> Do not locate and manage facilities to minimize noise impacts on special status species.	<b>D SS WL 4005:</b> Locate and manage facilities to mitigate noise impacts on special status species.



Alternative A	Alternative B	Alternative C	Alternative D
<b>A SS WL 4006:</b> No previous decision; considered on a project-specific basis.	<b>B SS WL 4006:</b> Manage surface-disturbing and disruptive activities to minimize impacts on special status wildlife species and their habitats.	<b>C SS WL 4006:</b> Manage surface-disturbing and disruptive activities consistent with other resource values.	<b>D SS WL 4006:</b> Manage surface-disturbing and disruptive activities to mitigate impacts on special status wildlife species and their habitats.
<b>A SS WL 4007:</b> No previous decision; considered on a project-specific basis.	<b>B SS WL 4007:</b> Apply a CSU stipulation to fluid mineral leases containing special status species habitat.	<b>C SS WL 4007:</b> Apply standard lease terms to fluid mineral leases containing special status species habitat.	<b>D SS WL 4007:</b> Apply a CSU stipulation to fluid mineral leases containing special status species habitat. Surveys required for clearance.
<p><b>A, B, C, D SS WL 4010:</b> The BLM will collaborate with appropriate federal agencies and the State of Wyoming, as contemplated under the Wyoming Governor's Executive Order 2013-3, to: 1) develop appropriate conservation objectives; 2) define a framework for evaluating situations where Greater Sage-Grouse conservation objectives are not being achieved on federal land, to determine if a significant causal relationship exists between improper grazing (by wildlife or wild horses or livestock) and Greater Sage-Grouse conservation objectives; and 3) identify appropriate site-based actions to achieve Greater Sage-Grouse conservation objectives within the framework. Absent substantial and compelling information that adjustments are necessary to the core population area strategy, these core population areas, connectivity areas, identified and mapped winter concentration areas, and protective stipulations shall not be altered for a minimum of 7 years. Any changes shall involve a transparent process that provides an opportunity for public input and proper consideration of any proposal consistent with the provisions contemplated under Wyoming's core population area strategy.</p> <p>The BLM will coordinate new recommendations, mitigation, and Greater Sage-Grouse habitat objectives and management considerations with the WGFD and other appropriate agencies, local government cooperators, and the Wyoming SGIT. These measures will be analyzed in site-specific NEPA documents, as necessary.</p> <p>The Greater Sage-Grouse adaptive management plan (Appendix B (p. 1779)) provides regulatory assurance that unintended negative impacts to Greater Sage-Grouse habitat will be addressed before consequences become severe or irreversible.</p> <p>Projects requiring an EIS shall develop adaptive management strategies in support of the population management objectives for Greater Sage-Grouse set by the State of Wyoming (State of WY EO 2011-05).</p> <p>Adaptive management triggers are essential for identifying when potential management changes are needed in order to continue meeting Greater Sage-Grouse conservation objectives. With respect to Greater Sage-Grouse, all regulatory entities in Wyoming, including the BLM, use soft and hard triggers. Soft and hard triggers are focused on three metrics: 1) number of active leks, 2) acres of available habitat, and 3) population trends based on annual lek counts.</p> <p><b>Soft Triggers Response:</b> Soft triggers require immediate monitoring and surveillance to determine causal factors and may require curtailment of activities in the short- or long-term, as allowed by law. The project level adaptive management strategies will identify appropriate responses where the project's activities are identified as the causal factor. The management agency (BLM) and the Adaptive</p>			

Alternative A	Alternative B	Alternative C	Alternative D
Management Working Group will implement an appropriate response strategy to address causal factors not attributable to a specific project or to make adjustments at a larger regional or state-wide level.			
<b>Hard Trigger Response:</b> Upon determination that a hard trigger has been tripped, the BLM will immediately defer issuance of discretionary authorizations for new actions within the Biologically Significant Unit for a period of 90 days. In addition, within 14 days of a determination that a hard trigger has been tripped, the Adaptive Management Working Group will convene to develop an interim response strategy and initiate an assessment to determine the causal factor or factors (hereafter called the causal factor assessment).			
<b>A, B, C, D SS WL 4011:</b> Develop avoidance areas restricting the application of broad-spectrum pesticides in areas containing Greater Sage-Grouse nesting and brood-rearing habitats.			
<b>A, B, C, D SS WL 4012:</b> Restore Greater Sage-Grouse brood-rearing habitats in wetland/riparian areas. Maintain seeps, springs, wet meadows, and riparian vegetation in a functional and diverse condition for young Greater Sage-Grouse and other species that depend on forbs and insects associated with these areas.			
<b>A, B, C, D SS WL 4013:</b> Manage vegetation composition, diversity and structure, as determined by ecological site description and WGFD protocols (WY IM-2012-019 attachment 6), to achieve Greater Sage-Grouse habitat management objectives, in cooperation with stakeholders.			
<b>A, B, C, D SS WL 4014:</b> Minimize disturbances that would result in alterations to springs and riparian Greater Sage-Grouse habitat. In coordination with stakeholders, develop alternative water sources to replace natural sources that have been affected or destroyed.			
<b>A, B, C, D SS WL 4015:</b> Manage stored water to control mosquitoes and prevent the spread of WNV to Greater Sage-Grouse.			
<b>A, B, C, D SS WL 4016:</b> Design water facilities with protective features to reduce mortality of Greater Sage-Grouse from drowning or entrapment.			
<b>A, B, C, D SS WL 4017:</b> Design and locate fences to reduce impacts to important Greater Sage-Grouse habitat.			
<b>A, B, C, D SS WL 4018:</b> Use the Fire Management Plan to incorporate the most current sagebrush habitat information and to guide fire suppression priorities in sagebrush habitats.			
<b>A, B, C, D SS WL 4019:</b> Remove conifers where they have encroached upon Greater Sage-Grouse habitat in cooperation with stakeholders. Reduce the density of conifers that have encroached into, but do not yet dominate sagebrush plant communities.			
<b>A SS WL 4020:</b> No previous decision; considered on a project-specific basis.	<b>B SS WL 4020:</b> Increase the visibility of existing fences within Greater Sage-Grouse habitat to reduce hazards to flying Greater Sage-Grouse, in cooperation with stakeholders.	<b>C SS WL 4020:</b> Do not increase the visibility of existing fences to reduce hazards to flying Greater Sage-Grouse.	<b>D SS WL 4020:</b> Inventory, record, and report existing type and condition of BLM fences. Prioritize areas and annually implement modifications to existing fences to reduce hazards to flying Greater Sage-Grouse, in cooperation with stakeholders. All new fences, in priority areas, will be properly designed and located to avoid hazards to flying Greater Sage-Grouse.

Alternative A	Alternative B	Alternative C	Alternative D
<b>A SS WL 4021:</b> No previous decision; considered on a project-specific basis.	<b>B SS WL 4021:</b> Prohibit renewable energy projects within Greater Sage-Grouse nesting, brood-rearing and winter habitat.	<b>C SS WL 4021:</b> Do not prohibit renewable energy projects in Greater Sage-Grouse nesting, brood-rearing and winter concentration areas.	<b>D SS WL 4021:</b> Avoid renewable energy (solar and wind) projects in Greater Sage-Grouse Core Population Areas unless it can be demonstrated that the activity would not result in declines of core Greater Sage-Grouse populations. Sufficient demonstration of “no declines” should be coordinated with the WGFD and USFWS.
<b>A SS WL 4022:</b> Require anti-perching devices on new powerlines within 0.5 mile of occupied Greater Sage-Grouse leks and nesting habitat.	<p><b>B SS WL 4022:</b> Require anti-perching devices on existing and new powerlines in occupied Greater Sage-Grouse habitat to minimize raptor use.</p> <p>Evaluate and take advantage of opportunities to remove or modify existing power lines within Greater Sage-Grouse habitat.</p>	<b>C SS WL 4022:</b> Require anti-perching devices on new powerlines within occupied Greater Sage-Grouse habitat to minimize raptor use of these poles.	<p><b>D SS WL 4022:</b> Powerlines (distribution and transmission) will be designed to minimize wildlife related impacts. This action includes but is not limited to:</p> <ul style="list-style-type: none"> <li>• Avoid areas of high avian use such as water bodies (including ponds, lakes, rivers, streams and wetlands), ridge tops, prairie dog colonies, Greater Sage-Grouse Core Population and Connectivity Areas, and sharp-tailed grouse leks (PRB Final EIS, EO 2011-05).</li> <li>• Prohibit within 0.6 miles of Greater Sage-Grouse Core Population and Connectivity Area leks unless within an established corridor or it can be demonstrated that the activity will not cause Greater Sage-Grouse population declines.</li> </ul> <p>Major overhead powerlines will not be authorized unless co-located with an existing 115 kilovolt or greater powerline, as close as technically feasible, not to exceed 0.5 miles or within a designated corridor authorized for overhead powerlines.</p>

Alternative A	Alternative B	Alternative C	Alternative D
(see above)	(see above)	(see above)	<ul style="list-style-type: none"> <li>• Distribution lines may be authorized when effectively mitigated to protect Greater Sage-Grouse and the authorized officer determines that overhead installation is the action alternative with the fewest adverse impacts.</li> </ul> <p>Agricultural and residential lines will be considered to be adequately mitigated for Greater Sage-Grouse if constructed at least 0.6 mile from the lek perimeter with appropriate timing constraints and installation of raptor deterrents. These ROW authorizations will be subject to approval by the State Director.</p> <ul style="list-style-type: none"> <li>• Within general Greater Sage-Grouse habitat (outside core population and connectivity areas) overhead powerlines will be located at least 0.5 miles from Greater Sage-Grouse breeding and nesting grounds (PRB Final EIS).</li> <li>• Any new power lines authorized within the above identified areas will be buried or if overhead then marked to increase visibility and perch-guarded to prevent raptor perching (PRB Final EIS).</li> </ul>

Alternative A	Alternative B	Alternative C	Alternative D
<p><b>A SS WL 4023:</b> Lease fluid minerals where not prohibited by regulation, policy, withdrawal, or similar action.</p> <p>Note: Within the boundary of the Wyodak-Anderson coal seam is presently closed to leasing due to Pennaco v. US, 377 F.3d 1147 (10th Cir. 2004).</p>	<p><b>B SS WL 4023:</b> Lease fluid minerals dependent upon Greater Sage-Grouse habitat suitability, population density, and development density</p> <p>Close to leasing within 4.0 miles of the perimeter of occupied or undetermined Greater Sage-Grouse leks and winter concentration areas (independent of habitat suitability).</p> <p>Adopt a minimum lease size of 640 contiguous acres.</p>	<p><b>C SS WL 4023:</b> Lease fluid minerals where not prohibited by regulation, policy, withdrawal, or similar action.</p>	<p><b>D SS WL 4023:</b> Lease fluid minerals dependent upon lease location and habitat suitability.</p> <p>In order to avoid surface-disturbing activities in Greater Sage-Grouse Priority Habitat (Core Population Areas and Core Population Connectivity Corridors), priority will be given to leasing fluid mineral resources outside of priority habitat.</p> <p>Within Priority Habitat (Core Population Areas and Connectivity Corridors), leases should be a minimum of 640 contiguous acres of federal mineral estate. Smaller parcels may be leased only when 640 contiguous acres of federal mineral estate is not available and leasing is necessary to remain in compliance with laws, regulations and policy; for example, to protect the federal mineral estate from drainage or to commit the federal mineral estate to unit or communitization agreements. Preliminary parcels reviewed for possible offering in a lease sale should comply with this minimum lease size. Expressions of interest that are less than this minimum lease size would be evaluated and modified by the BLM to meet the minimum lease size, where possible, prior to review for possible offering in a lease sale.</p>
<p><b>A SS WL 4025:</b> Surface-disturbing activities or surface occupancy is prohibited or restricted on</p>	<p><b>B SS WL 4025:</b> Manage Greater Sage-Grouse habitat as follows:</p>	<p><b>C SS WL 4025:</b> To the extent necessary to prevent unnecessary or</p>	<p><b>D SS WL 4025:</b> Manage Greater Sage-Grouse Core Population Areas as follows:</p> <ul style="list-style-type: none"> <li>• Prohibit surface-disturbing activities, disruptive activities, and occupancy within</li> </ul>

Alternative A	Alternative B	Alternative C	Alternative D
<p>or within 0.25-mile radius of the perimeter of occupied or undetermined Greater Sage-Grouse leks.</p> <p>Disruptive activity is restricted on or within 0.25-mile radius of the perimeter of occupied or undetermined Greater Sage-Grouse leks from 6 pm to 8 am from March 15 to May 15.</p> <p>Surface-disturbing activities are prohibited from March 15 to June 30 in suitable Greater Sage-Grouse nesting and early brood rearing habitat and within 2 miles of any occupied or undetermined Greater Sage-Grouse leks.</p>	<ul style="list-style-type: none"> <li>● Prohibit surface-disturbing activities, disruptive activities, and occupancy within 4.0 miles of the perimeter of occupied or undetermined Greater Sage-Grouse leks and winter concentration areas (independent of habitat suitability).</li> <li>● Prohibit surface-disturbing and disruptive activities within 4.0 miles of occupied and undetermined Greater Sage-Grouse leks from March 1 to July 15 (independent of habitat suitability).</li> <li>● Prohibit surface-disturbing and disruptive activities in nesting and early brood-rearing habitat greater than 4.0 miles of occupied and undetermined Greater Sage-Grouse leks, from March 1 to July 15.</li> <li>● Prohibit surface-disturbing activities, disruptive activities and occupancy within 4.0 miles of Greater Sage-Grouse winter concentration areas, from November 15 to March 14 (independent of habitat suitability).</li> </ul>	<p>undue degradation, manage as follows within occupied Greater Sage-Grouse habitat:</p> <ul style="list-style-type: none"> <li>● Restrict surface-disturbing and disruptive activities and occupancy within 0.25 mile of the perimeter of occupied or undetermined Greater Sage-Grouse leks.</li> <li>● Prohibit surface-disturbing and disruptive activities in all areas within 2 miles of occupied leks from March 15 to June 30 (independent of habitat suitability).</li> <li>● Prohibit surface-disturbing and disruptive activities in identified nesting and early brood-rearing habitat outside the 2-mile lek buffer, from March 15 to June 30.</li> <li>● Avoid surface-disturbing and disruptive activities and occupancy within Greater Sage-Grouse winter concentration areas from November 15 to March 14.</li> </ul>	<p>0.6 mile of the perimeter of occupied Greater Sage-Grouse leks (independent of habitat suitability).</p> <ul style="list-style-type: none"> <li>● Allow on average no more than 1 energy or mining facility and on average no more than 5% total surface disturbance per 640 acres within the DDCT analysis area.</li> </ul> <p>In Greater Sage-Grouse core population areas, the density of disturbance of an activity (oil and gas or mining) would be limited to an average of one site per square mile (640 acres) within the DDCT, subject to valid existing rights and applicable law. The one location and cumulative value of existing disturbances will not exceed 5 percent of suitable habitat of the DDCT area. Utilize the Greater Sage-Grouse density disturbance calculation tool described in Appendix B (p.1779).</p> <p>Inside Greater Sage-Grouse (priority habitat) core population areas and connectivity corridors, all suitable habitat disturbed (any program area) will not exceed 5% of suitable habitat within the DDCT area using the DDCT process described in Appendix B (p. 1779).</p> <p>Inside Greater Sage-Grouse (priority habitat) core population areas and connectivity corridors, all suitable habitat disturbed (any program area) will not exceed 5% of suitable habitat within the</p>

Alternative A	Alternative B	Alternative C	Alternative D
(see above)	<ul style="list-style-type: none"> <li>Prohibit surface-disturbing and, disruptive activities within winter habitat greater than 4.0 miles of Greater Sage-Grouse winter concentration areas, from November 15 to March 14.</li> <li>Allow no more than 1 disturbance and 3% total surface disturbance per 640 acres within the DDCT analysis area.</li> <li>Restore disturbed sagebrush communities on BLM surface to full shrub density (<math>DP_{Post} = [DP_{Pre} * 1/(N+1)]</math>) for all pre-disturbance shrub species and 5% minimum canopy cover of sagebrush. A 90% confidence interval is required to demonstrate achievement of the standard. The standard must be demonstrated the last year of the responsibility period, and all planted shrubs shall have been in place for at least two years.</li> </ul> <p>Apply to all surface-disturbing activities on BLM surface within nesting,</p>	(see above)	<p>DDCT area using the DDCT process described in Appendix B (p. 1779).</p> <ul style="list-style-type: none"> <li>Design and manage facilities to prevent WNV transmission.</li> <li>Prohibit overhead electric transmission lines unless within one-half mile either side of existing 115 kV or larger transmission lines creating a corridor no wider than one mile.</li> </ul> <ul style="list-style-type: none"> <li>Work with proponents to limit project related noise where it would be expected to reduce habitat functionality. The BLM would evaluate the potential for limitation of new noise sources on a case-by-case basis as appropriate. BLM's near-term goal would be to limit noise sources that would be expected to negatively impact priority habitat area Greater Sage-Grouse populations and to continue to support the establishment of ambient baseline noise levels for occupied priority habitat area leks. As additional research and information emerges, specific new limitations appropriate to the type of projects being considered would be evaluated and appropriate limitations would be implemented where necessary to minimize potential for noise impacts on Greater Sage-Grouse priority population behavioral cycles.</li> </ul> <p>As new research is completed, new specific limitations would be coordinated with the WGFD and partners.</p>

Alternative A	Alternative B	Alternative C	Alternative D
(see above)	<p>brood-rearing, or winter habitat.</p> <p>Within 4.0 miles of the perimeter of occupied or undetermined Greater Sage-Grouse leks and winter concentration areas (independent of habitat suitability):</p> <ul style="list-style-type: none"> <li>● Exclude all ROW.</li> <li>● Recommend for withdrawal from locatable mineral location and entry under the Mining Law, subject to valid existing rights.</li> <li>● Prohibit mineral material sales.</li> <li>● Close to solid and fluid mineral leasing.</li> <li>● Close to non-energy leasable mineral leasing.</li> <li>● Do not recommend for federal land withdrawal (43 CFR 2300) unless the land management is consistent with Greater Sage-Grouse conservation.</li> <li>● Avoid constructed roads beyond 4 miles of occupied and undetermined Greater Sage-Grouse leks and winter concentration areas.</li> </ul>	(see above)	<p>Noise levels at the perimeter of the lek should not exceed 10 dBA above ambient noise.</p> <ul style="list-style-type: none"> <li>○ Bury electric distribution lines where possible, if not possible; then locate overhead lines at least 0.6 miles from the perimeter of occupied Greater Sage-Grouse leks and install raptor perch guards.</li> <li>○ Buried utilities constructed in designated utility corridors would not require that a DDCT be conducted.</li> <li>○ Locate new roads that will have relatively high levels of activity (accessing multiple wells, housing development) greater than 1.9 miles from the perimeter of occupied Greater Sage-Grouse leks. Locate new roads used to provide facility site access and maintenance &gt; 0.6 miles from the perimeter of occupied Greater Sage-Grouse leks.</li> <li>○ Vegetation treatments in nesting and wintering habitat that would reduce sagebrush canopy cover to less than 15% would not be conducted unless it can be shown to be beneficial to Greater Sage-Grouse habitat and removal of sagebrush canopy cover below 15% will be subject to the DDCT.</li> </ul> <p>Wildland fire burns will be treated as disturbance if sagebrush is reduced below 5% canopy cover, unless there is an implementation plan outlining restoration</p>



Alternative A	Alternative B	Alternative C	Alternative D
(see above)	<ul style="list-style-type: none"> <li>● Close to livestock grazing. Within occupied Greater Sage-Grouse habitat:</li> <li>● Avoid ROWs.</li> <li>● Require full reclamation bonding specific to the site and sufficient to cover costs required for full reclamation.</li> </ul>	(see above)	<p>efforts and 3 years of data showing a trend back to suitable habitat.</p> <ul style="list-style-type: none"> <li>● Restore disturbed sagebrush communities on BLM surface to meet the Wyoming DEQ community-specific full shrub density standard (Chapter 4 Rules and Regulations, option III) for all predisturbance shrub species and 5% minimum canopy cover of sagebrush. A 90% confidence interval is required to demonstrate achievement of the standard. The standard must be demonstrated the last year of the responsibility period, and all planted shrubs shall have been in place for at least two years.</li> <li>● Prohibit surface-disturbing and disruptive activities from March 15 to June 30 (independent of habitat suitability).</li> <li>● Prohibit surface-disturbing and disruptive activities within mapped Greater Sage-Grouse winter concentration areas, from December 1 to March 14.</li> </ul> <p>To the extent necessary to prevent unnecessary or undue degradation, manage as follows within Greater Sage-Grouse Population Connectivity Areas:</p> <ul style="list-style-type: none"> <li>● Prohibit surface occupancy and disturbing activities, disruptive activities and occupancy within 0.6 mile of the perimeter of occupied Greater Sage-Grouse leks (independent of habitat suitability).</li> </ul>

Alternative A	Alternative B	Alternative C	Alternative D
(see above)	(see above)	(see above)	<ul style="list-style-type: none"> <li>● Allow on average no more than 5% total surface disturbance per 640 acres within the DDCT analysis area.</li> </ul> <p>In Greater Sage-Grouse Core Population Connectivity Corridors, subject to valid existing rights and applicable law, the cumulative value of existing disturbances will not exceed 5 percent of suitable habitat of the DDCT area.</p> <p>Utilize the Greater Sage-Grouse density disturbance tool described in Appendix B (p. 1779).</p> <p>Inside Greater Sage-Grouse (priority habitat) core population areas and connectivity corridors, all suitable habitat disturbed (any program area) will not exceed 5% of suitable habitat within the DDCT area using the DDCT process described in Appendix B (p. 1779).</p> <ul style="list-style-type: none"> <li>○ Design and manage facilities to prevent WNV transmission.</li> <li>○ Work with proponents to limit project related noise where it would be expected to reduce habitat functionality. The BLM would evaluate the potential for limitation of new noise sources on a case-by-case basis as appropriate.</li> </ul> <p>BLM's near-term goal would be to limit noise sources that would be expected to negatively impact priority habitat area Greater Sage-Grouse populations and to continue to support the establishment of</p>

Alternative A	Alternative B	Alternative C	Alternative D
(see above)	(see above)	(see above)	<p>ambient baseline noise levels for occupied priority habitat area leks.</p> <p>As additional research and information emerges, specific new limitations appropriate to the type of projects being considered would be evaluated and appropriate limitations would be implemented where necessary to minimize potential for noise impacts on Greater Sage-Grouse priority population behavioral cycles. As new research is completed, new specific limitations would be coordinated with the WGFD and partners. Noise levels at the perimeter of the lek should not exceed 10 dBA above ambient noise.</p> <ul style="list-style-type: none"> <li>○ Buried utilities constructed in designated utility corridors would not require that a DDCT be conducted.</li> <li>○ Vegetation treatments in nesting and wintering habitat that would reduce sagebrush canopy cover to less than 15% would not be conducted unless it can be shown to be beneficial to Greater Sage-Grouse habitat and removal of sagebrush canopy cover below 15% will be subject to the DDCT.</li> </ul> <p>Wildland fire burns will be treated as disturbance if sagebrush is reduced below 5% canopy cover, unless there is an implementation plan outlining restoration efforts and 3 years of data showing a trend back to suitable habitat.</p>

Alternative A	Alternative B	Alternative C	Alternative D
(see above)	(see above)	(see above)	<ul style="list-style-type: none"> <li>• Restore disturbed sagebrush communities on BLM surface to meet the Wyoming DEQ community-specific full shrub density standard (Chapter 4 Rules and Regulations, option III) for all pre-disturbance shrub species and 5% minimum canopy cover of sagebrush. A 90% confidence interval is required to demonstrate achievement of the standard. The standard must be demonstrated the last year of the responsibility period, and all planted shrubs shall have been in place for at least two years.</li> <li>• Prohibit surface-disturbing and disruptive activities within 4 miles of occupied Greater Sage-Grouse leks from March 15 to June 30 (independent of habitat suitability and restricted to within Population Connectivity Areas).</li> <li>• Prohibit surface-disturbing and disruptive activities within mapped Greater Sage-Grouse winter concentration areas, from December 1 to March 14.</li> </ul> <p>Manage as follows within occupied Greater Sage-Grouse habitat outside of Core Population and Population Connectivity Areas:</p> <ul style="list-style-type: none"> <li>• Prohibit or restrict surface occupancy and disruptive activities within 0.25 mile of the perimeter of occupied Greater Sage-Grouse leks.</li> <li>• Reduce surface disturbance for authorizations within</li> </ul>

Alternative A	Alternative B	Alternative C	Alternative D
(see above)	(see above)	(see above)	<p>0.25 miles of occupied Greater Sage-Grouse leks by:</p> <ul style="list-style-type: none"> <li>○ Design and manage facilities to prevent WNV transmission.</li> <li>○ Prohibit overhead transmission lines.</li> <li>● Restore disturbed sagebrush communities on BLM surface to meet the Wyoming DEQ community-specific full shrub density standard (Chapter 4 Rules and Regulations, option III) for all pre-disturbance shrub species and 5% minimum canopy cover of sagebrush. A 90% confidence interval is required to demonstrate achievement of the standard. The standard must be demonstrated the last year of the responsibility period, and all planted shrubs shall have been in place for at least two years.</li> </ul> <p>Recommend for all surface-disturbing activities on BLM surface adjacent to core or connectivity population areas, within or adjacent to lands involved in Greater Sage-Grouse conservation projects. BLM parcels less than 640 acres that only meet the population density factor may be excluded. Work with proponents to limit project related noise where it would be expected to reduce functionality of habitats that support priority habitat area populations. The BLM would evaluate the potential for limitation of new noise sources on a case-by-case basis as appropriate. BLM's near-term goal would be to limit noise sources that would be expected to negatively impact priority</p>

Alternative A	Alternative B	Alternative C	Alternative D
(see above)	(see above)	(see above)	<p>habitat area Greater Sage-Grouse populations and to continue to support the establishment of ambient baseline noise levels for occupied priority habitat area leks. As additional research and information emerges, specific new limitations appropriate to the type of projects being considered would be evaluated and appropriate limitations would be implemented where necessary to minimize potential for noise impacts on Greater Sage-Grouse priority population behavioral cycles. As new research is completed, new specific limitations would be coordinated with the WGFD and partners. Noise levels at the perimeter of the lek should not exceed 10 dBA above ambient noise.</p> <ul style="list-style-type: none"> <li>• Prohibit surface-disturbing and disruptive activities within 2.0 miles of occupied Greater Sage-Grouse leks, from March 15 to June 30 (independent of habitat suitability).</li> <li>• Prohibit surface-disturbing and disruptive activities from December 1 to March 14 within mapped Greater Sage-Grouse winter concentration areas that support populations of Greater Sage-Grouse that attend leks within Core Population Areas. Note (priority and general habitat): The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or</li> </ul>

Alternative A	Alternative B	Alternative C	Alternative D
(see above)	(see above)	(see above)	conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse.
Heritage and Visual Resources Cultural Resources			
<b>A Cultural 5007:</b> No previous decision; considered on a project-specific basis.	<b>B Cultural 5007:</b> Prohibit surface disturbance in areas containing historic properties, or within 5.0 miles or visual horizon (whichever is closer) of historic properties that retain their integrity of setting.	<b>C Cultural 5007:</b> Allow surface disturbance in areas containing historic properties when appropriate mitigation is accomplished.	<b>D Cultural 5007:</b> Prohibit surface disturbance within the following sites: <ul style="list-style-type: none"> <li>• Pumpkin Buttes</li> <li>• Cantonment Reno</li> <li>• Dull Knife Battle</li> <li>• Crazy Woman Battle</li> <li>• Contributing and Unevaluated Segments of the Bozeman Trail</li> <li>• All Rock Art Sites</li> <li>• All Rock Shelter Sites</li> <li>• All Native American Burials</li> </ul> Allow surface disturbance and infrastructure within 3.0 miles of the following sites where development is either not visible, or will result in a weak contrast to the setting: <ul style="list-style-type: none"> <li>• Pumpkin Buttes</li> <li>• Cantonment Reno</li> <li>• Dull Knife Battle</li> <li>• Crazy Woman Battle</li> <li>• Contributing and Unevaluated Segments of the B Bozeman Trail</li> <li>• All Rock Art Sites</li> <li>• All Native American Burials</li> </ul>
Heritage and Visual Resources Paleontological Resources			
<b>A, B, C, D Paleo 5001:</b> Retain public lands with significant paleontological values.			

Alternative A	Alternative B	Alternative C	Alternative D
<b>A Paleo 5006:</b> No previous decision; considered on a project-specific basis.	<b>B Paleo 5006:</b> Initiate locatable mineral withdrawals in areas containing paleontological resources of high quality or importance.	<b>C Paleo 5006:</b> Do not initiate locatable mineral withdrawals in areas containing paleontological resources of high quality or importance.	<b>D Paleo 5006:</b> Avoid areas containing paleontological resources of high quality or importance when developing locatable minerals.
<b>A Paleo 5007:</b> No previous decision; considered on a project-specific basis.	<b>B Paleo 5007:</b> Close to mineral leasing areas containing paleontological resources of high quality or importance.	<b>C Paleo 5007:</b> Allow mineral leasing in areas containing paleontological resources of high quality or importance.	<b>D Paleo 5007:</b> Apply an NSO stipulation to mineral leases in areas containing paleontological resources of high quality or importance.
<b>A Paleo 5008:</b> No previous decision; considered on a project-specific basis.	<b>B Paleo 5008:</b> Prohibit salable mineral exploration and development in areas containing paleontological resources of high quality or importance.	<b>C Paleo 5008:</b> Allow salable mineral exploration and development in areas containing paleontological resources of high quality or importance.	<b>D Paleo 5008:</b> Avoid areas containing paleontological resources of high quality or importance when developing salable minerals.
<b>Heritage and Visual Resources Visual Resources</b>			
<b>A, B, C, D VRM 5002:</b> Incorporate BMPs for visual resources into project planning for federal actions.			
<b>Land Resources Lands and Realty</b>			
<b>A, B, C, D L&amp;R 6002:</b> Consider land use authorizations (permits, leases, etc.) on a project-specific basis consistent with other resource objectives.			
<b>A, B, C, D L&amp;R 6003:</b> Consider withdrawals for surface and/or minerals on a project-specific basis.			
<b>A L&amp;R 6011:</b> Acquire private or state land or interest in land from willing sellers in coordination with other resource objective, on a project-specific basis.	<b>B L&amp;R 6011:</b> Acquire private or state land or interest in land from willing sellers in coordination with other resource objectives (i.e., Greater Sage-Grouse habitat).	<b>C L&amp;R 6011:</b> Do not acquire private or state lands or interest in land.	<b>D L&amp;R 6011:</b> Acquire private or state land or interest in land from willing sellers consistent with other resource objectives, on a project-specific basis.



Alternative A	Alternative B	Alternative C	Alternative D
<b>A L&amp;R 6012:</b> Consider disposal of lands having agricultural potential and water by sale, exchange, or desert land entry.	<b>B L&amp;R 6012:</b> Retain lands having agricultural potential, water, or other natural resource value (i.e., Greater Sage-Grouse habitat).	<b>C L&amp;R 6012:</b> Dispose of lands having agricultural potential or water.	<b>D L&amp;R 6012:</b> Acquire and dispose of land based on all resource values, including but not limited to agricultural potential and water. Do not classify, open, or make available any BLM-administered public lands within the planning area for agricultural leasing or agricultural entry under either Desert Land Entry or Indian Allotment for one or more of the following reasons: rugged topography, presence of sensitive resources, lack of water or access, small parcel size, and/or unsuitable soils. Greater Sage-Grouse habitat will be retained in federal management unless: (1) the agency can demonstrate that disposal of the lands will provide a net conservation benefit to the Greater Sage-Grouse or (2) the agency can demonstrate that the lands will have no direct or indirect adverse impact on conservation of the Greater Sage-Grouse.
<b>A L&amp;R 6014:</b> Priority is given to acquiring land or interests in lands in areas adjacent to large blocks of BLM-administered land, especially in areas of high recreational potential like the south Bighorn Mountains.	<b>B L&amp;R 6014:</b> Consider all lands within the planning area for acquisition from interested parties without giving priority to major blocks of public land, and areas of high recreational potential.	<b>C L&amp;R 6014:</b> Do not acquire land in areas adjacent to major blocks of public land or areas of high recreational potential.	<b>D L&amp;R 6014:</b> Prioritize acquiring land or interests in lands in areas adjacent to large blocks of BLM-administered land or other lands having significant resource or other values before other areas.

Alternative A	Alternative B	Alternative C	Alternative D
<b>Land Resources Rights-Of-Way and Corridors</b>			
<b>A, B, C, D ROW 6001:</b> Designate corridors for major ROW to minimize surface disturbance and impacts to other resources.			
<b>A, B, C, D ROW 6004:</b> The preferred location for new ROW will be in or adjacent to existing disturbed areas associated with existing ROW, constructed roads, or highways.			
<b>A, B, C, D ROW 6005:</b> Maintain a transportation management system in cooperation with appropriate state and local agencies to meet public and resource management needs.			
<p><b>A ROW 6009:</b> Designate the following corridors for major ROW:</p> <ul style="list-style-type: none"> <li>• Echeta Road</li> <li>• Sheridan to Gillette, largely following US 14/16</li> <li>• Highway 59 north of Gillette</li> <li>• Interstate 25</li> <li>• Interstate 90, Gillette to Montana State Line</li> <li>• Powder River</li> <li>• Powder River Breaks (Buffalo to Gillette)</li> </ul> <p>Corridor use is recommended, but not required. There are no restrictions on above ground lines except that lines must be buried within Greater Sage-Grouse Core Population Areas unless within 0.5 mile either side of existing 115 kV or larger transmission lines creating a corridor no wider than 1.0 mile.</p>	<p><b>B ROW 6009:</b> Designate the following corridors for major ROW transportation and utility corridor:</p> <ul style="list-style-type: none"> <li>• Echeta Road</li> <li>• Sheridan to Gillette, largely following US 14/16</li> <li>• Highway 59 north of Gillette</li> <li>• Interstate 25</li> <li>• Interstate 90, Gillette to Montana State Line</li> <li>• Powder River</li> </ul> <p>Corridor use is required. No above ground lines will be authorized.</p>	<p><b>C ROW 6009:</b> Designate the following corridors for major ROW transportation and utility corridor:</p> <ul style="list-style-type: none"> <li>• Echeta Road</li> <li>• Sheridan to Gillette, largely following US 14/16</li> <li>• Highway 59 north of Gillette</li> <li>• Interstate 25</li> <li>• Interstate 90, Gillette to Montana State Line</li> <li>• Powder River</li> <li>• Powder River Breaks (Buffalo to Gillette)</li> </ul> <p>Corridor use is required. Above ground lines can be authorized in any corridor.</p>	<p><b>D ROW 6009:</b> Designate the following corridors for major ROW transportation and utility use, in cooperation with the State of Wyoming:</p> <ul style="list-style-type: none"> <li>• Echeta Road</li> <li>• Sheridan to Gillette, largely following US 14/16</li> <li>• Highway 59 north of Gillette</li> <li>• Interstate 25</li> <li>• Interstate 90, Gillette to Montana State Line</li> <li>• Powder River</li> <li>• Powder River Breaks (Buffalo to Gillette)</li> </ul> <p>Corridor use is required. No above ground lines will be authorized in the Powder River or Powder River Breaks corridors. Lines must be buried within Greater Sage-Grouse Core Population Areas unless within 0.5 mile either side of existing 115 kV or larger transmission lines creating a corridor no wider than 1.0 mile.</p>

Alternative A	Alternative B	Alternative C	Alternative D
<b>A ROW 6010:</b> No previous decision; considered on a project-specific basis.	<b>B ROW 6010:</b> Avoid placement of above ground facilities such as powerlines along major transportation routes to protect visual resources.	<b>C ROW 6010:</b> Place above ground facilities such as powerlines along major transportation routes.	<b>D ROW 6010:</b> Authorize and place above ground facilities (i.e., compressors, electric distribution powerlines) within ROW and other disturbance areas when resource objectives can be met.
<b>A ROW 6012:</b> No previous decision.	<b>B ROW 6012:</b> Prohibit CO2 sequestration research and projects.	<b>C ROW 6012:</b> Allow CO2 sequestration research and projects where consistent with other resource values.	<b>D ROW 6012:</b> Evaluate CO2 sequestration proposals where in accordance with management identified within Alternative D.
<b>Land Resources Travel and Transportation Management</b>			
<b>A, B, C, D Trans 6002:</b> Evaluate roads constructed under other initiatives (e.g., oil and gas exploration) for inclusion in the BLM transportation system. Roads that are no longer needed for their original purposes are assessed for addition to the BLM transportation system prior to reclamation.			
<b>A, B, C, D Trans 6004:</b> Design, construct, and maintain roads or trails based on the specific objectives for that trail or road in consideration of other resources. Design, construct, and maintain roads to minimize surface disturbance, changes to surface water runoff, and erosion.			
<b>A, B, C, D Trans 6006:</b> Base road or trail closures and abandonments on resource protection, demand for new roads and accommodation of authorized uses.			
<b>A, B, C, D Trans 6007:</b> Maintain transportation system roads under BLM jurisdiction in accordance with assigned maintenance levels and in consideration of other resource values. Maintain administrative roads on an as needed basis, dependent on time, funding, and access priorities.			
<b>A, B, C, D Trans 6008:</b> Within 5 years of the ROD, inventory all routes on public land and develop a travel management plan to classify and designate routes for continued use or decommissioning and reclamation. Include maintenance standards for routes to be retained for public use, as well as specific measures to accomplish road closure in the travel management plan. Inventory, designate, number, and sign all routes as appropriate. Posted signs will include allowed uses and activities. Restrictions to existing roads and trails remains in effect until travel management planning is completed and designated routes are identified.			
<b>A, B, C, D Trans 6014:</b> Limit OHV use to designated routes unless compelling reasons exist to classify parcels as Open or Closed and is consistent with other resource values. Until individual routes are designated, areas subject to route designation will be classified as Limited to existing routes. Once route designation is completed, areas will no longer be classified as Limited to existing routes.			

Alternative A	Alternative B	Alternative C	Alternative D
<b>A Trans 6019:</b> No previous decision; considered on a project-specific basis.	<b>B Trans 6019:</b> Close areas within habitat of special status species to motorized vehicle use.	<b>C Trans 6019:</b> Allow motorized vehicle use within habitat of special status species consistent with travel management designations for that area.	<b>D Trans 6019:</b> Limit motorized vehicle use to designated routes within habitat of special status species consistent with travel management designations for that area. Routes will be designated to avoid occupied habitat during travel management planning.
<b>A Trans 6020:</b> No previous decision; considered on a project-specific basis.	<b>B Trans 6020:</b> Evaluate existing routes in the vicinity of any new system roads for closure and reclamation consistent with other resource values.	<b>C Trans 6020:</b> Do not close and reclaim existing routes in the vicinity of any new system roads.	<b>D Trans 6020:</b> Evaluate existing routes in the vicinity of any new system roads for closure and reclamation consistent with other resource values.
<b>Land Resources Recreation</b>			
<b>A, B, C, D Rec 6003:</b> Open the planning area to dispersed recreation where consistent with other resource values.			
<b>A, B, C, D Rec 6010:</b> Avoid riparian habitat or develop and manage recreational sites, recreation facilities, and recreational access in a manner that minimizes impacts to riparian habitats.			
<b>A, B, C, D Rec 6011:</b> Prohibit dispersed camping and commercial camps within 200 feet of perennial surface water.			
<b>A Rec 6015:</b> No previous decision; considered on a project-specific basis.	<b>B Rec 6015:</b> Limit development of additional recreation facilities to SRMAs and other high-use areas.	<b>C Rec 6015:</b> Allow additional recreation facilities in areas where they are supported by recreational use and are consistent with other resource values.	<p><b>D Rec 6015:</b> Allow additional recreation facilities in areas where they are supported by recreational use and are consistent with other resource values.</p> <p>In Greater Sage-Grouse priority habitat (core population areas and core population connectivity corridors), do not construct new recreation facilities (e.g., campgrounds, trails, trailheads, staging areas) unless the development would have a net conservation gain to Greater Sage-Grouse habitat (such as concentrating recreation, diverting use away from important areas, etc.), or unless the development is required for visitor health and safety or resource protection.</p>

Alternative A	Alternative B	Alternative C	Alternative D
<p><b>A Rec 6018:</b> No SRMAs have been previously designated. Recreation and/or interpretation decisions were applied to the following areas:</p> <ul style="list-style-type: none"> <li>• South Bighorns</li> <li>• Gardner Mountain WSA</li> <li>• North Fork WSA</li> <li>• Dry Creek Petrified Tree</li> <li>• Fortification Creek</li> <li>• Weston Hills</li> <li>• Mosier Gulch</li> <li>• Cantonment Reno</li> <li>• Bozeman Trail and Crazy Woman Battle Site</li> </ul>	<p><b>B Rec 6018:</b> Designate the following areas as SRMAs and delineate discrete recreation management zone boundaries:</p> <ul style="list-style-type: none"> <li>• Burnt Hollow (17,280 acres)</li> <li>• Cabin Canyon (1,369 acres)</li> <li>• Dry Creek Petrified Tree (2,567 acres)</li> <li>• Hole-in-the-Wall (11,952 acres)</li> <li>• Middle Fork Powder River (10,083 acres)</li> <li>• Mosier Gulch (1,026 acres)</li> <li>• Welch Ranch (1,748 acres)</li> <li>• Weston Hills (9,504 acres)</li> </ul> <p>Emphasize recreation opportunities in SRMAs that are in concert with protecting cultural and visual resources and sustaining the biological integrity of habitats for plant, wildlife, and fish species. In sensitive areas, recreation use could be limited to protect natural and cultural resources.</p>	<p><b>C Rec 6018:</b> Designate the following areas as SRMAs and delineate discrete recreation management zone boundaries:</p> <ul style="list-style-type: none"> <li>• Burnt Hollow (17,280 acres)</li> <li>• Dry Creek Petrified Tree (2,567 acres)</li> <li>• Middle Fork Powder River (1,294 acres)</li> <li>• Mosier Gulch (868 acres)</li> <li>• Welch Ranch (1,748 acres)</li> <li>• Weston Hills (9,504 acres)</li> </ul> <p>Emphasize managing BLM-administered lands for a variety of structured and dispersed recreational opportunities in a manner favorable to accommodate the maximum amount of recreation use in combination with other BLM land uses, in order to produce social and economic benefits.</p>	<p><b>D Rec 6018:</b> Designate the following areas as SRMAs and delineate discrete recreation management zone boundaries:</p> <ul style="list-style-type: none"> <li>• Burnt Hollow (17,280 acres)</li> <li>• Dry Creek Petrified Tree (2,567 acres)</li> <li>• Hole-in-the-Wall (11,952 acres)</li> <li>• Middle Fork Powder River (10,083 acres)</li> <li>• Mosier Gulch (1,026 acres)</li> <li>• Welch Ranch (1,748 acres)</li> <li>• Weston Hills (9,504 acres)</li> </ul> <p>Strategically emphasize a variety of recreation opportunities along with the protection of natural and cultural resources. R&amp;VS management will be recognized as the predominant land use focus in SRMAs. Manage SRMAs under site specific management plans. Site specific management plans will be consistent with and implement the provisions specified for SRMAs in 2543.</p>

Alternative A	Alternative B	Alternative C	Alternative D
<p><b>A Rec 6019:</b> Oil and gas leasing and development are not allowed in the Mosier Gulch Recreation Area.</p> <p>Surface disturbance or occupancy is prohibited within 0.5 mile of the Dry Creek Petrified Tree site unless waived by the authorized officer.</p>	<p><b>B Rec 6019:</b> Do not lease minerals within the boundary of a designated SRMA.</p>	<p><b>C Rec 6019:</b> Lease fluid minerals with a CSU stipulation to be consistent with SRMA management objectives in all SRMAs.</p>	<p><b>D Rec 6019:</b> Do not lease minerals within the boundary of the following SRMAs:</p> <ul style="list-style-type: none"> <li>• Burnt Hollow (17,280 acres)</li> <li>• Dry Creek Petrified Tree (2,567 acres)</li> <li>• Hole-in-the-Wall (11,952 acres)</li> <li>• Middle Fork Powder River (10,083 acres)</li> <li>• Mosier Gulch (1,026 acres)</li> <li>• Welch Ranch (1,748 acres)</li> </ul> <p>Lease fluid minerals with a CSU stipulation to be consistent with SRMA management in the following SRMAs:</p> <ul style="list-style-type: none"> <li>• Weston Hills (9,504 acres)</li> </ul>
<p><b>A Rec 6021:</b> Prohibit surface disturbance or occupancy within 0.5 mile of Dry Creek Petrified Tree Environmental Education Area, unless waived by the authorized officer.</p>	<p><b>B Rec 6021:</b> Prohibit surface disturbance within designated SRMAs unless for administrative use and consistent with other resource values.</p>	<p><b>C Rec 6021:</b> Allow surface disturbance within designated SRMAs consistent with other resource values.</p>	<p><b>D Rec 6021:</b> Allow surface disturbance within designated SRMAs for administrative use only, where consistent with other resource values.</p>
<p><b>A Rec 6022:</b> Pursue withdrawals from appropriation under the mining laws in recreation areas and SRMAs on a project-specific basis.</p>	<p><b>B Rec 6022:</b> Recommend withdrawals from appropriation under the mining laws in designated SRMAs.</p>	<p><b>C Rec 6022:</b> Do not recommend withdrawals from appropriation under the mining laws in designated SRMAs.</p>	<p><b>D Rec 6022:</b> Recommend withdrawals from mineral entry under the mining laws in designated SRMAs.</p>
<p><b>A Rec 6023:</b> Allow salable mineral development within recreation areas and SRMAs on a project-specific basis.</p>	<p><b>B Rec 6023:</b> Allow salable mineral development within designated SRMAs for administrative use only.</p>	<p><b>C Rec 6023:</b> Allow salable mineral development within designated SRMAs consistent with other resource values.</p>	<p><b>D Rec 6023:</b> Allow salable mineral development within designated SRMAs for administrative use only.</p>
<b>Land Resources Livestock Grazing Management</b>			
<p><b>A, B, C, D Grazing 6001:</b> Develop and implement appropriate livestock grazing management actions to achieve the Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming, to provide watershed protection, to improve forage for livestock, forage and habitat for wildlife, and enhance rangeland health.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
<b>A, B, C, D Grazing 6004:</b> Continue implementation of existing AMPs. Develop and implement new AMPs with grazing lessees and other stakeholders to achieve desired resource goals and objectives.			
<b>A, B, C, D Grazing 6005:</b> Manage livestock grazing to sustain riparian, wetland, mountain mahogany, specials status species, or other special habitats.			
<b>A, B, C, D Grazing 6009:</b> Implement strategies that best protect rangeland resources during periods of drought. Cooperate with stakeholders for voluntary adjustments in livestock use and/or livestock management.			
<b>A Grazing 6015:</b> Allow development of range improvements. Establish resource monitoring studies as necessary to detect undesirable changes in the current satisfactory resource conditions.	<b>B Grazing 6015:</b> Develop range improvements for Category M allotments in accordance with resource needs and livestock management.	<b>C Grazing 6015:</b> Develop range improvements for Category M allotments that are lessee proposed and funded only.	<b>D Grazing 6015:</b> Develop range improvements in accordance with resource needs and livestock management.
<p><b>A Grazing 6016:</b> Manage Category I allotments as described below. Conduct baseline inventories. Develop, implement, and monitor AMPs.</p> <p>After range condition class has been upgraded to "good" on allotments now rated "poor" to "fair," allocate the increased available forage first to wildlife to meet the population objectives of the WGFD. Any of the increased forage not needed for wildlife will be available to be licensed for livestock use.</p>	<b>B Grazing 6016:</b> Base AMP goals/objectives on multiple resource health and livestock management in Category I allotments.	<b>C Grazing 6016:</b> Base AMP goals/objectives on livestock management only in Category I allotments.	<b>D Grazing 6016:</b> Conduct baseline inventories. Develop, implement, and monitor AMPs. Base AMP goals/objectives in Category I and M allotments on resource protection and watershed health.

Alternative A	Alternative B	Alternative C	Alternative D
<b>A Grazing 6019:</b> No previous decision; considered on a project-specific basis.	<b>B Grazing 6019:</b> Locate livestock salt or mineral supplements a minimum of 0.5 mile away from water sources, riparian areas, and aspen stands.	<b>C Grazing 6019:</b> Locate livestock salt or mineral supplements a minimum of 500 feet away from water sources, riparian areas, and aspen stands.	<b>D Grazing 6019:</b> Locate livestock salt or mineral supplements a minimum of 500 feet away from water sources, riparian areas, and aspen stands.
<b>A Grazing 6021:</b> Livestock grazing strategies on vegetative treatment areas generally include rest the first year following treatments and deferment of livestock grazing the second year.	<b>B Grazing 6021:</b> Provide a minimum of two years rest from livestock grazing following prescribed burns and other vegetative treatments. Allow additional rest where necessary to achieve resource goals and objectives.	<b>C Grazing 6021:</b> Provide a maximum of two growing seasons rest from livestock grazing following prescribed burns and other vegetative treatments.	<b>D Grazing 6021:</b> Provide rest/deferment from livestock grazing following wildfire, prescribed burns, and other vegetative treatments until resource objectives are met.



**Table 2-4d.** Alternatives analyzed in detail during the 2015 planning effort and incorporated into the 2019 process. **Table 2-4d** is in two parts. Part I are the LUP 2015 ARMPA Goals and Objectives by Alternative analyzed in 2014 and Part II are the Management Actions analyzed in 2014.

**Table 2-4d**  
**Part I 2014 Lander RMP Revision Goals and Objectives by Alternative**

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>Goals</b>			
<b>Goal PR: 5</b> Require successful reclamation of surface-disturbing activities to restore healthy, functioning plant communities and watershed function.			
<b>MR: 1</b> Develop available federal mineral estate.			
<b>FM: 2</b> Manage fire and fuels to restore or maintain natural ecosystem functions, restore fire-adapted ecosystems, reduce losses from landscape-level wildland fire, and protect multiple-use values.			
<b>BR: 1</b> Manage vegetation communities to restore, maintain, or enhance vegetation community health, composition, and diversity. Provide a mix of natural succession stages that incorporate diverse structure and composition into each vegetation type.			
<b>BR: 3</b> Manage for healthy native plant communities by reducing, preventing expansion of, or eliminating the occurrence of invasive nonnative species, undesirable vegetation, or noxious weeds, and predatory plant pests or disease by implementing decisions consistent with goals included in Partners Against Weeds and consistent with state and local weed management plans.			
<b>BR: 4</b> Support internal and external education and awareness of noxious weeds.			
<b>BR: 5</b> In all parts of the planning area, manage for the reduction, prevention, and halting the expansion of cheatgrass. Emphasize the prevention of invasive annual grass and woody plants in Greater Sage-Grouse Core Area.			
<b>BR: 6</b> Maintain, enhance, or restore riparian-wetland areas to support biodiversity and provide the appropriate natural potential combination of vegetation, landform, or large woody debris to: (a) dissipate stream energy associated with high water flows or energies associated with wind and/or wave action and overland flow from adjacent sites, (b) reduce erosion and improve water quality, (c) filter sediment, (d) capture bedload, (e) allow for floodplain development, (f) improve floodwater retention and groundwater recharge, (g) develop root masses that stabilize stream banks, islands, and shoreline features against cutting action, (h) allow for natural rates of water percolation, and (i) develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses.			
<b>BR: 7</b> Manage for the biological integrity and habitat function of terrestrial and aquatic ecosystems to sustain and optimize distribution and abundance of all native and desirable nonnative fish and wildlife species consistent with habitat capability.			
<b>BR: 8</b> Manage direct, indirect, and cumulative impacts to fish and wildlife and their habitats such that no unnecessary or undue degradation results from BLM actions and authorized activities.			
<b>BR: 11</b> Manage for biological integrity and habitat function to facilitate the conservation, recovery, and maintenance of populations of fish, wildlife, and plant special status species.			

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>LR: 2</b> Provide opportunities for developing renewable energy resources.			
<b>LR: 3</b> Manage BLM-administered lands to meet transportation and ROW needs.			
<b>LR: 11</b> Respond to distinct recreation customer demand by providing for customer realization of diverse activity, experience, and benefit opportunities.			
<b>LR: 13</b> Ensure the facilitation of hunting heritage and wildlife conservation.			
<b>Objectives</b>			
<b>PR: 3.3</b> Manage to minimize degradation of soils. Consider prevention of soil degradation when authorizing activities.			
<b>PR: 3.4</b> Manage soil to achieve stability and to support the hydrologic cycle by providing for water capture, storage, and sustained release.			
<b>PR: 4.1</b> Require that decisions and BLM-authorized activities consider soil suitability and limitations for the proposed use in the planning and design stages.			
<b>PR: 5.1</b> Require revegetation to stabilize surface soils, establish natural plant composition and self-perpetuating plant communities capable of supporting the post-disturbance land use.			
<b>PR: 5.2</b> Develop interim and final reclamation standards appropriate for resource and resource use enhancement on a project-specific basis.			
<b>MR: 1.2</b> Provide opportunities for mining claimants to explore for and develop locatable minerals.			
<b>MR: 1.3</b> Provide opportunities for the exploration and development of solid and fluid leasable minerals.			
<b>FM: 1.1</b> The BLM will first provide for firefighter and public safety in every fire management activity.			
<b>FM: 1.4</b> Conduct appropriate emergency stabilization and rehabilitation where necessary after wildfire to address current and anticipated trends to resource values at risk.			
<b>FM: 2.1</b> Consistent with the 10-year Comprehensive Strategy, prioritize and implement hazardous fuels reduction treatments where the adverse impacts of wildland fire are greatest.			
<b>FM: 2.2</b> Consult and cooperate with private landowners, affected partners, and local, state, tribal, and other federal agencies on individual treatments (such as prescribed fire and biological, mechanical, and chemical treatments) designed to reduce or modify hazardous fuels accumulations.			
<b>FM: 2.3</b> Working with private landowners, affected partners, and local, state, tribal, and other federal agencies, identify areas for potential use of wildland fire to protect, maintain, and enhance resources through collaborative development of operational plans.			
<b>FM: 2.4</b> Restore natural fire regimes and frequency to the landscape.			
<b>FM: 2.5</b> Using the best available science and on-the-ground inventory, determine the existing condition class of vegetation communities and manage landscapes to improve condition class and ecological conditions described in the NRCS Ecological Site Descriptions.			
<b>FM: 2.6</b> Utilize fuels and vegetation treatments to maintain and enhance Greater Sage-Grouse habitat where applicable.			
<b>BR: 1.1</b> Maintain, improve, enhance, or restore habitat to facilitate the conservation, recovery, and maintenance of populations of native and desirable nonnative plant species.			
<b>BR: 1.2</b> Maintain, improve, or enhance areas of ecological importance, priority plant species and habitats, and unique plant communities.			

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>BR: 1.3</b> Maintain, improve, or enhance sustainable forage levels for all grazing and browsing animals depending upon identified desirable vegetation communities and desired future condition.			
<b>BR: 1.4</b> Utilize mechanical, chemical, and biological methods, including fire and livestock grazing, to achieve desirable vegetation communities with consideration of the area's precipitation and the potential for the introduction or the spread of invasive species and the BLM's ability to provide post-treatment monitoring and management.			
<b>BR: 1.5</b> Manage grazing and browsing use levels in consideration of plant, riparian-wetland resources, and soil health requirements as identified in the Standards for Healthy Rangelands.			
<b>BR: 3.1</b> Maintain adequate baseline information, and inventory and monitoring data, regarding the extent and control of invasive species. Evaluate effectiveness of decisions and assess progress toward goals to improve invasive species management. Develop a prevention and early detection program.			
<b>BR: 3.2</b> Coordinate with adjoining jurisdictions in management and control of invasive nonnative species across jurisdictional and political boundaries.			
<b>BR: 3.3</b> Include provisions for invasive nonnative species management in all BLM-funded or authorized actions.			
<b>BR: 4.1</b> Develop and deploy educational and public awareness programs and materials in cooperation with other agencies and organizations.			
<b>BR: 6.1</b> Develop recovery management prescriptions for riparian-wetland areas that are not functioning properly and/or have impaired water quality.			
<b>BR: 6.2</b> Develop management plans capable of ensuring riparian-wetland areas will achieve or exceed proper functioning conditions.			
<b>BR: 6.3</b> Manage all resources and resource uses to maintain, enhance, or restore riparian-wetland habitats.			
<b>BR: 6.4</b> Maintain, enhance, or restore aquatic ecosystems including stream geomorphology.			
<b>BR: 7.1</b> Manage habitats to support WGFD in the attainment of big game herd unit objectives, fish management objectives, and well-distributed, healthy populations of fish and wildlife species consistent with the WGFD's Strategic Habitat Plan, State Wildlife Action Plan, and strategic population plans, and to achieve the stated purpose of designated Wildlife Habitat Management Areas.			
<b>BR: 7.4</b> Provide barrier-free movement and habitat protection from disturbance and fragmentation in identified wildlife migration routes and fish passages.			
<b>BR: 8.1</b> In the absence of offsite mitigation or in areas with site-specific allowances, manage for no greater than a 10 percent net loss of acres of big game crucial winter range and parturition habitat over the life of the plan.			
<b>BR: 8.2</b> Implement proactive management and conservation measures to prevent and/or reduce adverse impacts to wildlife and aquatic species.			
<b>BR: 11.1</b> Protect or enhance areas of ecological importance for special status species. Manage for no net loss of habitat for any special status species.			
<b>BR: 11.2</b> Conserve and recover special status species by determining and implementing strategies, restoration opportunities, use restrictions, and management actions.			

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>BR: 11.3</b> Manage specific environmental hazards, risks, and impacts in a manner compatible with special status species health.			
<b>BR: 11.4</b> Identify habitat thresholds necessary to sustain well-distributed healthy populations of special status species to avoid future listings under the ESA.			
<b>BR: 11.5</b> Develop and implement habitat management plans and activity plans or use other mechanisms to protect special status species deemed high priority.			
<b>BR: 12.1</b> Identify opportunities in coordination with stakeholders to introduce or reintroduce special status species.			
<b>BR: 13.1</b> Maintain large patches of high-quality sagebrush habitats with emphasis on patches occupied by Greater Sage-Grouse.			
<b>BR: 13.2</b> Maintain connections between sagebrush habitats, with emphasis on connections between habitats occupied by Greater Sage-Grouse.			
<b>BR: 14.1</b> Restore and/or reconnect large patches of sagebrush habitat with emphasis on reconnecting patches occupied by stronghold and isolated populations of Greater Sage-Grouse.			
<b>BR: 15.1</b> Adjust and maintain wild horse numbers and HMAs to comply with federal policies and applicable agreements with the State of Wyoming, as applicable to the management situation.			
<b>LR: 1.1</b> Develop and maintain a land-ownership pattern that will provide access for managing and protecting BLM-administered lands.			
<b>LR: 1.2</b> Use appropriate actions such as disposal and acquisition to resolve issues related to intermixed land-ownership patterns.			
<b>LR: 1.3</b> Maintain availability of BLM-administered lands to meet habitation, cultivation, trade, mineral development, recreation, and manufacturing needs of the community. Improve access to BLM-administered lands.			
<b>LR: 3.1</b> Provide opportunities to meet the needs of ROW customers.			
<b>LR: 3.2</b> Support the availability of ROWs consistent with federal policies regarding the development of renewable energy sources.			
<b>LR: 6.1</b> Provide route networks and access with consideration of primary travelers and valid existing rights.			
<b>LR: 6.2</b> Where access is a priority, provide for sufficient route networks to meet public needs.			
<b>LR: 6.3</b> Where access is deemed essential for visitor recreation experiences, provide for sufficient routes and route networks to produce targeted recreation settings.			
<b>LR: 7.1</b> Provide route networks and route locations with consideration of Wyoming Standards for Healthy Rangelands.			
<b>LR: 7.2</b> In areas intensively managed to protect natural and cultural resources, provide route networks and route locations that maintain or enhance the quality of the protected resources.			
<b>LR: 7.3</b> In areas intensively managed to protect recreational, archeological, paleontological, and visual setting, provide route densities and route locations that maintain or enhance the identified setting quality.			
<b>LR: 8.1</b> Provide route networks, route locations, or visitor information to promote the safety of public land users			
<b>LR: 9.1</b> Provide route networks, route locations, or visitor information to minimize resource use/user conflict.			
<b>LR: 10.1</b> Continue to assess rangeland health on a 10-year cycle in accordance with the Wyoming Standards for Healthy Rangelands. Use rangeland health assessments to prioritize rangeland management.			

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>LR: 10.2</b> Implement grazing strategies, including developing range improvement projects, to: maintain or enhance vegetative communities and ecosystem functions and to achieve the Wyoming Standards for Healthy Rangelands and grazing objectives in cooperation, consultation, and coordination with permittees/lessees, cooperators and the interested public. Design all range projects in a manner that minimizes potential for invasive species establishment. Monitor for, and treat invasive species associated with existing range improvements.			
<b>LR: 10.3</b> Manage allotment and pasture boundaries to facilitate grazing management that maintains and enhances rangeland health.			
<b>LR: 10.4</b> Update and use the allotment priority ranking (Maintain, Improve, and Custodial categorization process). Revise allotment categories as new information becomes available. Re-categorization does not require an RMP amendment.			
<b>LR: 10.5</b> Manage grazing to provide sustainable forage and establish allowable use levels in those areas authorized for livestock grazing.			
<b>LR: 10.6</b> Develop a forage reserve plan to identify and manage voluntary forage reserves within the planning area.			
<b>LR: 10.7</b> Identify and determine areas and/or allotments available for livestock grazing.			
<b>LR: 10.8</b> Support livestock grazing AUM levels consistent with multiple use and the ability of BLM-administered lands to provide adequate habitat and forage.			
<b>LR: 10.9</b> Manage grazing to assist with successful recovery, reclamation, rehabilitation, and restoration of disturbed rangelands to meet the Wyoming Standards for Healthy Rangelands.			
<b>LR: 10.10</b> As opportunities arise, remove or modify fences to facilitate livestock, wild horse, and wildlife movement and to reduce threats to animal safety.			
<b>LR: 11.1</b> Manage SRMAs for specific visitors, affected community residents, local governments and private sector businesses, or other constituents and the communities or other places where these customers originate (recreation-tourism market).			
<b>LR: 11.2</b> SRMA Objective: Specific outcome-focused objectives, recreation setting character conditions, and additional decisions can be found below in the SRMA specific objectives and decisions.			
<b>LR: 12.1</b> Visitor Services Resource Protection Objective: Increase awareness, understanding, and a sense of stewardship in recreational activity participants so their conduct safeguards cultural and natural resources as defined by Wyoming Standards for Healthy Rangelands or area-specific (such as ACEC or WSA) objectives.			
<b>LR: 12.2</b> Visitor Health and Safety Objective: Ensure that visitors are not exposed to unhealthy or unsafe human-created conditions (defined by a repeat or recurring incident in the same year, of the same type, in the same location, due to the same cause).			
<b>LR: 12.3</b> Use/User Conflict Objective: Achieve a minimum level of conflict between recreation participants and (1) other resource/resource uses sufficient to enable the achievement of identified land use plan goals, objectives, and actions; (2) private landowners sufficient to curb illegal trespass and property damage; and (3) other recreation participants sufficient to maintain a diversity of recreation activity participation.			
<b>LR: 13.1</b> Expand wildlife-dependent recreational opportunities on BLM-administered lands.			
<b>LR: 13.2</b> Improve and enhance access to BLM-administered lands important for wildlife-dependent recreational opportunities.			
<b>LR: 13.3</b> Ensure the enjoyment of wildlife-dependent recreation among various demographic groups.			

**Table 2-4d**  
**Part II 2014 Lander RMP Revision Management Actions by Alternative**

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>General Management Direction for Action Alternatives</b>			
<b>Physical Resources Soil Reclamation</b>			
<p><b>A, B, C, D 1015:</b> Implement BLM National and Wyoming Reclamation Policies requiring reclamation plans be developed for all federal actions authorized, conducted, or funded by the BLM that disturb vegetation and/or the mineral/soil resources.</p> <p>For future actions, require a full reclamation bond specific to the site in accordance with 43 CFR 3104.2, 3104.3, and 3104.5. Ensure bonds are sufficient for costs relative to reclamation (Connelly et al. 2000, Hagen et al. 2007) that would result in full restoration of the lands to their condition before disturbance. Base the reclamation costs on the assumption that contractors for the BLM will perform the work.</p>			
<p><b>A, B, C, D 1017:</b> Require that surface-disturbing activities minimize the surface disturbance footprint to the maximum extent possible to limit the areas requiring reclamation. Limit disturbance of desirable vegetative communities established during interim reclamation when implementing final reclamation.</p>			
<p><b>A, B, C, D 1018:</b> Require that all reclamation plans identify the desired plant community for final reclamation.</p>			
<p><b>A, B, C, D 1019:</b> Consider wildlife habitat objectives in all final reclamation objectives. In Core Area, final reclamation objectives will be to restore Greater Sage-Grouse habitat. Include metrics to ensure that restoration goals are met.</p>			
<p><b>A, B, C, D 1020:</b> Require site stabilization and sediment control in compliance with Wyoming Stormwater Discharge requirements and BLM reclamation policies.</p>			
<p><b>A 1021:</b> Soil management and reclamation practices will be identified based on site-specific characteristics and implemented according to BLM reclamation policies.</p>	<p><b>B 1021:</b> Same as Alternative A, plus require that site-specific interim and final reclamation practices be developed in accordance with reclamation policies that will meet the non-DDA reclamation standards as identified in Appendix D (p. 1477).</p>	<p><b>C 1021:</b> Same as Alternative A.</p>	<p><b>D 1021:</b> Same as Alternative A, plus require that site-specific interim and final reclamation practices be developed in accordance with national and Wyoming reclamation policies that will meet the reclamation standards as identified in Appendix D (p. 1477). The type and detail of the reclamation plan will be commensurate with the extent and duration of soil disturbance. For extensive disturbance such as a full-field oil and gas development, a detailed,</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
(see above)	(see above)	(see above)	multi-phase plan such as the Continental Divide Creston oil and gas project (CDC) reclamation plan attached as Appendix G (p. 1505) will be required. (Note: The CDC oil and gas reclamation plan are offered as an example of the type of detailed plan that would be required. It is not considered to be a final plan, but only an example.)
<b>A 1022:</b> Require that during and following reclamation activities, the land user is responsible for monitoring to help ensure reclamation success as defined in reclamation policies. Require follow-up seeding and/or other corrective or remedial erosion-control measures on areas of surface disturbance, as appropriate. During and following reclamation activities the land user is responsible for monitoring and, if necessary, protecting the reclaimed landscape until reclamation standards have been achieved.	<b>B 1022:</b> Same as Alternative A, plus monitoring and follow-up reclamation practices will continue on interim and final reclaimed areas until the standards for non-DDA areas as identified in Appendix D (p. 1477) have been successfully achieved.	<b>C 1022:</b> Same as Alternative A.	<b>D 1022:</b> Same as Alternative A, plus monitoring and follow-up reclamation practices will continue on interim and final reclaimed areas until the standards identified in Appendix D (p. 1477) have been successfully achieved.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<p><b>A 1022:</b> Identify areas with soil disturbance that have not been successfully reclaimed in accordance with reclamation policies, as opportunities occur.</p>	<p><b>B 1022:</b> Inventory BLM-administered lands to identify areas with soil disturbance that have not been successfully reclaimed. Prioritize reclamation projects in consideration of impacts to water quality, wildlife habitat, and visual resources. Utilize inventory if offsite mitigation is being considered. Require reclamation in accordance with reclamation policies and the non-DDA reclamation standards as identified in Appendix D (p. 1477).</p>	<p><b>C 1022:</b> Same as Alternative A.</p>	<p><b>D 1022:</b> Identify areas with soil disturbance that were not successfully reclaimed. Priorities are determined on a case-by-case basis with an emphasis on Greater Sage-Grouse Core Area and other important wildlife habitat. Require reclamation in accordance with reclamation policies and reclamation standards as identified in Appendix D (p. 1477). Develop partnerships and funding sources to implement reclamation where no responsible party has the reclamation obligation.</p>
<p><b>A 1023:</b> Adapt reclamation methods to specific requirements based on plant communities within potential ecological sites and site-specific objectives.</p>	<p><b>B 1023:</b> Focus reclamation practices on restoring surface-disturbing activities to an ecological condition equal to or better than predisturbance composition and production levels based on habitat objectives. Require reclaimed areas to meet non-DDA reclamation standards identified in Appendix D (p. 1477) or restore to habitat objectives, whichever requires a higher level of standards to meet final reclamation success.</p>	<p><b>C 1023:</b> Focus reclamation on stabilizing soils and establishing ground cover sufficient to reduce and/or prevent accelerated soil erosion and noxious weed infestation.</p>	<p><b>D 1023:</b> Same as Alternative A, plus incorporate reclamation objectives and require reclamation plans, including reclamation standards as identified in Appendix D (p. 1477) on a site-specific basis.</p>



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>A 1024:</b> Utilize management practices to achieve reclamation standards as defined in BLM reclamation policies and implement project-specific reclamation practices.	<b>B 1024:</b> Utilize management practices that achieve reclamation objectives and standards for non-DDA, select management practices based on restoring the site potential, and emphasize plant communities that are habitat compatible (see Appendix D (p. 1477)).	<b>C 1024:</b> Utilize management practices that achieve site-specific reclamation objectives specific to site stabilization. Select management practices based on the ability to establish ground cover for erosion control purposes.	<b>D 1024:</b> Utilize management practices including phased development recognized in Appendix H (p. 1521) and required BLM reclamation policies to achieve reclamation success. Require Reclamation Objectives and Standards as identified in Appendix D (p. 1477) in all reclamation plans.
<b>A 1025:</b> Reclamation management practices will select native plant species based on site characteristics and ecological site descriptions.	<b>B 1025:</b> Reclamation management practices will select and emphasize native plant species conducive to the site potential and habitat compatibility and require reclaimed areas to meet non-DDA reclamation standards identified in Appendix D (p. 1477).	<b>C 1025:</b> Reclamation management practices would utilize native and approved nonnative plant species to achieve reclamation objectives.	<b>D 1025:</b> Same as Alternative A, plus reclamation success will be determined based on the criteria and standards identified in Appendix D (p. 1477).
<b>Mineral Resources</b>			
<b>Minerals General</b>			
<b>A, B, C, D 2001:</b> Require a Land Use Plan amendment before leasing coal or oil shale-tar sands.			
<b>A, B, C, D 2002:</b> Incorporate proponent committed or BLM Required Design Features or mitigation such as BMPs as COAs for any authorized mineral activity for federal minerals, regardless of surface ownership. In project-level EISs and EAs, require, on a case-by-case basis, the development of a wildlife resource monitoring and mitigation plan to address potential impacts from mineral development on wildlife populations and/or habitat.			
<b>Locatable Minerals</b>			
<b>A 2007:</b> Approximately 23,114 acres are maintained for withdrawal from locatable mineral entry and extensions are applied for as needed.	<b>B 2007:</b> Approximately 1,632,605 acres are pursued for withdrawal from locatable mineral entry. (Approximately 8,634 acres are withdrawn in pre-	<b>C 2007:</b> Approximately 0 acres are pursued for withdrawal from locatable mineral entry. (Approximately 8,634 acres are withdrawn in pre-FLPMA actions	<b>D 2007:</b> Approximately 449,068 acres are pursued for withdrawal from locatable mineral entry. (Approximately 8,634 acres are withdrawn in pre-FLPMA actions

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<p>(Approximately 8,634 acres are withdrawn in pre-FLPMA actions which would continue indefinitely.)</p> <p>See corresponding alternatives for specific details and acreage of withdrawals.</p> <p>A total of 2,777,334 acres are open to locatable mineral entry.</p> <p>Note: Withdrawals are a realty action and are identified here just for information purposes.</p>	<p>FLPMA actions which would continue indefinitely.)</p> <p>See corresponding alternatives for specific details and acreage of withdrawals.</p> <p>A total of 1,167,862 acres are open to locatable mineral entry.</p>	<p>which would continue indefinitely.)</p> <p>See corresponding alternatives for specific details and acreage of withdrawals.</p> <p>A total of 2,800,467 acres are open to locatable mineral entry.</p>	<p>which would continue indefinitely.) Any existing [mining] claims within the withdrawal area subject to validity exams.</p> <p>See corresponding alternatives for specific details of acreage of withdrawals.</p> <p>A total of 2,351,399 acres are open to locatable mineral entry.</p>
Leasable Minerals Geothermal			
<p><b>A 2008:</b> 728,277 acres of federal mineral estate are open to geothermal leasing subject to a case-by-case analysis of impacts to ACECs and other resource conflicts.</p> <p>1,703,913 acres of federal mineral estate are open to geothermal leasing with moderate constraints.</p> <p>242,226 acres of federal mineral estate are open to geothermal leasing with major constraints.</p>	<p><b>B 2008:</b> 322,717 acres of federal mineral estate are open to geothermal leasing with moderate constraints.</p> <p>175,369 acres of federal mineral estate are open to geothermal leasing with major constraints.</p> <p>2,304,728 acres of federal mineral estate are closed to geothermal leasing.</p> <p>Constraints applied for oil and gas leasing also apply to geothermal leasing.</p>	<p><b>C 2008:</b> 797,174 acres of federal mineral estate are open to geothermal leasing subject to a case-by-case analysis of impacts to ACECs and other resource conflicts.</p> <p>1,738,283 acres of federal mineral estate are open to geothermal leasing with moderate constraints.</p> <p>165,747 acres of federal mineral estate are open to geothermal leasing with major constraints.</p>	<p><b>D 2008:</b> 1,198,821 acres of federal mineral estate are open to geothermal leasing with moderate constraints.</p> <p>859,566 acres of federal mineral estate are open to geothermal leasing with major constraints.</p> <p>696,816 acres of federal mineral estate are closed to geothermal leasing.</p> <p>Constraints applied for oil and gas leasing also apply to geothermal leasing.</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
134,686 acres of federal mineral estate are closed to geothermal leasing.	(see above)	107,897 acres of federal mineral estate are closed to geothermal leasing.	(see above)
<b>Leasable Minerals Oil and Gas</b>			
<b>A 2009:</b> Approximately 731,144 acres of federal mineral estate are open to oil and gas leasing subject only to standard lease stipulations.	<b>B 2009:</b> Approximately 32,952 acres of federal mineral estate are open to oil and gas leasing subject only to standard lease stipulations.	<b>C 2009:</b> Approximately 804,794 acres of federal mineral estate are open to oil and gas leasing subject only to standard lease stipulations.	<b>D 2009:</b> Approximately 44,945 acres of federal mineral estate are open to oil and gas leasing subject only to standard lease stipulations.
<b>A 2013:</b> Consider soil erosion, degradation of soil quality, sedimentation, and other factors in determining the management of produced water on a case-by-case basis in accordance with Onshore Oil and Gas Order No. 7.	<b>B 2013:</b> Same as Alternative A, except avoid surface discharge of produced water in all new oil and gas development projects.	<b>C 2013:</b> Same as Alternative A.	<b>D 2013:</b> Disposal of produced water is authorized in accordance with Onshore Oil and Gas Order #7, Produced Water Handling and in compliance with state regulations. If there is WYPDES permitted discharge, consider soil erosion, degradation of soil quality, sedimentation, and other factors in coordination with the State of Wyoming.
<b>Geophysical Exploration</b>			
<b>A 2014:</b> Allow geophysical exploration subject to identified Conditions of Approval. If a particular geophysical exploration can be conducted within the constraints necessary to protect other resources, it will be allowed.	<b>B 2014:</b> The planning area is open to geophysical exploration except for lands identified as closed to oil and gas exploration and development or subject to major constraints. Geophysical exploration is subject to motorized travel limitations and restrictions on surface-disturbing and disruptive activities. See sections below.	<b>C 2014:</b> Same as Alternative A.	<b>D 2014:</b> The planning area is open to geophysical exploration except for lands identified as closed to mineral leasing or NSO to oil and gas leasing. Geophysical exploration is subject to motorized travel limitations and restrictions on surface-disturbing and disruptive activities.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>Leasable Minerals Other Leasables (Phosphate)</b>			
<b>A 2015:</b> 2,590,482 acres of federal mineral estate are open to phosphate leasing subject to standard lease stipulations.  218,619 acres of federal mineral estate are closed to phosphate leasing.	<b>B 2015:</b> 551,440 acres of federal mineral estate are open to phosphate leasing subject to standard lease stipulations.  2,257,661 acres of federal mineral estate are closed to phosphate leasing.	<b>C 2015:</b> 2,642,047 acres of federal mineral estate are open to phosphate leasing subject to standard lease stipulations.  167,054 acres of federal mineral estate are closed to phosphate leasing.	<b>D 2015:</b> 1,539,655 acres of federal mineral estate are open to phosphate leasing subject to standard lease stipulations.  1,269,446 acres of federal mineral estate are closed to phosphate leasing.
<b>Fire and Fuels Management</b>			
<b>A, B, C, D 3001:</b> Utilize a full suite of wildland fire suppression tactics based on a full evaluation of the highest priority of firefighter and public safety and other factors, such as the circumstances under which a fire occurs, the threat to human infrastructure, important natural and cultural resources, and other values to be protected. Coordinate responses to wildland fire across jurisdictional boundaries. Conduct emergency stabilization and rehabilitation as needed. In Greater Sage-Grouse Core Area, prioritize suppression to conserve the habitat immediately after firefighter and public safety. Where applicable and technically feasible, apply Greater Sage-Grouse BMPs such as those identified in 1521.			
<b>A, B, C, D 3004:</b> Use chemical, biological, and mechanical treatments to reduce the risk of landscape-level wildfire within priority areas, alter fuel loading and improve ecological condition of vegetation communities. Consider the presence and potential for noxious and nonnative plant species when designing wildland fire response and fuels treatments.			
<b>A, B, C, D 3005:</b> Use personal use and commercial vegetation sale permits, where not otherwise constrained or prohibited, for removal of firewood, post and pole, Christmas trees, sawlogs, and wildlings, for hazardous fuels management.			
<b>A, B, C, D 3007:</b> Do not reduce sagebrush canopy cover to less than 15 percent within a defined treatment polygon in suitable Greater Sage-Grouse Core Area habitat unless a vegetation management objective requires additional reduction in sagebrush cover to protect or to conserve habitat quality for Greater Sage-Grouse or other sagebrush steppe dependent and obligate species. Maintain sagebrush and understory diversity (relative to ecological site description) unless such removal is necessary to achieve Greater Sage-Grouse habitat management objectives. Remove conifers or reduce the density of conifers that have encroached into sagebrush plant communities.			
<b>A, B, C, D 3009:</b> Cooperate with stakeholders to conduct landscape level treatments resulting in enhanced fuels management and/or restoration of fire-adapted ecosystems. In cooperation with stakeholders, manage to promote the growth and persistence of native shrubs, grasses, and forbs.			
<b>A, B, C, D 3010:</b> Monitor fuels treatment and wildfire burn areas for sufficient time after treatment or fire event in order to determine short-term and long-term project success, detect weed infestations and accelerated soil erosion, and assess overall vegetation recovery. Utilize all available rehabilitation tools to control weed infestation and accelerated soil erosion. Implement rest of treated areas from livestock grazing for two full growing seasons on all prescribed or wildland fire burn areas unless vegetation recovery dictates otherwise.			

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>A, B, C, D 3011:</b> Limit the use of fire to treat sagebrush in areas receiving less than 12 inches of annual precipitation. Prescribed fire to reduce hazardous fuels or enhance land health in areas receiving less than 12 inches of annual precipitation could be considered after exploring other potential treatment methods and where cheatgrass is a very minor component of the understory.			
<b>A, B, C, D 3012:</b> Utilizing Required Design Features and BMPs applied as COAs such as those identified in Appendix H (p. 1521), establish fuels treatment projects at strategic locations to minimize the size of wildfires and limit further loss of greater sage-grouse habitat. Restore native or desirable plants and create landscape patterns to benefit Greater Sage-Grouse. In suitable habitat within Greater Sage-Grouse Core Area, incorporate Greater Sage-Grouse specific habitat objectives and apply appropriate seasonal restrictions for implementing vegetation management treatments in Greater Sage-Grouse Core Area. Do not allow treatments in Core Area winter concentration areas unless the treatments are designed to strategically reduce wildfire risk around or in the winter range and will maintain winter range habitat quality. Power wash all fire vehicles including engines, water tenders, personnel vehicles, and OHVs after they have been in the field to help to prevent the establishment or spread of invasive weeds.			
<b>A, B, C, D 3013:</b> Restrict the use of aerial applied fire retardant near identified rock art sites unless values at risk, such as human life and safety, require their use.			
<b>A 3015:</b> Full suppression is the most likely fire suppression strategy with other fire suppression strategies used on a case-by-case basis.	<b>B 3015:</b> Full suppression of wildland fire is used within the WUI and to minimize critical resource damage. The use of unplanned ignition to achieve resource benefit is allowed on a case-by-case basis.	<b>C 3015:</b> Full suppression of wildland fire is the most likely response throughout the planning area, with other suppression strategies used on a case-by-case basis. The use of unplanned ignition to achieve resource benefit is not allowed.	<b>D 3015:</b> Full suppression of wildland fire is used within the WUI and in areas of high resource values including Greater Sage-Grouse Core Area. A full range of wildland fire suppression tactics are allowed throughout the planning area, including the use of unplanned ignition to achieve resource benefit.
<b>A, B, C, D 3017:</b> Utilizing Required Design Features and BMPs applied as Conditions of Approval, establish fuels treatment projects at strategic locations to minimize the size of wildfires. Restore native or desirable plants and create landscape patterns to benefit wildlife. Power wash all fire vehicles including engines, water tenders, personnel vehicles, and OHVs after they have been in the field to help prevent the establishment or spread of invasive weeds.			
<b>Biological Resources Vegetation Grassland and Shrubland Communities</b>			
<b>A, B, C, D 4017:</b> Identify unique plant communities and manage to protect, preserve, or enhance these communities.			
<b>A 4018:</b> Manage vegetation communities for vegetative attributes described in NRCS Ecological Site Guides and to meet identified vegetative goals.	<b>B 4018:</b> Manage vegetation communities to benefit biological diversity including wildlife, fish, and special status species.	<b>C 4018:</b> Manage vegetation communities to maximize forage production for the ecological site.	<b>D 4018:</b> Same as Alternative A, plus when existing Ecological Site Descriptions have not been developed, are too general, or are not correct to serve

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
(see above)	(see above)	(see above)	adequately as benchmarks, identify and document local areas of similar potential within each specific ecological site that exemplify achievement of appropriate habitat objectives, and use these sites for the development of new reference sheets to be used as the benchmark reference. Establish measurable objectives related to Greater Sage-Grouse habitat.
<b>A 4019:</b> On a case-by-case basis, use vegetation treatments to increase forage production when consistent with healthy rangeland ecosystems.	<b>B 4019:</b> Use vegetation treatments to restore diversity of ecological sites and transitional states, and to benefit all resources.	<b>C 4019:</b> Use vegetation treatments to change plant community composition in a manner that achieves rangeland health objectives and facilitates grazing management. Assure that projects conform to wildlife objectives, particularly with regard to Greater Sage-Grouse.	<b>D 4019:</b> Use vegetation treatments to change plant community composition in a manner that achieves wildlife objectives, rangeland health objectives, and facilitates grazing management. Assure that projects conform to resource objectives for the site.
<b>Biological Resources Vegetation Invasive Species and Pest Management</b>			
<b>A, B, C, D 4022:</b> Develop and implement a program promoting public awareness of Wyoming Declared Noxious Weeds and Pests as well as INNS.			
<b>A, B, C, D 4023:</b> Manage weed treatments to maintain and improve Greater Sage-Grouse habitat. Apply Required Design Features and BMPs as COAs such as those in Appendix H (p. 1521).			
<b>A, B, C, D 4024:</b> Require the use of certified noxious-weed free forage, mulch, and other land-applied products by BLM-authorized activities on BLM-administered lands.			
<b>A, B, C, D 4025:</b> Should INNS become established in a location, develop and implement site-specific plans to eradicate/control invasive weeds in all surface-disturbing activities in the immediate vicinity. Priority for control will be: (1) Wyoming Declared Weed and Pest Species, (2) those weeds on the Western States Combined Declared Noxious Weed List, (3) those annual/biennial invasive weeds interfering with reclamation efforts, and (4) those INNS interfering with a management objective.			
<b>A, B, C, D 4026:</b> Develop a plan to manage cheatgrass in coordination with other agencies and individuals with the local (County) Weed & Pest Control Districts acting as the point of contact among all parties.			

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>A, B, C, D 4027:</b> Require that all equipment and vehicles used for BLM-authorized activities be cleaned for seeds of noxious weeds and INNS before moving onto BLM-administered lands. Prohibit project vehicles accessing BLM-administered lands via cross-county travel from driving through infestations during access to the site. If the area on which BLM-authorized activities take place is identified as being a high risk for invasive and/or noxious weeds, require that vehicles be cleaned before leaving the worksite with prescriptions for the disposal of wash water.			
<b>A 4028:</b> Do not require livestock flushing to prevent the spread of INNS.	<b>B 4028:</b> If the Authorized Officer determines that livestock are likely carrying ingested seeds of INNS, the Authorized Officer may require that livestock be flushed for weeds for a period of 72 hours before allowing livestock to move onto BLM-administered lands	<b>C 4028:</b> Same as Alternative A.	<b>D 4028:</b> Same as Alternative B.
<b>A 4029:</b> Manage activities that contribute to the spread of noxious weeds on a case-by-case basis in accordance with factors identified in Executive Order 13112.	<b>B 4029:</b> If the Authorized Officer determines that BLM-authorized activities are contributing to the spread of noxious or invasive species, adjust the terms of the authorized activity to aid in the control of the species.	<b>C 4029:</b> Same as Alternative A.	<b>D 4029:</b> Same as Alternative B.
<b>Biological Resources Vegetation Riparian-Wetland Resources</b>			
<b>A, B, C, D 4030:</b> Identify riparian-wetland management actions to promote biodiversity and develop an implementation plan to incorporate actions into BLM-authorized activities. Manage riparian-wetland areas and wet meadows to achieve or maintain diverse species richness that includes a component of perennial forbs in conjunction with desirable riparian sedges, rushes, bulrushes, and grasses, as appropriate.			
<b>A, B, C, D 4031:</b> Implement identified management actions to have riparian-wetland areas meet or exceed PFC and Standard 2 of the Wyoming Standards for Healthy Rangelands.			

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>Biological Resources Fish and Wildlife</b>			
<b>Wildlife</b>			
<b>A 4056:</b> Wildlife seasonal protections for surface-disturbing and disruptive activities do not limit maintenance and operation actions unless specifically identified in project analysis.	<b>B 4056:</b> Wildlife seasonal protections for surface-disturbing and disruptive activities also apply to maintenance and operation actions of a developed project when the activity is determined to be detrimental to wildlife.	<b>C 4056:</b> Do not apply wildlife seasonal protections to maintenance and operation actions.	<b>D 4056:</b> Outside of DDAs, wildlife seasonal protections from surface-disturbing and disruptive activities apply to maintenance and operations actions when the activity is determined to be detrimental to wildlife (see Appendix I (p. 1535)). Reclamation of surface disturbance will be in accordance with Appendix D (p. 1477) for non-DDA areas.
<b>A 4059:</b> On a case-by-case basis, close and reclaim redundant roads to reduce road density and habitat fragmentation.	<b>B 4059:</b> Identify and close and/or reclaim unnecessary roads to reduce road density and habitat fragmentation.	<b>C 4059:</b> Do not close and reclaim unnecessary roads.	<b>D 4059:</b> Same as Alternative A, plus conduct in coordination with adjacent landowners and/or state and county governments.
<b>Biological Resources Special Status Species</b>			
<b>A, B, C, D 4067:</b> Develop and implement protective measures for federally listed species in coordination with the USFWS. BLM will closely examine the applicability of categorical exclusions in priority habitat. If extraordinary circumstances review is applicable, BLM should determine whether those circumstances exist. BLM will continue to take action in cooperation with the USFWS to facilitate the recovery of threatened and endangered plant species that occur on BLM-administered land.			
<b>A, B, C, D 4070:</b> Coordinate with agencies, including state and local governments, in the restoration, reintroduction, augmentation, or reestablishment of threatened, endangered, and other special status species populations and/or habitats.			
<b>A, B, C, D 4074:</b> Develop site-specific measures for BLM-authorized activities to protect threatened, endangered, and sensitive species. Reduce the footprint of development and facilities to the smallest practical to protect special status species and their habitat. Incorporate Required Design Features and BMPs as COAs, such as those identified in Appendix H (p. 1521) as appropriate for authorized activities to address adverse impacts to special status species. Require seasonal restrictions or other identified mitigation as needed to minimize impacts to migratory birds and their habitats protected by the Migratory Bird Treaty Act.			
<b>A, B, C, D 4076:</b> Prohibit surface-disturbing and disruptive activities in Greater Sage-Grouse winter concentration areas, as they are identified, from December 1 to March 14 unless data indicate a date modification is necessary to better protect wintering Greater Sage-Grouse. Mineral and realty actions in these areas are managed with Category I restrictions.			



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>A, B, C, D 4078:</b> The Dubois area and Wyoming Governor's Greater Sage-Grouse Core Area are priorities for management of special status fish and wildlife species and their habitats.			
<b>A, B, C, D 4079:</b> Maintain sagebrush and understory diversity (relative to ecological site description) in seasonal Greater Sage-Grouse and other sagebrush obligate species habitats unless such removal is necessary to achieve habitat management objectives. Vegetation treatments for Greater Sage-Grouse would follow the "Wyoming Game and Fish Department Protocols for Treating Sagebrush to be Consistent with Wyoming Executive Order 2011-5; Greater Sage-Grouse Core Area Protection" (WGFD 2011) or the most current science available. See IM 2012-019 Attachment 6 or the most current guidance available.			
<b>A, B, C, D 4080:</b> Maintain seeps, springs, wet meadows, and riparian vegetation in a functional and diverse condition for young Greater Sage-Grouse and other species that depend on forbs and insects associated with these areas. Restore lost riparian functioning systems by repairing abnormally incised drainages to raise water tables and increase water storage and brood-rearing habitats, within Greater Sage-Grouse habitat.			
<b>A, B, C, D 4082:</b> Discourage the use of broad-spectrum insecticides where insect control is required. Target pest control toward key problem areas and schedule applications to be the smallest amount effective in greater sage-grouse brood-rearing areas.			
<b>A, B, C, D 4083:</b> In cooperation with stakeholders, design and locate fences so as not to disturb important greater sage-grouse habitat areas. Increase the visibility of existing fences to reduce hazards to flying greater sage-grouse. Require the installation of fence markers on new wire fences constructed in Greater Sage-Grouse habitat to increase fence visibility and reduce collision potential.			
<b>A, B, C, D 4084:</b> To minimize adverse impacts to Greater Sage-Grouse from allowable uses, utilize recommendations from the following sources: "Grazing Influence, Management, and Objective Development in Wyoming's Greater Sage-Grouse Habitat With Emphasis on Nesting and Early Brood Rearing"; "Greater Sage-Grouse Habitat Management Guidelines for Wyoming"; Studies in Avian Biology article "Ecology and Conservation of Greater Sage-Grouse: A Landscape Species and Its Habitats"; "WAFWA Greater Sage-Grouse Conservation Strategy" and additional information as it becomes available.			
<b>A, B, C, D 4085:</b> Establish forage utilization levels in Greater Sage-Grouse nesting habitat to ensure adequate residual cover remains.			
<b>A 4086:</b> On a case-by-case basis, require surveys for BLM sensitive species as part of authorizing actions. Require protective actions when appropriate.	<b>B 4086:</b> Require surveys for presence of BLM sensitive species before authorizing surface-disturbing and disruptive activities. Authorize activities only if protective measures can mitigate or eliminate adverse impacts to species and their habitat.	<b>C 4086:</b> Same as Alternative A.	<b>D 4086:</b> Same as Alternative A.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>A 4087:</b> Limits on habitat loss for special status species are not addressed in the current RMP. Manage habitat loss for special status species on a case-by-case basis.	<b>B 4087:</b> Establish limits of acceptable habitat loss including habitat modification, fragmentation, and loss of function for special status species.	<b>C 4087:</b> Do not establish limits on habitat loss for special status species except as required to protect threatened and endangered species. Address habitat loss on a case-by-case basis.	<b>D 4087:</b> Establish limits of acceptable cumulative habitat loss including habitat modification, fragmentation, and loss of function for special status species on a case-by-case basis. Limits of habitat loss and fragmentation for Greater Sage-Grouse in Core Area are addressed in Record 4097.
<b>A 4093:</b> Greater Sage-Grouse Core Area is open to oil and gas and geothermal leasing subject to standard stipulations including stipulations for the protection of Greater Sage-Grouse.	<b>B 4093:</b> Greater Sage-Grouse Core Area is closed to oil and gas and geothermal leasing.	<b>C 4093:</b> Same as Alternative A.	<b>D 4093:</b> Same as Alternative A, subject to the management actions described below and in the Special Designations section.
<b>A 4094:</b> Prohibit surface-disturbing and disruptive activities on or within ¼ mile of occupied Greater Sage-Grouse leks (16,283 acres).	<b>B 4094:</b> Prohibit surface-disturbing and disruptive activities on or within 0.6 mile of occupied or undetermined Greater Sage-Grouse leks (93,411 acres).	<b>C 4094:</b> Same as Alternative A.	<b>D 4094:</b> Prohibit surface-disturbing or surface occupancy on or within a 0.6-mile radius of the perimeter of occupied Greater Sage-Grouse leks in Core Area and on or within a ¼-mile radius of the perimeter of occupied Greater Sage-Grouse leks outside Core Area unless Greater Sage-Grouse or lek integrity would not be adversely affected, or unless an exception is granted pursuant to Appendix E (p. 1483).  In Core Area, keep any new roads or road upgrades 1.9 miles from the perimeter of the lek.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>A 4095:</b> Avoid surface-disturbing and disruptive activities in Greater Sage-Grouse nesting habitat within 2 miles of occupied leks (794,452 acres) from February 1 to July 31.	<b>B 4095:</b> Avoid surface-disturbing and disruptive activities in Greater Sage-Grouse nesting habitat within 3 miles of occupied leks (1,339,609 acres) from February 1 to July 31.	<b>C 4095:</b> Same as Alternative A.	<b>D 4095:</b> Prohibit surface-disturbing and/or disruptive activities from March 15 to June 30 in Core Area. Surface disturbance or disruption defined as notice-level activity pursuant to 43 CFR 3809.21 in Core Area during the period March 15 to June 30 is considered to be unnecessary or undue degradation unless the proponent is able to establish that it is not, based on site-specific information. Outside Core Area, prohibit surface-disturbing and/or disruptive activities from March 15 to June 30 within 2 miles of the perimeter of occupied leks.  Where credible data support different timeframes for these seasonal restrictions, dates may be expanded 14 days prior to or subsequent to the above dates.
<b>A 4096:</b> Avoid BLM-authorized human activity within ¼ mile of occupied Greater Sage-Grouse leks (16,283 acres) between 8 p.m. and 8 a.m. from March 1 to May 15 on a case-by-case basis.	<b>B 4096:</b> Prohibit BLM-authorized human activity on or within 0.6 mile of perimeter of occupied or undetermined Greater Sage-Grouse leks (93,411 acres) between one hour before sunset to one hour after sunrise from March 1 to May 15 unless activity is specific to inventorying, monitoring or viewing of Greater Sage-Grouse.	<b>C 4096:</b> Avoid BLM-authorized human activity within ¼ mile of perimeter of occupied Greater Sage-Grouse leks (16,283 acres) between 8 p.m. and 8 a.m. from March 1 to May 15 unless activity is specific to inventorying, monitoring or viewing of Greater Sage-Grouse.	<b>D 4096:</b> Prohibit disruptive activities between 6 p.m. and 8 a.m. from March 1 to May 15 on or within 0.6-mile radius of the perimeter of occupied Greater Sage-Grouse leks in Core Area.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>A 4097:</b> No similar action.	<b>B 4097:</b> In identified Greater Sage-Grouse breeding, nesting, and brood-rearing habitat, limit the density of disturbances to 1 per 640 acres and cumulative surface disturbance to less than or equal to 2.5 percent of the sagebrush habitat in the same 640 acres.	<b>C 4097:</b> Do not limit the density of disturbances or acres of surface disturbance in identified Greater Sage-Grouse breeding, nesting, and brood-rearing habitat.	<b>D 4097:</b> In Greater Sage-Grouse Core Area, limit the density of disturbances to an average of one oil and gas or mining location per 640 acres. The one location and cumulative value of existing disturbances will not exceed 5 percent of habitat. See IM 2012-019 or subsequent guidance with regard to disturbance calculations.
<b>A 4098:</b> No similar action.	<b>B 4098:</b> If Greater Sage-Grouse Core Area prescriptions, including limitations on surface disturbance, would prevent access to non-federal lands or valid rights existing at the time the ROD was signed, authorize construction of the required new ROW to the absolute minimum standard necessary to provide access. If the new disturbance for the ROW coupled with existing disturbance would exceed 2.5 percent of the area, the ROW would be contingent upon the ROW applicant securing mitigation to offset the disturbance.	<b>C 4098:</b> Same as Alternative A.	<b>D 4098:</b> If the new disturbance for a ROW in greater Sage-Grouse Core Area coupled with existing disturbance would exceed 5 percent (see IM 2012-019 or subsequent guidance with respect to disturbance calculations), then additional effective mitigation is necessary to offset the resulting loss of Greater Sage-Grouse habitat. Interim reclamation following construction of the ROW and final reclamation following the relinquishment of the ROW will ensure reestablishment of the predisturbance Greater Sage-Grouse habitat, with the reclamation bond amount set in consideration of this reclamation obligation.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>A 4099:</b> Major overhead powerlines are authorized on a case-by-case basis, except that ACECs are avoided for major ROWs.	<b>B 4099:</b> Core Area is closed to major ROWs, except in designated corridors.	<b>C 4099:</b> Core Area is open to major ROWs	<b>D 4099:</b> In Core Area, major overhead powerlines will not be authorized unless within 0.5 mile of an existing 115 kV or greater powerline or in a designated corridor authorized for overhead powerlines. Minor overhead powerlines will not be authorized unless adequate mitigation to protect Greater Sage-Grouse is provided and the Authorized Officer determines that overhead installation has the fewest adverse impacts to Greater Sage-Grouse.
<b>A 4100:</b> No similar action.	<b>B 4100:</b> Core Area is closed to wind-energy development.	<b>C 4100:</b> Same as Alternative A.	<b>D 4100:</b> Until research on impacts of wind energy to Greater Sage-Grouse is completed and adequate mitigation can be developed, exclude wind-energy development in Core Area.
<b>A 4101:</b> Allow livestock water development projects in Greater Sage-Grouse nesting areas on a case-by-case basis.	<b>B 4101:</b> Prohibit livestock water development projects in Greater Sage-Grouse nesting areas.	<b>C 4101:</b> Allow livestock water development projects in Greater Sage-Grouse nesting habitats.	<b>D 4101:</b> Allow livestock water development projects in Greater Sage-Grouse nesting habitat if the project will contribute to improved Greater Sage-Grouse habitat, developments can be designed to be compatible with Greater Sage-Grouse, and if they are part of a Comprehensive Grazing Strategy. When fences are authorized, require a design that has the fewest adverse

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
(see above)	(see above)	(see above)	impacts to Greater Sage-Grouse including features to reduce Greater Sage-Grouse strikes and mortality. Remove, modify, or mark fences in high-risk areas.
<b>A 4102:</b> Allow new high-profile structures within Greater Sage-Grouse nesting habitats on a case-by-case basis.	<b>B 4102:</b> Prohibit new, permanent, high-profile structures (higher than 12 feet) within 1 mile of occupied Greater Sage-Grouse nesting habitat. Mineral and realty actions in these areas are managed with Category 4 restrictions.	<b>C 4102:</b> Allow high-profile structures within Greater Sage-Grouse nesting habitats. Mineral and realty actions in these areas are managed with Category 1 restrictions.	<b>D 4102:</b> New permanent, high-profile structures within Greater Sage-Grouse nesting habitat will be allowed on a case-by-case basis. Require the installation of anti-perching devices on appropriate structures to reduce predation opportunities.
<b>A 4103:</b> Manage wind-energy development on a case-by-case basis in consideration of impacts to Greater Sage-Grouse and its habitat.	<b>B 4103:</b> Exclude wind-energy development in Greater Sage-Grouse Core Area.	<b>C 4103:</b> Same as Alternative A.	<b>D 4103:</b> Same as Alternative A, but in conformity with Records 4060 and 4097. Until research on impacts of wind-energy development to Greater Sage-Grouse is completed and adequate mitigation can be developed, exclude wind-energy development in Greater Sage-Grouse Core Area.
<b>A 4104:</b> On a case-by-case basis, require facilities be located and noise levels of equipment be reduced to minimize the impacts of continuous noise on breeding and nesting Greater Sage-Grouse.	<b>B 4104:</b> Limit noise sources to 10 dBA above natural ambient noise measured at the perimeter of occupied Greater Sage-Grouse leks.	<b>C 4104:</b> Limit noise sources to 10 dBA above natural ambient noise measured at the perimeter of occupied Greater Sage-Grouse leks from March 1 to May 15.	<b>D 4104:</b> Same as Alternative C, unless scientific findings indicate a different noise level is appropriate. In addition, limit noise sources in other important greater Greater Sage-Grouse habitats if research and/or policy indicates the need.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>A 4105:</b> To minimize raptor use, require anti-perching devices on new overhead powerlines and wind energy meteorological towers in Greater Sage-Grouse, prairie dog, mountain plover, and pygmy rabbit habitats on a case-by-case basis.	<b>B 4105:</b> Install anti-perching devices on all new overhead powerlines and on wind energy meteorological towers in Greater Sage-Grouse, prairie dog, mountain plover and pygmy rabbit habitats. Work with ROW holders to install anti-perching devices on existing overhead powerlines in these habitats.	<b>C 4105:</b> Same as Alternative A.	<b>D 4105:</b> To minimize raptor use, require anti-perching devices on new overhead powerlines in Greater Sage-Grouse Core Area. Require anti-perching devices on new overhead powerlines and wind energy meteorological towers in prairie dog, mountain plover, and pygmy rabbit habitats on a case-by-case basis. Work with ROW holders to install anti-perching devices on existing powerlines in these habitats.
<b>A 4106:</b> Allow above ground low voltage utility lines or require burying lines in Greater Sage-Grouse, prairie dog, mountain plover, and pygmy rabbit habitats on a case-by-case basis.	<b>B 4106:</b> Bury all new low voltage utility lines and high voltage utility lines where technologically feasible in Greater Sage-Grouse, prairie dog, mountain plover, and pygmy rabbit habitats.	<b>C 4106:</b> Same as Alternative A.	<b>D 4106:</b> Same as Alternative A, plus evaluate and take advantage of opportunities such as the renewal of existing ROWs to remove or modify existing powerlines, prioritizing Greater Sage-Grouse Core Area.
<b>A, B, C, D 4108:</b> Prohibit surface-disturbing and disruptive activities in Greater Sage-Grouse winter concentration areas, as they are identified, from December 1 to March 14 unless data indicate a date modification is necessary to better protect wintering Greater Sage-Grouse.			
<b>A, B, C, D 4109:</b> In Greater Sage-Grouse Core Area, limit the density of disturbance of an activity (oil and gas or mining) to an average of one site per square mile (640 acres) within the DDCT. The one location and cumulative value of existing disturbances will not exceed 5 percent of suitable habitat of the DDCT area. Utilize the most current Greater Sage-Grouse density disturbance process or other state and/or federal agreed-upon process for compliance evaluations.			
<b>A, B, C, D 4110:</b> If in order to accommodate valid existing rights, the new disturbance for a ROW in Greater Sage-Grouse Core Area coupled with existing disturbance would exceed 5 percent of suitable habitat within the DDCT area (see current guidance with respect to disturbance calculations), then additional effective mitigation is necessary to offset the resulting loss of Greater Sage-Grouse habitat. Interim reclamation following construction of the ROW and final reclamation following the relinquishment of the ROW will ensure reestablishment of the predisturbance Greater Sage-Grouse habitat, with the reclamation bond amount set in consideration of this reclamation obligation. These ROW authorizations will be subject to approval by the State Director.			

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>A, B, C, D 4111:</b> In Core Area, major overhead powerlines will not be authorized unless co-located with an existing 115 kilovolt or greater powerline, as close as technically feasible not to exceed 0.5 miles or within a designated corridor authorized for overhead powerlines. Distribution lines may be authorized when effectively mitigated to protect Greater Sage-Grouse and the Authorized Officer determines that overhead installation is the action alternative with the fewest adverse impacts. Agricultural and residential lines will be considered to be adequately mitigated for Greater Sage-Grouse if constructed at least 0.6 mile from the lek perimeter with appropriate timing constraints and installation of raptor deterrents. These ROW authorizations will be subject to approval by the State Director.			
<b>A, B, C, D 4112:</b> Until research on impacts of wind energy to Greater Sage-Grouse is completed and adequate mitigation can be developed, exclude wind-energy development in Core Area.			
<b>A, B, C, D 4113:</b> Allow livestock water development projects in Greater Sage-Grouse nesting habitat. Consistent with the intent of Greater Sage-Grouse Core Area management, such projects will only be allowed if they will contribute to improved Greater Sage-Grouse habitat, developments can be designed to be compatible with Greater Sage-Grouse, and they are part of a comprehensive grazing strategy.			
<b>A, B, C, D 4114:</b> The BLM will collaborate with appropriate federal agencies and the State of Wyoming, as contemplated under the Wyoming Governor's Executive Order 2013-3, to: 1) develop appropriate conservation objectives; 2) define a framework for evaluating situations where Greater Sage-Grouse conservation objectives are not being achieved on federal land, to determine if a significant causal relationship exists between improper grazing (by wildlife or wild horses or livestock) and Greater Sage-Grouse conservation objectives; and 3) identify appropriate site-based actions to achieve Greater Sage-Grouse conservation objectives within the framework.			
<b>A, B, C, D 4115:</b> In cooperation with stakeholders, design and locate fences, so as not to disturb important Greater Sage-Grouse habitat areas. When fences are authorized, require a design that has the fewest adverse impacts to Greater Sage-Grouse, including features to reduce Greater Sage-Grouse strikes and mortality. Require the installation of fence markers on wire fences constructed in Greater Sage-Grouse habitat to increase fence visibility and reduce collision potential. Remove, modify, or mark fences with high-risk for collision.			
<b>A, B, C, D 4116:</b> New permanent, high-profile structures within Greater Sage-Grouse nesting habitat will be allowed on a case-by-case basis. Require the installation of anti-perching devices on appropriate structures to reduce predation opportunities.			
<b>A, B, C, D 4117:</b> Limit noise sources to 10 decibels above ambient noise measured at the perimeter of occupied Greater Sage-Grouse leks from March 1 to May 15, unless scientific findings indicate a different noise level is appropriate. In addition, limit noise sources in other important Greater Sage-Grouse habitats if research and/or policy indicate the need.			
<b>A, B, C, D 4118:</b> To minimize raptor use, require anti-perching devices on new overhead powerlines in Greater Sage-Grouse Core Area. Require anti-perching devices on new overhead powerlines and wind energy meteorological towers in prairie dog, mountain plover, and pygmy rabbit habitats on a case-by-case basis. Work with ROW holders to install anti-perching devices on existing powerlines in these habitats.			
<b>A, B, C, D 4119:</b> Allow above ground low voltage utility lines or require burying lines in Greater Sage-Grouse, prairie dog, mountain plover, and pygmy rabbit habitats on a case-by-case basis. Evaluate and take advantage of opportunities such as the renewal of existing ROWs to remove or modify existing powerlines, prioritizing Greater Sage-Grouse Core Area.			



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>A, B, C, D 4120:</b> In order to avoid surface-disturbing activities in Core Areas, priority will be given to development of oil and gas and other mineral resources outside of Core Areas, subject to applicable stipulations. When authorizing development of oil and gas and other mineral resources in core habitat, subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority will be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse.			
<b>Wild Horses</b>			
<b>A, B, C, D 4121:</b> Update the Herd Management Area Plan as needed to meet herd health objectives, including Appropriate Management Levels, and to address impacts to other resources. Consider forage competition and evaluate overall utilization levels by all grazing animals and incorporate Greater Sage-Grouse habitat management objectives.			
<b>Land Resources Lands and Realty</b>			
<b>A, B, C, D 6002:</b> Identify lands for acquisition through exchange and/or purchase with priority on meeting special management objectives such as Greater Sage-Grouse Core Area, ACECs, and NLCS lands. Prioritize lands that do not have split estate unless in Core Area where Greater Sage-Grouse management objectives would benefit.			
<b>A, B, C, D 6005:</b> No parcels within an NLCS unit or an ACEC or in Greater Sage-Grouse Core Area are identified for disposal unless the disposal would benefit the goals and objectives of the area's priority values or other important resource values. (In the 1987 RMP, parcels in NLCS units were identified for disposal but Alternative A management is to retain all parcels in these areas.) Acquire lands in areas with mixed ownership and where land exchanges would result in additional or more contiguous federal ownership patterns or would improve management for the benefit of priority resources.			
<b>A, B, C, D 6010:</b> Management prescriptions for wind-energy development in important wildlife habitat, areas managed as VRM Class I and II, RMZs, areas with cultural resources, and special designations are found in those respective sections.			
<b>A, B, C, D 6011:</b> Consider non-wind renewable energy development on a case-by-case basis consistent with management and objectives identified in the RMP. Approval of non-wind renewable energy development inconsistent with management and objectives in the RMP would require a Land Use Plan amendment.			
<b>A, B, C, D 6012:</b> Programmatic policies and Best Management Practices for wind-energy development are identified in the ROD for Wind-Energy Development on Bureau of Land Management-Administered Land in the Western States (2006) and IM 2009-043. The ROD identified the following areas within the NLCS as wind-energy development exclusion areas:			
<ul style="list-style-type: none"> <li>• WSAs (55,338 acres)</li> <li>• CDNST (no buffer is identified)</li> <li>• NHTs (no buffer is identified)</li> <li>• NWSRS-eligible waterway segments (9,919 acres of BLM-administered surface)</li> </ul>			
<b>Land Resources Rights-of-Way and Corridors</b>			
<b>A, B, C, D 6016:</b> In accordance with the ROD for Designation of Energy Corridors on Bureau of Land Management-Administered Lands in the 11 Western States (2009), Energy Corridor 79-216 is a designated corridor.			
<b>A, B, C, D 6019:</b> Close the Beef Gap section of the Sweetwater Rocks complex to any new ROWs even if co-located with existing ROWs.			

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<p><b>A 6020:</b> On a case-by-case basis concentrate major utility ROWs in existing utility corridors whenever possible.</p>	<p><b>B 6020:</b> Allow proposed major utility ROWs only in designated utility corridors.</p> <p>Designate the following routes as utility corridors and access routes and prefer these locations for the placement of utility ROWs:</p> <ul style="list-style-type: none"> <li>• The Lost Creek Corridor, which runs north/south from Wamsutter to Lysite (approximately ¼ mile wide, except near the NHTs, where it is 400 feet wide).</li> <li>• Sand Draw to Casper- approximately 10 miles of corridor connecting Lost Creek and the Casper Field Office's designated corridor.</li> </ul>	<p><b>C 6020:</b> Evaluate proposed major utility ROWs on a case-by-case basis.</p> <p>Allow major utility corridors up to 3 miles wide in the planning area in the following locations:</p> <ul style="list-style-type: none"> <li>• Lost Creek Spur</li> <li>• Lost Creek</li> <li>• Pathfinder</li> <li>• Sand Draw to Casper</li> <li>• Highway 20\26</li> <li>• Beaver Creek North</li> <li>• Shoshoni\Badwater</li> <li>• Bairoil</li> <li>• Boysen Scenic Byway</li> <li>• Lost Cabin\Pony Express</li> <li>• Colorado Interstate Gas</li> <li>• Pacificorp Transmission</li> <li>• Sand Draw</li> <li>• Bison Basin</li> <li>• Frontier</li> <li>• Frontier-Anadarko</li> <li>• Pacificorp</li> </ul>	<p><b>D 6020:</b> The following corridors are designated as corridors for major ROW development. Please note: the location of the designated corridors as represented on the map are approximate and subject to verification based on existing disturbance, particularly in the Sand Draw to Casper corridor through the Gas Hills mining district.</p> <ul style="list-style-type: none"> <li>• Jim Bridger (containing the Spence-Mustang-Jim Bridger existing 230 kV powerline) from where it enters the Lander planning area in Township 25 North, Range 94 West to where it intersects with the Lost Creek pipeline: above and below ground.</li> <li>• Lost Creek: variously below ground only and above and below ground as follows: <ul style="list-style-type: none"> <li>○ Lost Creek I: from where the pipeline enters the Lander planning area in the south in Township 25 North, Range 93 West to where the pipeline meets the existing 230 kV powerline in the Jim Bridger corridor: below ground only.</li> </ul> </li> </ul>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
(see above)	(see above)	(see above)	<ul style="list-style-type: none"> <li>○ Lost Creek 2: from the Jim Bridger meeting point northward until the Lost Creek pipeline meets the Sand Draw to Casper designated corridor: above and below ground.</li> <li>○ Lost Creek 3: from the Sand Draw to Casper meeting point north to Highway 20/26: below ground only.</li> <li>○ Lost Creek 4: from north of Highway 20/26 to the Westwide Corridor: above and below ground the section of the corridor through the Jeffrey City area that is not within the NTMC is open to oil and gas leasing subject to CSU stipulations.</li> <li>● Pathfinder: below ground only. (The Pathfinder corridor is only in the Lander planning area in Township 30 North, Range 85 West.)</li> <li>● Sand Draw to Casper: above and below ground</li> <li>● Highway 20/26: above and below ground</li> </ul>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
(see above)	(see above)	(see above)	<ul style="list-style-type: none"> <li>• Beaver Creek (formerly called Beaver Creek North and Lost Creek Spur): below ground only</li> <li>• Shoshoni/Badwater: below ground</li> <li>• Bairoil: below ground only</li> <li>• Sand Draw: below ground only</li> <li>• Bison Basin: below ground only</li> <li>• Frontier going southwest from Bairoil to where it leaves the Lander planning area: below ground only</li> <li>• Frontier-Anadarko (now called Rattlesnake Hills) north of Black Rock: below ground</li> <li>• Pacificorp (now called Black Rock): above and below ground</li> <li>• Pacificorp (going east-west in Township 35): above and below ground</li> </ul> <p>Widths for these corridors are 1/2 mile unless there are resource conflicts, then the width will be adjusted accordingly (i.e., neck down as necessary). Designated corridors are subject to the prescriptions for resource protections except that they are open for ROWs even if the</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
(see above)			surrounding areas are excluded or avoided. Major ROWs will not be authorized outside of designated corridors unless the proponent establishes that location in a designated corridor is not possible. Additional expense does not, by itself, render the location within a designated corridor “not possible.”
<b>A 6021:</b> See Record 6017.	<b>B 6021:</b> See Record 6017.	<b>C 6021:</b> See Record 6017.	<b>D 6021:</b> ROWs outside of designated corridors are co-located in existing disturbance unless the proponent establishes that co-location is not possible or that the new location minimizes adverse impacts to other resources compared to co-location.
<b>A 6023:</b> Manage 66,099 acres as ROW avoidance areas.	<b>B 6023:</b> Manage 315,219 acres as ROW avoidance areas.	<b>C 6023:</b> Manage 11,714 acres as ROW avoidance areas.	<b>D 6023:</b> Manage 1,369,300 acres as ROW avoidance areas. See Appendix E (p. 1483) for avoidance criteria.
<b>Land Resources Livestock Grazing Management</b>			
<b>A, B, C, D 6050:</b> In cooperation, consultation, and coordination with permittees/lessees, cooperators, and stakeholders including interested parties, develop and implement appropriate livestock grazing management actions to address the Wyoming Standards for Healthy Rangelands, improve forage for livestock, and enhance rangeland health. Within Greater Sage-Grouse Core Area, incorporate Greater Sage-Grouse habitat objectives and management considerations into all BLM grazing allotments containing Greater Sage-Grouse habitat through AMPs or permit renewals. Consider the application of BMPs for the protection of Greater Sage-Grouse as terms and conditions of grazing permit/lease renewals. In areas where Wyoming Standards for Healthy Rangelands are not being met or are not making progress towards meeting standards, because of current livestock grazing, modify existing permits or condition the issuance of new permits on the implementation of new grazing strategies to meet 1521)) as terms and conditions of the permit.			

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>A, B, C, D 6051:</b> Categorize allotments as M, I, and C (see Appendix K (p. 1547)) and re-categorize as necessary. Re-categorizations from the 1987 RMP are identified in Appendix K (p. 1547).			
<b>A, B, C, D 6053:</b> Retain designated stock driveways. Permit other livestock trails on a case-by-case basis.			
<b>A, B, C, D 6054:</b> Monitor precipitation and vegetative production trends on BLM-administered lands as a tool to understand impacts to soil, water, and vegetative resources. Monitor measurable objectives and evaluate grazing management to assume that management actions are achieving Greater Sage-Grouse habitat objectives.			
<b>A, B, C, D 6055:</b> On a case-by-case basis adjust allotment and pasture boundaries, including combining allotments, to facilitate management and to achieve progress towards rangeland health. Review livestock conversions on a case-by-case basis.			
<b>A, B, C, D 6056:</b> Require that forage supplements have label information stating that the material is safe/compatible for sheep, wildlife, and wild horses in areas where conflicts exist. Require that all forage supplement labels be submitted to the field office for approval by the Authorized Officer prior to use.			
<b>A, B, C, D 6057:</b> Conduct grazing program monitoring (see Glossary) of allotments by focusing on Category I allotments in order of priority starting with those allotments that have degraded riparian-wetland areas or are in whole or in part in Greater Sage-Grouse Core Area. The level of monitoring will be commensurate with the intensity of grazing. Modify BLM-authorized grazing use on an allotment-by-allotment basis to protect soil, water, vegetative resources, and wildlife.			
<b>A, B, C, D 6058:</b> Modify or implement livestock grazing strategies (Appendix K (p. 1547)) to facilitate successful reclamation efforts.			
<b>A, B, C, D 6059:</b> Continue implementation of existing AMPs. Develop and implement new comprehensive grazing strategies and AMPs with grazing permittees/lessees and interested publics to achieve desired resource goals. Grant administrative use authorizations on a case-by-case basis with approval from the Authorized Officer. All access agreements will specify the following: what type of use is allowed and for what purpose, times, dates or seasons of access, where the use will occur, and additional stipulations required to provide for adequate resource protection and to meet pertinent planning decisions.			
<b>A, B, C, D 6060:</b> Changes in the current amounts, kinds, and season of livestock grazing use will be based on a rangeland health assessment or if resource monitoring indicates that a grazing use adjustment is necessary or an analysis indicates that a requested change in grazing use is appropriate.			
<b>A 6062:</b> Acquired lands are open to livestock grazing on a case-by-case basis consistent with the management objectives for the acquisition or the area in which the land is located, such as an ACEC.	<b>B 6062:</b> Acquired lands are closed to livestock grazing.	<b>C 6062:</b> Acquired lands are open to livestock grazing.	<b>D 6062:</b> Same as Alternative A.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>A 6063:</b> No similar action.	<b>B 6063:</b> Where livestock grazing permits are voluntarily relinquished, the BLM will close the area to livestock grazing.	<b>C 6063:</b> Re-offer relinquished livestock grazing permits; do not close the area to livestock grazing.	<b>D 6063:</b> When livestock grazing permits and/or grazing preference are voluntarily relinquished in portions of or all of an allotment, analyze appropriate livestock grazing management including considering closure to livestock grazing based on benefits to resources and other uses.
<b>A 6064:</b> No similar action.	<b>B 6064:</b> Establish and manage future forage reserves as opportunities arise within the planning area on a voluntary basis or as lands are acquired.	<b>C 6064:</b> Do not establish forage reserves.	<b>D 6064:</b> Same as Alternative B.
<b>A 6065:</b> No similar action.	<b>B 6065:</b> Permit extended periods of non-use of grazing preference, without penalty, on a case-by-case basis when the advantage to Greater Sage-Grouse habitat or other resource values warrant, and a permittee or lessee voluntarily takes non-use of their grazing preference in a specific grazing allotment.	<b>C 6065:</b> No similar action.	<b>D 6065:</b> Same as Alternative B.
<b>A 6066:</b> Allow new range improvements on a case-by-case basis.	<b>B 6066:</b> Utilize non-infrastructure livestock grazing management to maintain, enhance, or achieve rangeland health. Prohibit new range improvements if adverse impacts to other resources would result.	<b>C 6066:</b> Utilize all livestock grazing management including infrastructure and non-infrastructure to maintain, enhance, or achieve rangeland health.	<b>D 6066:</b> Utilizing Required Design Features and BMPs such as those in Appendix H (p. 1521) applied as COA, develop and install range improvement projects necessary to implement comprehensive grazing strategies leading to improved rangeland health or to enhance successful comprehensive grazing strategies

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
(see above)	(see above)	(see above)	(see Glossary) already in place. Benefits associated with the projected improvement in rangeland health should exceed the adverse impacts associated with the project infrastructure. Avoid projects that would expand grazing on the landscape without a clear link to a Comprehensive Grazing Strategy and consideration of other resources.
<b>A 6067:</b> No similar action (many of these items are addressed on a case-by-case basis).	<b>B 6067:</b> No similar action (many of these items are addressed on a case-by-case basis).	<b>C 6067:</b> No similar action (many of these items are addressed on a case-by-case basis).	<b>D 6067:</b> Include terms and conditions on grazing permits and leases that ensure plant growth requirements are met, and residual forage remains available for Greater Sage-Grouse hiding cover as necessary. Specify as necessary: <ul style="list-style-type: none"> <li>• No new range improvement projects within ½ mile of water and riparian-wetland areas, regional historic trails, and early highways (or as needed to protect the setting, so long as impacts are not visible).</li> <li>• Intensity of use (utilization) subject to the provisions of Records 4018, 6050, and 6068;</li> <li>• Develop project specific BMPs that become terms and conditions.</li> </ul>



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<p><b>A 6068:</b> Unless otherwise specified, establish allotment stocking rates to maximize utilization of forage in areas preferred by livestock, while achieving standards for rangeland health. This action generally corresponds with a moderate (41 to 60 percent) utilization level.</p>	<p><b>B 6068:</b> Establish allotment stocking rates in areas preferred by livestock to achieve an adequate residual forage standard used as cover for wildlife and to be made available for utilization by wildlife and wild horses. This action generally corresponds with a light (21 to 40 percent) utilization level.</p>	<p><b>C 6068:</b> Same as Alternative A.</p>	<p><b>D 6068:</b> Establish stocking rates in areas preferred by livestock that allow for appropriate utilization levels by livestock adjusted for the anticipated intensity of use necessary to provide sufficient forage and cover to support and maintain healthy diverse wildlife and wild horse populations, and to achieve Wyoming Standards for Healthy Rangelands. Utilization levels may vary based on the implementation of a Comprehensive Grazing Strategy or as needed to achieve vegetation objectives.</p>
<p><b>A 6069:</b> No similar action (many of these items are addressed on a case-by-case basis).</p>	<p><b>B 6069:</b> No similar action (many of these items are addressed on a case-by-case basis).</p>	<p><b>C 6069:</b> No similar action (many of these items are addressed on a case-by-case basis).</p>	<p><b>D 6069:</b> Prioritize completion of land health assessments and processing of grazing permits within Greater Sage-Grouse Core Area and on allotments with riparian-wetland areas in failing condition. Emphasize allotments that have the best opportunities for riparian-wetland improvement or for conserving, enhancing, or restoring habitat for Greater Sage-Grouse.</p> <p>When conducting land health assessments, include indicators and measurements of structure, condition, and composition of</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
(see above)	(see above)	(see above)	<p>vegetation specific to achieving greater sage-grouse habitat objectives. If local/state seasonal habitat objectives are not available, use greater sage-grouse habitat recommendations from Connelly et al. 2000 and Hagen et al. 2007 or as more recent research suggests.</p> <p>Work cooperatively with permittees, lessees, and other landowners to develop comprehensive grazing strategies to develop site-specific objectives to conserve, enhance or restore Greater Sage-Grouse Core Area and general habitat areas. Develop a Comprehensive Grazing Strategy to achieve these objectives. In Core Area, monitor measurable objectives in representative sites and evaluate grazing management to ensure that management actions are achieving Greater Sage-Grouse habitat objectives.</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>A 6070:</b> No similar action (many of these items are addressed on a case-by-case basis).	<b>B 6070:</b> No similar action (many of these items are addressed on a case-by-case basis).	<b>C 6070:</b> No similar action (many of these items are addressed on a case-by-case basis).	<b>D 6070:</b> Prioritize the management of hot-season grazing on riparian and meadow complexes to promote recovery or maintenance of appropriate vegetation and water quality through the use of comprehensive grazing strategies as identified in Appendix K (p. 1547). In areas of continuous season-long grazing where rangeland health standards are not met, modify existing grazing permits to incorporate rest and/or deferment of grazing to facilitate rangeland health recovery and attainment of rangeland health standards.
<b>A 6071:</b> No similar action (many of these items are addressed on a case-by-case basis).	<b>B 6071:</b> No similar action (many of these items are addressed on a case-by-case basis).	<b>C 6071:</b> No similar action (many of these items are addressed on a case-by-case basis).	<b>D 6071:</b> Manage drought and post-drought recovery periods for the maintenance and improvement of rangeland health, and the cover and forage need of all grazing animals and wildlife.
<b>A 6072:</b> No similar action (many of these items are addressed on a case-by-case basis).	<b>B 6072:</b> No similar action (many of these items are addressed on a case-by-case basis).	<b>C 6072:</b> No similar action (many of these items are addressed on a case-by-case basis).	<b>D 6072:</b> Evaluate existing project infrastructure in the development of comprehensive grazing strategies. Identify projects that are no longer necessary, or that are contributing to adverse impacts to other resources and modify or remove projects as appropriate to mitigate impacts, in conjunction with

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
(see above)	(see above)	(see above)	comprehensive grazing strategies. Evaluate whether the infrastructure contributes to the introduction or spread of INNS and develop mitigation (including removal of infrastructure) to reduce or eliminate weed infestation and spread.
<b>A 6073:</b> Prohibit placement of salt and mineral supplements such as low moisture block supplements within ¼ mile of water and riparian-wetland areas.	<b>B 6073:</b> Prohibit placement of salt and mineral supplements, such as low moisture block supplements: <ul style="list-style-type: none"> <li>• closer than ½ mile to water and riparian-wetland areas and regional historic trails and early highways or as needed to protect setting</li> <li>• within 0.6 mile of a Greater Sage-Grouse lek</li> <li>• on areas being reclaimed</li> <li>• within 3 miles on each side of the NHTs unless the project and its associated impacts are not visible from the NHTs</li> </ul>	<b>C 6073:</b> Same as Alternative A, plus use the placement of salt and mineral supplements to maximize the utilization of the resource.	<b>D 6073:</b> Prohibit placement of salt and mineral supplements, such as low moisture block supplements in the following areas: <ul style="list-style-type: none"> <li>• within ½ mile of water and riparian-wetland areas, regional historic trails and early highways or as needed to protect setting, so long as impacts are not visible.</li> <li>• within 0.6 mile of the perimeter of Greater Sage-Grouse leks</li> <li>• on areas being reclaimed</li> </ul> Locate supplements (salt or mineral blocks) in a manner designed to conserve, enhance, or restore greater sage-grouse habitat.
<b>A 6074:</b> Remove or modify fences and cattleguards on a case-by-case basis to facilitate livestock, wild horses, and wildlife movement and management.	<b>B 6074:</b> Where opportunities exist, remove or modify existing fences and cattleguards to enhance other resource values.	<b>C 6074:</b> Where opportunities exist, remove or modify fences and cattleguards as needed to facilitate livestock movement and management.	<b>D 6074:</b> Same as Alternative A, plus remove or modify fences and cattleguards while enhancing other resource values.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>Land Resources Recreation</b>			
<b>A 6089:</b> Review mineral leases in the Johnny Behind the Rocks area on a case-by-case basis and apply mitigation through activity level planning. Mineral and realty actions in the area are managed with Category I restrictions.	<b>B 6089:</b> Mineral and realty actions in the Johnny Behind the Rocks RMZ are managed with Category 4 restrictions.	<b>C 6089:</b> Mineral and realty actions in the Johnny Behind the Rocks area are managed with Category I restrictions. Relocate or remove visitor services and facilities as necessary to accommodate leasing actions.	<b>D 6089:</b> Mineral and realty actions in the Johnny Behind the Rocks RMZ are managed with the following restrictions: <ul style="list-style-type: none"> <li>• Oil and gas leasing subject to NSO.</li> <li>• Closed to geophysical exploration.</li> <li>• Closed to phosphate exploration.</li> <li>• Closed in order to pursue withdrawal from locatable mineral entry.</li> <li>• Closed to mineral material sales.</li> <li>• Excluded from realty actions.</li> </ul>
<b>A 6090:</b> Limit motorized travel in the Johnny Behind the Rocks area to existing roads and trails.	<b>B 6090:</b> Close the Johnny Behind the Rocks RMZ to motorized travel.	<b>C 6090:</b> Same as Alternative A.	<b>D 6090:</b> Same as Alternative B, except with an allowance for administrative access agreement with livestock grazing permittees. Do not close roads in Blue/Ridge Johnny Spring Area. Cedar ridge road will be closed as a result of this decision.
<b>A 6091:</b> Open the Johnny Behind the Rocks area to cross-country mechanized travel.	<b>B 6091:</b> Limit mechanized travel in the Johnny Behind the Rocks RMZ to designated routes.	<b>C 6091:</b> Same as Alternative A.	<b>D 6091:</b> Same as Alternative A.
<b>A 6092:</b> Manage the Johnny Behind the Rocks area as VRM Class III and IV.	<b>B 6092:</b> Manage the Johnny Behind the Rocks RMZ as VRM Class II.	<b>C 6092:</b> Manage the Johnny Behind the Rocks area as VRM Class IV.	<b>D 6092:</b> Same as Alternative B.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>Special Designations Government Draw/Upper Sweetwater Greater Sage-Grouse ACEC (Proposed)</b>			
<b>A 7144:</b> Do not designate the Government Draw/Upper Sweetwater Greater Sage-Grouse area as an ACEC.	<b>B 7144:</b> Designate BLM-administered lands in the Government Draw/Upper Sweetwater Greater Sage-Grouse area as an ACEC (1,246,791 acres).	<b>C 7144:</b> Same as Alternative A.	<b>D 7144:</b> Designate 35,102 acres in the Hudson to Atlantic City area as the Twin Creek ACEC.
<b>A 7145:</b> Mineral and realty actions in the area are managed with Category I restrictions.	<b>B 7145:</b> Mineral and realty actions in the ACEC are managed with Category 6 restrictions.  Do not re-offer for lease expired existing oil and gas leases, except as necessary to provide drainage protection.	<b>C 7145:</b> Mineral and realty actions in the area are managed with Category I restrictions.	<b>D 7145:</b> Mineral and realty actions on 306,360 acres of land in the Hudson to Atlantic City area (including the Twin Creek ACEC) are managed as follows to protect multiple resource values: <ul style="list-style-type: none"> <li>• Open to oil and gas leasing subject to NSO stipulations</li> <li>• Closed to geophysical exploration</li> <li>• Closed to solid mineral leasing</li> <li>• Withdrawn from locatable mineral entry. Conduct validity exams as staffing allows. Evaluate opportunities, including working with partners to buy out valid claims beneficial to resource values. Encourage buy-out of valid claims for offsite mitigation of surface disturbance in important wildlife habitat, including Core Area.</li> <li>• Closed to new mineral material disposals</li> </ul>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
(see above)	(see above)	(see above)	<ul style="list-style-type: none"> <li>• Avoided for major ROWs except for designated corridors</li> <li>• Avoided for minor ROWs</li> </ul>
<b>A 7146:</b> No similar action.	<b>B 7146:</b> Actively pursue opportunities to reclaim existing roads and trails and ROWs not necessary to attain management objectives in order to protect Greater Sage-Grouse and their habitat.	<b>C 7146:</b> Same as Alternative A.	<b>D 7146:</b> Same as Alternative B, except as opportunities arise. (See the Recreation section for motorized travel in Johnny Behind the Rocks.)
<b>A 7147:</b> The area is open to livestock grazing.	<b>B 7147:</b> The area is open to livestock grazing and managed to maintain or enhance Greater Sage-Grouse habitat. (See the Vegetation and Grazing sections for additional management for Greater Sage-Grouse habitat objectives.)	<b>C 7147:</b> Same as Alternative A.	<b>D 7147:</b> Same as Alternative B.
<b>A 7148:</b> Range improvement projects are constructed on a case-by-case basis.	<b>B 7148:</b> Range improvement projects are prohibited.	<b>C 7148:</b> Allow range improvement projects.	<b>D 7148:</b> Construct range improvement projects when the purpose is compatible with Area values.
<b>A 7149:</b> Consider Greater Sage-Grouse habitat when authorizing vegetation treatments.	<b>B 7149:</b> Limit vegetation treatments to those that improve and enhance sagebrush steppe habitat.	<b>C 7149:</b> Same as Alternative A.	<b>D 7149:</b> Same as Alternative B, plus only allow vegetation treatments if they will maintain or enhance Greater Sage-Grouse habitat. See additional management actions in the Fire and Fuels Management section.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>A 7150:</b> On a case-by-case basis, determine management prescriptions, including livestock grazing management, of acquired lands in the area.	<b>B 7150:</b> Manage any lands acquired and added to the ACEC in accordance with the ACEC management prescriptions. Forage associated with newly acquired lands is not available for livestock use.	<b>C 7150:</b> Same as Alternative A.	<b>D 7150:</b> Same of Alternative A.



# Chapter 3. Affected Environment

## 3.1 INTRODUCTION

The purpose of this chapter is to describe the existing characteristics of the planning area, including human uses that could be affected by implementing the alternatives as described in **Chapter 2**. The affected environment provides the context for assessing potential impacts described in **Chapter 4**. The resource topics included in this chapter reflect those that are identified in **Table I-2** as corresponding to an issue carried forward for detailed analysis in the 2015 and the 2019 planning processes.

The BLM analyzed the management situation in full compliance with its regulations and policies. The BLM evaluated inventory and other data and information, partnering with USGS and coordinating extensively with States, to help provide a basis for formulating reasonable alternatives. The BLM described this process in its Report to the Secretary in response to SO 3353 (Aug. 4, 2017). Among other things, the Report describes how the BLM coordinated “with each State to gather information related to the [Secretary’s] Order, including State-specific issues and potential options for actions with respect to the 2015 Greater Sage-Grouse Plans and Instruction Memorandums (IMs) to identify opportunities to promote consistency with State plans.” (Report to the Secretary at 3.) This process overlapped to some degree with the BLM’s scoping process, which also assisted the BLM in identifying the scope of issues to be addressed and significant issues, and with coordination with the States occurring after the Report.

The geographic extent of this environmental analysis is the same as that in the 2015 Final EIS for the Greater Sage-Grouse RMP Amendments and the Final EISs for the Lander RMP Revision, Buffalo RMPA Revision, and Bighorn (Cody and Worland Field Offices) RMP Revisions, combined; therefore, the analyses from those documents have been incorporated by reference in this document.

While the BLM acknowledges that there have been changes to the landscape since 2015, due to the scale of this analysis, covering approximately 17 million acres of BLM-administered lands and approximately 28 million acres of federal mineral estate, data collected consistently across the range indicate that the extent of these changes to the landscape are relatively minimal. For example, BLM monitoring data collected and analyzed annually at the BSU scale, as outlined in the Greater Sage-Grouse Monitoring Framework (Appendix D of the 2015 ROD/ARMPA, Buffalo Field Office RMP Revision, and Bighorn RMP Revision; and Appendix N of the Lander RMP Revision) indicate that there has been a minimal overall increase in estimated disturbance (less than 1 percent rangewide from 2015 through 2017) within PHMA. Moreover, there has been an overall decrease in sagebrush availability (less than 1 percent rangewide from 2012 through 2015) in PHMA within BSUs. Based on available information, including the USGS reports described below, the BLM has concluded that the existing condition is not substantially different from that which existed in 2015; therefore, the data and information presented in the 2014 and 2015 Final EISs are incorporated by reference into this RMPA/EIS. Where notable changes to the baseline condition have changed, a discussion is included.

Acres figures and other numbers are approximated using GIS technology and do not reflect exact measurements or precise calculations.

### **3.1.1 USGS Reports**

As part of the consideration of whether to amend some, all, or none of the 2014 and 2015 Greater Sage-Grouse land use plans, the BLM requested the USGS to develop an annotated bibliography of Greater Sage-Grouse science published since January 2015 (Carter et al. 2018) and a report that synthesizes and outlines the potential management implications of this new science (Hanser et al. 2018).

Following the 2015 plans, the scientific community has continued to improve the knowledge available to inform management actions and an overall understanding of Greater Sage-Grouse populations, habitat requirements, and their response to human activity.

The review discussed the science related to six major topics identified by the USGS and BLM, as follows:

- Multi-scale habitat suitability and mapping tools
- Discrete human activities
- Diffuse activities
- Fire and invasive species
- Restoration effectiveness
- Population estimation and genetics

### **3.1.2 Multi-scale Habitat Suitability and Mapping Tools**

The science developed since 2015 corroborates previous knowledge about Greater Sage-Grouse habitat selection. Advances in modeling and mapping techniques at the landscape scale can help inform allocations and targeting of land management resources to benefit Greater Sage-Grouse conservation. Similar improvements at the site scale facilitate a better understanding of the importance of grass height to nest success, which indicates the potential need for a reevaluation of the existing habitat objectives (Hanser et al. 2018, p. 2).

The BLM has completed a plan maintenance action, whereby the agency has clarified its ability to modify the habitat objective indicator values based on local, site-specific information.

### **3.1.3 Discrete Human Activities**

The science developed since 2015 corroborates prior knowledge about the impact of discrete human activities on Greater Sage-Grouse. New science suggests that strategies to limit surface disturbance may be successful at limiting rangewide population declines; however, it is not expected to reverse the declines, particularly in areas of active oil and gas operations (Hanser et al. 2018, p. 2). This information may have relevance when considering the impact of changes on management actions designed to limit discrete disturbances.

### **3.1.4 Diffuse Activities**

The science developed since 2015 does not appreciably change prior knowledge about diffuse activities, such as livestock grazing, predation, hunting, wild horses and burros, fences, recreation, and noise; however, some study authors questioned current assumptions, provided refinements, or corroborated existing understanding.

Studies have shown that the impacts of livestock grazing vary with grazing intensity and season. Predation from ravens can limit Greater Sage-Grouse populations in areas with overabundant predator numbers or degraded habitats. Applying predator control has potential short-term benefits in small, declining populations; however, reducing human subsidies may be necessary to generate long-term changes in raven numbers. This is because raven control has produced only short-term declines in local raven populations.

Refinements to the current hunting seasons used by State of Wyoming wildlife agencies may minimize potential impacts on Greater Sage-Grouse populations; however, none of the studies singled out current application of hunting seasons and timings as a plausible cause for Greater Sage-Grouse declines.

Finally, no new insights into the impacts of wild horses and burros, fence collision, recreation, or noise on Greater Sage-Grouse have been developed (Hanser et al. 2018, p. 2).

This information was considered when determining the scoping issues addressed in **Chapter I, Section I.4.1.**

### **3.1.5 Fire and Invasive Species**

Science since 2015 indicates that wildfire will continue to threaten Greater Sage-Grouse through loss of available habitat, reductions in multiple vital rates, and declining population trends, especially in the western part of its range. The concepts of resilience after wildfire and resistance to invasion by nonnative annual grasses have been mapped across the sagebrush ecosystem. These concepts inform restoration and management strategies and help prioritize application of Greater Sage-Grouse management resources (Hanser et al. 2018, p. 2).

### **3.1.6 Restoration Effectiveness**

Since 2015, tools have been developed to help managers strategically place and design restoration treatments where they will have the greatest benefit for Greater Sage-Grouse. Studies (Hanser et al. 2018, p. 3) indicate that Greater Sage-Grouse populations did not benefit from, or were negatively affected by, prescribed fire and mechanical sagebrush removal.

Restoration activities occur mainly at the implementation level (project or site-specific implementation), and the BLM maintains the flexibility to incorporate new tools in the agency's project planning for restoration actions.

### **3.1.7 Population Estimation and Genetics**

The accuracy of estimating Greater Sage-Grouse populations has increased. This is because of improved sampling procedures used to complete count surveys at leks and the development of correction factors for potential bias in lek count data. In addition, techniques have improved to map Greater Sage-Grouse genetic structure at multiple spatial scales. These genetic data are used in statistical models to increase understanding of how landscape features and configuration affect gene flow. This understanding emphasizes the importance of maintaining connectivity between populations to ensure genetic diversity and distribution (Hanser et al. 2018, p. 3).

New information continues to reaffirm the BLM's understanding that Greater Sage-Grouse is a species that selects for large, intact landscapes and habitat patches.

## 3.2 RESOURCES AFFECTED

In accordance with **Chapter 1, Section 1.4.1**, Issues and Related Resource Topics Identified Through Scoping, the following resources may have potential impacts based on the alternatives presented in **Chapter 2**.

**Table 3-1**, below, provides the location of baseline information in the 2015 Final EIS; the Final EISs for Lander, Buffalo, and the Bighorn Basin (Cody and Worland Field Offices); and the 2016 Draft EIS for SFA Withdrawal.

**Table 3-1**  
**Affected Environment Incorporated by Reference**

Resource Topic		Location of Baseline Information
Greater Sage-Grouse	ARMPA	Chapter 3, Section 3.14.1 (Special Status Species), pages 3-238 to 3-243 (BLM 2015a)
	Bighorn RMP Revision	Chapter 3, Section 3.4.9 (Special Status Species), pages 3-125 to 3-129 (BLM 2015b)
	Buffalo RMP Revision	Chapter 3, Section 3.3 (Special Status Species), pages 507-512 (BLM 2015c)
	Lander RMP Revision	Chapter 3, Section 3.3 (Special Status Species), pages 416-418 (BLM 2014)
	Additional information regarding Greater Sage-Grouse is included in <b>Section 3.3</b> of this chapter.	
Livestock Grazing/Range Management	ARMPA	Chapter 3, Section 3.7.1, pages 3-74 to 3-83 (BLM 2015a)
	Bighorn RMP Revision	Chapter 3, Section 3.6.7, pages 3-199 to 3-204 (BLM 2015b)
	Buffalo RMP Revision	Chapter 3, Section 3.6.8, pages 588-594 (BLM 2015c)
	Lander RMP Revision	Chapter 3, Section 3.6.5, pages 479-487 (BLM 2014)
Lands and Realty	ARMPA	Chapter 3, Section 3.5.1, pages 3-50 to 3-63 (BLM 2015a)
	Bighorn RMP Revision	Chapter 3, Section 3.6.1, pages 3-161 to 3-169 (BLM 2015b)
	Buffalo RMP Revision	Chapter 3, Section 3.6.2, pages 561-567 (BLM 2015c)
	Lander RMP Revision	Chapter 3, Section 3.6.1, pages 457-465 (BLM 2014)
Renewable Energy	ARMPA	Chapter 3, Section 3.5.1, pages 3-50 to 3-63 (BLM 2015a)
	Bighorn RMP Revision	Chapter 3, Section 3.6.2, pages 3-170 to 3-174 (BLM 2015b)
	Buffalo RMP Revision	Chapter 3, Section 3.6.3, pages 568-569 (BLM 2015c)
	Lander RMP Revision	Chapter 3, Section 3.6.2, pages 465-469 (BLM 2014)

Resource Topic		Location of Baseline Information
Leasable Minerals (Oil and Gas, Nonenergy Leasable Minerals, and Coal)	ARMPA	Chapter 3, Section 3.8.1, pages 3-97 to 3-133 (BLM 2015a)
	Bighorn RMP Revision	Chapter 3, Section 3.2.2 (coal), page 3-50 (BLM 2015b) Chapter 3, Section 3.2.5 (oil and gas), pages 3-53 to 3-69 (BLM 2015b) Chapter 3, Section 3.2.6 (Other Leasable Solid Minerals), page 3-69 (BLM 2015b)
	Buffalo RMP Revision	Chapter 3, Section 3.2.2 (coal), pages 398-410 (BLM 2015c) Chapter 3, Section 3.2.3 (fluids), pages 410-415 (BLM 2015c) Chapter 3, Section 3.2.4 (Other Leasable Solid Minerals), page 416 (BLM 2015c)
	Lander RMP Revision	Chapter 3, Section 3.2.2 (coal), page 332 (BLM 2014) Chapter 3, Section 3.2.4 (oil and gas), pages 334–350 (BLM 2014) Chapter 3, Section 3.2.6 (Other Leasable Solid Minerals), pages 350-352 (BLM 2014)
	SFA Withdrawal EIS	Chapter 3, Section 3.4 (Geology and Mineral Resources), page 3-7; and Chapter 2, Section 2.3.1 (No Action Alternative), page 2-4 (BLM 2016)
Locatable Minerals	ARMPA	Chapter 3, Section 3.8.1, pages 3-97 to 3-133 (BLM 2015a)
	Bighorn RMP Revision	Chapter 3, Section 3.2.1, pages 3-47 to 3-49 (BLM 2015b)
	Buffalo RMP Revision	Chapter 3, Section 3.2.1, pages 383-398 (BLM 2015c)
	Lander RMP Revision	Chapter 3, Section 3.2.1, pages 322-332 (BLM 2014)
	SFA Withdrawal EIS	Chapter 3, Section 3.4 (Geology and Mineral Resources), page 3-7; and Chapter 2, Section 2.3.1 (No Action Alternative), page 2-4 (BLM 2016)
Salable Minerals	ARMPA	Chapter 3, Section 3.8.1, pages 3-97 to 3-133 (BLM 2015a)
	Bighorn RMP Revision	Chapter 3, Section 3.2.7, pages 3-70 to 3-74 (BLM 2015b)
	Buffalo RMP Revision	Chapter 3, Section 3.2.5, pages 417-423 (BLM 2015c)
	Lander RMP Revision	Chapter 3, Section 3.2.7, pages 352-356 (BLM 2014)
Social and Economic Conditions	ARMPA	Chapter 3, Section 3.11 (Social and Economic Conditions [Including Environmental Justice]), pages 3-170 to 3-179 (BLM 2015a)
	Bighorn RMP Revision	Chapter 3, Section 3.8 (Social and Economic Conditions [Including Environmental Justice]), pages 3-232 to 3-289 (BLM 2015b)
	Buffalo RMP Revision	Chapter 3, Section 3.8 (Social and Economic Conditions [Including Environmental Justice]), pages 607-638 (BLM 2015c)
	Lander RMP Revision	Chapter 3, Section 3.8 (Social and Economic Conditions [Including Environmental Justice]), pages 527-584 (BLM 2014)

### 3.3 GREATER SAGE-GROUSE

The existing condition of Greater Sage-Grouse in the planning area is described in the 2015 ARMPA Final EIS in Section 3.14.1 and in the Buffalo, Bighorn, and Lander RMP Revisions in Section 3.4.9, as well as in the 2016 SFA Withdrawal Draft EIS Section 3.7.1. This section identifies additions or changes in State management, research, and data, specific to the planning area, within the last 3 years.

Since 2015, the State of Wyoming has issued Governor’s EOs 2015-4 and 2017-2, replacing the previous EO 2011-5 and EO 2013-3. The Greater Sage-Grouse Implementation Team (SGIT) was established in 2007 and was designated to serve as the oversight team in implementing the EOs and is composed of representatives from the State of Wyoming, federal agencies, and members of the public representing industry and environmental interests. In 2016, the Wyoming legislature established the SGIT as a

statutory body (W.S. § 9-19-101) to provide recommendations regarding regulatory actions necessary to maintain and enhance Greater Sage-Grouse populations and habitats in Wyoming.

The following provisions in EO 2015-4 were carried forward from prior EOs:

- All State agencies shall strive to maintain consistency by following the procedures outlined in the EO, while recognizing that adjustments to the stipulations may be necessary based on local conditions, opportunities, and limitations. The goal is to minimize future disturbance by collocating proposed disturbances within areas that are already disturbed or naturally unsuitable.
- Consider incentivizing and prioritizing projects outside of core areas and streamlining permitting processes.
- Direction for the State of Wyoming to work with federal, state, county, private, and nongovernmental organization partners to collect data to determine the condition of each core population area in relationship to the goals of the Wyoming Greater Sage-Grouse core area protection strategy.
- The State of Wyoming commits to continue to monitor and document Greater Sage-Grouse populations and development activities to ensure that permitted activities under this authority do not result in negative impacts on Greater Sage-Grouse outside cyclical trends.

The following changes were incorporated into EO 2015-4:

- The State of Wyoming's Greater Sage-Grouse Compensatory Mitigation Framework was added as Appendix H.
- The WGFD's Core Areas were updated from Version 3 to Version 4.

EO 2017-2 supplemented EO 2015-4, Attachment F:

- Definition of suitable habitat for "riparian, wet meadow (native or introduced) or areas of alfalfa or other suitable forbs (brood rearing habitat) within 275 meters of sagebrush habitat with 5% or greater sagebrush canopy cover (for roosting/loafing)" to include areas of these habitats farther than 275 meters from sagebrush, where it has been proven through pellet counts, documented sightings, or other defensible proof that Greater Sage-Grouse use the area.
- Inclusion of the following definition for wetlands and irrigated riparian meadows: Wetlands and irrigated riparian meadows are natural and man-made wetlands and historically (pre-August 1, 2008) irrigated areas in stream and river valleys. Wetlands and irrigated riparian meadows are considered suitable habitat for the density/disturbance calculation tool purposes. Wetlands and irrigated riparian meadows may be considered suitable habitat for conservation credit purposes if they meet the definition of suitable habitat in Attachment F of EO 2015-4, as supplemented above.

### **3.3.1 Changes to Greater Sage-Grouse Habitat Based on Threats**

#### ***Wildland Fire***

The wildland fire threat was discussed in the 2015 ARMPA Final EIS (Section 3.20.1) and in the Buffalo, Bighorn Basin (Cody and Worland Field Offices), and Lander RMP Final EISs (Section 3.3.1). From 2015 to 2017 there have been 422 wildfires that were 10 acres or greater within the analysis area. These

wildfires burned approximately 137,085 acres of Greater Sage-Grouse habitat (approximately 51,577 acres in core/PHMA and approximately 85,508 in non-core/GHMA, as calculated by the BLM's fire and vegetation mapping databases in 2018). Since that time, approximately 96,309 acres of Greater Sage-Grouse habitat management areas (about 38,709 acres in PHMA and about 57,600 acres of GHMA) have been treated to improve habitat for the species.

### ***Loss and Fragmentation of Sagebrush Habitats***

The habitat loss and fragmentation threat was discussed in the 2015 ARMPA Final EIS (Section 3.14.1) and in the Buffalo, Bighorn, and Lander RMP Revisions (Section 3.4.9). Due to the State of Wyoming redefining suitable habitat as outlined in EO 2017-2 (see above), approximately 70,000 acres of previously designated unsuitable habitat is now considered suitable for the State of Wyoming's density and disturbance calculation tool. Loss of habitat and subsequent fragmentation still remains a threat to the Greater Sage-Grouse in Wyoming.

### ***Adaptive Management Triggers***

Due to a large wildfire in the summer of 2017, the Buffalo Connectivity Area experienced habitat loss outside the normal trends in a given year. This fire bisected the connectivity area. It is unknown at this time if this fire will strain the genetic connectivity between the Buffalo Core Population of Greater Sage-Grouse and the populations in southern Montana. The BLM, in coordination with the AMWG, will implement an appropriate response strategy to address the causal factor of this soft trigger, as directed by the adaptive management frameworks in the respective RMPs.

Due to a fire in 2018, the Bear River Core Area experienced habitat loss outside the normal trends in a given year. This fire burned approximately twenty-six percent of the habitat in this Core Area. This population serves as seasonal habitat for the larger Utah/Wyoming interstate population so it is unknown at this time what the long-range impact of this fire may be to that population. The Southwest Local Greater Sage-Grouse Working Group adopted the Emergency Stabilization Plan proposed by the Kemmerer BLM Field Office as an appropriate response to work toward reversing this soft trigger.

In 2019, the Wyoming Game and Fish Department informed Wyoming BLM of Greater Sage-Grouse population declines. The declines included a soft trigger population trip in the Jackson Hole Core Area. Currently, the reasons for the declines are unknown. A technical team is addressing the issue to conduct a causal factor analysis of the population declines. The BLM will work closely with WGFD and other partners to work through processes in place to address the situation and take appropriate actions to reverse the trigger.

BLM Wyoming continues to implement the 2015 Adaptive Management Strategy as the foundation for addressing recent population declines. The 2015 Decision anticipated possible declining habitat and populations and included a strategy for BLM and partners to: identify declines, determine the cause, and take action to address the causal factors. This process was carried forward into the 2019 Decision and is working as anticipated.

### ***Greater Sage-Grouse Habitat Management Area Adjustment***

Wyoming's Core Area boundaries were reevaluated by the State of Wyoming in late 2015, and they now differ from the habitat management areas analyzed in the 2015 Final EIS for the ROD/ARMPA and the Final EISs for the Lander, Buffalo, and Bighorn Basin areas.

Wyoming's 2011 core population areas were analyzed in the 2015 Final EIS for the ROD/ARMPA and the Lander RMP, Buffalo RMPA Revision, and Bighorn (Cody and Worland Field Offices) RMP Revisions. These amendments and revisions, except Lander, incorporated these 2011 core population areas as PHMA; the Lander RMP revision incorporated them as core areas.

In early 2015, the State of Wyoming used a similar process as when the core population areas were initially designated to update the core population area boundaries (EO 2015-4, Attachment A). The 2015 effort centered around making modifications to reassess areas that may not support habitats essential for Greater Sage-Grouse, areas that were considered disturbed but may be transitional or non-habitat, and areas that have experienced a decline in human activity and are being reoccupied by Greater Sage-Grouse. The SGIT then used these data, along with public input, to delineate the current core population areas.

The resulting net changes were adopted by the Wyoming Governor in EO 2015-4. BLM Wyoming incorporated these changes into the 2015 Final EIS for the ROD/ARMPA and the Lander RMP Revision, Buffalo RMP Revision, and Bighorn (Cody and Worland Field Offices) RMP Revisions with Maintenance Action DOI-BLM-WY-0000-2018-0001-CX. The changes resulted in a net addition of 143,892 acres of PHMA.

#### ***State of Wyoming Greater Sage-Grouse Compensatory Mitigation Framework***

The State of Wyoming added a Greater Sage-Grouse Compensatory Mitigation Framework (framework) as an attachment to EO 2015-4. In this framework, the State recognized compensatory mitigation as a strategy that should be used when avoidance and minimization are inadequate to protect core population area Greater Sage-Grouse and/or occupied non-core area leks, as well as connectivity areas and winter concentration areas.

The primary emphasis of the State of Wyoming Greater Sage-Grouse core area population strategy is to avoid and minimize impacts on the species first. Since the inception of Wyoming's strategy, those efforts have been employed across the state and have been effective in avoiding and reducing impacts on and threats to the species; however, there are cases when avoidance and minimization still do not meet the EO 2015-4 thresholds, primarily due to preexisting disturbance. In those cases, where projects cannot be denied due to valid existing rights and where avoidance and minimization do not adequately address impacts on Greater Sage-Grouse and Greater Sage-Grouse habitat, the State of Wyoming has determined that compensatory mitigation may be an appropriate method to ensure maintenance and enhancement of the species and its required habitats. The State of Wyoming Greater Sage-Grouse Compensatory Mitigation Framework is based on biological, legal, and policy requirements for mitigation, including the debit and/or credit principles of replacement, landscape support and vulnerability, durability of mitigation measures, indirect effects from activities, additionality, and timeliness.

### **3.4 VEGETATION**

The existing condition of vegetation in the planning area can be found in the 2014 and 2015 Final EISs as described in **Table 3-1**. Various land uses have continued to be authorized across the planning area in conformance with the decisions in the 2014 and 2015 RMPs and RMPAs.



### **3.5 LANDS, REALTY, AND RENEWABLE ENERGY**

The existing condition of lands and realty in the planning area can be found in the 2014 and 2015 Final EISs as described in **Table 3-1**. Applications for land use are dependent on the demand; within the planning area, most authorizations are for oil and gas ROWs, transmission lines, communication sites, and other roads. The BLM continues to manage for lands and realty following the management direction in the 2014 and 2015 decisions.

### **3.6 MINERALS**

The existing condition of minerals (including fluid, salable, locatable, and other leasable minerals) in the planning area can be found in the 2014 and 2015 Final EISs as described in **Table 3-1**. The BLM continues to authorize the development of mineral resources following the decisions established in the 2014 and 2015 decisions. Although the BLM has continued to permit the development of additional natural gas and oil wells, the authorizations for these wells have been in conformance with the 2014 and 2015 RMPs. The BLM is currently analyzing two large-scale natural gas development projects (the Converse County Oil and Gas Project and Moneta Divide Natural Gas and Oil Development Project) and one uranium mine (Lost Creek expansion).

Existing areas open or closed to fluid mineral leasing were identified in the decisions associated with the affected RMPs. For example, the 2014 and 2015 RMP revisions and amendments identified certain areas as being available or not available (i.e. closed) to fluid mineral leasing, as did the RMP revisions that were finalized (and subsequently amended for Greater Sage-Grouse) previously. The fluid mineral leasing allocation decisions have not changed either in the 2015 Amendment process or in this current planning process. Please refer to the individual RMPs for information regarding mineral potential and areas that were designated open or closed to fluid mineral leasing.

### **3.7 LIVESTOCK GRAZING**

The existing condition of livestock grazing management in the planning area can be found in the 2014 and 2015 Final EISs as described in **Table 3-1**. Since 2015, the BLM has continued to manage livestock according to the decisions in the 2014 and 2015 RODs and the grazing regulations. In general, the existing conditions of livestock grazing in Wyoming remain the same as those described in the 2014 and 2015 Final EISs; the BLM has continued to issue grazing permits in conformance with the 2014 and 2015 decisions.

### **3.8 SOCIOECONOMICS**

The existing condition of socioeconomics in the planning area can be found in the 2014 and 2015 Final EISs as described in **Table 3-1**. BLM-administered lands provide and support a range of goods and services such as minerals, livestock grazing, recreation, and other uses. Some of these goods and services have a readily observed economic value; others have a less clear connection although society does derive benefits from them. The socioeconomic conditions in the planning area are essentially the same as those described in the 2014 and 2015 Final EISs.

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# Chapter 4. Environmental Consequences

## 4.1 INTRODUCTION

This chapter presents the anticipated direct, indirect, and cumulative impacts on the human and natural environment from implementing the alternatives detailed in **Chapter 2**. The purpose of this chapter is to describe to the decision-maker and the public the differences between the entire range of alternatives considered in 2018, including the 2018 Draft Plan (Management Alignment Alternative), the 2018 Proposed Plan Amendment, as well as the range of alternatives incorporated by reference from the 2015 plan amendments. It is meant to clarify that Greater Sage-Grouse management was comprehensively analyzed in 2018 through multiple NEPA and planning processes.

This chapter is organized by topic, based on the affected resources identified in **Chapters 1** and **3**. Only those issues listed in **Table 1-2** were carried forward for analysis.

Impact analysis is a cause-and-effect process. The detailed impact analyses and conclusions are based on the following:

- The BLM planning team's knowledge of resources and the project area
- Literature reviews
- Information provided by experts in the BLM, cooperating and other agencies, interest groups, and concerned citizens
- Comments received on the 2018 Draft EIS

The baseline used for the impact analysis is the current condition or situation, as described in **Chapter 3**. Impacts on resources and resource uses are analyzed and discussed in detail, commensurate with resource issues and concerns identified through the process. At times, impacts are described in qualitative terms or using ranges of potential impacts.

This SEIS describes more explicitly the full range of alternatives that the BLM has evaluated, summarizing each action alternative contained in the 2015 and 2018 EISs.

## 4.2 ANALYTICAL ASSUMPTIONS

Several overarching assumptions have been made in order to facilitate the analysis of the project impacts. These assumptions set guidelines and provide reasonably foreseeable projected levels of development that would occur in the planning area during the planning period. These assumptions should not be interpreted as constraining or redefining the management objectives and actions proposed for the RMP Amendment, as described in **Chapter 2**.

The following general assumptions apply to all resource categories; any specific resource assumptions are provided in the methods of analysis section for that resource:

- Sufficient funding and personnel would be available for implementing the final decision.
- Implementation-level actions necessary to execute the LUP-level decisions proposed in this RMPA/EIS would be subject to further environmental review, including that under NEPA.

- Direct and indirect impacts of implementing the 2018 RMPA/EIS would primarily occur on public lands administered by the BLM in the planning area.
- The BLM would carry out appropriate maintenance for the functional capability of all developments.
- The discussion of impacts is based on best available data. Knowledge of the planning area and decision area and professional judgment, based on observation and analysis of conditions and responses in similar areas, are used for environmental impacts where data are limited.
- Restrictions (such as siting, design, and mitigation measures) would apply, where appropriate, to surface-disturbing activities associated with land use authorizations and permits issued on BLM-administered lands and federal mineral estate.

### 4.3 GENERAL METHOD FOR ANALYZING IMPACTS

Potential impacts are described in terms of type, context, duration, and intensity, which are generally defined below.

*Type of impact*—Impacts are characterized using the indicators described at the beginning of each resource impact section. The presentation of impacts for key planning issues is intended to provide the BLM decision-maker and reader with an understanding of the multiple-use trade-offs associated with each alternative.

*Context*—This describes the area or site-specific, local, planning area-wide, or regional location where the impact would occur. Site-specific impacts would occur at the location of the action; local impacts would occur in the general vicinity of the action area; planning area-wide impacts would affect a greater portion of decision area lands in Wyoming; and regional impacts would extend beyond the planning area boundaries.

*Duration*—This describes the duration of an impact, either short term or long term. Unless otherwise noted, short term is defined as anticipated to begin and end within the first 5 years after the action is implemented; long term is defined as lasting beyond 5 years to the end of or beyond the life of this RMPA/EIS.

*Intensity*—Rather than categorize impacts by intensity (e.g., major, moderate, or minor), this analysis discusses impacts using quantitative data wherever possible.

*Direct and indirect impacts*—Direct impacts are caused by an action or implementation of an alternative and occur at the same time and place; indirect impacts result from implementing an action or alternative but usually occur later in time or are removed in distance and are reasonably certain to occur.

For ease of reading, the impacts of the management actions of the Proposed RMPA on a specific resource are generally compared with the status quo or baseline for that resource.

Irreversible and irretrievable commitment of resources are discussed in **Section 4.7**. Irreversible commitments of resources result from actions in which resources are considered permanently changed; irretrievable commitments of resources result from actions in which resources are considered permanently lost.

#### 4.4 SUMMARY OF ENVIRONMENTAL IMPACTS OF THE NO-ACTION ALTERNATIVE

The impacts of the No-Action Alternative, or current management, of the 2018 RMPA were analyzed as Alternative E in the 2015 Final EIS and Alternative D in each of the Final EISs for the Lander, Buffalo, and Bighorn Basin (Cody and Worland Field Offices) RMPs. The BLM has reviewed new information to verify that the analysis in the 2015 Final EIS remains sound; therefore, impacts from implementing the No-Action Alternative are substantially the same as those analyzed in the 2015 Final EIS for Greater Sage-Grouse Amendments and each of the Lander RMP, Buffalo RMPA, and Bighorn (Cody and Worland Field Offices) RMP Revisions. Impacts on Greater Sage-Grouse under the No-Action Alternative would be the same as those identified in the 2015 Final EIS for the ROD/ARMPA (Proposed LUPAs) and EISs for the Revisions. Implementing mitigation, utilization of best management practices, and off-site compensatory mitigation would help maintain or improve Greater Sage-Grouse habitat. The application of seasonal restrictions and other stipulations and requirements for seasonal habitats in PHMA could prevent impacts on Greater Sage-Grouse during sensitive life phases and within important habitat.

In general, the impacts of the No-Action Alternative on Greater Sage-Grouse would be beneficial and would result in the long-term conservation of the habitat. The 2015 ARMPA was built on the foundation for Greater Sage-Grouse management established by and complementary to the Wyoming Governor's EO 2011-05 by establishing similar conservation measures and focusing restoration efforts in the same key areas most valuable to the Greater Sage-Grouse. The 2015 ARMPA was developed to reduce habitat disturbance and fragmentation through limitations on surface-disturbing activities, while addressing changes in resource condition and through monitoring and adaptive management.

**Table 4-1**, below, shows where analysis of impacts of the No-Action Alternative can be found for those resources carried forward for further analysis.

**Table 4-1**  
**Environmental Consequences for the No-Action Alternative Incorporated by Reference**

Issue	Related Resource Topic	Location in 2015 Final EIS
Modifying Habitat Management Area Boundaries	Greater Sage-Grouse	ARMPA: Chapter 4, Special Status Species Section 4.14.7 (Greater Sage-Grouse Proposed LUPAs), pages 4-340 to 4-346
		Bighorn: Chapter 4, Special Status Species Wildlife Section 4.4.9.3 (Detailed Analysis of Alternatives), page 4-292
		Buffalo: Chapter 4, Special Status Species Wildlife (including Greater Sage-Grouse) Section 4.4.9.6 (Alternative D), pages 1271–1283
		Lander: Chapter 4, Special Status Species Wildlife Section 4.4.9.6 (Detailed Analysis of Alternatives), pages 924–971
	Vegetation	ARMPA: Chapter 4, Vegetation Section 4.4.7 (Forestry), page 4-70 and Section 4.16.7 (Vegetation), pages 4-362 to 4-364
		Bighorn: Chapter 4, Biological Resources Section 4.4, pages 4-159, 4-175 to 4-176, 4-191, and 4-208
		Buffalo: Chapter 4, Vegetation Section 4.4. (Alternative D) pages 1006, 1045, and 1081
		Lander: Chapter 4, Vegetation Section 4.4, pages 779–780, 797–798, 816–817, and 834

4. Environmental Consequences (Table 4-1. Environmental Consequences for the No-Action Alternative Incorporated by Reference)

Issue	Related Resource Topic	Location in 2015 Final EIS
Modifying Habitat Management Area Boundaries (cont'd)	Lands and Realty	ARMPA: Chapter 4, Lands and Realty Section 4.5.7 (Proposed LUPAs), pages 4-78 to 4-80
		Bighorn: Chapter 4, Lands and Realty Section 4.6.1.3 (Detailed Analysis of Alternatives), pages 4-417 to 4-418
		Buffalo: Chapter 4, Lands and Realty Resources Section 4.6.2.6 (Alternative D), page 1428
		Lander: Chapter 4, Lands and Realty Section 4.6.1.3. (Detailed Analysis of Alternatives), page 1026
	Renewable Energy	ARMPA: Chapter 4, Minerals and Energy Section 4.7.6 (Proposed LUPAs), page 4-116
		Bighorn: Chapter 4, Renewable Energy Section 4.6.2.3 (Detailed Analysis of Alternatives), page 4-424
		Bighorn: Chapter 4, Renewable Energy Section 4.6.2.3 (Detailed Analysis of Alternatives), page 4-424
		Lander: Chapter 4, Renewable Energy Section 4.6.2.3.5.2 (Alternative D, Resources), page 1036
	Leasable Minerals	ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 pages 4-115 to 4-116
		Bighorn: Chapter 4, Leasable Minerals Section 4.2, pages 4-78 to 4-79, 4-103 to 4-104, and 4-110
		Buffalo: Chapter 4, Leasable Minerals Section 4.2, pages 841 and 867–869
		Lander: Chapter 4, Leasable Minerals Section 4.2, pages 711–715 and 727
	Locatable Minerals	ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 (Proposed LUPAs), page 4-116
		Bighorn: Chapter 4, Leasable Minerals Section 4.2 pages 4-78 to 4-79, 4-103 to 4-104 and 4-110
		Buffalo: Chapter 4, Leasable Minerals Section 4.2, pages 841 and 867–869
		Lander: Chapter 4, Leasable Minerals Section 4.2, pages 711–715 and 727
	Salable Minerals	ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 (Proposed LUPAs), page 4-117
		Bighorn: Chapter 4, Salable Minerals Section 4.2.7.3 (Detailed Analysis of Alternatives), page 4-118
		Buffalo: Chapter 4, Salable Minerals Section 4.2.5.6 (Alternative D), pages 900–901
		Lander: Chapter 4, Salable Minerals Section 4.2.7.3.5.2 (Alternative D, Resources), page 740
	Socioeconomics	ARMPA: Chapter 4, Socioeconomics Section 4.11, pages 4-207 to 4-211 and 4-217 to 4-218
		Bighorn: Chapter 4, Socioeconomic Impacts Section 4.8, pages 4-618 to 4-632, and 4-638 to 4-640
		Buffalo: Chapter 4, Socioeconomic Impacts Section 4.8, pages 1636–1637, 1649–1657, and 1659.
		Lander: Chapter 4, Socioeconomics Section 4.8, pages 1250–1251, 1262–1265, and 1267

4. Environmental Consequences (Table 4-1. Environmental Consequences for the No-Action Alternative Incorporated by Reference)

Issue	Related Resource Topic	Location in 2015 Final EIS
Sagebrush Focal Areas	Greater Sage-Grouse	ARMPA: Chapter 4, Special Status Species Section 4.14.7 (Greater Sage-Grouse Proposed LUPAs), page 4-343 SFA Withdrawal EIS: Chapter 4, Section 4.5 (Wildlife, Including Special Status Species and Greater Sage-Grouse), page 4-82
	Vegetation	ARMPA: Chapter 4, Vegetation Sections 4.16.7, page 4-363 and Section 4.18.7, page 4-393 SFA Withdrawal EIS: Chapter 4, Section 4.4 (Vegetation, Including Special Status Plants), page 4-68
	Lands and Realty	ARMPA: Chapter 4, Lands and Realty Section 4.5.7 (Proposed LUPAs), page 4-78
	Leasable Minerals	ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 (Proposed LUPAs), page 4-116
	Locatable Minerals	ARMPA: Chapter 4, Minerals and Energy, Section 4.8.7 (Proposed LUPAs), page 4-116 SFA Withdrawal EIS: Chapter 4, Section 4.2 (Geology and Mineral Resources), page 4-7
	Salable Minerals	ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 (Proposed LUPAs), page 4-116
	Socioeconomics	ARMPA: Chapter 4, Socioeconomics Section 4.11 pages 4-209 and 4-217 to 4-218
Habitat Objectives	Greater Sage-Grouse	ARMPA: Chapter 4, Special Status Species Section 4.14.7 (Greater Sage-Grouse Proposed LUPAs), page 4-341 Bighorn: Chapter 4, Special Status Species Wildlife Section 4.4.9.3 (Detailed Analysis of Alternatives), page 4-334 Buffalo: Chapter 4, Special Status Species Wildlife (including Greater Sage-Grouse) Section 4.4.9.6 (Alternative D), pages 1271–1283
	Vegetation	ARMPA: Chapter 4, Vegetation Section 4.16, page 4-362 Bighorn: Chapter 4, Biological Resources Section 4.4, pages 4-152 to 4-160, 4-165 to 4-176, 4-182 to 4-191, and 4-196 to 4-208 Buffalo: Chapter 4, Vegetation Section 4.4. (Alternative D), pages 1006, 1045, and 1081
	Livestock Grazing	ARMPA: Chapter 4, Livestock Grazing Section 4.7.7 (Proposed LUPAs), page 4-101 Bighorn: Chapter 4 Livestock Grazing Section 4.6.7.3 (Detailed Analysis of Alternatives), pages 4-493 to 4-512 Buffalo: Chapter 4, Livestock Grazing Management Section 4.4 (Alternative D), pages 1570–1576
	Greater Sage-Grouse	ARMPA: Chapter 4, Livestock Grazing Section 4.7.7, (proposed land use plan amendments), page 4-101 Bighorn: Chapter 4, Livestock Grazing Management Section 4.6.7.3, page 4.493 Buffalo: Chapter 4, Livestock Grazing Management Section 4.4, pages 1570-1576
	Vegetation	ARMPA: Chapter 4, Vegetation Section 4.6, page 4-362 Bighorn: Chapter 4, Biological Resources Section 4.4, pages 4-152 to 4-160, 4-165 to 4-176, 4-182 to 4-191, and 4-196 to 4-208 Buffalo: Chapter 4, Vegetation Section 4.4, pages 1006, 1045, and 1081
Livestock Management	Greater Sage-Grouse	ARMPA: Chapter 4, Livestock Grazing Section 4.7.7, (proposed land use plan amendments), page 4-101 Bighorn: Chapter 4, Livestock Grazing Management Section 4.6.7.3, page 4.493 Buffalo: Chapter 4, Livestock Grazing Management Section 4.4, pages 1570-1576
	Vegetation	ARMPA: Chapter 4, Vegetation Section 4.6, page 4-362 Bighorn: Chapter 4, Biological Resources Section 4.4, pages 4-152 to 4-160, 4-165 to 4-176, 4-182 to 4-191, and 4-196 to 4-208 Buffalo: Chapter 4, Vegetation Section 4.4, pages 1006, 1045, and 1081

4. Environmental Consequences (Table 4-1. Environmental Consequences for the No-Action Alternative Incorporated by Reference)

Issue	Related Resource Topic	Location in 2015 Final EIS
Noise	Greater Sage-Grouse	ARMPA: Chapter 4, Special Status Species Section 4.14.7 (Greater Sage-Grouse Proposed LUPAs), page 4-346
		Bighorn: Chapter 4, Special Status Species Wildlife Section 4.4.9.3 (Detailed Analysis of Alternatives), page 4-338
		Buffalo: Chapter 4, Special Status Species Wildlife (including Greater Sage-Grouse) Section 4.4.9.6 (Alternative D), pages 1271–1283
		Lander: Chapter 4, Special Status Species Wildlife Section 4.4.9.6 (Detailed Analysis of Alternatives), pages 924–971
	Leasable Minerals	ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 (Proposed LUPAs), page 4-116
		Bighorn: Chapter 4, Mineral Resources Section 4.2, pages 4-78 to 4-110
		Buffalo: Chapter 4, Leasable Minerals Section 4.2, pages 841 and 867–869
		Lander: Chapter 4, Leasable Minerals Section 4.2, pages 711–715 and 727
	Locatable Minerals	ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 (Proposed LUPAs), page 4-116
		Bighorn: Chapter 4, Locatable Minerals Section 4.2.1.3 (Detailed Analysis of Alternatives), pages 4-71 to 4-78
		Buffalo: Chapter 4, Locatable Minerals Section 4.2.1.6 (Alternative D), pages 814–815
		Lander: Chapter 4, Locatable Minerals Section 4.2.1.3.5.2 (Alternative D, Resources), pages 687–688
Adaptive Management	Salable Minerals	ARMPA: Chapter 4, Minerals and Energy Section 4.8.7 (Proposed LUPAs), page 4-116
		Bighorn: Chapter 4, Salable Minerals Section 4.2.7.3 (Detailed Analysis of Alternatives), pages 4-113 to 4-120
		Buffalo: Chapter 4, Salable Minerals Section 4.2.5.6 (Alternative D), pages 900-901
		Lander: Chapter 4, Salable Minerals Section 4.2.7.3.5.2 (Alternative D, Resources), page 740
	Socioeconomics	ARMPA: Chapter 4, Socioeconomics Section 4.11, pages 4-207 to 4-211 and 4-217 to 4-219
		Bighorn: Chapter 4, Socioeconomic Resources Section 4.8, pages 4-609 to 4-610, 4-625 to 4-634, 4-636 to 4-638, and 4-639 to 4-640
		Buffalo: Chapter 4, Socioeconomic Impacts Section 4.8, pages 1636–1637, 1649–1657 and 1659.
		Lander: Chapter 4, Socioeconomics Section 4.8, pages 1250–1251, 1262–1265, and 1267
		ARMPA: Chapter 4, Special Status Species Section 4.14.7 (Greater Sage-Grouse Proposed LUPAs), page 4-346
		Bighorn: Chapter 4, Special Status Species Wildlife Section 4.4.9.3 (Detailed Analysis of Alternatives), pages 4-337 to 4-338
		Buffalo: Chapter 4, Special Status Species Wildlife (including Greater Sage-Grouse) Section 4.4.9.6 (Alternative D), pages 1271–1283
Compensatory Mitigation	Greater Sage-Grouse	ARMPA: Chapter 4, Special Status Species Section 4.14.7 (Greater Sage-Grouse Proposed LUPAs), page 4-345
		Bighorn: Chapter 4, Special Status Species Wildlife Section 4.4.9.3 (Detailed Analysis of Alternatives), pages 4-335 to 4-338
		Buffalo: Chapter 4, Special Status Species Wildlife (including Greater Sage-Grouse) Section 4.4.9.6 (Alternative D), pages 1271–1283



This table is a 2015 Wyoming ARMPA Summary of Environmental Consequences that were incorporated by reference into the 2019 planning effort and considered throughout the process. **Table 4-2a**, presents a comparison summary of impacts from management actions proposed for the alternatives considered in the 2015 Wyoming ARMPA.

**Table 4-2a**  
**2015 Wyoming ARMPA Summary of Environmental Consequences**

Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
<b>Air Quality</b>				
NO <sub>x</sub> emissions could increase by 8,172 tons per year in 2020. NO <sub>x</sub> emissions could increase by 7,365 tons per year in 2031.	NO <sub>x</sub> emissions could increase by 8,318 tons per year in 2020. NO <sub>x</sub> emissions could increase by 4,430 tons per year in 2031.	NO <sub>x</sub> emissions could increase by 4,696 tons per year in 2020. NO <sub>x</sub> emissions could increase by 4,068 tons per year in 2031.	NO <sub>x</sub> emissions could increase by 8,340 tons per year in 2020. NO <sub>x</sub> emissions could increase by 7,061 tons per year in 2031.	NO <sub>x</sub> emissions could increase by 7,667 tons per year in 2020. NO <sub>x</sub> emissions could increase by 5,182 tons per year in 2031.
<b>Cultural Resources</b>				
Surface disturbance from oil and gas development, livestock grazing, recreation and travel management could potentially damage undiscovered or undocumented cultural sites. Under this alternative, 871,780 acres would be closed to oil and gas development, potentially decreasing impacts to cultural resources in these areas.  Under this alternative, 285,930 acres would be managed as ROW exclusion areas and 424,820 acres would be closed to wind development, potentially decreasing impacts to cultural resources in these areas.  Leasing of solid leasable minerals would be closed on 261,000 acres, potentially decreasing impacts to cultural resources in these areas.	As with Alternative A, surface disturbance from oil and gas development, livestock grazing, recreation and travel management could potentially damage undiscovered or undocumented cultural sites.  An increase in the number of acres closed to oil and gas development (6,886,890 acres in Alternative B as compared to 871,780 acres in Alternative A) would potentially decrease disturbance, resulting in fewer impacts to cultural sites.  Additional restrictions on other surface and sub- surface activities, such as ROW exclusion areas (5,271,440 acres) and areas closed to wind development (5,033,240 acres) would decrease the impacts to cultural resources when compared with Alternative A.  An increase in the number of acres closed to solid leasable mineral development (6,922,690 acres as opposed to 234,230 acres under Alternative A) would protect cultural resources within these additional areas.	As with Alternative A, surface disturbance from oil and gas development, livestock grazing, recreation and travel management could potentially damage undiscovered or undocumented cultural sites.  An increase in the number of acres closed to oil and gas development (16,878,220 acres in Alternative C as compared to 871,780 acres in Alternative A) would potentially decrease disturbance, resulting in fewer impacts to cultural sites.  Additional restrictions on other surface and sub- surface activities, such as ROW exclusion areas (11,556,490 acres) and areas closed to wind development (11,531,340 acres) would decrease the impacts to cultural resources when compared with Alternative A.  An increase in the number of acres closed to solid leasable mineral development (6,992,690 acres as opposed to 234,230 acres in Alternative A) would protect cultural resources within these additional areas.	As with Alternative A, surface disturbance from oil and gas development, livestock grazing, recreation and travel management could potentially damage undiscovered or undocumented cultural sites.  An increase in the number of acres closed to oil and gas development (964,860 acres in Alternative D as compared to 871,780 acres in Alternative A) would potentially decrease disturbance, resulting in fewer impacts to cultural sites.  Additional restrictions on other surface and sub- surface activities, such as ROW exclusion areas (5,230,110 acres) and areas closed to wind development (424,820 acres) would decrease the impacts to cultural resources when compared with Alternative A.  Solid mineral leasing would be prohibited on 261,000 acres, which is the same as Alternative A. Thus, impacts from solid mineral leasing would be similar to those described in Alternative A.	As with Alternative A, surface disturbance from oil and gas development, livestock grazing, recreation and travel management could potentially damage undiscovered or undocumented cultural sites.  The number of acres closed to oil and gas development, 883,670 acres, would close more land to oil and gas development as compared to Alternative A.  Additional restrictions on areas closed to wind development (425,080 acres) would decrease the impacts to cultural resources when compared with Alternative A. Impacts from ROW exclusion areas would be the same as those in Alternative A.  Impacts from solid leasable minerals would be the same as those described in Alternative A, with the same amount of acres being closed.

Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
<b>Forestry</b>				
<p>Impacts to forestry and forestry resources would mostly occur from surface disturbing activities. Surface disturbing activities could reduce forest/woodland health through vegetation removal, soil compaction, soil removal, fractured vegetation communities, modified plant community structure and diversity, increased soil erosion, and increased surface runoff. This reduction in forest/woodland health could lead to an increase in invasive/noxious species establishment/proliferation and a reduction in timber production.</p> <p>The majority of surface disturbing activities within the planning area would be from minerals development and associated infrastructure, both of which typically are situated in non-forested to lightly forested areas.</p> <p>Minerals development and surface disturbing activities that do occur in woodland/forest areas are more likely to occur in areas that have high potential for CBNG. Surface disturbing impacts to forestry resources from fluid minerals development are expected to occur across 130,330 acres in the short-term and 39,050 acres in the long-term under Alternative A, most of which would be outside timber production and harvest areas.</p>	<p>Impacts to forestry from surface disturbing activities could be reduced compared to Alternative A, as short- term surface disturbances from fluid minerals development would be reduced to 104,050 acres and long-term surface disturbance acres to 33,540 acres. Surface disturbing impacts from oil, gas, and CBNG wells could be reduced compared to Alternative A, as the number of wells would be reduced to 11,555 oil and gas wells and 2,154 CBNG wells. These reductions could reduce the total acres developed for fluid minerals within forest/woodland habitat thus decreasing forestry/woodland vegetation, timber, and associated ecological processes which are important to overall forest health.</p>	<p>Impacts to forestry from surface disturbing activities could be reduced compared to Alternative A, as short- term surface disturbances from fluid minerals development would be reduced to 85,140 acres and long-term surface disturbances would be reduced to 27,030 acres.</p> <p>These disturbances would be reduced compared to Alternative A, as fluid mineral well development would be reduced to 9,533 oil and gas wells and 1,594 CBNG wells. The reduction in fluid mineral wells could reduce the total acres in forest/woodland habitat developed for fluid mineral activities which would maintain habitat functions and health as well as maintain timber production in these areas.</p>	<p>Impacts to forestry from surface disturbing activities would be the same as Alternative A, except the level of intensity would be reduced as the total short- term surface disturbance acres from fluid minerals development would be reduced to 122,910 acres and 37,720 long-term surface disturbance areas.</p> <p>This reduction in surface disturbance acres would help maintain ecological processes important to forest/woodland health and timber production. The reduction in impacts to forestry resources would mostly be due to the reduction of fluid mineral wells, with oil and gas wells being reduced to 13,083 wells and CBNG reduced to 2,686 wells. Reduction in wells could also reduce associated surface disturbances such as the construction of roads and utilities which could reduce forest/woodland vegetation removal compared to Alternative A.</p>	<p>Impacts from fluid mineral activities would be the same as Alternative A, except the level of intensity would be different as the projected well development would be reduced to 12,355 oil and gas wells and 2,462 CBNG wells. This reduction in wells would help maintain forest/woodland ecological functions and maintain timber production. Compared to Alternative A, surface disturbing activities from fluid minerals development would be reduced which would reduce short-term surface disturbance to 112,330 acres and long-term surface disturbances to 35,430 acres.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
<b>Lands and Realty</b>				
<p>Impacts on lands and realty management would result from placing restrictions on the location of ROWs and land tenure adjustments.</p> <p>Prohibiting or restricting surface disturbing activities and managing lands as ROW exclusion and avoidance areas could result in the relocation or redesign of proposed ROWs or could preclude the development of some ROWs that could not be effectively mitigated or located in other areas. Land use restrictions that result in the relocation or redesign of proposed ROWs would increase management efforts and costs related to proposals submitted by ROW applicants.</p> <p>ROW exclusion and avoidance areas would include 285,930 and 2,460,340 acres, respectively.</p>	<p>Impacts on lands and realty management would be similar to those identified under Alternative A, except the impacts would be more extensive with an increase in ROW exclusion and avoidance areas. ROW exclusion and avoidance areas would include 5,271,440 and 6,357,180 acres, respectively.</p>	<p>Impacts on lands and realty management would be similar to those identified under Alternative A, except the impacts would be more extensive with an increase in ROW exclusion areas.</p> <p>ROW exclusion and avoidance areas would include 11,556,490 and 0 acres, respectively.</p>	<p>Impacts on lands and realty management would be similar to those identified under Alternative A, except the impacts would be more extensive with an increase in ROW exclusion areas.</p> <p>ROW exclusion and avoidance areas would include 5,230,110 and 1,300,510 acres, respectively.</p>	<p>Impacts on lands and realty management would be similar to those identified under Alternative A, except the impacts would be more extensive with an increase in ROW avoidance areas and areas in which surface disturbing activities are prohibited.</p> <p>ROW exclusion and avoidance areas would include 285,930 and 6,208,990 acres, respectively.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
<b>Livestock Grazing</b>				
<p>Impacts to livestock grazing would occur from surface- disturbing and development activities (e.g., mineral development, ROW development) that remove or degrade forage resources.</p> <p>The impacts would be greatest under this alternative because of fewer restrictions on newly permitted surface disturbing activities within the planning area.</p> <p>Managing 285,930 acres as ROW exclusion areas, 871,780 acres as unavailable for oil and gas leasing, 40,980 acres as NSO areas, and 68,550 acres in which surface disturbing activities are prohibited would reduce surface disturbances and help to maintain forage resources, but to a lesser extent than the other alternatives.</p> <p>Grazing management would be adjusted on all allotments not meeting the Wyoming Standards for Healthy Rangelands on BLM- administered lands, and to those not meeting LRMP S&amp;Gs on Forest Service- administered lands, for reasons attributable to grazing. These management restrictions could reduce AUM utilization and increase the cost of livestock operations.</p>	<p>Impacts to livestock grazing would occur from surface- disturbing and development activities (e.g., mineral development, ROW development) that remove or degrade forage resources.</p> <p>Managing 5,271,440 acres as ROW exclusion areas, 6,886,890 acres as closed to oil and gas leasing, and 2,117,160 acres as NSO areas would reduce surface disturbances and help to maintain forage resources.</p> <p>Allotments within Greater Sage-Grouse priority habitat not meeting the Wyoming Standards for Healthy Rangelands due, in part, to livestock grazing would require a 20-30% forage allocation for livestock, thereby decreasing the forage available for grazing. In addition, retiring specific allotments and/or permits could occur and reduce the number of acres available for livestock grazing.</p>	<p>Impacts to livestock grazing would occur from surface- disturbing and development activities (e.g., mineral development, ROW development) that remove or degrade forage resources.</p> <p>Managing 11,556,490 acres as ROW exclusion areas, 16,878,220 acres as closed to oil and gas leasing, and 2,117,160 acres as NSO areas, would reduce surface disturbances and help to maintain forage resources. Because such restrictions are the most extensive under this alternative, impacts to livestock grazing associated with surface disturbances would be the least intensive.</p> <p>Livestock grazing would be entirely prohibited within Greater Sage-Grouse priority habitat (approximately 5 million acres), thereby significantly reducing the number of acres available for livestock grazing.</p>	<p>Impacts to livestock grazing would occur from surface- disturbing and development activities (e.g., mineral development, ROW development) that remove or degrade forage resources.</p> <p>Managing 5,230,110 acres as ROW exclusion areas and 964,860 acres as closed to oil and gas leasing would reduce surface disturbances and help to maintain forage resources.</p> <p>Grazing management would be adjusted on all allotments not meeting the Wyoming Standards for Healthy Rangelands on BLM- administered lands, and to those not meeting LRMP S&amp;Gs on Forest Service- administered lands, for reasons attributable to grazing. These management restrictions could reduce AUM utilization and increase the cost of livestock operations.</p>	<p>Impacts to livestock grazing would occur from surface- disturbing and development activities (e.g., mineral development, ROW development) that remove or degrade forage resources.</p> <p>Managing 285,930 acres as ROW exclusion areas, 883,670 acres as closed to oil and gas leasing, 441,690 acres as NSO areas, and 337,860 acres in which surface disturbing activities are prohibited would reduce surface disturbances and help to maintain forage resources.</p> <p>Grazing management would be adjusted on all allotments not meeting the Wyoming Standards for Healthy Rangelands on BLM- administered lands, and to those not meeting LRMP S&amp;Gs on Forest Service- administered lands, for reasons attributable to grazing. These management restrictions could reduce AUM utilization and increase the cost of livestock operations.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
<b>Minerals</b>				
<b>Fluid Leasable Minerals</b>				
<p>Closing 871,780 acres and applying NSO on 40,980 acres and CSU on 5,015,210 acres within Greater Sage-Grouse core and general habitat to fluid mineral development would restrict the area in which development could occur, would increase the complexity of mineral operations, slow down the production of fluid minerals, and ultimately reduce the number of mineral operations.</p> <p>Timing and distance limitations within Greater Sage-Grouse core and general habitat would further shorten the season for mineral development and delay access to mineral resources.</p> <p>Under Alternative A, there would be 13,653 wells projected over the life of the plan.</p>	<p>Closing 6,886,890 acres within Greater Sage-Grouse priority habitat to fluid mineral development and applying NSO stipulations, as COAs, to valid existing leases on 2,082,140 acres would decrease the number of mineral operations compared to Alternative A.</p> <p>Timing and distance limitations would be increased to include a 4- mile NSO buffer around leks with a cap on surface disturbance of 1 disturbance per section and no more than 3% total surface disturbance, which would further reduce and limit mineral activity compared to Alternative A.</p> <p>Under Alternative B, the impacts above would reduce the number of wells projected over the life of the plan to 11,555.</p>	<p>Closing all 16,878,220 acres of Greater Sage-Grouse priority and general habitat to fluid mineral development and applying NSO stipulations, as COAs, to valid existing leases on 2,082,140 acres would decrease the number of mineral operations compared to Alternative A.</p> <p>Timing and distance limitations would be similar to Alternative B, but would include disruptive activities as well, which would further reduce and limit mineral activity compared to Alternative A.</p> <p>Under Alternative C, the impacts above would reduce the number of wells projected over the life of the plan to 9,533.</p>	<p>Closing 964,860 acres within Greater Sage-Grouse core and general habitat to fluid mineral development and applying CSU on 2,117,990 acres within Greater Sage-Grouse core and general habitat would decrease the number of mineral operations compared to Alternative A.</p> <p>Timing and density limitations of 3 locations per 640 acres and a 9% disturbance cap would reduce and limit mineral development compared to Alternative A.</p> <p>Under Alternative D, the impacts above would reduce the number of wells projected over the life of the plan to 13,083.</p>	<p>Closing 883,670 acres and applying NSO on 441,690 acres and CSU on 6,438,480 acres within PHMAs and GHMAs to fluid mineral development would decrease the number of mineral operations compared to Alternative A.</p> <p>Timing and distance limitations would be increased to include prohibiting surface occupancy and disruptive activities within 0.6 miles of occupied leks and density limitations of 1 location per 640 acres and a 5% disturbance cap would reduce and limit mineral activity compared to Alternative A.</p> <p>Under the Proposed LUP Amendments, the impacts above would reduce the number of wells projected over the life of the plan to 12,355.</p>
<b>Solid Leasable Minerals</b>				
<p>Consideration of solid mineral leasing in most of the planning area would allow for the development of coal.</p> <p>Consideration of non-energy leasable minerals would allow for the development of sodium (trona), phosphates, and tar sands.</p> <p>Approximately 261,000 acres would be closed to solid mineral leasing, which would eliminate this type of mineral development over 3% of Greater Sage-Grouse core and general habitat.</p>	<p>Closing Greater Sage-Grouse priority areas to coal exploration would decrease the area available for future development of coal compared to Alternative A.</p> <p>Closing Greater Sage-Grouse priority areas to non-energy leasable minerals would reduce the amount of area available for mineral development.</p> <p>Approximately 6,992,690 acres would be closed to solid mineral leasing, which would eliminate this type of mineral development over 43% of Greater Sage-Grouse priority and general habitat.</p>	<p>Impacts would be the same as under Alternative B.</p>	<p>Impacts would be the same as under Alternative A.</p>	<p>Impacts would be the same as under Alternative A. except 483,420 acres would be closed to solid mineral leasing.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
<b>Locatable Minerals</b>				
Withdrawing or pursuing withdrawal on approximately 131,070 acres from mineral entry would restrict the ability to develop locatable minerals in those areas.	Withdrawing or pursuing withdrawal on all priority Greater Sage-Grouse habitat (approximately 5,118,070 acres) from mineral entry would restrict the ability to develop locatable minerals on more areas than Alternative A.	Impacts would be the same as under Alternative B.	Impacts would be the same as under Alternative A.	Impacts would be the same as under Alternative A, except 252,070 acres would be pursued for withdrawal.
<b>Salable Minerals</b>				
Salable mineral development, including mineral material exploration, sales, and free use permits would be closed on 472,800 acres (about 8% of Greater Sage-Grouse core and general habitat).	Salable mineral development, including mineral material exploration, sales, and free use permits would be closed on 6,992,690 acres (all Greater Sage-Grouse priority habitat), constituting about 43% of Greater Sage-Grouse priority and general habitat, nearly 5 times the closures as Alternative A.	Impacts would be the same as under Alternative B.	Salable mineral development, including mineral material exploration, sales, and free use permits would be closed on 472,800 acres.	Impacts would be the same as under Alternative D.
<b>Wind Energy</b>				
Wind energy development would be allowed in most places across the planning area without specific restrictions. 424,820 acres would be closed to wind development and 2,438,850 acres would have restrictions. A total of 27,970 wind turbines (2 megawatts) are projected to be developed through 2020.	Closing Greater Sage-Grouse priority habitat to wind energy (5,033,240 acres) would reduce projected development to 2,821 turbines compared to Alternative A.	Closing Greater Sage-Grouse priority and general habitat to wind energy development (11,531,340 acres) would reduce projected development to 2,821 turbines, the same as under Alternative B, but limiting areas where they could be built more than Alternative B.	Closing 424,820 acres to wind energy and avoiding wind energy on 4,608,420 acres would reduce projected development to 21,863 turbines compared to Alternative A.	Closing 425,080 acres to wind energy and avoiding wind energy on 4,731,350 acres would reduce projected development to 2,821 turbines, similar to the impacts under Alternative B.



Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
<b>Paleontology</b>				
<p>Surface disturbance from oil and gas development, livestock grazing, recreation and travel management would cause potential damage to undiscovered or undocumented paleontological resources. Surface disturbing activities would be prohibited on 68,550 acres and restricted on 93,580 acres, which could protect paleontological resources within these areas.</p> <p>Under this alternative, 871,780 acres would be closed to oil and gas development, potentially decreasing impacts to paleontological resources in these areas.</p> <p>Leasing of solid leasable minerals would be closed on 261,000 acres, potentially decreasing impacts to paleontological resources in these areas.</p> <p>Under this alternative, 285,930 acres would be managed as ROW exclusion areas and 424,820 acres would be closed to wind development, potentially decreasing impacts to paleontological resources in these areas.</p>	<p>As with Alternative A, surface disturbance from oil and gas development, livestock grazing, recreation and travel management would cause potential damage to undiscovered or undocumented paleontological resources.</p> <p>Closing 6,886,890 acres to oil and gas development would greatly expand the protection of paleontological resources within these areas as compared to 871,780 acres that would be closed to oil and gas development in Alternative A.</p> <p>Leasing of solid leasable minerals would be closed on 6,992,690 acres, greatly expanding the area protected from mineral development.</p> <p>Additional restrictions on surface and sub-surface disturbing activities, such as ROW exclusion areas (5,271,440 acres) and areas closed to wind development (5,033,240 acres) are all greatly expanded as compared with Alternative A.</p>	<p>As with Alternative A, surface disturbance from oil and gas development, livestock grazing, recreation and travel management would cause potential damage to undiscovered or undocumented paleontological resources.</p> <p>A significant increase in the number of acres closed to oil and gas development (16,878,220 acres) could potentially decrease disturbance, resulting in fewer impacts to paleontological resources as compared to Alternative A.</p> <p>Leasing of solid leasable minerals would be closed on 6,992,690 acres, greatly expanding the area protected from mineral development.</p> <p>Additional restrictions on other surface and sub- surface activities, such as ROW exclusion areas (11,556,490 acres) and areas closed to wind energy (11,531,340 acres) would decrease the impacts to paleontological resources as compared with Alternative A.</p>	<p>As with Alternative A, surface disturbance from oil and gas development, livestock grazing, recreation and travel management would cause potential damage to undiscovered or undocumented paleontological resources.</p> <p>Impacts from oil and gas development would be similar to those in Alternative A with respect to the amount of acres closed to oil and gas development.</p> <p>However, the number of acres closed to oil and gas development would be slightly increased (964,860 acres in Alternative D, as opposed to 871,780 acres in Alternative A).</p> <p>Solid mineral leasing would be closed on 261,000 acres, which is the same as Alternative A. Impacts from solid mineral leasing would be similar to those described in Alternative A.</p> <p>Additional restrictions on other surface and sub- surface activities, such as ROW exclusion areas (5,230,110 acres) and areas closed to wind energy (424,820) would decrease the impacts to paleontological resources as compared with Alternative A.</p>	<p>As with Alternative A, surface disturbance from oil and gas development, livestock grazing, recreation and travel management would cause potential damage to undiscovered or undocumented paleontological resources.</p> <p>However, the number of acres on which surface disturbance is prohibited would increase (68,550 acres in Alternative A as opposed to 337,860 acres in the Proposed LUP Amendments). The number of acres where surface disturbance is restricted would increase when compared to Alternative A (93,580 acres in A, as opposed to 160,630 acres in E).</p> <p>Closing 883,670 acres to oil and gas development would expand the protection of paleontological resources within these areas as compared to 871,780 acres that would be closed to oil and gas development in Alternative A.</p> <p>Impacts from ROW exclusion areas (285,930 acres) would be the same as Alternative A.</p> <p>Impacts from solid leasable minerals to paleontological resources would be the same as those described in Alternative A, with the same amount of acres being closed to solid leasable mineral development.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
<b>Recreation Resources</b>				
Allowing recreation use either through permits or casual use will continue in most areas. Popular recreation activities in the planning area include OHV use, hunting, camping, hiking, and scenic touring, among others.	Measures for the protection of Greater Sage-Grouse in priority and general habitat could reduce some permit-based recreation opportunities compared to Alternative A. Conversely, opportunities for primitive and unconfined recreation could be enhanced indirectly through actions that reduce or remove surface disturbing and disruptive activities. This would occur primarily in Greater Sage-Grouse priority habitat.	Impacts to permitted recreation opportunities would be similar to Alternative B, but expanded to include all non-motorized recreation, seasonally, within 4 miles of active leks. Impacts to other types of recreation would be the same as under Alternative B, except that impacts would be extended to include Greater Sage-Grouse general habitat, where there would be additional removal of surface disturbing and disruptive activities.	Impacts to permitted recreation opportunities would be similar to Alternative A, although more large-group permitted activities could be denied.	Impacts would be roughly the same as under Alternative D.
<b>Socioeconomics</b>				
<p>Continued management within the planning area would be expected to perpetuate trends that are already occurring within the economic study area. The quantified economic impacts across the entire planning area from 2013–2020 (present value) in 2011 dollars were estimated at \$63.9 billion (B) of total economic output, \$15.6B of total labor earnings, and \$4.1B of local and state revenues.</p> <p>Approximately 37,700 jobs would be supported in 2020. Social impacts from continuation of current trends would occur in this alternative. These impacts would include stresses on community resources and community cohesion caused by high rates of resource development in some areas. In addition, wildlife/ecosystem conservation stakeholders would find this alternative highly unsatisfactory; mineral development, renewable energy development, and livestock grazing stakeholders would generally find this alternative to be most conducive to their interests and values; and recreation stakeholders would have mixed views.</p>	<p>Quantified economic impacts across the entire planning area from 2013– 2020 (present value) in 2011 dollars were estimated at \$59.1B of total economic output, \$13.9B of total labor earnings, and \$3.9B of local and state revenues.</p> <p>Approximately 33,600 jobs would be supported in 2020. A number of actions may increase costs to operators or reduce use levels relative to Alternative A in ways that could not be quantified, and thereby affect (increase or decrease in various instances) economic activity in ways that could not be estimated. Social impacts from stresses on community resources and community cohesion caused by high rates of resource development would be reduced relative to Alternative A. In addition, wildlife/ecosystem conservation stakeholders would find this alternative more favorable than Alternative A; mineral development, renewable energy development, and livestock grazing stakeholders could find this alternative to be less favorable; and recreation stakeholders could have mixed views.</p>	<p>Quantified economic impacts across the entire planning area from 2013–2020 (present value) in 2011 dollars were estimated at \$49.9B of total economic output, \$11.7B of total labor earnings, and \$3.3B of local and state revenues.</p> <p>Approximately 27,900 jobs would be supported in 2020. Additional impacts relative to Alternative A, from actions that could not be quantified, would occur and would be most pronounced in this alternative. Social impacts from stresses on community resources and community cohesion caused by high rates of resource development would be most reduced by this alternative relative to Alternative A. In addition, wildlife/ecosystem conservation stakeholders would find this alternative most favorable of all the alternatives; mineral development and livestock grazing stakeholders would find this alternative least favorable; and renewable energy and recreation stakeholders could view this alternative very similarly to Alternative B.</p>	<p>Quantified economic impacts across the entire planning area from 2013–2020 (present value) in 2011 dollars were estimated at \$62B of total economic output, \$15.1B of total labor earnings, and \$4.0B of local and state revenues.</p> <p>Approximately 35,400 jobs would be supported in 2020. Additional impacts relative to Alternative A, from actions that could not be quantified, would occur and would be less pronounced in this alternative than Alternatives B and C. Social impacts from stresses on community resources and community cohesion caused by high rates of resource development would be similar to Alternative A. In addition, wildlife/ecosystem conservation stakeholders would find this alternative unsatisfactory; mineral development stakeholders would find it favorable; renewable energy stakeholders would find it less favorable than Alternative A but more favorable than the other alternatives; and livestock grazing stakeholders and recreation stakeholders generally would view it similarly to Alternative A.</p>	<p>Quantified economic impacts across the entire planning area from 2013–2020 (present value) in 2011 dollars were estimated at \$60.1B of total economic output, \$14.3B of total labor earnings, and \$3.9B of local and state revenues.</p> <p>Approximately 34,600 jobs would be supported in 2020. Additional impacts relative to Alternative A, from actions that could not be quantified, would occur and would be less pronounced in this alternative than Alternatives B and C. Social impacts from stresses on community resources and community cohesion caused by high rates of resource development may be somewhat reduced relative to Alternative A. In addition, wildlife/ecosystem conservation stakeholders would find this alternative more favorable than Alternative A or D, but less favorable than Alternative B or C; mineral development stakeholders could find it less favorable than Alternatives A and D, and more favorable than Alternatives B and C; renewable energy stakeholders would view it similarly to Alternative B; livestock grazing stakeholders would</p>



Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
(see above)	(see above)	(see above)	(see above)	view it somewhat similarly to Alternatives A and D and find it more favorable than Alternatives B and C; and recreation stakeholders could have mixed views.
<b>Soils</b>				
<p>Soil resources would be impacted by actions that remove vegetation and expose the surface to accelerated wind and water erosion. The impacts would be greatest under this alternative because of fewer restrictions on newly permitted surface disturbing activities within the planning area.</p> <p>Managing 285,930 acres as ROW exclusion areas, 871,780 acres as unavailable for oil and gas leasing, 40,980 acres as NSO areas, and 68,550 acres in which surface disturbing activities are prohibited would reduce surface disturbances and help to reduce soil erosion and maintain soil resources.</p>	<p>Soil resources would be impacted by actions that remove vegetation and expose the surface to accelerated wind and water erosion.</p> <p>Managing 5,271,440 acres as ROW exclusion areas, 6,886,890 acres as closed to oil and gas leasing, and 2,117,160 acres as NSO areas would reduce surface disturbances and help to reduce soil erosion and maintain soil resources.</p>	<p>Soil resources would be impacted by actions that remove vegetation and expose the surface to accelerated wind and water erosion.</p> <p>Managing 11,556,490 acres as ROW exclusion areas, 16,878,220 acres as closed to oil and gas leasing, and 2,117,160 acres as NSO areas would reduce surface disturbances and help to reduce soil erosion and maintain soil resources.</p> <p>Because such restrictions are the most extensive under this alternative, impacts to soil resources would be the least intensive.</p>	<p>Soil resources would be impacted by actions that remove vegetation and expose the surface to accelerated wind and water erosion.</p> <p>Managing 5,230,110 acres as ROW exclusion areas and 964,860 acres as closed to oil and gas leasing would reduce surface disturbances and help to reduce soil erosion and maintain soil resources.</p>	<p>Soil resources would be impacted by actions that remove vegetation and expose the surface to accelerated wind and water erosion.</p> <p>Managing 285,930 acres as ROW exclusion areas, 883,670 acres as closed to oil and gas leasing, 441,690 acres as NSO areas, and 337,860 acres in which surface disturbing activities are prohibited would reduce surface disturbances and help to reduce soil erosion and maintain soil resources.</p>
<b>Special Designations and Management Areas</b>				
<p>Special Designations/Management Areas (SD/MA) would be managed to protect the individual values for which they are designated. Restrictions on surface disturbance would indirectly affect SD/MAs by further protecting values such as wilderness, Special Status Species, cultural resources, recreation opportunities, etc.</p>	<p>Designating all Greater Sage-Grouse priority habitat areas as a Greater Sage-Grouse conservation ACEC would greatly increase the area for which special values would be established and protected compared to Alternative A. Adding 5,000,402 acres as SD/MAs would be a significant increase over Alternative A.</p>	<p>Designating all Greater Sage-Grouse priority habitat areas and Audubon Important Bird Areas as a Greater Sage-Grouse conservation ACEC would greatly increase the area for which special values would be established and protected compared to Alternative A. Adding 6,398,221 acres as SD/MAs would be a significant increase over Alternative A.</p>	<p>Impacts would be similar to Alternative A, except more area would be protected from surface disturbance.</p>	<p>Impacts would be the same as under Alternative D.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
<b>Special Status Species and Greater Sage-Grouse</b>				
<p>Impacts to Special Status Species habitat would result from surface disturbing activities, primarily renewable and non-renewable energy development and associated infrastructure (pipelines, power lines, and roads). Estimated initial surface disturbance from oil, gas, and CBNG is 130,330 acres. Additional surface disturbing activities from wind energy, pipelines, power lines, roads, and mineral development could impact Special Status Species habitat through loss, alteration, and fragmentation of habitats and displacement of wildlife.</p> <p>Continued livestock grazing practices could reach Wyoming Standards for Rangeland Health or the Forest Service equivalent.</p> <p>Lek buffers and other existing restrictions would protect lands, especially sagebrush habitat, from surface disturbing activities, habitat loss, and fragmentation.</p> <p><b>Greater Sage-Grouse:</b> In addition to the impacts described above, the current management could continue in habitat loss, habitat fragmentation, and human disturbance and declines of Greater Sage-Grouse are likely to progress.</p>	<p>Under Alternative B, impacts from surface disturbing activities are lower than all alternatives except for Alternative C. Management would close Greater Sage-Grouse priority habitat to oil, gas, and CBNG leasing, wind energy, as well as other minerals. Estimated initial surface disturbance from oil, gas, and CBNG is 104,050 acres.</p> <p>Additional management for livestock grazing could allow for greater achievement of Wyoming Standards for Rangeland Health or the Forest Service equivalent, and provide improved habitat for Special Status Species, especially those that inhabit riparian and wetland areas.</p> <p>Larger lek buffers and restrictions to the density of disturbance for surface disturbing activities to protect Greater Sage-Grouse priority habitat would protect more land, especially sagebrush habitat, from surface disturbing activities, habitat loss, and fragmentation.</p> <p><b>Greater Sage-Grouse:</b> Alternative B would reduce surface disturbance and disruptive activities in priority Greater Sage-Grouse habitat. The protection of priority sagebrush habitat could provide Greater Sage-Grouse the undisturbed, contiguous habitat necessary for the species to maintain or improve population numbers.</p>	<p>Impacts from surface disturbing activities are the lowest under Alternative C. Management would close Greater Sage-Grouse priority and general habitat to oil, gas, CBNG leasing, and wind energy; and would close priority habitat to other minerals. Estimated initial surface disturbance from oil, gas, and CBNG is 85,140 acres.</p> <p>Closing priority habitat to livestock grazing could allow for improved habitat and ample forage for wildlife, improved water quality for fisheries, and protection of special status plants from trampling, overgrazing, and soil loss.</p> <p>Larger lek buffers and restrictions to the density of disturbance for surface disturbing activities to protect Greater Sage-Grouse habitat would protect more land, especially sagebrush habitat, from surface disturbing activities, habitat loss, and fragmentation.</p> <p>Overall, Alternative C would provide the greatest protection of sagebrush habitat among all the alternatives.</p> <p><b>Greater Sage-Grouse:</b> Alternative C would reduce surface disturbance and disruptive activities in priority Greater Sage-Grouse habitat, and in some cases general habitat (oil, gas, CBNG, ROWs, wind). The protection of priority and general sagebrush habitat could provide Greater Sage-Grouse the largest area of</p>	<p>Alternative D could have impacts from surface disturbing activities that are similar to Alternative A. In some cases, such as ROWs and wind energy, Alternative D protects all core Greater Sage-Grouse habitat.</p> <p>Estimated initial surface disturbance from oil, gas, and CBNG is 122,910 acres.</p> <p>Impacts from surface disturbing activities such as livestock grazing and other mineral development could lead to loss, alteration, and fragmentation of habitat and displacement of special status wildlife.</p> <p>Lek buffers, similar to Alternative A and other restrictions would protect lands, especially sagebrush habitat, from surface disturbing activities, habitat loss, and fragmentation.</p> <p><b>Greater Sage-Grouse:</b> In addition to the impacts described above, the proposed lek buffers are insufficient to provide Greater Sage-Grouse undisturbed habitat and prevent habitat fragmentation, although restrictions on density of disturbance could allow for some protection of contiguous habitat. Other management could provide protection of Greater Sage-Grouse core habitat from wind development, by reducing habitat loss, fragmentation, and direct impacts from wind turbines and overhead structures.</p>	<p>Overall, impacts to Special Status Species habitat from implementing the Proposed LUP Amendments would be similar to Alternative A although there would be greater protection to PHMAs (core only). Estimated initial surface disturbance from oil, gas, and CBNG is 112,330 acres. All PHMAs (core only) would be an avoidance area for wind development, protecting more habitat than Alternative A from loss, alteration, and fragmentation of habitat and displacement of special status wildlife.</p> <p>Management for livestock grazing could allow for achievement of Wyoming Standards for Rangeland Health or the Forest Service equivalent, and provide improved habitat for Special Status Species, especially those that inhabit riparian and wetland areas.</p> <p>Lek buffers larger than Alternative A and other restrictions would protect lands, especially sagebrush habitat, from surface disturbing activities, habitat loss, and fragmentation.</p> <p><b>Greater Sage-Grouse:</b> In addition to the impacts described above, the proposed lek buffers are sufficient to provide Greater Sage-Grouse undisturbed habitat and prevent habitat fragmentation. Other management could provide protection of PHMAs (core only) from wind development, by reducing habitat loss, fragmentation, and direct impacts from wind turbines and overhead structures.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
(see above)	(see above)	undisturbed, contiguous habitat necessary for the species to maintain or improve population numbers	(see above)	(see above)
<b>Transportation and Access Management</b>				
<p>Under this alternative, areas where surface disturbing activities are prohibited (including buffer areas around Greater Sage-Grouse leks, nesting areas, and other sensitive areas) would limit travel and access to designated roads and trails in these areas. Surface disturbing activities under this alternative are prohibited on 68,550 acres and restricted on 93,580 acres.</p> <p>The development of roads and transportation systems required for oil, gas and mineral development would increase travel and access in those areas. In addition, areas closed to oil and gas development (871,780 acres), mineral materials (472,800 acres), locatable minerals (1,761,550 acres) and solid leasable minerals (261,000 acres), could limit or restrict travel and access in those areas. Travel in these areas would be limited to existing roads and trails. Mineral development could potentially affect the location of subsequent transportation systems in those areas where development of minerals occurs. Areas open to OHV use would provide motorized access to much of the decision area.</p> <p>Acres for other surface and sub-surface disturbing activities, such as ROW exclusion areas (285,930 acres) and areas closed to wind energy (424,820 acres) could also limit or preclude transportation development in these areas.</p>	<p>The development of roads and transportation systems required for oil, gas, and mineral development would increase travel and access in those areas. Areas closed to oil and gas development (6,886,890 acres), mineral materials (6,992,690 acres), locatable minerals (1,761,550 acres), and solid leasable minerals (6,992,690 acres), could limit or restrict travel and access in those areas.</p> <p>Travel in these areas would be limited to existing roads and trails. Compared with Alternative A, the number of acres closed to minerals activities is much larger, expanding the area where impacts could occur.</p> <p>Mineral development could potentially affect the location of subsequent transportation systems where minerals are developed.</p> <p>Roads, primitive roads, and trails in priority habitat not designated in travel management plans would be restored, removing them from travel and access uses under this alternative.</p> <p>Acres for other surface and sub-surface disturbing activities, such as ROW exclusion areas (5,271,440 acres) and areas closed to wind energy (5,033,240) are all greatly expanded when compared with Alternative A, potentially limiting or precluding transportation development in these areas.</p>	<p>The development of roads and transportation systems required for oil, gas and mineral development would increase travel and access in those areas. Areas closed to oil and gas development (16,878,220 acres), mineral materials (6,992,690 acres), locatable minerals (1,761,550 acres) and solid leasable minerals (6,992,690 acres), could limit or restrict travel and access in those areas.</p> <p>Travel in these areas would be limited to existing roads and trails. Compared with Alternative A, areas closed to minerals activities are much larger, expanding the area of impact. Mineral development could potentially affect the location of subsequent transportation systems in those areas where minerals are developed.</p> <p>Prohibiting new road construction within four miles of active Greater Sage-Grouse leks and avoiding new road construction in Greater Sage-Grouse priority and general habitat would restrict travel and access in these areas.</p> <p>Acres for other surface and sub-surface disturbing activities, such as ROW exclusion areas (11,556,490 acres), areas closed to wind energy (11,531,340 acres) are all greatly expanded when compared with Alternative A, potentially limiting or precluding transportation development in these areas.</p>	<p>As with Alternative A, areas where surface disturbing activities are prohibited (including buffer areas around Greater Sage-Grouse leks, nesting areas, and other sensitive areas) would limit travel and access to designated roads and trails in these areas. Surface disturbing activities under this alternative are restricted on 75,870 acres.</p> <p>The development of roads and transportation systems required for oil, gas, and mineral development would increase travel and access in those areas. Areas closed to oil and gas development (964,860 acres), mineral materials (472,800 acres), locatable minerals (1,761,550 acres) and solid leasable minerals (261,000 acres), could limit or restrict travel and access in those areas.</p> <p>Travel in these areas would be limited to existing roads and trails. Compared with Alternative A, acres closed to minerals activities are very similar.</p> <p>Prohibiting new road construction within 0.25 mile of active Greater Sage-Grouse leks, and avoiding new road construction in Greater Sage-Grouse core and general habitat would restrict travel and access in these areas.</p> <p>Acres for other surface and sub-surface disturbing activities, such as ROW exclusion areas (5,230,110 acres) and areas closed to wind energy (424,820) would be expanded when compared</p>	<p>As with Alternative A, areas where surface disturbing activities are prohibited (including buffer areas around Greater Sage-Grouse leks, nesting areas, and other sensitive areas) would limit travel and access to designated roads and trails in these areas. Surface disturbing activities under this alternative are prohibited on 337,860 acres and restricted on 160,630 acres.</p> <p>The development of roads and transportation systems required for oil, gas, and mineral development would increase travel and access in those areas. Areas closed to oil and gas development (883,670 acres), mineral materials (472,800 acres), locatable minerals (1,761,550 acres) and solid leasable minerals (483,420 acres), could limit or restrict travel and access in those areas.</p> <p>Travel in these areas would be limited to existing roads and trails. Compared with Alternative A, acres closed to minerals activities are very similar.</p> <p>Prohibiting primary and secondary roads within 1.9 miles of active Greater Sage-Grouse leks, and avoiding new road construction in PHMAs and GHMAs would restrict travel and access in these areas.</p> <p>Acres for other surface and sub-surface disturbing activities, such as ROW exclusion areas (285,930 acres) and areas closed to wind energy (425,080 acres) would be expanded when</p>



Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
(see above)	(see above)	(see above)	with Alternative A, potentially limiting or precluding transportation development in these areas.	compared with Alternative A, potentially limiting or precluding transportation development in these areas.
Vegetation				
<p>Vegetation and vegetation communities would primarily be impacted by different forms of surface disturbance and disruptive activities. These activities would result in both short and long term impacts to small localized areas as well as large areas from the removal or damage of vegetative surface cover and vegetation habitat.</p> <p>These impacts would result in various levels of decreases to plant community health, diversity, and impact habitats that are susceptible to invasive/noxious weeds.</p> <p>Increases in invasive and noxious weeds would result in a decline to native species compromising the overall habitat health (through ecological processes). Impacts to vegetation from fluid minerals development would have 130,330 acres of short- term surface disturbance and 39,050 acres of long-term surface disturbance. Most of the development and associated impacts such as loss of vegetation habitat would be from the construction and maintenance of 13,653 oil and gas wells and 2,758 CBNG wells. Impacts to vegetation could be eliminated on 472,800 acres that are closed to mineral materials development as well as on 261,000 acres closed to solid mineral development and 1,761,550 acres withdrawn to locatable mineral development. These closures would help to preserve plant community functions and health as well as reduce habitat fragmentation. Surface disturbing impacts from ROW development would be excluded on 285,930 acres and avoided on</p>	<p>Impacts to vegetation from fluid minerals development and associated surface disturbing activities would be reduced compared to Alternative A, as short-term surface disturbances would be reduced to 104,050 acres and long-term surface disturbance acres to 33,540. Surface disturbing impacts from oil, gas, and CBNG wells could be reduced compared to Alternative A, as the number of wells would be reduced to 11,555 oil and gas wells and 2,154 CBNG wells. These reductions would reduce the total acres developed for fluid minerals thus reducing habitat fragmentation. Impacts to vegetation from solid minerals development, minerals materials development, and wind energy development would decrease compared to Alternative A. Impacts to vegetation from locatable minerals development could be reduced with the recommended withdrawal of 5,118,070 acres from development. The recommended withdrawals could reduce vegetation removal, habitat fragmentation, and invasive species establishment associated with minerals development and associated surface disturbing activities.</p> <p>Protection for vegetation habitat health and continuity would be increased compared to Alternative A, as ROW development and associated surface disturbing activities would be excluded on 5,271,440 acres and avoided on 6,357,180 acres.</p>	<p>Impacts to vegetation from surface disturbing activities could be reduced compared to Alternative A, as short-term surface disturbances from fluid minerals development would be reduced to 85,140 acres and long-term surface disturbances would be reduced to 27,030 acres.</p> <p>These disturbances would be reduced compared to Alternative A, as fluid mineral well development would be reduced to 9,533 oil and gas wells and 1,594 CBNG wells. These reductions would reduce the total acres of vegetation lost or impacted to fluid development and associated surface disturbing activities which would maintain habitat functions and health in these areas.</p> <p>Impacts to vegetation from solid minerals development, locatable minerals development, and minerals materials development would decrease compared to Alternative A. These closures would reduce vegetation removal, habitat fragmentation, and invasive species establishment associated with minerals development and associated surface disturbing activities. Protection for vegetation habitat health and continuity would be increased compared to Alternative A, as ROW and wind energy development and associated surface disturbing activities would be excluded or closed on 11,531,340 acres.</p>	<p>Impacts to vegetation from surface disturbing activities would be the same as Alternative A, except the level of intensity would be reduced as the total short- term surface disturbance acres from fluid minerals development would be reduced to 122,910 acres and 37,720 long-term surface disturbance areas. This reduction in surface disturbance would help maintain ecological processes important to plant community health and ecological processes. The reduction in impacts to vegetation resources compared to Alternative A would mostly be due to the reduction of fluid mineral wells, with oil and gas wells being reduced to 13,083 wells and CBNG reduced to 2,686 wells. Reduction in wells could also reduce associated surface disturbances such as the construction of roads and utilities which could reduce vegetation removal compared to Alternative A. Impacts from surface disturbing activities for solid minerals development, mineral materials, and recommended withdrawals of locatable minerals development, would be the same as Alternative A. Impacts to vegetation from wind energy development would be reduced compared to Alternative A, as the amount of acres closed to wind energy development would increase to 424,820 acres even though the amount of acres restricted to wind energy development would be reduced to 4,608,420 acres. These closures/restrictions would reduce the acres of surface disturbances which</p>	<p>Impacts from fluid mineral activities would be the same as Alternative A, except the level of intensity would be different as the projected well development would be reduced to 12,355 oil and gas wells and 2,462 CBNG wells. This reduction in wells would help maintain plant community ecological functions and maintain vegetation habitat continuity. Compared to Alternative A, surface disturbing activities from fluid minerals development would be reduced, which would reduce short-term surface disturbance to 112,330 acres and long-term surface disturbances to 35,430 acres. Surface disturbing activities from solid leasable minerals and mineral materials development would be the same as Alternative A. Withdrawals of locatable minerals would be proposed on 252,070 acres, which would reduce vegetation removal and habitat fragmentation as compared to Alternative A. Impacts to vegetation from wind energy development would be reduced compared to Alternative A, as the amount of acres closed to wind energy development would increase to 425,080 acres and restricted on 4,731,350 acres. These closures/restrictions would reduce the acres of surface disturbances from wind energy development which would reduce vegetation loss and habitat fragmentation.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
2,460,340 acres, which could reduce vegetation loss, habitat fragmentation, and invasive species establishment.  Vegetation habitat continuity and ecological processes could be maintained as 424,820 acres would be closed to wind energy development and 2,438,850 acres would be restricted to wind energy development. These restrictions could reduce vegetation loss and habitat fragmentation associated with surface disturbing activities associated with wind energy development.	(see above)	(see above)	would reduce vegetation loss and habitat fragmentation.	(see above)
<b>Visual Resources</b>				
Visual resource categories and objectives would be the same for all alternatives. Although the amount of visual impacts would vary by alternative, it is assumed that all visual resource management (VRM)/scenic integrity objective (SIO)/visual quality objective (VQO) objectives would be met under all alternatives.				
Visual resources could decline in quality due to surface disturbance from mineral and energy development, recreation activities, and other similar activities. The bulk of changes to the visual quality of the landscape would occur in VRM Class III or IV (BLM), moderate or low SIO (Forest Service), or the Modification level VQO (Forest Service).	Visual resources in Greater Sage-Grouse priority habitat would be largely preserved due to efforts to protect Greater Sage-Grouse and sagebrush habitat, which limit surface disturbance compared to Alternative A.	Visual resources in Greater Sage-Grouse priority and general habitat would be largely preserved due to efforts to protect Greater Sage-Grouse and sagebrush habitat, which limit surface disturbance compared to Alternative A.	Impacts to visual resources would be similar to Alternative A, except some visual resources could be spared due to limitations placed on surface disturbance and development density compared to Alternative A.	Impacts to visual resources would be less than Alternative A, due to limitations placed on surface disturbance and development density.

Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
<b>Watershed and Water Quality</b>				
<p>Impacts to water resources would occur from surface disturbing and development activities (e.g., mineral development, ROW development) that result in vegetation removal, soil compaction, increased overland flow, and increased sediment, salt, and nutrient transport to water bodies. The impacts would be greatest under this alternative because of fewer restrictions on newly permitted surface disturbing activities within the planning area.</p> <p>Managing 285,930 acres as ROW exclusion areas, 871,780 acres as unavailable for oil and gas leasing, 40,980 acres as NSO areas, and 68,550 acres in which surface disturbing activities are prohibited would reduce surface disturbances and help to maintain soil and vegetation resources that would serve to slow runoff and decrease erosion and inputs into surface water features.</p>	<p>Impacts to water resources would occur from surface disturbing and development activities (e.g., mineral development, ROW development) that result in vegetation removal, soil compaction, increased overland flow, and increased sediment, salt, and nutrient transport to water bodies.</p> <p>Managing 5,271,440 acres as ROW exclusion areas, 6,886,890 acres as closed to oil and gas leasing, and 2,117,160 acres as NSO areas would reduce surface disturbances and help to maintain soil and vegetation resources that would serve to slow runoff and decrease erosion and inputs into surface water features.</p>	<p>Impacts to water resources would occur from surface disturbing and development activities (e.g., mineral development, ROW development) that result in vegetation removal, soil compaction, increased overland flow, and increased sediment, salt, and nutrient transport to water bodies.</p> <p>Managing 11,556,490 acres as ROW exclusion areas, 16,878,220 acres as closed to oil and gas leasing, and 2,117,160 acres as NSO areas would reduce surface disturbances and help to maintain soil and vegetation resources that would serve to slow runoff and decrease erosion and inputs into surface water features.</p> <p>Because such restrictions are the most extensive under this alternative, impacts to water resources would be the least intensive.</p>	<p>Impacts to water resources would occur from surface disturbing and development activities (e.g., mineral development, ROW development) that result in vegetation removal, soil compaction, increased overland flow, and increased sediment, salt, and nutrient transport to water bodies.</p> <p>Managing 5,230,110 acres as ROW exclusion areas and 964,860 acres as closed to oil and gas leasing would reduce surface disturbances and help to maintain soil and vegetation resources that would serve to slow runoff and decrease erosion and inputs into surface water features.</p>	<p>Impacts to water resources would occur from surface disturbing and development activities (e.g., mineral development, ROW development) that result in vegetation removal, soil compaction, increased overland flow, and increased sediment, salt, and nutrient transport to water bodies.</p> <p>Managing 285,930 acres as ROW exclusion areas, 883,670 acres as closed to oil and gas leasing, 441,690 acres as NSO areas, and 337,860 acres in which surface disturbing activities are prohibited would reduce surface disturbances and help to maintain soil and vegetation resources that would serve to slow runoff and decrease erosion and inputs into surface water features.</p>
<b>Wild Horses</b>				
<p>Impacts to wild horses would occur from surface-disturbing and development activities (e.g., mineral development, ROW development) that remove or degrade forage resources. The impacts would be greatest under this alternative because of fewer restrictions on newly permitted surface disturbing activities within the planning area.</p> <p>Managing 285,930 acres as ROW exclusion areas, 871,780 acres as unavailable for oil and gas leasing, 40,980 acres as NSO areas, and 68,550 acres in which surface disturbing activities are prohibited would reduce surface disturbances and help to maintain forage resources, but to a lesser extent than the other alternatives.</p>	<p>Impacts to wild horses would occur from surface- disturbing and development activities (e.g., mineral development, ROW development) that remove or degrade forage resources.</p> <p>Managing 5,271,440 acres as ROW exclusion areas, 6,886,890 acres as closed to oil and gas leasing, and 2,117,160 acres as NSO areas would reduce surface disturbances and help to maintain forage resources.</p>	<p>Impacts to wild horses would occur from surface-disturbing and development activities (e.g., mineral development, ROW development) that remove or degrade forage resources.</p> <p>Managing 11,556,490 acres as ROW exclusion areas, 16,878,220 acres as closed to oil and gas leasing, and 2,117,160 acres as NSO areas, would reduce surface disturbances and help to maintain forage resources. Because such restrictions are the most extensive under this alternative, impacts to wild horses would be the least intensive.</p>	<p>Impacts to wild horses would occur from surface-disturbing and development activities (e.g., mineral development, ROW development) that remove or degrade forage resources.</p> <p>Managing 5,230,110 acres as ROW exclusion areas and 964,860 acres as closed to oil and gas leasing would reduce surface disturbances and help to maintain forage resources.</p>	<p>Impacts to wild horses would occur from surface-disturbing and development activities (e.g., mineral development, ROW development) that remove or degrade forage resources.</p> <p>Managing 285,930 acres as ROW exclusion areas, 883,670 acres as closed to oil and gas leasing, 441,690 acres as NSO areas, and 337,860 acres in which surface disturbing activities are prohibited would reduce surface disturbances and help to maintain forage resources.</p>

Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
<b>Wildland Fire and Fuels</b>				
<p>Wildland fire management would primarily be impacted by different forms of surface disturbing activities associated with minerals and energy development which could increase human presence and the use of heavy equipment. This increase in human presence and heavy equipment use could increase additional ignition sources, the probability of wildland fire occurrence, and the need for fire suppression activities.</p> <p>Surface disturbing activities could reduce fire fuels loads from vegetation removal, increase fire breaks from roads and clearings as well as improve access for fire suppression activities in these areas. ROW development would be excluded on 285,930 acres which could reduce human presence and ignition sources such as vehicles and machinery that could cause wildland fires. Impacts from wind energy development would be eliminated on 424,820 acres that are prohibited to wind energy development and reduced on 2,438,850 acres that are restricted for wind energy development which would reduce human and machinery caused wildfires. Potential sources of wildfires from fluid minerals development would increase on 130,330 acres in the short-term and 39,050 acres in the long-term in areas outside of minerals development restrictions where fluid mineral development could reduce plant community health and increase the risk or human- caused fire starts. Most of the development and associated impacts such as loss of vegetation habitat would be from the construction and maintenance of 13,653 oil and gas wells and 2,758 CBNG wells. Potential fire ignition sources from minerals development would be eliminated on 472,800 acres that are closed to mineral materials development and</p>	<p>Surface disturbing impacts from ROW development would be reduced compared to Alternative A, as areas closed to ROW development would increase to 5,271,440 acres which would reduce human presence and ignition sources from development.</p> <p>Impacts from wind energy development would be reduced compared to Alternative A, as areas closed to wind energy development would increase to 5,033,240 acres which would reduce human and machinery caused wildfires. Potential wildfires from fluid minerals development would be reduced compared to Alternative A, as the number of wells developed would be reduced to 11,555 oil and gas and 2,154 CBNG wells. The development of these wells would disturb fewer acres compared to Alternative A, with 104,050 acres of short- term surface disturbance and 33,540 acres of long- term surface disturbance. Impacts to wildland fire from solid minerals development, locatable minerals development, and minerals materials development would decrease compared to Alternative A. The closures or withdrawals would reduce potential fire ignition sources associated with human presence, motor vehicle travel, and construction of minerals development.</p> <p>Within priority habitats, fuels treatments would be designed and implemented to protect sagebrush systems. Burned areas in priority habitats would be restored and recovered.</p> <p>Priority Greater Sage-Grouse habitat suppression would prioritize firefighter and public safety to conserve the habitat.</p> <p>General Greater Sage-Grouse habitat would have a high suppression priority</p>	<p>Surface disturbing impacts from ROW and wind energy development would be reduced compared to Alternative A, as areas excluded from ROWs or closed to wind development would increase to 11,556,490 acres, which would reduce human presence and ignition sources from development.</p> <p>Potential wildfires from fluid mineral development would be reduced compared to Alternative A, as the number of wells developed would be reduced to 9,5335 oil and gas and 1,594 CBNG wells. The development of these well would disturb fewer acres compared to Alternative A, with 85,140 acres of short-term surface disturbance and 27,030 acres of long-term surface disturbance Impacts to wildland fire from solid minerals development, locatable minerals development, and minerals materials development would decrease compared to Alternative A. These closures/withdrawals would reduce potential fire ignition sources associated with human presence, motor vehicle travel, and construction of minerals development.</p> <p>Within priority and general habitats, fuels treatments would be designed and implemented to protect sagebrush systems.</p> <p>Restoration and suppression practices would be the same as Alternative B.</p>	<p>Surface disturbing impacts from ROW development would be reduced compared to Alternative A, as areas excluded from ROW development would increase to 5,230,110 acres which would reduce human presence and ignition sources from development.</p> <p>Impacts from wind energy development would be reduced compared to Alternative A, as areas closed to wind energy development would increase to 424,820 acres which could reduce human and machinery caused wildfires.</p> <p>Potential wildfires from fluid mineral development would be reduced compared to Alternative A, as the number of wells developed would be reduced to 13,083 oil and gas and 2,686 CBNG wells. The development of oil and gas wells would disturb fewer acres compared to Alternative A, with 122,910 acres of short-term surface disturbance and 37,720 acres of long-term surface disturbance. Impacts from surface disturbing activities for solid minerals development, mineral materials, and locatable minerals development would be the same as Alternative A.</p> <p>Wildfire restoration and suppression actions would be the same as Alternative A.</p>	<p>Surface disturbing impacts from ROW development would be similar to Alternative A. Impacts from wind energy development would be reduced compared to Alternative A, as areas closed to wind energy development would increase to 425,080 acres and avoidance acres would increase to 4,731,350 acres which could reduce human and machinery caused wildfires. Potential wildfires from fluid minerals development would be reduced compared to Alternative A, as the number of wells developed would be reduced to 12,355 oil and gas and 2,462 CBNG wells. The development of these well would disturb fewer acres compared to Alternative A, with 112,330 acres of short-term surface disturbance and 35,430 acres of long-term surface disturbance. Surface disturbing activities from solid leasable minerals and mineral material development would be the same as Alternative A, and proposed locatable mineral withdrawals, 252,070 acres, would be greater than Alternative A. The closures and withdrawals would reduce potential human and development caused wildfires.</p> <p>Within PHMAs (core only), fuels treatments would be designed and implemented to protect existing sagebrush systems (refer to WGFD Protocols for Treating Sagebrush to Benefit Greater Sage-Grouse in Appendix A).</p> <p>Burned areas within PHMAs (core only) would be restored. Within these areas, suppression practices would be the same as Alternative B. General Greater Sage-Grouse habitat would have a .</p>



Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
261,000 acres closed to solid leasable minerals development. These closures would help to preserve plant community functions, reduce habitat fire breaks, and increase fire fuel loads in these areas. Impacts from locatable minerals development would be eliminated on 1,761,550 acres that are withdrawn from development and could be eliminated on 131,070 acres that are proposed for withdrawal. The withdrawals could eliminate potential fire sources associated with development and surface disturbing activities.	where wildfires threaten priority Greater Sage-Grouse habitat.	(see above)	(see above)	suppression priority commensurate with the local fire plan



Alternative A	Alternative B	Alternative C	Alternative D	Proposed Plan
<b>Wildlife and Fisheries</b>				
<p>Impacts would result from surface disturbing activities, primarily renewable and non- renewable energy development and associated infrastructure (pipelines, power lines, and roads). Estimated initial surface disturbance from oil, gas, and CBNG is 130,330 acres. Additional surface disturbing activities from wind energy, pipelines, power lines, roads, and mineral development could impact wildlife and fish through loss, alteration, and fragmentation of habitats and displacement of wildlife.</p> <p>Continued livestock grazing practices could reach Wyoming Standards for Rangeland Health or the Forest Service equivalent.</p> <p>Lek buffers and other existing restrictions would protect lands, especially sagebrush habitat, from surface disturbing activities, habitat loss, and fragmentation.</p> <p>For additional information on effects to Forest Service wildlife and fish, please see the Biological Evaluation and Management Indicator Species Report in Appendix M.</p>	<p>Under Alternative B, impacts from surface disturbing activities are lower than all alternatives except for Alternative C. Management would close Greater Sage-Grouse priority habitat to oil, gas, and CBNG, wind energy, as well as other minerals.</p> <p>Estimated initial surface disturbance from oil, gas, and CBNG is 104,050 acres.</p> <p>Additional management for livestock grazing could allow for greater achievement of Wyoming Standards for Rangeland Health or the Forest Service equivalent, and provide improved habitat for wildlife and fisheries.</p> <p>Larger lek buffers and restrictions to the density of disturbance for surface disturbing activities to protect Greater Sage-Grouse habitat would protect more land, especially sagebrush habitat, from surface disturbing activities, habitat loss, and fragmentation.</p> <p>For additional information on effects to Forest Service wildlife and fish, please see the Biological Evaluation and Management Indicator Species Report in Appendix M.</p>	<p>Impacts from surface disturbing activities are the lowest under Alternative C. Management would close Greater Sage-Grouse priority and general habitat to oil, gas, CBNG, and wind energy; and would close priority habitat to other minerals. Estimated initial surface disturbance from oil, gas, and CBNG is 85,140 acres.</p> <p>Closing priority habitat to livestock grazing could allow for improved habitat and ample forage for wildlife and improved water quality for fisheries. Larger lek buffers and restrictions to the density of disturbance for surface disturbing activities to protect Greater Sage-Grouse habitat would protect more land, especially sagebrush habitat, from surface disturbing activities, habitat loss, and fragmentation.</p> <p>Overall, Alternative C would provide the greatest protection of sagebrush habitat among all the alternatives.</p> <p>For additional information on effects to Forest Service wildlife and fish, please see the Biological Evaluation and Management Indicator Species Report in Appendix M.</p>	<p>Alternative D could have impacts from surface disturbing activities that are similar to Alternative A. In some cases, such as ROWs and wind energy, Alternative D protects all core Greater Sage-Grouse habitat.</p> <p>Estimated initial surface disturbance from oil, gas, and CBNG is 122,910 acres.</p> <p>Impacts from surface disturbing activities such as livestock grazing and other mineral development could lead to loss, alteration, and fragmentation of habitat and displacement of wildlife.</p> <p>Lek buffers, similar to Alternative A and other restrictions would protect lands, especially sagebrush habitat, from surface disturbing activities, habitat loss, and fragmentation.</p> <p>For additional information on effects to Forest Service wildlife and fish, please see the Biological Evaluation and Management Indicator Species Report in Appendix M.</p>	<p>Overall, impacts to wildlife and fish habitat from implementing the Proposed LUP Amendments would be similar to Alternative A. Estimated initial surface disturbance from oil, gas, and CBNG is 112,330. All PHMAs (core only) would be an avoidance area for wind development, protecting more habitat than Alternative A from loss, alteration, and fragmentation of habitat and displacement of wildlife.</p> <p>Management for livestock grazing could allow for achievement of Wyoming Standards for Rangeland Health or the Forest Service equivalent, and provide improved habitat for wildlife and fisheries.</p> <p>Lek buffers larger than Alternative A and other restrictions would protect lands, especially sagebrush habitat, from surface disturbing activities, habitat loss, and fragmentation.</p> <p>For additional information on effects to Forest Service wildlife and fish, please see the Biological Evaluation and Management Indicator Species Report in Appendix M.</p>

This table is a summary of environmental consequences that were incorporated by reference into the 2019 planning effort and considered throughout the process. **Table 4-2b**, presents a comparison summary of impacts from management actions proposed for the alternatives considered in the 2015 Buffalo Field Office RMP Revision.

**Table 4-2b**  
**2015 Buffalo Field Office RMP Revision Summary of Environmental Consequences**

Alternative A		Alternative B	Alternative C	Alternative D/Proposed Plan
<b>Cave and Karst Resources</b>				
Several Greater Sage-Grouse leks, located on the eastern slopes of the southern Bighorns, are in close proximity to the eastern edge of karst formations. Management actions that would prevent degradations to Greater Sage-Grouse habitat could potentially benefit cave and karst resources. However, the formation areas in question are marginal, both in terms of location and quality, and are not expected to produce caves of significance.				
<b>Cultural Resources</b>				
Any prohibitions on surface disturbances or the application of NSO stipulations as a result of wildlife habitat management would benefit cultural resources. Any measure to protect habitat stability should protect cultural resources. This management under Alternative A would have a minor beneficial effect on cultural resources by reducing immediate threats through prohibiting surface disturbance.	Under Alternative B, increased prohibitions on surface disturbance and the application of NSO stipulations for management of all fish and wildlife and SSS would have a minor beneficial effect on cultural resources by reducing an immediate threat of surface disturbance.	Under Alternative C, any prohibitions on surface disturbance and the application of NSO stipulations for management of fish and wildlife resources and SSS would have a minor beneficial effect on cultural resources by reducing an immediate threat of surface disturbance.	Increasing prohibitions on surface disturbance and applying NSO stipulations for the protection of fish and wildlife resources and SSS would have a beneficial effect on cultural resources by reducing an immediate threat of surface disturbance.	
<b>Forestry</b>				
Under this alternative, prohibiting surface disturbance and occupancy within a 0.25-mile radius of the center of Greater Sage-Grouse leks, would affect approximately 3,594 acres, and seasonally prohibiting surface disturbance within an additional 1.75-mile radius would affect approximately 203,724 acres.  Forest product sales would have to consider SSS during planning and projects might have to be modified or relocated. It is not likely that any projects could not be accommodated. The effect on the forest products program would be moderate adverse.	Under Alternative B, applying prohibitions and seasonal restrictions to surface-disturbing activities for wildlife species would benefit wildlife habitat including forest and woodland communities. However, they could also limit treatments designed for forest or woodland health.  Protections for SSS residing in forested areas would seasonally restrict and could prevent forest management activities. These actions would have a major adverse effect on the forest products program.	Alternative C includes restrictions for the protection of Greater Sage-Grouse and special status raptors but not protection of prairie dog colonies or herptile habitat. The foreseeable loss of forest and woodland communities from Alternative C management of special status wildlife species would be a major adverse effect.  Forest product projects would consider SSS during planning, and projects might have to be modified. This would have a minor adverse effect on the forest products program as forest product sales would require modifications but would not be prohibited.	Surface-disturbing activities would have to conserve all SSS. Raptor nest sites and other SSS habitat would also limit surface-disturbing activities. The result would be a major beneficial effect to the sustainability of forest and woodland communities.  Forest product sales would have to protect SSS, and this measure would affect harvesting activities.	

Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
<b>Invasive Species and Pest Management</b>			
<p>Alternative A does not address invasive species and pests in habitats known to have populations of SSS with the exception of Greater Sage-Grouse, bald eagles, and special status raptor species. Under Alternative A, treatment of invasive species in known populations of SSS would not be likely unless analysis shows that the presence of the invasive plant or pest poses a greater threat to the SSS than the application of control methods. This would affect less than one percent of BLM-administered lands. Greater Sage-Grouse, bald eagles, and special status raptor species have surface-disturbance buffers unless waived by the authorized officer. Surface-disturbing activities can stress native vegetation and allow established invasive species to outcompete native plants for nutrients and water, thus allowing the locations and densities of invasive species to increase. Additionally, surface-disturbing activities can allow for the spread of invasive species through road and trail construction, vehicles, equipment, animals, and people. Approximately 33 percent of BLM-administered lands contain special status raptor species. Prohibition or restriction of surface disturbance would have a direct beneficial effect on invasive species and pest management for the long term because factors that allow for invasive species and pests to spread would be removed. Alternative A management actions for special status wildlife species would have a direct, major beneficial effect on invasive species and pest management.</p>	<p>Management actions would also prohibit or restrict disruptive activities and occupancy in the perimeter of Greater Sage-Grouse leks, establish a disturbance-free zone in corridors consistently used by bald eagles, and prohibit or restrict disruptive activities raptors. Treatment of invasive species could affect Greater Sage-Grouse habitat. Preferred herbicides are not species specific, and other broadleaf plants (forbs) can be affected. Greater Sage-Grouse, especially chicks feed on forbs, these plants also attract insects upon which Greater Sage-Grouse do feed. The control of invasive species, including cheatgrass, would need to be assessed for the potential impacts of treating versus the impacts of not treating areas with significant populations of Greater Sage-Grouse and in habitats where Greater Sage-Grouse dwell. Large populations and significant numbers will be defined depending on the USFWS status (Sensitive, Threatened, or Endangered) of the Greater Sage-Grouse at the time of assessment. Timing limitations that address disruptive activities could postpone invasive species treatments, which could diminishing the effectiveness of the treatment and increase the cost of treatments. This could affect up to 33 percent of BLM-administered lands. Overall, Alternative B management of special status plant and wildlife species would have a major adverse effect on invasive species and pest management.</p>	<p>Surface-disturbing activities would affect less than one percent of BLM-administered lands. Overall, Alternative C management of special status plant and wildlife species would have a negligible adverse effect on invasive species and pest management because surface-disturbing activities would allow for the spread of invasive species seed and restricting treatments encumber the management of invasive species and pests.</p>	<p>Alternative D SSS management actions include managing disruptive activities to mitigate impacts on special status wildlife species and their habitats, allowing disruptive activities within active prairie dog colonies on BLM-administered lands, in accordance with identified criteria, that do not adversely impact suitable habitat for SSS dependent upon prairie dog colonies, restricting disruptive activities and occupancy near occupied Greater Sage-Grouse leks, and prohibiting disruptive activities during specific timeframes. Alternative D would manage within occupied Greater Sage-Grouse habitat outside of Core Population Areas and Connectivity Corridors by restricting disruptive activities within the perimeter of occupied Greater Sage-Grouse leks. Prohibitions addressing raptor nests are as stated in Alternative B. Surveys would be required for special status amphibian, reptile, and bat species prior to approving any project or activity that may impact the habitat for these species. Allow disruptive activities where special status amphibian, reptile, and bat species occur in accordance with defined criteria.</p> <p>Prohibitions and limitations on these locations could help mitigate invasive species spread because it would limit activity that can spread invasive species seed. These actions would protect ecological conditions habitat types and limit opportunities for invasive species establishment and spread. Although these limitations can benefit invasive species management they could postpone invasive species treatments, which could diminishing the effectiveness of the treatment and increase the cost of treatments. Overall, prohibitions and limitations on these locations will benefit invasive species and pest management by preventing activity in these areas and therefore limiting the spread of invasive species. This would affect up to 23 percent of the area. Alternative D management actions would have a direct, beneficial effect on invasive species and pest management.</p>

Alternative A		Alternative B		Alternative C		Alternative D/Proposed Plan	
<b>Lands and Realty</b>							
<p>Alternative A would support the acquisition of lands or interests in lands from willing private and state entities on a project specific basis. Priority would be given to lands adjacent to larger blocks of BLM-administered public lands, particularly those with high recreational potential. In acquiring lands or interests in lands from willing sellers the BLM will initially consider the following: (1) any lands considered void of important natural resource values could be exchanged for the acquired lands, and (2) during the planning period, the BLM will not engage in acquisitions resulting in an overall net gain of publicly administered lands. Acquiring easements will result from access needs that will improve administration of public lands. Acquiring lands with important natural resource values will require coordination with other resource disciplines, appropriate to the acquisition.</p> <p>Overall, Alternative A lands and realty management actions would have a moderate beneficial effect on the lands and realty program, by improving the ability to administer resources and protect resource values.</p>		<p>Alternative B management would recommend withdrawal of mineral lands within 4.0 miles of Greater Sage-Grouse leks and winter concentration areas. In proposed large withdrawals, the analysis that must be made is a review of the adequacy of application of the 43 CFR 3809 surface management regulations with mitigation impacts, consistent with whatever cumulative disturbance threshold is allowed in a particular Priority Habitat Area. Such analysis would clearly demonstrate that application of the 43 CFR 3809 surface management regulations could not adequately control or mitigate impacts when considering the Priority Habitat Area as a whole and only under this circumstance can a withdrawal be justified. Withdrawal recommendation would apply to proposals not associated with mineral activity unless the land management is consistent with Greater Sage-Grouse conservation measures.</p> <p>Areas within 4.0 miles of leks and winter concentration areas would be recommended for withdrawal to protect Greater Sage-Grouse habitat.</p> <p>Overall, Alternative B lands and realty management actions would have a moderate beneficial effect on the lands and realty program, by improving the ability to administer resources and protect resource values.</p>		<p>Under Alternative C, the BLM would not retain lands identified for disposal having important natural resource values, until all other land identified for disposal are disposed of.</p> <p>Overall, Alternative C would have a major adverse effect on the lands and realty program, by limiting access to isolated parcels and would not improve the ability to administer resources and protect resource values.</p>		<p>Under Alternative D, priority would be given to acquiring lands or interests in lands in areas adjacent to large blocks of BLM-administered lands and pursue easements accessing public lands that would benefit any resource value on a project specific basis.</p> <p>Overall, Alternative D lands and realty management actions would have a major beneficial effect on the program by reducing small isolated parcels that are difficult to manage.</p>	
<b>Livestock Grazing</b>							
<p>Protecting SSS habitat would have a direct effect on livestock grazing, beneficial or adverse depending on the species. If management actions and the species habitat requirements favor habitat protection over livestock grazing, protective measures would have a direct adverse effect on livestock grazing. If protecting SSS habitat improves ecological conditions, effects would be indirect and beneficial over the long term. The overall effect from SSS management on livestock grazing is anticipated to be minor adverse.</p>		<p>Increasing the visibility of existing fences to avoid collision from upland game birds would slightly increase costs of range improvement fences. Requiring anti-perching devices in Greater Sage-Grouse habitat would protect young livestock, especially lambs, from raptor predation. Prohibiting surface-disturbing activities and disruptive activities could alter locations and timing of installation of range improvements and general ranch management of livestock (e.g., livestock roundups, timing and ability of maintenance/repair of range improvements). Inventories to determine the</p>		<p>Alternative C management would provide no emphasis to increase visibility of fences to avoid collision from upland game birds. Anti-perching devices in Greater Sage-Grouse habitat would only be required for new powerlines and would protect young livestock, especially lambs, from raptor predators. Prohibiting surface-disturbing activities and disruptive activities could alter locations and timing of installation of range improvements and general ranch management of livestock (e.g., livestock roundups, timing and ability of maintenance/repair of range improvements). Inventories to determine the</p>		<p>In Alternative D existing fences will be prioritized for modification and new fences will meet visibility requirements. Anti-perching devices would be required on new powerline in occupied Greater Sage-Grouse habitat; these also would protect young livestock, especially lambs, from raptor predation. Prohibiting surface-disturbing activities and disruptive activities in Greater Sage-Grouse Core Population Areas and Core Population Connectivity Corridor, and certain areas outside of them could alter locations and timing of installation of range improvements and general ranch management of</p>	

Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
(see above)	<p>presence or absence of species could increase costs and affect timeframes of project planning and completion.</p> <p>Closing grazing within 4.0 miles of Greater Sage-Grouse leks or winter concentration areas would have a major adverse impact on livestock grazing (approximately 467,897 acres of the total 782,102 acres (60%) would be affected. There are no fences or natural barriers separating BLM and non-BLM-administered lands. If the public lands are not leased, the operator must keep livestock off public lands through herding or fencing, or else be in violation of federal grazing regulations. The mixed ownership pattern in the BFO resource area makes herding difficult, in addition to the fact that herding does not ensure that public lands are not grazed. Fences will likely be constructed on private land, fragmenting the area and making BLM unable to stipulate wire spacing to facilitate wildlife movement. In the absence of fences, the BLM must constantly supervise the public lands to assure they are not being grazed.</p> <p>Restoration of disturbed sagebrush communities due to range improvement projects such as stock water pipelines within nesting, brood-rearing and winter habitat would have a minor adverse impact.</p> <p>Prohibiting surface disturbance and disruptive activities, and the establishment of disturbance-free zones for Greater Sage-Grouse would adversely affect livestock management since these only apply (unless it is associated with mineral leasing) to public land parcels which are usually small in acreage and locations are scattered among private lands. Overall these management actions would have a major adverse impact on livestock management for the long term. Overall these management actions would have a major adverse impact on livestock management for the long term.</p>	<p>presence or absence of species could increase costs and affect timeframes of project planning and completion. Prohibiting surface disturbance, disruptive activities, and the establishment of disturbance-free zones would exist for Greater Sage-Grouse; these limitations are smaller in acreage and time span. This would adversely affect livestock management since these only apply to public land parcels (unless it is associated with mineral leasing) which are usually small in acreage and locations are scattered among private lands. These management actions would have a minor adverse impact on livestock management for the long term.</p>	<p>livestock. The extent of the effects would vary slightly between the different areas, but all would be moderately adverse. Prohibiting surface disturbance and disruptive activities, and the establishment of disturbance-free zones would exist for Greater Sage-Grouse.</p> <p>Managing for SSS habitat objectives would have mixed effects depending on species; mountain plover habitat objectives could allow for increased forage utilization while Greater Sage-Grouse habitat objectives might decrease grazing opportunities in localized situations such as nesting habitat to maintain residual cover. Overall, Alternative D management actions would have a moderate adverse impact on livestock management for the long term.</p>



Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
<b>Minerals</b>			
<b>Leasable Minerals Fluid</b>			
<p>Alternative A manages SSS wildlife on a case-by-case basis. This management action has been inconsistently applied. This management may have a minor impact on oil and gas development, depending on how much area is affected and how prevalent the action may be.</p> <p>Alternative A prohibits or restricts surface-disturbing activities or surface occupancy within a 0.25-mile radius of the perimeter of occupied Greater Sage-Grouse leks. This covers 22,777 acres and may have a negligible impact on fluid minerals development because it affects 0.7 percent of the fluid minerals resource and may affect 8 CBNG wells and 1 conventional well.</p> <p>This alternative prohibits surface disturbance within Greater Sage-Grouse nesting habitat from March 1 to June 15, unless the authorized officer waives the prohibition, and affects 1,685,563 acres of the fluid minerals resource. This may have a moderate impact due to the size and duration of the timing stipulation.</p>	<p>Alternative B locates and manages facilities to minimize noise impacts on SSS. This rarely precludes the development or completion of oil and gas activities and may have a minor impact to the fluid minerals resource.</p> <p>Managing surface-disturbing and disruptive activities to minimize impacts on special status wildlife species and their habitats rarely precludes the development or completion of oil and gas activities and may have a minor impact to the fluid minerals resource.</p> <p>Alternative B leases minerals in Greater Sage-Grouse habitat dependent upon Greater Sage-Grouse habitat suitability, population density, and development density. Leasing is closed within 4.0 miles of Greater Sage-Grouse leks and winter concentration areas and covers 2,248,685 acres. This may have a major impact because it affects 66 percent of the fluid minerals resource and may eliminate 4,468 CBNG wells and 1,294 conventional wells. This management action is considered a significant impact on leasable fluid minerals because it affects 250 or more CBNG wells and 50 or more conventional wells.</p> <p>Applying an NSO prohibiting surface disturbing activities, disruptive activities, and occupancy within 4 miles of the perimeter of occupied or undetermined Greater Sage-Grouse leks covers 2,248,685 acres. This may have a major impact because it affects 66 percent of the fluid minerals resource and may affect 4,468 CBNG wells and 1,294 conventional wells. This management action is considered a significant impact on leasable fluid minerals because it affects 250 or more CBNG wells and 50 or more conventional wells.</p>	<p>Alternative C manages as follows within occupied Greater Sage-Grouse habitat:</p> <ul style="list-style-type: none"><li>• CSU prohibiting surface-disturbing and disruptive activities and occupancy within 0.25 mile of the perimeter of occupied or undetermined Greater Sage-Grouse leks. This affects 22,777 acres and may have a negligible impact because it affects 0.7 percent of the fluid minerals resource and may affect 7 CBNG wells and one conventional well.</li><li>• Prohibit surface-disturbing and disruptive activities in all areas within 2 miles of occupied leks from March 1 to July 15. This may have a moderate impact due to the size and duration of the timing stipulation.</li><li>• Prohibit surface-disturbing and disruptive activities and occupancy within Greater Sage-Grouse winter concentration areas from November 15 to March 14. This may have a moderate impact due to the size and duration of the timing stipulation.</li></ul>	<p>Alternative D locates and manages facilities to mitigate noise impacts on special status wildlife species. This rarely precludes the development or completion of oil and gas activities and may have a minor impact on the fluid minerals resource.</p> <p><u>Greater Sage-Grouse Core Population Area</u> Alternative D applies an NSO prohibiting surface-disturbing activities, disruptive activities, and occupancy within 0.6 mile of the perimeter of occupied Greater Sage-Grouse leks. This covers 30,754 acres and may have a negligible impact because it affects 0.9 percent of the fluid minerals resource and may affect 84 CBNG wells and 1 conventional well.</p> <p>Applying a CSU that allows on average no more than one disturbance and no more than five percent total disturbance per 640 acres within the DDCT analysis area and, where technologically feasible, prohibits facilities with motion, light sources, noise (10 decibels above ambient), and heights greater than 4.5 feet covers 519,945 acres. This may have a major impact because it affects 15.3 percent of the fluid minerals resource and may eliminate 803 CBNG wells and affect 150 conventional wells. This management action is considered a significant impact on leasable fluid minerals because it affects 250 or more CBNG wells and 50 or more conventional wells. CBNG resources need to be developed on 80 acre spacing which cannot be accomplished with only 1 disturbance per 640 acres and current technology. Due to directional and horizontal technologies, the conventional oil and gas resource may be accessed up to 1 mile under the Core Population Area boundary without the surface location being within Core Population Area. This may cause an increased density of conventional wells on the boundary of the Core Population Area.</p>

Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
(see above)	<p>Applying a TLS prohibiting surface disturbance and disruptive activities within nesting and early brood-rearing habitat greater than 4 miles of an occupied or undetermined Greater Sage-Grouse lek, from March 1 to July 15, may have a major impact due to the size and duration of the timing stipulation.</p> <p>Applying a TLS prohibiting surface disturbance and disruptive activities, from November 15 to March 14, for Greater Sage-Grouse winter concentration areas may have a major impact due to the size and duration of the timing stipulation.</p> <p>Applying a CSU that allows no more than one disturbance and three percent total surface disturbance per 640 acres within the DDCT analysis area covers 3,117,708 acres or 92 percent of the fluid minerals resource. This may have a major impact on CBNG because the restrictions effectively eliminate CBNG development since CBNG is developed on 80 acre spacing and is shallow enough geologically that directional drilling techniques may not allow full development of this resource. This same CSU may also have a major impact on conventional development because of the size of the pads and access roads along with the existing disturbance that would exceed the 3 percent disturbance cap which may severely restrict conventional development on federal minerals.</p>	(see above)	<p>Applying a TLS prohibiting surface-disturbing and disruptive activities within Core Population Area from March 15 to June 30, covers 440,114 acres. This may have a major impact due to the size and duration of the stipulation.</p> <p>Applying a TLS prohibiting surface-disturbing and disruptive activities within Greater Sage-Grouse winter concentration areas, from December 1 to March 14, may have a minor to moderate impact due to the size and duration of the stipulation.</p> <p><u>Greater Sage-Grouse Core Population Connectivity Corridor</u></p> <p>Alternative D applies an NSO prohibiting surface-disturbing activities, disruptive activities, and occupancy within 0.6 mile of the perimeter of occupied Greater Sage-Grouse leks. This covers 7,359 acres and may have a negligible impact because it affects 0.2 percent of the fluid minerals resource and may affect 45 CBNG wells and 15 conventional wells.</p> <p>Applying a CSU stipulation that allows no more than five percent total surface disturbance per 640 acres within the DDCT analysis area and avoids facilities with motion, light sources, noise (10 decibels above ambient), and height greater than 4.5 feet covers 150,006 acres. This may have a moderate impact because it affects 4.4 percent of the fluid minerals resource and may affect 763 CBNG wells and 70 conventional wells. This management action is considered a significant impact on leasable fluid minerals because it affects 250 or more CBNG wells and 50 or more conventional wells. The management for Core Population Connectivity Corridors (Connectivity Corridors) is significantly different from the management of Core Population Areas. Within Connectivity Corridors the disturbance is not limited to 1 per 640 acres. This allows for the possibility of CBNG and conventional oil and gas development within Connectivity Corridors dependent on existing</p>

Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
(see above)	(see above)	(see above)	<p>surface disturbance. While it is more likely that development will occur in Connectivity Corridors than in Core Population Areas, because of the restrictions, CBNG development will probably not happen within Connectivity Corridors.</p> <p>Applying a TLS prohibiting surface-disturbing and disruptive activities within 4 miles of an occupied Greater Sage-Grouse lek, from March 15 to June 30, covers 131,849 acres. This may have a minor impact due to the size and duration of the timing stipulation.</p> <p>Applying a TLS prohibiting surface-disturbing and disruptive activities within Greater Sage-Grouse winter concentration areas, from December 1 to March 14, may have a minor to moderate impact due to the size and duration of the stipulation.</p> <p><u>Greater Sage-Grouse Habitat Outside Core Population Areas and Core Population Connectivity Corridors</u></p> <p>Alternative D applies an NSO prohibiting surface-disturbing activities, disruptive activities, and occupancy within 0.25 mile of the perimeter of occupied Greater Sage-Grouse leks. This covers 16,103 acres and may have a negligible impact because it affects 0.5 percent of the fluid minerals resource and may affect 8 CBNG wells and 1 conventional well.</p> <p>Applying a TLS prohibiting surface-disturbing and disruptive activities within 2 miles of occupied Greater Sage-Grouse leks, from March 15 to July 30, covers 779,734 acres. This may have a major impact due to the size and duration of the timing stipulation.</p> <p>Applying a TLS prohibiting surface-disturbing and disruptive activities within Greater Sage-Grouse winter concentration areas, from December 1 to March 14, may have a minor to moderate impact due to the size and duration of the stipulation.</p>



Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
<b>Leasable Minerals Coal</b>			
Current management prohibits surface-disturbing activities near important wildlife sites (WGFD WHMAs, grouse breeding sites, raptor nests, bald eagle nest and communal roost sites) and seasonally within sensitive habitats (big-game crucial winter range and calving areas, raptor nests, grouse nesting habitat, bald eagle nest and communal roost sites). Exceptions are provided for a portion of one Greater Sage-Grouse Core Population Area is within the area identified as acceptable for further coal leasing consideration in Campbell County and bald eagle nest and roost sites are present within the area identified as acceptable for further coal leasing consideration in Sheridan County. The presence of sensitive wildlife habitats is unlikely to effect coal mine siting as the areas identified as acceptable for further coal leasing consideration have already been screened accounting for these wildlife resources. These management actions would regulate the location of exploration and non-conventional conversion operations. Project proponents may not be able to avoid all wildlife protection areas when planning their projects therefore the effect of these management actions would be moderate adverse.	Alternative B prohibits surface-disturbing activities near important wildlife sites (WGFD WHMA, grouse breeding sites, raptor nests, bald eagle nest and communal roost sites) and seasonally within sensitive habitats (big-game crucial winter range and calving areas, raptor nests, grouse nesting habitat, bald eagle nest and communal roost sites). Greater Sage-Grouse nesting habitat and herptile breeding habitat are present within both areas identified as acceptable for further coal leasing and bald eagle nest and roost sites are present within the Sheridan County potential area identified as acceptable for further coal leasing consideration. The presence of SSS wildlife habitats could influence coal mine leasing and siting. These management actions would regulate the location of exploration and non-conventional conversion operations. Project proponents would be unable to avoid all wildlife protection areas when planning their projects and projects or certain activities could be prohibited therefore the effect of these management actions would be major adverse.	Alternative C allows surface-disturbing activities near important wildlife sites (WGFD WHMA, grouse breeding sites, raptor nests, bald eagle nest and communal roost sites) and within sensitive habitats (big-game crucial winter range and calving areas, raptor nests, grouse nesting habitat, bald eagle nest and communal roost sites) when all resources are adequately considered. Greater Sage-Grouse leks are present within both areas identified as acceptable for further coal leasing consideration and bald eagle nest and roost sites are present within the Sheridan County area identified as acceptable for further coal leasing consideration. The presence of sensitive wildlife habitats is unlikely to effect coal mine siting. These management actions would regulate the location of exploration and non-conventional conversion operations. Project proponents may not be able to avoid all wildlife protection areas when planning their projects but wildlife can be considered and mitigated in project designs, and no projects would likely be prohibited, so that the effect of these management actions on coal activities would be minor adverse.	Alternative C allows surface-disturbing activities near important wildlife sites (WGFD WHMA, grouse breeding sites, raptor nests, bald eagle nest and communal roost sites) and within sensitive habitats (big-game crucial winter range and calving areas, raptor nests, grouse nesting habitat, bald eagle nest and communal roost sites) when the wildlife resources are adequately protected. A portion of one Greater Sage-Grouse Core Population Area is within the Campbell County area identified as acceptable for further coal leasing consideration and bald eagle nest and roost sites are present within the Sheridan County area identified as acceptable for further coal leasing consideration. The presence of sensitive wildlife habitats is unlikely to effect coal mine siting as the areas identified as acceptable for further coal leasing consideration have already been screened accounting for these wildlife resources. These management actions would regulate the location of exploration and non-conventional conversion operations. Project proponents may not be able to avoid all wildlife protection areas when planning their projects therefore the effect of these management actions would be moderate adverse.

Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
<b>Locatable Minerals</b>			
Measures to protect SSS wildlife include a number of distance and/or timing restrictions or prohibitions for certain areas and habitats, and all will have an adverse effect on the locatable minerals resource: near Greater Sage-Grouse strutting grounds (year-round restricted [0.25 mile] 3,594 acres, 0.46%; seasonally prohibited [2 miles] 203,724 acres, 26%). Other restrictions may also apply which will likely increase project costs. With an RFA of 554 acres for locatable minerals projects, the likely effect will be negligible adverse.	Restricted and prohibited for all projects are surface-disturbing, disruptive, and/or occupancy activities, and other management actions, to conserve SSS wildlife within the following areas: Greater Sage-Grouse areas (4.0-mile perimeter around occupied and undetermined leks and winter concentration areas, regardless of habitat suitability 510,100 acres, 65.62%; greater than 4.0 miles of occupied and undetermined leks in nesting and brood-rearing habitat seasonally 91,528 acres, 12%; 4.0 miles of winter concentration areas seasonally 346,987 acres, 45%; habitat greater than 4.0 miles of winter concentration areas seasonally 79,547 acres, 10%. Other requirements also apply which will likely increase project costs: restoration of disturbed sagebrush communities, increasing visibility of existing fencing in Greater Sage-Grouse habitat, and anti-perching devices on powerlines. Some projects may not be approved if they would result in more than one disturbance or 3 percent of total surface disturbance per 640 acres within 4.0 miles of Greater Sage-Grouse leks or winter concentration areas. Approximately 50 percent of locatables minerals projects occur in these areas (approximately 265 acres); and an RFA of 277 acres for locatable minerals projects (0.04%). Likely effect will be negligible adverse, from increased costs for certain projects.	Restrictions occurring under Alternative C include: maintain current habitat utilized by SSS; manage traditional wildlife migration and travel corridors consistent with other resources; manage surface-disturbing and disruptive activities consistent with other resources; require anti-perching devices on new powerlines within occupied Greater Sage-Grouse habitat; restrictions/prohibitions on surface-disturbing and disruptive activities and sometimes occupancy within 0.25 mile of the perimeter of occupied leks (3,594 acres, 0.46%), seasonally within two miles of occupied leks (203,724 acres, 26%), seasonally in identified nesting and early brood-rearing habitat outside the 2-mile lek buffer, and seasonally within Greater Sage-Grouse winter concentration areas; and a year-round disturbance-free buffer of at least 0.5 mile around known bald eagle winter roosts (402 acres, 0.05%), a seasonal limited activity zone within 1 mile of known roosts (3,013 acres, 0.39%), and seasonal species-specific prohibitions for SSS raptor nests (4,855 acres, 0.6%). Approximately 50 percent of locatables minerals projects occur in/near these areas so a fair number of such projects might need to be modified the likely effect will be negligible adverse due to increased project costs.	The prohibitions, restrictions, and other requirements that will be instituted under Alternative D to prevent unnecessary or undue degradation in Greater Sage-Grouse populations and habitat (below) do not apply to locatable minerals activities, as the Greater Sage-Grouse is not a proposed or listed T&E species (per 43 CFR 3809.11(c)(6), and 3809.420(b)(3)(iii)(7)); see also Instruction Memorandum [IM] Washington Office [WO]-2012-043, dated December 22, 2011). BLM can request for project proponents to follow these measures, however, compliance is not mandatory.

Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
<b>Salable Minerals</b>			
Measures to protect SSS wildlife include a number of distance and/or timing restrictions or prohibitions within certain areas and habitats, and all will have an adverse effect on the salable minerals resource: within prairie dog colonies (6,156 acres, 0.18%); within Greater Sage-Grouse strutting grounds (year-round restricted 3,594 acres, 0.11%, seasonally prohibited 203,724 acres, 6.08%); near bald eagle nests, winter roosts, hunting, and concentration areas (year-round 402 acres, 0.01%; seasonally 3,013, 0.09%); near raptor nesting areas (17,345 acres, 0.52%); and within habitats of SSS amphibians and reptiles (176,636 acres, 5.28%). Other restrictions may also apply that will likely increase project costs. Approximately 25 percent of salable minerals projects occur in/near these areas, and their RFA is 530 acres. The likely effect is up to moderate adverse.	Surface-disturbing, disruptive, and/or occupancy activities are restricted or prohibited to conserve SSS wildlife within the following areas: prairie dog colonies (6,156 acres, 0.18%); Greater Sage-Grouse habitat (4.0-mile perimeter around occupied and undetermined leks and winter concentration areas, regardless of habitat suitability 467,897 acres, 14%; greater than 4.0 miles of occupied and undetermined leks in nesting and brood-rearing habitat seasonally 91,528 acres, 2.73%); seasonally within 1.5 miles of SSS raptor nests (113,784 acres, 3.40%); biologic buffer of SSS raptors (28,437 acres, 0.85%); and habitats of SSS amphibians and reptiles (176,636 acres, 5.28%). Other requirements also apply which will likely increase project costs: restoration of disturbed sagebrush communities on BLM surface; increasing visibility of existing fencing in Greater Sage-Grouse habitat; and anti-perching devices on powerlines in occupied Greater Sage-Grouse habitat. Some projects may not be approved if they would result in more than one disturbance or 3 percent of total surface disturbance per 640 acres. Approximately 50 percent of salable minerals projects occur in these areas, and their RFA is 114 acres. The likely effect would be major adverse, as year-round prohibitions essentially close those acres to salable minerals activities.	Restrictions occur under Alternative C include: maintain current habitat utilized by SSS; manage traditional wildlife migration and travel corridors consistent with other resources; manage surface-disturbing and disruptive activities consistent with other resources; require anti-perching devices on new powerlines within occupied Greater Sage-Grouse habitat; restrictions on surface-disturbing and disruptive activities within 0.25 mile of the perimeter of leks (3,594 acres, 0.11%); seasonal prohibitions within 2 miles of occupied leks (203,724 acres, 6.08%) and within Greater Sage-Grouse winter concentration areas; a year-round disturbance-free buffer of at least 0.5 mile around known bald eagle nests and winter roosts (402 acres, 0.01%); a seasonal limited activity zone within one mile of known nests and eagle roosts (3,013 acres, 0.09%); and seasonal species-specific prohibitions within 0.25 mile of SSS raptor nests (75,276 acres, 2.25%). Approximately 50 percent of salable minerals projects occur in/near these areas, so a fair number of such projects might need to be modified. As year-round prohibitions/restrictions essentially close those areas to salable minerals activities, this decreases the acres available; there would be a minor adverse effect.	Approximately 50 percent of salable minerals projects occur in or near SSS habitat; the likely effect will be moderate adverse.

Alternative A		Alternative B	Alternative C	Alternative D/Proposed Plan
<b>Paleontology</b>				
<p>Alternative A would allow project-specific effects from biological resources management actions, and would prohibit surface-disturbing activities, occupancy, and disruptive activities in specific areas. Protections afforded for species and habitat would indirectly protect paleontological resources by restricting the amounts and sizes of disturbances that could adversely affect paleontological resources through displacement or loss. Surface-use restrictions associated with management of wildlife and fisheries would indirectly protect paleontological resources in specific areas by reducing the potential for unanticipated discoveries and subsequent loss of information about paleontological resources. Surface-disturbing and disruptive activities would be managed, and could restrict the amounts and sizes of surface disturbance, indirectly decreasing the potential to adversely affect paleontological deposits in these areas.</p>		<p>Alternative B would prohibit surface-disturbing activities, occupancy, and disruptive activities in specific areas, and apply NSO, CSU, and TLS stipulations in certain areas. Alternative B protections for fish, wildlife, and plant species and their habitats would indirectly protect paleontological resources by restricting the amounts and sizes of disturbances that could adversely affect paleontological resources through displacement or loss. Surface-use restrictions associated with management of wildlife and fisheries would indirectly protect paleontological resources in specific areas by reducing the potential for unanticipated discoveries and subsequent loss of paleontological information. Surface-disturbing and disruptive activities would be managed, which could restrict the amounts and sizes of surface disturbances, indirectly decreasing the potential to adversely affect paleontological deposits in these areas. Alternative B effects on paleontological resources from management of biological resources would be similar to effects under Alternative A, but Alternative B would include more restrictions on surface disturbance.</p>	<p>Alternative C biological resources management would allow or include limited restrictions on surface-disturbing activities, surface occupancy, and disruptive activities in specific areas, and would not apply NSO, CSU, and TLS stipulations or would apply those stipulations in a limited manner in certain areas. This management would have a minor adverse effect on paleontological resources.</p>	<p>Alternative D would prohibit surface-disturbing activities, surface occupancy, and disruptive activities in specific areas and would apply NSO, CSU, and TLS stipulations in certain areas. Effects on paleontological resources from Alternative D management of biological resources would be similar to effects under Alternative B.</p>
<b>Recreation</b>				
<p>Under Alternative A, there are no identified areas with high recreation value that have been limited or restricted from public use due to SSS; therefore, there would be little to no effect on the recreation program under this alternative. Proposed or permitted uses would be analyzed through the NEPA process and mitigation measures implemented if SSS were encountered or were known to be affected. Effects on the recreation program would be limited to recreation areas that overlap areas with SSS timing or surface occupancy stipulations. For areas without public access, the effects would be limited to recreation in conjunction with a special recreation permit. In areas with public access, alternative routes or camping areas would be designated where possible during periods of seasonal restrictions. Areas where recreation would be affected would be small and therefore a negligible effect.</p>		<p>Under this alternative, additional restrictions would be applied to areas that contain SSS. Effects on the recreation program limited to areas that overlap areas with SSS timing or occupancy restrictions. For areas without public access, the effects would be limited to recreation in conjunction with a commercial special recreation permits. In areas with public access, alternative routes or camping areas could be designated where possible during seasonal restrictions. Wildlife prohibitions could limit recreation facility construction within SRMAs and therefore recreational opportunities to a moderate degree.</p>	<p>Alternative C would incorporate restrictions in areas with SSS. Effects on the recreation program would be limited to areas that overlap with areas with SSS timing or occupancy limitations. In addition, this alternative would apply a timing restriction to Greater Sage-Grouse winter concentration areas, which might coincide with big-game hunting seasons in some areas. These restrictions would prohibit surface disturbing activities and thus prevent displacement not only of SSS but of big-game as well, a negligible benefit.</p>	<p>Under this alternative, restrictions would be applied in areas with SSS. Effects on the recreation program would be limited to areas recreation potential would overlap areas with SSS timing or occupancy limitations. In addition, this alternative would impose a seasonal disturbance prohibition for Greater Sage-Grouse winter concentration areas. For areas without public access, the effects would be limited to recreation in conjunction with a commercial special recreation permit. In areas with public access, alternative routes or camping areas could be designated where possible during seasonal restrictions. If the timing limitation reduced opportunities for big-game hunting, which is one of the predominant recreational activities in the planning area, that could not be mitigated through alternative means of access, the effect on the recreation program would be minor.</p>

Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
<b>Renewable Energy</b>			
At present, there are no documented Greater Sage-Grouse leks within 0.25 mile of areas with wind-energy development potential. However, it should be noted that much of the wildlife data, particularly for grouse species, have been collected in association with CBNG development; therefore, there is little data associated with the southern Bighorn Mountains. It is doubtful, even with complete wildlife data for the southern Bighorn Mountains, that renewable-energy development would be prohibited on more than five percent of the better wind-energy potential areas. Timing limitations could delay renewable-energy development, however, they typically do not prevent development. Overall, the Alternative A effect on renewable-energy development from management of wildlife and special status wildlife species would be minor adverse.	Renewable-energy development would be prohibited on BLM surface with wind potential of good or better that are within 4.0 miles of Greater Sage-Grouse leks or winter concentration areas. The effect on renewable-energy development would be major adverse particularly from the management of Greater Sage-Grouse (SSS) and decreasing development opportunities.	Alternative C would allow renewable-energy development on BLM surface with a wind-energy potential of good or higher within biological buffers near Greater Sage-Grouse leks. At present, there are no documented Greater Sage-Grouse leks within 0.25 mile of areas with wind-energy development potential. However renewable-energy development proposals must consider and mitigate adverse effects on wildlife and other resource values. Alternative C wildlife management would have a minor adverse effect on renewable-energy program with decreased development opportunities.	The wildlife and SSS wildlife management actions under Alternative D that would have the greatest effect on renewable-energy development are prohibitions on surface-disturbing activities on BLM surface with wind-energy potential rated good or higher within Greater Sage-Grouse Priority Habitat Area (Core Population Areas and Core Population Connectivity Corridors) (6,521 acres, or 13%). Within the Core Population Areas and Core Population Connectivity Corridors, renewable-energy development would be limited to no more than 5 percent total disturbance per 640 acres and protected within 0.6 mile of Greater Sage-Grouse leks. At present, there are no documented Greater Sage-Grouse leks within 0.6 mile of areas with wind-energy development potential of good or higher. Avoid commercial renewable energy projects in Greater Sage-Grouse core population areas unless it can be demonstrated that the activity would not result in declines of core Greater Sage-Grouse populations. The effect on renewable-energy development would be moderate adverse from management of general wildlife because there would be restricted development and provisions to allow for renewable-energy development with appropriate mitigation, and major adverse from management of special status wildlife species because of the development restrictions in Greater Sage-Grouse Core Population Areas.



Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
<b>Rights-of-Way and Corridors</b>			
<p>Under Alternative A, management of fish and wildlife habitat and SSS plant and wildlife species would affect uses administered by the ROW program through the implementation of mitigation measures designed to protect those biological resources. Implementing species-specific protective measures for sensitive plant and wildlife species and prohibiting actions that would affect Threatened or Endangered species could result in the denial or relocation of proposed public land uses. The following management actions apply:</p> <ul style="list-style-type: none"><li>• Restrict surface disturbance and occupancy within a 0.25-mile radius (3,594 acres) of the center of Greater Sage-Grouse strutting grounds, year round, no exceptions. Prohibit surface disturbance within an additional 1.75-mile radius (203,724 acres) from March 15 to June 30. The effect on the resources is approximately 27 percent; this would have a major adverse effect on the ROW program. This would have a major adverse effect on ROW. These management actions would delay, or reroute ROW proposals, decreasing opportunities. Overall, Alternative A management of wildlife and special status wildlife would have a major adverse effect on the ROW and corridor program although there are provisions for exceptions, which would reduce the impacts of these management actions.</li></ul>	<p>Alternative B special status upland game birds management actions, would prohibit renewable-energy projects within Greater Sage-Grouse nesting, brood-rearing and winter habitat, require anti-perching devices on existing and new powerlines in occupied Greater Sage-Grouse habitat, and habitat identified for restoration; prohibit surface-disturbing and disruptive activities, occupancy within 4.0 miles of the perimeter of occupied or undetermined Greater Sage-Grouse leks and winter habitat concentration areas; prohibit surface-disturbing and disruptive activities in nesting and early brood-rearing habitat greater than 4.0 miles of occupied and undetermined Greater Sage-Grouse leks, from March 1 to July 15; prohibit surface-disturbing and disruptive activities within winter habitat greater than 4.0 miles of Greater Sage-Grouse winter concentration areas, from November 15 to March 14; prohibit surface-disturbing and disruptive activities within 4.0 miles of winter concentration areas, from November 15 to March 14; and allow no more than one disturbance and 3 percent total surface disturbance per 640 acres within the DDCT analysis area to demonstrate and restore disturbed sagebrush communities on BLM surface. Alternative B special status upland game birds management within Priority Habitat Area would exclude all ROWs except where valid existing rights exist; prohibit mineral material sales; avoid constructed roads beyond 4 miles of occupied and undetermined Greater Sage-Grouse leks and winter concentration areas; recommend area for withdrawal; and retire grazing allotments. Alternative B special status upland game birds management with in general habitat areas would avoid ROWs and require full reclamation bonding specific to the site and sufficient to cover costs required for full reclamation.</p>	<p>Alternative C would generally allow disturbances where resource objectives can be met in areas with fish and wildlife resources. Management of fish and wildlife habitat and SSS would affect uses administered by the ROWs associated with a ROW, through the implementation of mitigation measures designed to protect them. Implementing species-specific protective measures for sensitive plant and wildlife species and prohibiting actions that would affect Threatened or Endangered species could result in the denial or relocation of proposed public land uses, but those uses would generally be allowed. This would develop ROW opportunities and would have a minor adverse effect to the ROW development program.</p>	<p>Overall, Alternative D special status wildlife management would have a moderate adverse effect on the ROW program.</p>

Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
<b>Soils</b>			
<p>There are a number of management actions under Alternative A that prohibit surface-disturbing activities for the protection of wildlife and special status wildlife species; these actions would benefit soil resources locally where soil disturbances are prevented. Typically, these management actions provide the opportunity for waivers, which reduces the benefits to soil resources. The timing limitations for various wildlife species also do not benefit soil resources because they simply delay surface-disturbing activities.</p>	<p>There are a number of management actions under Alternative B that prohibit surface-disturbing activities (without provisions) for the protection of wildlife and special status wildlife species; these actions would benefit soil resources locally where soil disturbances are prevented. The timing limitations for various wildlife species would not benefit soil resources because they delay, but do not prevent, surface-disturbing activities.</p> <p>Under Alternative B, the largest acreages of surface disturbance prohibitions are timber harvest in crucial elk habitat (149,451 acres, or 19%, of BLM surface), disturbance activities in elk security habitat (132,148 acres, or 16.9%, of BLM surface), permanent buffers around active raptor nests (255,129 acres, or 33%, of BLM surface), disturbance activities in reptile and amphibian habitat (176,636 acres, or 23%, of BLM surface), renewable-energy projects in Greater Sage-Grouse habitat (467,897 acres, or 65.1% of BLM surface). Collectively these prohibitions would have a major beneficial effect on the soil resource.</p>	<p>Most management actions under Alternative C allow surface-disturbing activities with consideration of wildlife and special status wildlife species; therefore, these actions would have little direct benefit to soil resources. Actions that would provide measurable benefits include the designation of a Wildlife Habitat Management Area (WHMA) in the Fortification Creek crucial elk ranges (32,602 acres, or 4.2%, of BLM surface), a restriction on surface-disturbing activities near active Greater Sage-Grouse leks (3,594 acres, or 0.5%, of BLM surface), and a Controlled Surface Use (CSU) limitation on fluid mineral leases near active special status raptor nests (28,437 acres, or 3.6%, of BLM surface). Although a few management actions would affect more than one percent of soil resources, the benefit to soil resources would be negligible.</p>	<p>There are a number of management actions under Alternative D that would allow surface-disturbing activities where wildlife and special status wildlife species could be adequately protected. These actions would benefit soil resources locally where soil disturbances are prevented.</p> <p>Some of the management actions with measurable benefits to soil resources include the following: timber harvest would maintain current amounts of crucial elk habitat (149,451 acres, or 19%, of BLM surface), elk security habitat would be retained (132,148 acres, or 16.9%, of BLM surface), surface-disturbing activities would be prohibited near Greater Sage-Grouse leks (9,966 acres, or 1.27%, of BLM surface), removal of sagebrush in Greater Sage-Grouse habitats would be restricted, and surface-disturbing activities may be prohibited near special status species raptor nests (17,417 acres, or 2.2%, of BLM surface). Collectively these prohibitions would have a major beneficial effect on the soil resource.</p>

Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
<b>Special Designations and Management Areas</b>			
<b>ACECs</b>			
The best available science clearly indicates that current management has not been sufficient to sustain the Greater Sage-Grouse populations within the planning area (Doherty et al. 2010). All ACEC evaluation areas contain Greater Sage-Grouse habitat. Alternative A SSS management would not sustain Greater Sage-Grouse populations within the evaluation areas or the planning area as a whole, and therefore have a major adverse effect on ACEC values.	Greater Sage-Grouse management, under Alternative B, would apply prohibitions on surface-disturbing and disruptive activities within four miles of lek sites and winter concentration areas and therefore be a major benefit to ACEC values.	Seasonal and permanent buffers prohibiting surface-disturbing activities are provided for SSS such Greater Sage-Grouse. These management actions would be unlikely to sustain Greater Sage-Grouse populations within the evaluation areas. Alternative C SSS management would have a major adverse effect on ACEC values.	Similar buffers are provided for SSS such as Greater Sage-Grouse. Greater Sage-Grouse management would be based on the Wyoming BLM Policy (WY-2012-019) and Wyoming EO (2011-05). Pumpkin Buttes and Welch Ranch ACECs and the Fortification Creek evaluation area are outside of Priority Habitat Area. Four evaluation areas are wholly (Cantonment Reno, Dry Creek Petrified Tree, and Hole-in-the-Wall) or partially (Burnt Hollow) within Priority Habitat Area. The BLM and Wyoming Greater Sage-Grouse strategies are statewide strategies. While associated prescriptions will conserve Greater Sage-Grouse populations within Wyoming as a whole, they may not be sufficient to sustain the Greater Sage-Grouse population within the planning area, and therefore have a significant adverse effect on ACEC values for the Sagebrush Ecosystem evaluation area (467,897 acres). However, other ACECs would receive a negligible beneficial impact from SSS alternatives. Overall, the impact from SSS alternatives to ACECs are considered moderate adverse.
<b>Scenic or Back Country Byways</b>			
Wildlife and SSS management actions include mitigation for surface-disturbing activities; maintaining or improving wildlife habitats; protecting crucial wildlife habitats; and managing Greater Sage-Grouse habitat. These management actions all include provisions for exceptions that have been inconsistently applied in the past. Collectively, these actions could have a moderate beneficial effect on byway use by promoting habitat protection while providing exceptions for surface-disturbing activities.	Wildlife and SSS management actions under Alternative B prohibit surface-disturbing and disruptive activities within important habitat for many species including upland game birds. Collectively, these actions could have a major beneficial effect on byway use by promoting habitat protection while causing the relocation, modification, or redesign of surface-disturbing activities.	Wildlife and SSS management actions include mitigation for surface-disturbing activities; maintaining or improving wildlife habitats; and managing Greater Sage-Grouse habitat. Collectively, these actions could have a moderate beneficial effect on byway use by promoting habitat protection.	Wildlife and SSS management actions under Alternative D regulate surface-disturbing and disruptive activities within important habitat for many species including upland game birds. Collectively, these actions could have a moderate beneficial effect on byway use by promoting habitat conservation attractive to byway users while allowing development protective of the wildlife resource.
<b>Wild and Scenic Rivers</b>			
Under Alternative A, project proposals for resource development (e.g., mineral resources, ROW, road construction) or extraction would be managed on a case-by-case basis pursuant to Manual 6400. The protection of the free-flowing condition and outstanding remarkable values could not be guaranteed.	Alternative B would emphasize resource conservation. If Congress releases the Middle Fork Powder River suitable segment to other uses, management under Alternative B would protect and enhance the free-flowing condition and identified ORVs of the river.	Alternative C would emphasize resource use. Alternative C could conceivably allow for future dams along the river should the river be released from consideration, which would damage the river's free-flowing condition.	Alternative D would allow resource use if the activity can be conducted in a manner that conserves physical, biological, and heritage and visual resources, and would emphasize moderate constraints on resource uses to reduce adverse effects on resource values.



Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
<b>Special Status Species</b>			
<b>Plants</b>			
Management actions for wildlife and special status wildlife include prohibitions of surface disturbance and/or surface occupancy for the protection of wildlife and special status wildlife resources. These prohibition areas also contain greater than ten percent of special status plant habitats; therefore, wildlife and special status wildlife management actions under Alternative A would have major beneficial effects on special status plant resources.	Under Alternative B, NSOs prohibit or restrict surface disturbance within greater than ten percent of special status plant habitats; therefore, management actions for both wildlife and special status wildlife resources would have major beneficial effects on special status plant resources.	A number of wildlife management actions would be implemented on a project-specific basis under Alternative C. Not prohibiting or limiting surface-disturbing activities in designated areas and during designated periods would increase opportunities for soil and water, provide additional large-scale opportunities for invasive species to establish, decrease the ecological condition of communities of special status plant species and associated habitats, and augment fragmentation of these plant communities. This would have an indirect adverse effect on communities of special status plant species over the long term. Surface-disturbing activities would be permitted within greater than ten percent of special status plant habitats; therefore, management actions for wildlife and special status wildlife resources would have major adverse effects on special status plant resources.	With its habitat removal allowances, compared to Alternative B, Alternative D would protect 56,516 fewer acres of suitable habitat for special status plant species present in areas with suitable nesting habitat for Greater Sage-Grouse and 13,016 fewer acres of suitable habitat for special status plant species present in areas of suitable winter habitat for Greater Sage-Grouse.
<b>Fish</b>			
Managing vegetation resources to comply with the ESA and BLM policy associated with management of habitat for special status wildlife species would have beneficial effects to special status fish species. Surface disturbance restrictions for Greater Sage-Grouse breeding grounds and raptors nests would have beneficial effects on fish. Protections afforded Threatened, Endangered, and sensitive species, such as oil and gas disturbance-free zones around bald eagle nests and roosts, would prevent surface disturbance and have beneficial effects on fish. Overall, these protection zones for special status wildlife habitats encompass five to 10 percent of the identified Yellowstone cutthroat trout habitats in the planning area. Management actions for special status wildlife species under Alternative A would have moderate beneficial effects on special status fish resources.	Protections for identified raptor nests, Greater Sage-Grouse, and T&E species would have a beneficial effect on Yellowstone cutthroat trout. Overall, the prohibitions or restrictions for special status wildlife species occur within greater than 10 percent of the identified Yellowstone cutthroat trout habitat in the planning area. Management actions for special status wildlife species would have major beneficial effects on special status fish resources.	Because protections for some special status wildlife species remain in place and would conserve five to 10 percent of identified Yellowstone cutthroat trout habitats under this alternative, overall, Alternative C special status wildlife management actions would have a moderate beneficial effect on special status fish resources.	Under Alternative D, protections for raptor nests, Greater Sage-Grouse, and T&E species would have a beneficial effect on special status fish species. Overall, protections for special status wildlife species would conserve vegetation within greater than 10 percent of the identified Yellowstone cutthroat habitats in the planning area. Management actions for special status wildlife species would have major beneficial effects on special status fish resources.

Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
<b>Wildlife</b>			
<p>Seasonal restrictions on land uses would benefit special status wildlife species by preventing disturbance during critical winter, breeding, and nesting periods. This would have a long-term beneficial effect. Other long-term beneficial effects would result from restricting access roads, pipelines, and powerlines to designated corridors.</p> <p>Estimated short- and long-term disturbance from BLM actions in the planning area are anticipated to result in loss, degradation, and fragmentation of sagebrush habitat. Alternative A does not provide specific guidance or management actions for the prevention of habitat loss and fragmentation. To minimize effects on sagebrush habitats, Alternative A would avoid surface disturbance or occupancy within 0.25 mile of occupied Greater Sage-Grouse leks and avoid surface-disturbing and disruptive activities in suitable nesting and early brood-rearing habitats within 2 miles of occupied leks.</p> <p>Similar to Greater Sage-Grouse, Brewer’s sparrow, sage sparrow, and sage thrasher depend on sagebrush habitats. These species can use other shrubland types, particularly during the non-breeding season. The loggerhead shrike uses a greater diversity of shrubland types, including sagebrush. Therefore, measures to protect Greater Sage-Grouse would benefit all sagebrush and shrubland species. Adverse effects on sagebrush habitats adversely affect these species. Alternative A does not include surface disturbance restrictions for Greater Sage-Grouse winter habitats, requirements to reduce noise levels of equipment, or restrictions on high-profile structures in sagebrush-obligate habitats. Alternative A restrictions on surface disturbance or occupancy and disruptive activities around occupied Greater Sage-Grouse leks should provide some benefit to special status sagebrush obligates during sensitive periods. Alternative A does not provide any provisions for habitat restoration. Over the long term, projected surface-disturbing and disruptive activities under Alternative A could have a</p>	<p>Under Alternative B, estimated short- and long-term surface disturbance from BLM actions in the planning area would result in less loss, degradation, and fragmentation of sagebrush habitats. In addition, Alternative B includes specific management actions for protection from habitat fragmentation (including sagebrush habitats) on BLM-administered lands. To minimize effects on sagebrush habitats, Alternative B prohibits rather than avoids surface disturbance or occupancy. Alternative B would manage sagebrush communities to enhance or maintain these communities, which would benefit special status sagebrush obligates by reducing habitat fragmentation.</p>	<p>Alternative C would not protect any special status wildlife species and activities allowed in suitable habitat could preclude the potential for future management decisions to expand or maintain the proliferation of these species through active management.</p> <p>The effects of Alternative C management would, in most cases, be similar to effects described for Alternative A and under Impacts Common to All Alternatives. Where effects on special status wildlife species would vary in degree from those under Alternative A, further rationale is provided below.</p>	<p>Alternative D management actions for special status wildlife species would have effects similar to those described for Alternative B.</p> <p>CBNG activity has waned in recent years with the decline in natural gas prices. To date development is approximately half that predicted in the PRB Final EIS (BLM 2003c) and the forecasted CBNG development is much less (Appendix G (p. 1937)). Interest in deep oil and gas resources within the planning area is increasing, with the anticipated spacing being less than with CBNG, one location per square mile (or less) versus eight locations per square mile. Therefore deep development may be more compatible with some SSS. The BFO has incorporated multiple conservation measures, such as habitat restoration to promote the recovery of disturbed habitats and water management measures to reduce WNV transmission. Appendix D (p. 1863) contains lists of BMPs to promote some SSS conservation. BLM’s High Plains District has also founded the PRB Restoration program, a partnership which promotes reclamation practices and habitat enhancement projects aimed at restoration of sagebrush habitats.</p>

Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
major adverse effect on special status sagebrush obligates in the planning area. Current restrictions and lease stipulations, and inconsistent application of impact minimization measures have led to substantial loss of the biological integrity and habitat function of ecosystems; decreased population viability; and substantial disruption of life history requirements of SSS. This management has had and would continue to have significant impacts on special status sagebrush obligates.	(see above)	(see above)	(see above)
<b>Greater Sage-Grouse</b>			
Greater Sage-Grouse seasonal restrictions on land uses would benefit Greater Sage-Grouse by preventing disturbance during critical breeding and nesting periods. This would have a long-term beneficial effect. Other long-term beneficial effects would result from restricting access roads, pipelines, and powerlines to designated corridors. Estimated short- and long-term disturbance from BLM actions in the planning area are anticipated to result in loss, degradation, and fragmentation of sagebrush habitat. Alternative A does not provide specific guidance or management actions for the prevention of habitat loss and fragmentation. To minimize effects on sagebrush habitats and Greater Sage-Grouse, Alternative A would avoid surface disturbance or occupancy within 0.25 mile of occupied leks and avoid surface-disturbing and disruptive activities in suitable nesting and early brood-rearing habitats within 2 miles of occupied leks. Alternative A does not include surface disturbance restrictions for Greater Sage-Grouse winter habitats, requirements to reduce noise levels of equipment, or restrictions on high-profile structures in sagebrush-obligate habitats (which could fragment habitat because Greater Sage-Grouse avoid some high-profile structures). Alternative A restrictions on surface disturbance or occupancy and disruptive activities around occupied Greater Sage-Grouse leks should provide some benefit to Greater Sage-Grouse during sensitive periods; however, these restrictions might not be sufficient to maintain or improve Greater Sage-Grouse populations over the long term. Energy development within two miles of leks is projected to reduce the average probability of lek persistence from 87 percent to 5 percent (Walker	Alternative B management actions for special status wildlife species include modifying existing fences that prevent Greater Sage-Grouse movement; applying prohibitions on surface occupancy, surface-disturbing and disruptive activities in various habitats for Greater Sage-Grouse movement; requiring burial of all new low-voltage powerlines and installation of perch-inhibiting devices on aboveground powerlines. This approach would allow for the greatest protective measures for Greater Sage-Grouse and their associated habitats and would greatly increase the potential for future management decisions to expand the proliferation of this species through active management where habitats important to special status wildlife species occur and BLM has the authority to actively manage them (Table 4.58, “Habitats Important to Special Status Wildlife Species on Each of the BLM-administered Land Types” (p. 1261)). Under Alternative B, estimated short- and long-term surface disturbance from BLM actions in the planning area would result in less loss, degradation, and fragmentation of sagebrush habitats. In addition, Alternative B includes specific management actions for protection from habitat fragmentation (including sagebrush habitats) on BLM-administered lands. To minimize effects on sagebrush habitats and the Greater Sage-Grouse, Alternative B prohibits rather than avoids surface disturbance or occupancy to protect associated nesting and early brood-rearing habitats. Alternative B would protect Greater Sage-Grouse winter habitat and	Alternative C management actions for special status wildlife species would not modify existing fences; not apply greater restrictions on surface-disturbing and disruptive activities in various special status wildlife species habitats (e.g., Greater Sage-Grouse seasonal habitats); and not require that low-voltage powerlines be buried or perch-inhibiting devices be installed on aboveground powerlines.. Activities allowed in suitable Greater Sage-Grouse habitat could preclude the potential for future management decisions to expand this species through active management. Management under Alternative C would allow disturbance to sagebrush habitats. Alternative C would manage vegetative resources to comply with the ESA. Alternative C would apply avoidance buffers to Greater Sage-Grouse leks and nesting and early brood-rearing habitat, and winter concentration areas. Alternative C protections and mitigation measures to address surface-disturbing activities would be similar to Alternative A. Overall, because surface disturbance and habitat loss, degradation, and fragmentation would be similar under Alternative C and Alternative A, the associated adverse effects on Greater Sage-Grouse also would be similar. In particular, applying standard lease terms, allowing renewable energy in Greater Sage-Grouse nesting, brood-rearing, and winter habitats, and leasing fluid minerals regardless of Greater Sage-Grouse habitat concerns are management actions that would cause substantial loss of the biological integrity and habitat function of ecosystems potentially resulting in extirpation within developed areas. Under Alternative C, the management actions for special status wildlife species	The Governor of Wyoming issued an EO on August 1, 2008, mandating special management for all state lands in Greater Sage-Grouse Core Population Areas. Core Population Areas are important breeding areas for Greater Sage-Grouse in Wyoming, as identified by the Wyoming Governor’s Greater Sage-Grouse Implementation Team. In addition to identifying Core Population Area, the team also recommended placing stipulations on development activities to ensure that existing habitat function is maintained within those areas. Accordingly, the EO prescribes special consideration for Greater Sage-Grouse, including authorization of new activities only when the project proponent can identify that the activity will not cause declines in Greater Sage-Grouse populations in the Core Population Area. These protections would apply to approximately 80 percent of the total estimated Greater Sage-Grouse breeding population in the state. In February 2010, the Wyoming State Legislature adopted a joint resolution endorsing Wyoming’s Core Area Strategy as outlined in Governor’s EO 2008-2 (USFWS 2010). The Governor signed EO 2010-4 on August 18, 2010 to replace 2008-2. On June 2, 2011, Governor Matthew Mead issued Governor’s EO 2011-5 to continue consideration of Greater Sage-Grouse conservation needs in the State of Wyoming. BLM Wyoming has adopted Wyoming’s approach for projects under its authority. Alternative D includes this strategy for the planning area. These protections will apply to less than 15 percent of all Greater Sage-Grouse nesting habitats, and accounts for less than 29 percent of the total estimated Greater Sage-Grouse breeding population in the planning area. Due to the size, shapes, and

Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
<p>et al. 2007a). Alternative A does not provide any provisions for habitat restoration, a component essential to the repopulation of degraded habitats. Over the long term, projected surface-disturbing and disruptive activities under Alternative A would have a major adverse effect on Greater Sage-Grouse in the planning area, potentially including extirpation within development areas. Current restrictions and lease stipulations, and inconsistent application of impact minimization measures have led to substantial loss of the biological integrity and habitat function of ecosystems; decreased population viability; and substantial disruption of life history requirements of this SSS. This management has had and would continue to have significant impacts on Greater Sage-Grouse in the planning area.</p>	<p>implement practices to minimize the effects of continuous noise on species that rely on aural cues for breeding. In addition, Alternative B would manage sagebrush communities to enhance or maintain these communities, which would benefit Greater Sage-Grouse by reducing habitat fragmentation. Alternative B would also require that new low-voltage utility lines be buried, and anti-perch devices be installed on new high-voltage utility lines, which would result in relatively little increase in predation on Greater Sage-Grouse from raptors and corvids (e.g., crows and ravens). Alternative B would prohibit surface-disturbing activities within 4 miles of the perimeter of occupied or undetermined Greater Sage-Grouse leks and winter concentration areas, and prohibit disruptive activities within the 4 mile area and outside the 4-mile buffer in nesting and brood-rearing habitat from March 1 to July 15 and winter habitat and concentration areas from November 15 to March 14. A CSU would be placed on all projects that would allow no more than 3% total surface disturbance per 640 acres. In addition, restoration of Greater Sage-Grouse habitat would become priority for all surface-disturbing activities on BLM surface within modeled nesting, brood-rearing, or winter habitat. Over the long term, restricting surface disturbance or occupancy around Greater Sage-Grouse leks and within Greater Sage-Grouse habitats, combined with the proactive management action to enhance and restore large, contiguous blocks of sagebrush habitat, would protect sagebrush habitats and have beneficial effects on Greater Sage-Grouse</p>	<p>would have significant impacts to Greater Sage-Grouse.</p>	<p>locations of these areas in the planning area, the influence of development has already adversely impacted the 103 remaining active leks inside Core Population Areas (Taylor et al. 2012). Fluid minerals would be leased dependent upon lease location and habitat suitability. Disturbed habitats would be restored on BLM surface within priority habitat and recommended for BLM surface within general habitat. The use of adaptive management to maintain Greater Sage-Grouse Core Area Populations in accordance with the State of Wyoming's Population Objectives would provide additional protection to Greater Sage-Grouse populations within core and connectivity habitat if population numbers fell below the target objectives. Monitoring associated with the adaptive management would ensure that if populations were to decline, issues could be identified and corrective management could be implemented to protect and enhance existing population numbers.</p>

Alternative A		Alternative B		Alternative C		Alternative D/Proposed Plan	
<b>Transportation and Transportation Management</b>							
Mitigation measures to protect riparian areas and wetlands and wildlife resources, can affect the travel and transportation program through seasonal closures and placement of roads. Seasonal closures would have minor short-term effects on transportation actions in sensitive areas such as Greater Sage-Grouse lek buffer areas. Year-round restrictions, including NSO and CSU stipulations (for wildlife), would affect the locations of transportation actions over the long term. Sensitive wildlife habitats such as leks would be subject to NSO stipulations, thereby limiting the placement of transportation systems and access. These protected areas are typically small and transportation systems can usually be routed around them, resulting in a minor impact to transportation and access.		Under Alternative B, mitigation measures to protect habitats for sensitive species could affect the travel and transportation program through seasonal or permanent closures and restrictions on the placement of roads. Year-round restrictions to protect sensitive species would affect the locations of transportation actions over the long term and would affect the majority of the planning area (614,557 acres; 78.5% of the planning area). Effects on the travel and transportation program from Alternative B wildlife and fisheries management would place an emphasis on habitat enhancement and protection and add restrictions on surface-disturbing and disruptive activities. NSO areas and seasonal restrictions would affect the placement of transportation systems and affect the construction windows for building roads. The overall effect due to the reduced travel and transportation opportunities is moderate adverse.		Very few restrictions related to fish and wildlife resources are proposed under Alternative C. Additional restrictions related to sensitive species of fish or wildlife will result in effects similar to Alternative A. These would either decrease opportunities for travel and transportation authorizations or increase the stipulations placed on such authorizations on a localized level.		Under Alternative D, mitigation measures to protect habitats for sensitive species could affect the travel and transportation program through seasonal or permanent closures and restrictions on the placement of roads. Seasonal closures would have short-term effects on transportation actions in sensitive areas. Year-round restrictions, including NSO and CSU stipulations (for SSS wildlife) would affect the locations of transportation actions over the long term. Sensitive wildlife habitats such as leks would be subject to restrictions, thereby limiting the placement of transportation systems and access. The overall effect due to the reduced travel and transportation opportunities is moderate adverse.	
<b>Vegetation</b>							
<b>Grassland and Shrubland Communities</b>							
Current management actions include surface disturbance and occupancy prohibitions or restrictions within a 0.25-mile radius of the center of Greater Sage-Grouse leks, and within an additional 1.75-mile radius from March 1 to June 15 unless the authorized officer waives the prohibition. Prohibitions of surface disturbance is a direct, major benefit by denying plant removal and soil disturbance. Without oversight on a programmatic level or allowing waivers without specified criteria, though, it is likely that the beneficial effects would be reduced by half, making the major beneficial effects only moderate.		Alternative B management actions would prohibit renewable-energy projects in Greater Sage-Grouse nesting, brood-rearing, and winter concentration areas. Actions would prohibit or avoid surface-disturbing activities within 4.0 miles of the perimeter of occupied or undetermined Greater Sage-Grouse leks year-round, would prohibit surface-disturbing activities within four miles of occupied leks from March 1 to June 30, and prohibit surface-disturbing activities within wintering habitat from November 15 to March 14, which in total would affect approximately 467,897 acres. Other areas include identified nesting and early brood-rearing habitat outside the four-mile lek buffer, which would affect approximately 135,194 acres, and Greater Sage-Grouse winter habitat, including winter concentration areas, which would affect approximately 226,595 acres. The larger the area protected from surface disturbances the greater the benefit to vegetative communities.		Alternative C management actions would allow renewable-energy projects in Greater Sage-Grouse nesting, brood-rearing, and winter concentration areas. Management would prohibit or avoid surface-disturbing activities within a specified distance from designated leks, identified nesting and early brood-rearing habitat, and Greater Sage-Grouse winter habitat during specific periods, some areas would prohibit surface-disturbing activities yearlong. Only those areas protected from surface disturbance year-round would benefit the vegetation. Those areas, under Alternative C still conserve greater than ten percent of the grassland and shrubland communities in the planning area. All other management actions would be adverse since surface disturbance could occur. There would be no limit on the amount of sagebrush removal, so decision would be based on multiple resources rather than only on Greater Sage-Grouse habitat. Allowing surface disturbance has an adverse effect on grassland and shrubland communities.		Alternative D management actions would prohibit renewable-energy projects in Greater Sage-Grouse Priority Habitat Area. Actions also would prohibit or avoid surface-disturbing activities during specific periods within a specified distance from designated leks, identified nesting and early brood-rearing habitat, and Greater Sage-Grouse winter habitat. There would be no more than 5 percent removal of sagebrush habitat in Priority Habitat Area; outside these areas there would be no limitation on the amount of sagebrush removal. Decisions would also be based on management of occupied Greater Sage-Grouse habitats and Priority Habitat Area of Greater Sage-Grouse. In addition, lands that meet identified criteria would be prioritized for restoration to Greater Sage-Grouse habitat. These would have beneficial effects on vegetative communities.	



Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
(see above)	<p>Alternative B management actions that prohibit or avoid surface-disturbing activities would have a direct, beneficial effect on associated grassland and shrubland communities over the long term.</p> <p>Alternative B management would avoid surface-disturbing and disruptive activities and occupancy in Greater Sage-Grouse winter habitat, including winter concentration areas, from November 15 to March 14 and allow no more than three percent removal of sagebrush habitats per 640-acre section. The action to allow no more than three percent removal of sagebrush habitats per 640-acre section might or might not benefit grassland and shrubland communities, depending on the ecological condition of the communities and other resource objectives. Alternative B management actions would also restore, where appropriate, all disturbed grassland and shrublands to Greater Sage-Grouse habitats. This would increase the health of these systems.</p>	(see above)	(see above)
<b>Riparian/Wetland Resources</b>			
<p>Providing and managing habitat for Threatened, Endangered, and special status wildlife species on all public lands in compliance with the ESA and BLM policy associated with management of habitat would have a direct, beneficial effect on riparian and wetland systems over the long term.</p> <p>Prohibiting surface disturbance and occupancy with no exceptions would affect approximately 3,594 acres, and prohibiting surface disturbance except when the authorized officer waives the prohibition affects approximately 203,724 acres. Prohibitions leave the soil surface and plant communities intact. Waivers allowing surface-disturbing activities would mechanically damage soils and plants which could promote soil erosion, impair water quality, promote establishment of invasive species, loss of habitat and would have a direct, adverse effect on riparian and wetland systems in those areas, and the effects would continue for the duration of the project or permit (usually 10 or more years).</p>	<p>Alternative B management actions would prohibit renewable-energy projects in Greater Sage-Grouse nesting, brood-rearing, and winter concentration areas. Nesting and brood-rearing activities are often close to riparian and wetland systems. The larger the area protected from surface disturbances the greater the benefit to these vegetative communities. This management would have a direct, beneficial effect on any associated riparian and wetland systems over the long term.</p> <p>The management action to allow no more than three percent removal of sagebrush habitats per 640-acre section might or might not benefit grassland and shrubland communities and any associated riparian and wetland systems in the affected areas, depending on the ecological condition of the systems and other resource objectives. Greater Sage-Grouse habitat restoration actions, though, would promote increased health of both grassland and shrubland and riparian/wetland systems.</p>	<p>Alternative C impacts to riparian/wetland resources from special status wildlife species management would be the same minor beneficial effects as described under Alternative A.</p>	<p>Alternative D management actions would prohibit renewable-energy projects in Greater Sage-Grouse Priority Habitat Area. Actions also would prohibit or avoid surface-disturbing activities during specific periods within a specified distance from designated leks, identified nesting and early brood-rearing habitat, and Greater Sage-Grouse winter habitat. Inside current Priority Habitat Area are limitations on the amount of sagebrush removal and the number of disturbances allowed.</p>

Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
<b>Visual Resources</b>			
Management related to biological resources that may affect visual resources were generally not previously addressed. There would be little to no effect from fish, wildlife and all SSS resources in Alternative A.	Any action that increases the visibility of human structures, including fencing designs for the protection of Greater Sage-Grouse, would be detrimental to visual resources. Considering the VRM classes designated under this alternative, the small size of the fence markers, and the relative size of Greater Sage-Grouse habitat where these measures would be applied, on a planning area basis the effect should be minor. Prohibitions on development related to protection of sensitive species (buffering leks, riparian areas, etc.) may also increase protection of visual resources in the PRB and along creeks and rivers. However, protection of sensitive species would likely take priority over protection of visual resources in site-specific decisions. The overall impact is expected to be minor and long-term.	Under Alternative C, there would be no special provisions to increase visibility of fencing, thus there would be no effect on visual resources from this alternative.	Requiring new low-voltage utility lines to be buried would benefit visual resources because the disturbance time associated with burying lines is shorter and the disturbance less noticeable than traditional aboveground utility lines. Modifying fences to protect Greater Sage-Grouse could increase the visibility of fences and could adversely affect visual resources. Considering the VRM classifications designated under this alternative, the small size of the fence markers, and the relative size of Greater Sage-Grouse habitat where these measures would be applied, on a planning area basis the adverse effect should be negligible.
<b>Watershed Resources</b>			
<p>There are a number of management actions under Alternative A that prohibit surface-disturbing activities for the protection of wildlife and special status wildlife species; these actions would benefit water resources locally where surface disturbance is prevented. Typically, these management actions provide the opportunity for waivers without defined criteria, which reduce the benefits to water resources because the waivers have been inconsistently applied. In practice, prohibitions on surface-disturbing activities to protect wildlife rarely prevent surface-disturbing activities; rather, they cause the activities to be relocated outside the protected area, which would not benefit water resources. Timing limitations on surface-disturbing activities for various wildlife species also do not benefit water resources because they simply delay surface-disturbing activities.</p> <p>The management action affecting the largest acreage is the permanent buffer around active raptor nests (10,686 acres, or 53.8% of BLM surface within 500 feet of surface water). However, despite this large acreage, the benefit to water resources would be minor because of the inconsistent application of waivers.</p>	<p>There are a number of management actions under Alternative B that prohibit surface-disturbing activities, without exception provisions, for the protection of wildlife and special status wildlife species; these actions would benefit water resources locally where soil disturbances are prevented. Timing limitations for surface-disturbing activities for various wildlife species also would not benefit water resources because those restrictions delay, but do not prevent, surface-disturbing activities.</p> <p>Two of the largest surface disturbance prohibitions in terms of acreage include permanent buffers around active raptor nests (6,415 acres, or 32%, of BLM surface within 500 feet of surface water) and in reptile and amphibian habitat (13,909 acres, or 70%, of BLM surface within 500 feet of surface water).</p>	Most management actions under Alternative C would allow surface-disturbing activities with consideration of wildlife and special status wildlife species; these actions would provide little direct benefit to water resources. Actions that would still provide a measurable benefit include a restriction on surface-disturbing activities near active Greater Sage-Grouse leks (85 acres, or 0.4%, of BLM surface within 500 feet of surface water) and a disturbance-free buffer zone for bald eagle nest sites and winter roosts (150 acres, or 0.8%, of BLM surface within 500 feet of surface water). Due to the limited area protected by these management actions and allowance for surface disturbance under other management actions, the overall benefit to water resources would be negligible.	There are a number of management actions under Alternative D that allow surface-disturbing activities where wildlife and special status wildlife species could be adequately protected. These actions would benefit water resources locally where surface disturbances are prevented by reducing erosion, sediment transport, and sedimentation. Any efforts that would minimize these processes would beneficially affect water resources. However, because most management actions regulate, but do not prohibit surface disturbance, and the small amount of land in close proximity to water resources, the benefit to water resources would be minor.

Alternative A		Alternative B		Alternative C		Alternative D/Proposed Plan	
<b>Wilderness Characteristics</b>							
The impacts from fish, wildlife and SSS management actions to the lands with wilderness characteristics resource do not directly affect the naturalness or outstanding opportunities and the impacts do not substantially vary across alternatives.							
<b>Wildland Fire and Fuels</b>							
For Greater Sage-Grouse Priority Habitat Core Population Area and Connectivity Corridor, suppression response would follow current BLM management guidelines and fire management BMPs to protect the habitat. Suppression actions could include all tactics necessary to maximize protection of sagebrush communities and suitable habitat. This protection strategy simplifies emergency decisions but may increase costs.							
Fuels treatments would follow current BLM management guidelines and fuels management BMPs to protect or enhance the habitat. The emphasis on sagebrush preservation would reduce opportunities to implement prescribed fire or other vegetative treatments to achieve other resource objectives. However in unoccupied habitat, there could be site-specific opportunities to improve or restore fire regimes and associated fire behavior and severity. For example, reducing conifer encroachment in Greater Sage-Grouse habitat would remove uncharacteristic conditions and restore suitable habitat.							
Because unplanned ignitions are managed in this alternative for suppression objectives only, specific surface disturbing and timing restrictions in this alternative have negligible additional effects on fire management.	Within occupied Greater Sage-Grouse habitat surface disturbance restrictions would affect about three percent of BLM-administered lands. Seasonal restrictions would affect about 60 percent of BLM-administered lands until mid-June, which would add complexity and cost to suppression operations. Because sagebrush preservation would be a priority, unplanned ignitions would likely not be managed for resource benefit in these areas.	Because unplanned ignitions are managed in this alternative for suppression objectives only, specific surface disturbing and timing restrictions in this alternative have negligible additional effects on fire management.	Within Greater Sage-Grouse Priority Habitat, surface disturbance restrictions would affect about 20 percent of BLM-administered lands from March until late June. Because sagebrush protection would be a priority, these restrictions would add cost and complexity to suppression operations. Unplanned ignitions would likely not be managed for resource benefit in these Core Population Areas and Connectivity Corridors. In occupied habitat outside Priority Habitat, about 46 percent of BLM-administered lands would be affected by these same seasonal restrictions, adding cost and complexity to suppression operations. Although natural ignitions would be rare before June 15, they are still possible in late June when weather and fuel conditions might allow unplanned ignitions to be managed for resource benefit. Restrictions outside of Greater Sage-Grouse Priority Habitat would reduce large portions of the landscape that might otherwise be available to manage unplanned ignitions for resource benefit. This could have major adverse effects to wildfire management.				



Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
Fish and Wildlife Resources			
Fish			
Managing vegetation resources to comply with the ESA and BLM policy associated with management of habitat for SSS would have beneficial effects to fish. Surface disturbance restrictions for Greater Sage-Grouse breeding grounds and raptors nests would have beneficial effects on fish. Protections afforded Threatened, Endangered, and sensitive species, such as oil and gas disturbance-free zones around bald eagle nests and roosts, would prevent surface disturbance and have beneficial effects on fish. Overall, these protection zones for special status wildlife habitats encompass greater than ten percent of the fish-bearing streams in the planning area. Management actions for special status wildlife species under Alternative A would have major beneficial effects on fish resources.	Under Alternative B, protections for identified elk, bald eagles, big game ranges, raptor nests, Greater Sage-Grouse, special status reptiles and amphibians and T&E species would have a beneficial effect on fish. Establishing a year-round disturbance-free zone of at least 0.5 mile for Clear Creek, Crazy Woman Creek, Piney Creek, Powder River, and Tongue River would reduce sedimentation and have a beneficial effect on fish. Overall, Alternative B special status wildlife management actions would encompass greater than ten percent of the fish-bearing drainages in the planning area and would have a major beneficial effect on fish.	Under Alternative C, protections for Greater Sage-Grouse and T&E species would have a beneficial effect on fish. Protections for bald eagle and other raptor nests have the greatest potential for reducing impacts to fish-bearing waters. Allowing surface-disturbing and disruptive activities in habitats for special status amphibian and reptile species, in identified 100-year floodplains, and within 500 feet of perennial waters would have an adverse effect on fish. Alternative C, protections for identified SSS raptor nests, Greater Sage-Grouse and the other special status wildlife would be limited, surface disturbing and disruptive activities would be generally allowed. However, management must comply with ESA and BLM's sensitive species policy which would supply some benefit to specials status wildlife species and indirectly fish. Overall, the protective buffers that exist in this alternative would conserve habitats in greater than ten percent of the fish-bearing drainages in the planning area; therefore, management actions for special status wildlife species would have major beneficial effects on fish resources.	Under Alternative D, protections for raptor nests, Greater Sage-Grouse and T&E species would have a beneficial effect on fish. Establishing a year-round disturbance-free zone of at least 0.5 mile for riparian corridors (Clear Creek, Crazy Woman Creek, Piney Creek, Powder River, and Tongue River) consistently used by bald eagles would have a beneficial effect on fish. Protections for elk would have a minor beneficial effect on fish resources in the Upper Fork Powder River. Prohibiting surface-disturbing and disruptive activities for the protection of special status amphibian and reptile species and their habitats in identified 100-year floodplains and within 500 feet of perennial waters would have a beneficial effect on fish. Protections for bald eagle and other raptor nests would have the greatest potential for reducing impacts to fish-bearing waters. Overall, protections for special status wildlife species would conserve vegetation within greater than ten percent of the fish-bearing drainages in the planning area. Management actions for special status wildlife species would have major beneficial effects on fish resources.

Alternative A	Alternative B	Alternative C	Alternative D/Proposed Plan
<b>Wildlife</b>			
<p>Under Alternative A, special status wildlife species habitat management complies with ESA and BLM policy. Greater Sage-Grouse management includes requiring anti-perching devices on new powerlines within 0.5 mile of occupied Greater Sage-Grouse leks and nesting habitat; surface disturbing and occupancy restrictions within 0.25 mile of Greater Sage-Grouse leks and a 1.75 mile TLS outside of that. Bald eagle management allows for a 0.5 mile year-round disturbance-free buffer zone around nest sites and a TLS up to a mile from the nest. Raptor nest protection involves a biologic buffer disturbance or occupancy zone around active nests. Under Alternative A, though, these prohibitions and/or restrictions can be waived by the authorizing officer without specifying criteria that must be met for the waiver. Special status wildlife prohibitions/restrictions would also conserve greater than ten percent of habitats important to all general wildlife, except big game and trophy game (five to ten percent), therefore, special status wildlife species management actions under Alternative A would have major beneficial impacts on wildlife resources. Without specified criteria for waiving these restrictions, though, it is likely that beneficial effects would be reduced by half, reducing the major beneficial effects listed above to minor.</p>	<p>The types of effects from Alternative B would be the same beneficial effects as described in the Impacts Common to All Alternatives section for special status wildlife species (habitat improvement and conservation). Under Alternative B, wildlife habitats would be enhanced; wildlife migration corridors would be maintained; fences would be altered to reduce hazards to Greater Sage-Grouse; anti-perching devices would be required on all overhead powerlines; Greater Sage-Grouse habitat restoration would occur throughout the planning area; and surface occupancy prohibitions and surface-disturbing restrictions would be applied within habitat for numerous special status wildlife species. These improvements and restrictions would also occur in greater than ten percent of habitats important to all wildlife species; therefore, special status wildlife species management actions under Alternative B will have major beneficial effects on wildlife resources.</p>	<p>Under Alternative C, prohibitions on surface-disturbing activities for the protection of special status plant, fish, and wildlife species would reduce adverse impacts to all wildlife. This management would have a major beneficial impact to wildlife habitats where these resources overlap. Avoidance areas for other resources would, by nature, be NSO areas for important wildlife habitats. Prohibitions for special status fish species would also conserve one to five percent of habitats important to big game, trophy game and migratory game birds (less than one percent for all other wildlife species); therefore, management action for special status fish species would have minor beneficial effects on wildlife resources. Surface-disturbing prohibitions for special status plant species would also conserve greater than ten percent of habitats important to big game and trophy game (one percent or less for all other wildlife species) and, for special status wildlife species, greater than ten percent of habitats important to all wildlife species, except trophy game (five to ten percent) and non-game migratory birds (one to five percent); therefore, management actions for both special status plant and wildlife species would have major beneficial effects on wildlife resources.</p>	<p>Alternative D impacts on wildlife from management of special status wildlife species would be similar to those under Alternative B, except that Alternative D could allow disturbance activities by exception in black-tailed prairie dog colonies (6,156 acres) and special status amphibian, reptile, and bat species habitat (176,636 acres). For the impacts to be the same as those under Alternative B, exceptions would have to be evaluated for the presence of special status wildlife species or habitat suitability and would not be granted where there would be conflicts. With habitat removal allowances under Alternative D, less acres of suitable Greater Sage-Grouse habitat would be protected than under Alternative B. Alternative D does provide surface occupancy restrictions for Greater Sage-Grouse leks in and outside of Core Population Areas and Connectivity Corridors (0.6 mile and 0.25 mile, respectively). In addition, Greater Greater Sage-Grouse habitats would be restored throughout the planning area in areas meeting specified criteria. The prohibitions/restrictions would encompass greater than ten percent of habitats important to all wildlife species, except big game and trophy game (less than one percent). Therefore, management actions for special status wildlife species would have major beneficial effects on wildlife resources.</p>

This table is a 2015 Wyoming ARMPA Summary of Environmental Consequences that were incorporated by reference into the 2019 planning effort and considered throughout the process. **Table 4-2c**, presents a comparison summary of impacts from management actions proposed for the alternatives considered in the 2015 Bighorn Basin RMP Revision.

**Table 4-2c**  
**2015 Bighorn Basin RMP Revision Summary of Environmental Consequences**

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Cultural Resources</b>					
Under Alternative A, the BLM pursues leasable mineral and mineral material restrictions to protect cultural resource sites on a case-by-case basis. The allowance for more case-by-case management under Alternative A, while providing discretionary protection, increases the chance of adverse impacts to cultural resources. Development of locatable minerals may result in adverse impacts to cultural resources if activities degrade or destroy resources.	As described for Alternative A, management actions related to other resources have the potential to result in both adverse and beneficial impacts to cultural resources. Measures that protect other resources and that may, in turn, protect cultural resources are similar between alternatives A and B, with slightly more protection under Alternative B.	Because Alternative C places more emphasis on resource use, there are fewer restrictions on surface-disturbing activities for the protection of other resources (such as soil, water, biological resources, and special designations), so that although there is some additional protection for cultural resources, it is less than under the other alternatives. However, the potential for more surface-disturbing activities under Alternative C also may result in the identification of more cultural resources and their subsequent protection than under any of the other alternatives. Under Alternative C, management for resources (e.g., soils and special status species) is less restrictive than under the other alternatives, which may result in the greatest impact on cultural resources by increasing resource use and the potential for degradation of cultural resources.	Restrictions on surface-disturbing activities for the protection of other resources (such as soil, water, biological resources, and special designations) would provide additional protection for cultural resources on a level overall greater than under Alternative C, and similar to that under alternatives A and B. Restrictions on mineral leasing and mineral materials disposal are more stringent than under Alternative C, but less restrictive than Alternative B in relation to determining the importance of setting and the use of BMPs to avoid, minimize and/or compensate adverse impacts. As with the other alternatives, withdrawals would benefit cultural resources by prohibiting mineral activities that may degrade or destroy resources. Under Alternative D, withdrawals would be less than under alternatives A and B, but greater than Alternative C.	As described for Alternative A, management actions for resources have the potential to result in both adverse and beneficial impacts to cultural resources. Measures that protect other resources and that may, in turn, protect cultural resources are similar under all alternatives, with slightly more protection under Alternative E than under the other alternatives. In particular, management actions restricting resource use in the Greater Sage-Grouse Key Habitat Areas ACEC would provide additional protection for cultural resources compared to the other alternatives.	Management actions for managing other resources have the potential to result in both adverse and beneficial impacts to cultural resources. Measures that protect other resources and that may, in turn, protect cultural resources are similar under all alternatives; effects from these protections under Alternative F would be similar to Alternative D.
<b>Fire and Fuels Management</b>					
Suppressing fires that threaten Greater Sage-Grouse Sage-Grouse habitats and crucial winter wildlife habitat within Wyoming big sagebrush communities and conducting fire management activities to minimize overall wildfire size and frequency in sagebrush plant communities where Greater Sage-Grouse Sage-Grouse habitat objectives are at risk may create adverse impacts to fire ecology by affecting the natural fire regime in the ecosystem. Actions that suppress the natural role of fire in the ecosystem may result in fuels accumulation and eventually lead to larger and more intense fires. However, suppressing fires in these areas may also decrease the incidence of damaging wildfires to sagebrush habitat and greater Sage-Grouse and enhance the ability to manage fires in these areas. In some scenarios, a proactive fire management approach may be advisable (e.g., establishing fuels treatments at strategic locations to minimize the size of wildfire and limit further loss of Greater Sage-Grouse Sage-Grouse habitat) and could result in long-term benefits to fire and fuels management by reducing the incidence and spread of wildfire in Greater Sage-Grouse Sage-Grouse habitat.					
See <i>Impacts Common To All Alternatives</i>	See <i>Impacts Common To All Alternatives</i>	See <i>Impacts Common To All Alternatives</i>	See <i>Impacts Common To All Alternatives</i>	Adverse impacts to fire and fuels management from surface disturbance would be the same as alternatives A and B, but to a	Management practices relating to surface disturbance are the same as Alternative D, except within areas of the proposed Greater

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	(see above)	<p>lesser degree. Under Alternative E, the BLM manages anthropogenic disturbances (e.g., roads, oil and gas wells, and pipelines) in Greater Sage-Grouse Key Habitat Areas to not exceed one disturbance per 640 acres and cover less than 3 percent of the total Greater Sage-Grouse habitat, compared to a larger allowable disturbance of 5 percent in these areas under Alternative B.</p> <p>Under Alternative E, the BLM designs and implements fuels treatments in the Greater Sage-Grouse Key Habitat Areas ACEC (1,232,583 acres) with an emphasis on protecting existing sagebrush ecosystems and the benefits of fuel breaks would be evaluated against the additional loss of sagebrush cover. In Greater Sage-Grouse Key Habitat Areas, sagebrush canopy cover may not be reduced to less than 15 percent unless a fuels management objective requires an additional reduction in sagebrush cover to meet strategic protection of priority Greater Sage-Grouse habitat and conserve habitat quality for the species. Additional limits on fuels management (based on habitat type and invasive species composition) also apply in the Greater Sage-Grouse Key Habitat Areas ACEC under Alternative E, but with exceptions to allow fuels treatments that would limit wildfire risk. In areas outside of the Greater Sage-Grouse Key</p>	<p>Sage-Grouse PHMAs ACEC (1,116,698 acres). In this ACEC, the BLM manages the density of disturbance to not exceed an average of one disruptive activity location per 640 acres and cover less than 3 percent of the total Greater Sage-Grouse habitat, compared to a larger allowable disturbance of 5 percent in under Alternative D.</p> <p>Special designations under Alternative F would result in similar adverse impacts to fire and fuels management as those under alternatives A and D, but to a greater degree due to additional protections for other resource objectives within the Greater Sage-Grouse PHMAs ACEC. Similar to Alternative E, Alternative F designs and implements fuels treatments in the Greater Sage-Grouse PHMAs ACEC (1,116,698 acres) with an emphasis on protecting existing sagebrush ecosystems and the benefits of fuel breaks would be evaluated against the additional loss of sagebrush cover. In Greater Sage-Grouse PHMAs, sagebrush canopy cover may not be reduced to less than 15 percent unless a fuels management objective requires additional reduction in sagebrush cover to meet strategic protection of priority Greater Sage-Grouse habitat and conserve habitat quality for the species. Additional limits on fuels management would also apply in the Greater Sage-Grouse PHMAs ACEC under Alternative F,</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	(see above)	<p>Habitat Areas ACEC, fire suppression and fuels management are the same as Alternative B, and impacts to fire and fuels management would be the same as described under that alternative.</p> <p>As under Alternative B, closure of the Greater Sage-Grouse Key Habitat Areas to livestock grazing may contribute to a buildup of fine fuels, which would facilitate the spread of larger wildland fire in the short term; however, the return to a more natural fire regime would reduce the potential for larger catastrophic wildfires in the long term.</p> <p>Under Alternative E, response to wildland fires, mechanical fuels treatment, and use of wildland fires to achieve management objectives are the same as Alternative B for areas outside of the Greater Sage-Grouse Key Habitat Areas ACEC, and impacts to fire and fuels management would be the same as Alternative B. Inside the Greater Sage-Grouse Key Habitat Areas ACEC, Alternative E focuses fuels treatments on interfaces with human habitation or significant existing disturbances, designs fuels management projects to reduce wildland fires, and applies seasonal restrictions for implementing fuels management treatments according to the type of seasonal habitats present. Compared to the other</p>	<p>including seasonal restrictions for implementing fuels management treatments.</p> <p>Overall, impacts from livestock grazing management on wildfires would be similar to under Alternative D, and reduced compared to impacts under alternatives B and E that close greater-sage grouse Key Habitat Areas to livestock grazing and may increase the potential for wildfires from fine fuel buildups. Alternative F focuses on implementing grazing management to strategically reduce fine fuels in Greater Sage-Grouse PHMAs (35 percent of BLM-administered surface lands), and could reduce the potential for wildfires in the long term in these areas.</p> <p>Under Alternative F, the response to wildland fire mechanical fuels treatment and use of wildland fires to achieve management objectives are the same as Alternative D for areas outside of the Greater Sage-Grouse PHMAs ACEC, and impacts to fire and fuels management would be the same as Alternative D. Inside the Greater Sage-Grouse PHMAs ACEC, Alternative F designs fuels management projects to reduce wildland fires and apply seasonal restrictions for implementing fuels management treatments according to the type of seasonal habitats present. Compared to the other alternatives, management methods applied</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	(see above)	alternatives, management methods applied under Alternative E for the protection of Greater Sage-Grouse may result in the greatest short-term adverse impact to fire and fuels management by limiting the types of treatments used, but would decrease the risk of large, catastrophic fires in the long term through a return to natural fire regimes.	under Alternative F for the protection of Greater Sage-Grouse may result in more adverse impacts to fire and fuels management when compared to alternatives A, C, and D by limiting the types of treatments used.
Fish and Wildlife Resources					
Fish					
Under all alternatives, abnormally incised drainages in lost riparian functioning systems would be restored to raise water tables and increase water storage within Greater Sage-Grouse habitat. In addition, riparian and wetlands areas within Greater Sage-Grouse habitats would be restored. These management actions would benefit fish habitat by decreasing runoff, erosion, and sedimentation and by increasing water quantity and quality.					
See Impacts Common To All Alternatives	See Impacts Common To All Alternatives	See Impacts Common To All Alternatives	See Impacts Common To All Alternatives	Alternative E would also manage the proposed Greater Sage-Grouse Key Habitat Areas ACEC to restore sagebrush steppe habitat using native plants, which may result in indirect beneficial impacts for adjacent fish habitats by reducing erosion in the watershed.	Alternative F would manage the proposed Greater Sage-Grouse PHMAs ACEC to restore sagebrush steppe habitat to predisturbance conditions using native plants. Restoration of these habitats may result in indirect beneficial impacts for adjacent fish habitats by reducing erosion in the watershed.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Wildlife</b>					
Although wildlife habitat would be improved with this management action, because the PFC assessment methodology does not incorporate the habitat requirements of wildlife, additional management would be necessary to ensure that habitats provide conditions suitable to meet the life history requirements of various wildlife species. Alternative A prohibits surface-disturbing activities within 500 feet of water and riparian/wetland areas, which would benefit wildlife by conserving vegetation and valuable habitat for multiple species.	Minerals development would be the greatest contributor to habitat loss and fragmentation. Alternative B would result in less adverse impacts to wildlife from minerals development, relative to Alternative A. Crucial winter range for elk and bighorn sheep—to prevent forage competition and possible displacement (Scolvin et al. 1968; Coe et al. 2004; Stewart et al. 2002)—and Greater Sage-Grouse Key Habitat Areas are closed to livestock grazing and pronghorn crucial winter range is closed to new domestic sheep grazing. The BLM apportions additional sustained yield forage for wildlife, which would have greater beneficial impacts to wildlife, compared to Alternative A, by reducing the potential for competition with livestock (Vavra 1992 and Scolvin et al. 1968).	Under Alternative C, the BLM manages toward achieving the Wyoming Standards for Healthy Rangelands (Appendix N) and performs habitat enhancement vegetation treatments in sagebrush communities as opportunities and funding allow, consistent with Wyoming Governor's EO 2011-5. The amount of invasive species spread, where invasive seeds or plants are present, would be proportional with the total amount of surface disturbance (Appendix T), and limited by vegetation treatments to remove or control invasive species spread on 4,000 acres. Long-term benefits to wildlife would be realized only if vegetation management practices consider wildlife habitat needs along with other resource objectives.	Similar to Alternative C, the BLM performs habitat enhancement vegetation treatments in sagebrush communities as opportunities and funding allow, consistent with Wyoming Governor's EO 2011-5, uses produced water to develop and enhance wildlife habitat, and exempts Oil and Gas Management Areas from discretionary wildlife seasonal stipulations. Overall, proactive wildlife management actions under Alternative D would result in greater beneficial impacts to wildlife than under alternatives A and C, but less than under Alternative B.	The closure of the proposed Greater Sage-Grouse Key Habitat Areas ACEC to mineral materials disposal, renewable energy development, ROW development, and withdrawal from locatable mineral entry would result in the greatest beneficial impacts to wildlife compared to the other alternatives. Other impacts to wildlife from special designations outside of the Greater Sage-Grouse Key Habitat Areas ACEC would be same as Alternative B. Impacts to wildlife resulting from management actions for resource protection outside the Greater Sage-Grouse Key Habitat Areas ACEC would be same as Alternative B.	Impacts to wildlife from management actions to protect resources would be generally the same as Alternative D; however, the BLM would apply specific management actions for habitat restoration, invasive species management, and fire and fuels management that prioritize the protection of Greater Sage-Grouse populations and habitat in the proposed Greater Sage-Grouse PHMAs ACEC. Therefore, management actions within these areas are likely to be more beneficial for Greater Sage-Grouse and other sagebrush obligate species than under Alternative D.
<b>Invasive Species and Pest Management</b>					
	Under Alternative B, the BLM closes large areas—including greater Sage-Grouse Key Habitat Areas—to livestock grazing, allowing existing uses pending site-specific analysis. Closing areas to livestock grazing would limit the transport of invasive species and reduce the overall consumption of native vegetation, improving plant vigor, and resulting in more effective native plant competition over possible invasive species introduction. However, prohibiting livestock grazing may preclude its use as a tool to control invasive species in certain areas (Stohlgren et al. 1999, DiTomaso 2000). The	Due to the larger extent of vegetation management, Alternative C may result in more beneficial impacts to control the spread of invasive species than alternatives A, B, and D.	Vegetation management under Alternative D would create beneficial impacts similar to Alternative B, but to a lesser degree and extent. Based on the amount of projected surface disturbance, Alternative D would actively manage a similar amount of vegetation as Alternative A. However, Alternative D would maintain contiguous blocks of native plant communities and manage some areas under for a higher plant community state or phase (based on state and transition models in ESDs) where site-specific management objectives determine that a higher plant community state or phase is	Under Alternative E, fire and fuels management practices and impacts are the same as Alternative B with the exception of lands within the Greater Sage-Grouse Key Habitat Areas ACEC, which would be managed with an emphasis on protecting existing sagebrush ecosystems. The design and implementation of fire management within the Greater Sage-Grouse Key Habitat Areas ACEC would be conducted with an emphasis on protecting existing sagebrush ecosystems and would promote the persistence of native plant communities. In general, the additional fuel management	Under Alternative F, fire and fuel management practices would result in the same impacts to invasive species and pest management as Alternative D, except in the Greater Sage-Grouse PHMAs ACEC. In general, fire management within the Greater Sage-Grouse PHMAs ACEC would be conducted with an emphasis on protecting existing sagebrush ecosystems and would promote the persistence of native plant communities. Like Alternative E, the additional fuel management restrictions within areas of the Greater Sage-Grouse PHMAs ACEC of Alternative F would



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	opportunity for risk of introduction of noxious weed seeds by wildlife or birds would still remain under this alternative.	(see above)	<p>desirable. As a result, vegetation management under Alternative D would result in beneficial impacts similar to Alternative B but to a greater extent. Avoiding aerial applications of herbicides within ½ mile of BLM special status plant species would result in similar adverse impacts to invasive species management as those under Alternative C, but to a lesser degree.</p> <p>Proactive management actions to control the spread of invasive species under Alternative D would create impacts similar to Alternative A.</p>	<p>restrictions of areas within the Greater Sage-Grouse Key Habitat Areas ACEC would encourage the long- term establishment of native plant communities. Therefore, Alternative E would result in more long- term beneficial impacts to invasive species management by restoring native vegetation than the other alternatives.</p> <p>With the exception of lands within the Greater Sage-Grouse Key Habitat Areas ACEC, vegetation management under Alternative E would be the same as Alternative B. Vegetation management in the Greater Sage-Grouse Key Habitat Areas ACEC will emphasize the restoration and preservation of native sagebrush ecosystems to create a landscape pattern which most benefits Greater Sage-Grouse. These actions would require the use of native seeds for restoration based on availability, adaptation, and probability of success. Management actions would also be designed to ensure long-term persistence of restorations. The additional vegetation and habitat restoration management strategies of Alternative E would result in the greatest beneficial impacts by promoting growth and establishment of native plant communities, particularly native sagebrush communities, within the largest acreage of all the alternatives.</p>	<p>encourage the long-term establishment of native plant communities.</p> <p>Vegetation management under Alternative F would create the same beneficial impacts as Alternative D, but to a greater degree and extent due to additional vegetation management and habitat restoration actions within the Greater Sage-Grouse PHMAs ACEC that would focus on creating landscape patterns that most benefit Greater Sage-Grouse. Similar to Alternative E, these actions would require the use of native seeds for restoration activities. Methods for prioritizing and restoring sagebrush steppe invaded by nonnative plants would be developed and implemented under Alternative F while also managing towards achieving a higher or lower plant community state or phase (based on state and transition models in ESDs). However, depending on the condition plant community, achievement of higher plant community or phase may be impossible or impractical. The additional vegetation and habitat restoration management strategies of Alternative F would result in the greatest beneficial impacts by promoting the growth and establishment of native plant communities within the largest acreage of all the alternatives.</p>



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Lands and Realty</b>					
Reducing the resource values of BLM-administered land could increase the potential for disposal of additional BLM-administered land and result in long-term impacts to the lands and realty program. Lands identified for retention identify the BLM-administered land base to be kept in federal ownership; however, these lands could still be disposed of on a case-by-case basis. Lands kept in retention result in long-term impacts to the lands and realty program because land tenure adjustments and land use authorizations could occur on these lands, consistent with other resource objectives.	The impacts of retention and disposal would be less than those for Alternative A, because Alternative B identifies more areas for retention and a fewer areas for disposal. Impacts from acquisitions would be similar to Alternative A, although to a slightly greater extent because Alternative B considers more areas for acquisition.	Impacts from retention and disposal of lands would be similar to those for Alternative A; however, Alternative C identifies slightly less acres for retention and slightly more acres for disposal. As a result, Alternative C identifies more area for disposal and less area for retention than all other alternatives. The larger acreages of BLM-administered lands identified for disposal under Alternative C may benefit private landowners and community development more than the other alternatives.	Impacts from retention and disposal of lands would be less than Alternative A. Alternative D has more area identified for disposal than Alternative B, but less than alternatives A and C. Alternative D identifies more area for retention than alternatives A and C, but less than Alternative B.	Impacts of retention and disposal would be less than Alternative A, as Alternative E identifies the same area for disposal as Alternative B. Along with Alternative B, Alternative E identifies the least amount of acreage for standard disposal compared to alternatives A, C, D and F. The areas considered for acquisition under Alternative E are the same as Alternative B, but also include lands and interests to conserve, enhance, or restore Greater Sage-Grouse habitat in the Greater Sage-Grouse Key Habitat Areas ACEC (1,232,583 acres). In addition to the conservation easements pursued under Alternative B, Alternative E also pursues conservation easements on lands for the benefit of Greater Sage-Grouse habitat. This would result in long-term benefits to the lands and realty program by increasing the land base available for realty actions and increasing management effectiveness in these areas.	Alternative F pursues the same conservation easements associated with areas managed as VRM Class I and II as Alternative D, and impacts to the lands and realty program would be the same as Alternative D. Similar to Alternative E, Alternative F pursues conservations easements to benefit Greater Sage-Grouse habitat, and effects would be similar to those described under Alternative E.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Lands with Wilderness Characteristics</b>					
Management actions under Alternative A are projected to result in approximately 136,253 acres of short-term and 15,646 acres of long-term surface disturbance on BLM-administered land over the life of the plan. Most surface-disturbing activities are not specifically prohibited in lands with wilderness characteristics under Alternative A, and could therefore result in adverse impacts to these lands by compromising wilderness characteristics.	Under Alternative B, resources adversely affected by surface-disturbing activities or motorized vehicle use would benefit from the restriction on these activities in lands with wilderness characteristics. Resources that would benefit from management under this alternative include recreation and related opportunities and experiences derived from primitive-based settings, soil, water, wildlife and special status species, and cultural and visual resources.	Surface disturbance would result in impacts to wilderness characteristics in lands with wilderness characteristics similar to Alternative A, although to a greater extent because Alternative C involves more projected surface disturbance. Management actions under Alternative C are projected to result in approximately 80 percent more short-term (245,642 acres) and 165 percent more long-term (41,485 acres) surface disturbance on BLM-administered land than Alternative A. Adverse impacts are likely to increase with the amount of total Planning Area surface disturbance, because lands with wilderness characteristics are not managed to maintain their wilderness characteristics under Alternative C. Adverse impacts to wilderness characteristics from surface disturbance in these lands would be the greatest under Alternative C.	Under Alternative D, the BLM would not manage lands to protect wilderness characteristics outside of existing WSAs. Some wilderness characteristics may be afforded indirect protections through the application of management actions (i.e., ACECs, travel designations, VRM classifications) and allowable use decisions for other resources and resource uses (e.g., application of NSO, CSU, and TL stipulations). However, no land use planning decisions would be made specifically to protect wilderness characteristics in Alternative D.	Alternative E management to maintain wilderness characteristics in lands with wilderness characteristics is the same as Alternative B; beneficial impacts to soil, water, wildlife and special status species, and cultural and visual resources would be the same as Alternative B.	Surface disturbance under Alternative F would be similar to Alternative A and would result in adverse impacts to wilderness characteristics in lands with wilderness characteristics, although to a slightly greater extent because Alternative F involves additional projected surface disturbance. Under this alternative, management actions are projected to result in an approximately 1 percent increase in short-term and a 13 percent increase in long-term surface disturbance on BLM-administered land than Alternative A. Adverse impacts under Alternative F would be similar to Alternative D and would be likely to increase with the amount of total surface disturbance.
<b>Livestock Grazing</b>					
Wildlife management actions that avoid or prohibit surface-disturbing activities under Alternative A also restrict the location, cost, and timing of range improvement project construction and maintenance. Generally, Alternative A determines wildlife seasonal protections for surface-disturbing and disruptive activities related to the maintenance and operation of projects on a case-by-case basis. Specific restrictions to range improvements include a prohibition on new water developments for livestock in elk	Wildlife management actions under Alternative B would result in greater adverse impacts to livestock grazing than under Alternative. The closure of Greater Sage-Grouse Key Habitat Areas (1,232,583 acres) to livestock grazing would result in the loss of approximately 143,183 AUMs, or 47 percent of the total current active (use) AUMs in the Planning Area. Impacts to the construction and maintenance of range improvements from wildlife management actions would be greater under Alternative B than Alternative A. In addition to	Wildlife management actions under Alternative C are the least restrictive to livestock grazing management. Adverse impacts to livestock grazing from the elimination of approximately 143,183 AUMs within elk and bighorn sheep crucial winter range and Greater Sage-Grouse Key Habitat Areas under Alternative B would not occur under this alternative. Alternative C would result in the least adverse impacts from wildlife management, due to surface-disturbance restrictions, on the construction of range improvements.	Wildlife management actions would generally result in fewer adverse impacts to livestock grazing management under Alternative D than under alternatives A or B, and more than under Alternative C. Impacts from wildlife management actions that avoid or prohibit surface-disturbing activities and therefore restrict the location, cost, and timing of range improvement project construction and maintenance would be similar to those described under Alternative A. Mitigation requirements under Alternative D may be less	The management of resources under Alternative E is the same as Alternative B in all areas available for livestock grazing, and the type and magnitude of impacts under Alternative E would be the same as Alternative B. Management of special designations under Alternative E, except in the Greater Sage-Grouse Key Habitat Areas ACEC (1,232,583 acres), is the same as Alternative B. Because Greater Sage-Grouse Key Habitat Areas are closed under Alternative B, no additional	Alternative F applies the same wildlife and special status species management action as Alternative D, except in Greater Sage-Grouse PHMAs. Under Alternative F, grazing in lekking, nesting, brood-rearing, and winter habitats would be seasonally avoided. These restrictions on location and season of use would have adverse impacts on forage availability for livestock grazing compared to alternatives A and D, where these restrictions do not apply. Alternative F designates 1,116,698 acres as the Greater

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<p>crucial winter range (unless adverse impacts can be avoided or mitigated) and direction to retain riparian vegetation when cleaning or removing sediment from wet reservoirs where feasible. Prohibitions on new water developments would have adverse impacts to the placement of range improvements, and may result in the placement of projects in locations that are not optimal for livestock grazing management. Additional design requirements or mitigation would increase the cost of range improvement construction and maintenance. The management of special status species under Alternative A would result in adverse impacts to livestock grazing. Under Alternative A, the BLM reviews all range improvement projects for potential impacts to special status plant species and requires avoidance, minimization and/or compensation measures on a case-by-case basis. Adverse impacts to the location and cost of range improvements may result, and would be of a similar type to those identified under impacts from wildlife management.</p>	<p>management discussed under Alternative A, Alternative B expands prohibitions on livestock water developments to include Greater Sage-Grouse nesting areas and areas important for special status species, and also applies seasonal restrictions when the actions are determined to be detrimental to wildlife.</p>	<p>(see above)</p>	<p>restrictive than under Alternative A, which may result in fewer adverse impacts to the placement of new range improvements or reduced costs for range improvement construction and maintenance due to design requirements. Adverse impacts to livestock grazing management due to the management of special status species would generally be less than under Alternative B, but more than under alternatives A and C. This alternative also allows water development projects in Greater Sage-Grouse nesting habitat with 10 inches or less annual precipitation if adverse effects can be avoided or mitigated based on site-specific analysis, a less restrictive requirement for allowing water development than that under Alternative B. Alternative D would also include Greater Sage-Grouse seasonal habitat objective management that would provide for and maintain sustainable sagebrush and grass cover types. As a result, Alternative D may result in additional beneficial impacts to livestock grazing by increasing available forage in Greater Sage-Grouse breeding and brood-rearing habitats. Unlike under the other alternatives, Alternative D prioritizes allotments in PHMAs for field checks to help ensure compliance with the terms and conditions of grazing permits. While these checks could result in beneficial impacts where they identify issues with livestock grazing management that are</p>	<p>adverse impacts on livestock grazing management are anticipated from restrictions for this ACEC in Alternative E.</p>	<p>Sage-Grouse PHMAs ACEC in addition to the same ACECs designated under Alternative D. Management of and effects from ACECs to the construction of range improvements would be similar to Alternative D, but to a greater extent because of the restrictions on surface-disturbing activities in the Greater Sage-Grouse PHMAs ACEC (similar to Alternative E). Adverse impacts would be greater under Alternative F than alternatives A, C, and D, but less than alternatives E and B.</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	degrading rangeland health conditions, they could also adversely affect livestock grazing where they identify conflict with Greater Sage-Grouse that results in corrective actions that make certain areas unavailable for livestock grazing or change grazing management practices.	(see above)	(see above)
<b>Minerals</b>					
<b>Leasable Minerals Oil and Gas</b>					
Subject to valid existing rights, the BLM would prioritize leasing and authorizing development of fluid mineral resources in Greater Sage-Grouse habitat areas in the following order: 1) outside of PHMAs and GHMAs, 2) non-habitat areas inside of PHMAs and GHMAs, and 3) least suitable habitat areas inside of PHMAs and GHMAs. Where adverse effects to Greater Sage-Grouse populations or habitat are anticipated, the BLM would work with the project proponent in developing an APD to avoid, reduce and mitigate adverse impacts to the extent compatible with lessees' rights to drill and produce fluid mineral resources.					
<p>Under Alternative A, restrictions and constraints on oil and gas development would result from management actions to protect resources. The most extensive impacts to oil and gas leasing from management of resources under Alternative A would result from restrictions for Greater Sage-Grouse, raptor nesting, and big game crucial winter range.</p> <p>Under Alternative A, adverse impacts to oil and gas development would result from management of Greater Sage-Grouse Sage-Grouse leks, nesting and early brood-rearing habitat, and winter concentration areas on new and existing leases, including:</p> <ul style="list-style-type: none"><li>• CSU restrictions within ¼ mile of occupied leks</li><li>• TLS restrictions in early brood-rearing habitats within 2 miles of occupied leks (834,543 acres)</li><li>• TLS restrictions in identified nesting and brood-rearing habitat outside the 2-mile</li></ul>	<p>Under Alternative B, adverse impacts to oil and gas development would result from management of occupied Greater Sage-Grouse leks on future and existing leases including:</p> <ul style="list-style-type: none"><li>• TLS restrictions in nesting and early brood-rearing habitat and within 3 miles of occupied leks (1,526,277 acres) from February 1 to July 31</li><li>• TLS restrictions in identified nesting and brood-rearing habitat outside the 3-mile lek buffer (310,749 acres) from February 1 to July 31</li><li>• CSU restrictions for all seasonal habitats identified above to allow 1 to 15 acres of well location or 15 acres of habitat removal per 640-acre section</li></ul> <p>Also under Alternative B, adverse impacts to oil and gas development on new leases would result from:</p> <ul style="list-style-type: none"><li>• NSO restrictions in 0.6 mile of occupied Greater Sage-Grouse leks (146,324 acres)</li></ul>	<p>Under Alternative C, there would be adverse impacts to oil and gas development resulting from management of Greater Sage-Grouse leks, nesting and early brood-rearing habitat, and winter concentration areas on new and existing leases (excluding Oil and Gas Management Areas for TLS), including:</p> <ul style="list-style-type: none"><li>• CSU restrictions within ¼ mile of occupied Greater Sage-Grouse leks</li><li>• TLS restrictions in Greater Sage-Grouse nesting and early brood-rearing habitat within 2 miles of occupied leks (834,543 acres) from March 15 to July 15</li><li>• TLS restrictions in nesting and brood-rearing habitat outside the 2-mile buffer from March 15 to July 15</li><li>• TLS restrictions within Greater Sage-Grouse winter concentration areas from November 15 to March 14</li></ul> <p>These restrictions would impose moderate constraints to oil and</p>	<p>Under Alternative D, constraints on resource uses in Greater Sage-Grouse PHMAs would be more restrictive to oil and gas development than constraints outside PHMAs, and therefore would result in greater adverse impacts. Managing Greater Sage-Grouse leks, nesting and early brood-rearing habitat, and winter concentration areas inside PHMAs includes:</p> <ul style="list-style-type: none"><li>• NSO stipulation to prohibit or restrict surface-disturbing activities or surface occupancy within a 0.6-mile radius of occupied Greater Sage-Grouse leks (116,522 acres)</li><li>• TLS stipulation to restrict disruptive activity within a 0.6-mile radius of occupied Greater Sage-Grouse leks from March 15 to June 30 (116,522 acres)</li><li>• TLS to prohibit or restrict surface-disturbing and/or disruptive activities in suitable Greater Sage-Grouse nesting and early brood-rearing habitat within PHMAs, regardless of</li></ul>	<p>Impacts to oil and gas exploration and development from resource uses under Alternative E would be the similar to Alternative B, except within the Greater Sage-Grouse Key Habitat Areas ACEC (1,232,583 acres), where impacts would be greater due to additional constraints on ROW development and surface disturbance. Alternative E would manage a total of 1,610,729 acres as ROW avoidance areas and 1,322,879 acres as ROW exclusion areas, which is greater than any other alternative and would result in the most adverse impacts to oil and gas development.</p> <p>The management of the Greater Sage-Grouse Key Habitat Areas ACEC (1,232,583 acres) is the single largest contributing factor to the increase in ROW exclusion areas under Alternative E, compared to Alternative B. The size of ROW exclusion</p>	<p>Under Alternative F, lands closed to oil and gas leasing and open to oil and gas leasing subject to the terms and conditions of the standard lease form are similar to Alternative D. However, Alternative F applies an NSO stipulation within 0.6 mile of occupied Greater Sage-Grouse leks in the proposed Greater Sage-Grouse PHMAs ACEC and limits anthropogenic disturbances to, on average, no more than one per 640 acres and no greater than 3 percent loss of sagebrush habitat within this ACEC, compared to 5 percent in Alternative D. These management actions would result in greater adverse impacts to oil and gas exploration and development relative to alternatives A and D. Under Alternative F, 1,191,215 acres of federal mineral estate are open to oil and gas leasing subject to major constraints, which constitutes an increase over alternatives A, B, C, and E (25</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<p>buffer from March 15 to July 15 (CYFO seasonal restrictions are from February 1 to July 31)</p> <ul style="list-style-type: none"><li>• TLS restrictions within winter concentration areas from November 15 to March 14</li></ul> <p>These restrictions would impose moderate constraints to oil and gas development, which would result in adverse impacts. The impacts of these restrictions would vary across the Planning Area, depending on the projected development potential for oil and gas resources. For BLM-administered lands, management that constrains oil and gas development around Greater Sage-Grouse leks, in nesting and early brood-rearing habitat, and in winter concentration areas would affect approximately 337,712 acres of moderate-potential areas, 400,655 acres of low-potential areas, and 368,485 acres of very-low-potential areas. Restrictions applied in low- and very-low-potential areas may result in only limited impacts to oil and gas development. Impacts to oil and gas development from restrictions that constrain development in moderate-potential areas would be greater than restrictions that constrain development in low- and very-low-potential areas.</p>	<ul style="list-style-type: none"><li>• NSO restrictions in winter concentration areas from November 15 to March 14</li><li>• The designation of Greater Sage-Grouse Key Habitat Areas as closed to mineral leasing (1,490,758 acres)</li></ul> <p>These restrictions would result in adverse impacts by prohibiting oil and gas development or managing areas with moderate or major constraints to development. The impacts of these restrictions would vary across the Planning Area, depending on the projected development potential for oil and gas. For BLM-administered lands, management that constrains oil and gas development around Greater Sage-Grouse leks, in nesting and early brood-rearing habitat, and in winter concentration areas would affect approximately 337,751 acres of moderate-potential areas, 656,249 acres of low-potential areas, and 548,261 acres of very-low-potential areas. Restrictions applied in low- and very-low-potential areas may result in only limited impacts to oil and gas development. Impacts to oil and gas development from restrictions that constrain development in moderate-potential areas would be greater than restrictions that constrain development in low- and very-low-potential areas. Though these constraints would affect a similar area of moderate development potential to Alternative A, adverse impacts to oil and gas from management of Greater Sage-Grouse would be</p>	<p>gas development, therefore resulting in adverse impacts. The impacts of these restrictions would vary across the Planning Area, depending on the projected development potential for oil and gas. For BLM-administered lands, management that constrains oil and gas development around Greater Sage-Grouse leks and in nesting and early brood-rearing habitat and winter concentration areas would affect approximately 337,712 acres of moderate oil and gas development potential areas, 400,655 acres of low-potential areas, and 368,485 acres of very-low-potential areas. Because these restrictions are similar and would affect the same area as Alternative A, similar impacts to mineral leasing would occur.</p> <p>Limiting noise sources at the perimeter of occupied Greater Sage-Grouse leks would result in adverse impacts to oil and gas development similar to those described for Alternative B, although to a lesser extent due to the reduced time that this stipulation would apply and the exemption of Oil and Gas Management Areas from this stipulation.</p>	<p>distance from the lek from March 15 to June 30.</p> <ul style="list-style-type: none"><li>• TLS to prohibit or restrict surface-disturbing and disruptive activities in Greater Sage-Grouse winter concentration areas that support PHMA populations from December 1 to March 14</li><li>• Managing Greater Sage-Grouse leks, nesting and early brood-rearing habitat, and winter concentration areas outside PHMAs includes:</li><li>• NSO stipulation to prohibit or restrict surface-disturbing activities or surface occupancy within a ¼-mile radius of occupied Greater Sage-Grouse leks (4,273 acres)</li><li>• TLS stipulation to restrict disruptive activity within ¼ mile of occupied Greater Sage-Grouse leks from March 15 to June 30 (4,273 acres)</li><li>• TLS to prohibit or restrict surface-disturbing and/or disruptive activities in Greater Sage-Grouse nesting and early brood-rearing habitat within 2 miles of the lek or perimeter of any occupied lek from March 15 to June 30</li><li>• TLS to prohibit or restrict surface-disturbing and/or disruptive activities in Greater Sage-Grouse winter concentration areas from December 1 to March 14</li></ul> <p>These restrictions would impose moderate to major constraints to oil and gas development, resulting in adverse impacts. The impacts of these restrictions would vary</p>	<p>areas under this alternative (42 percent of the BLM-administered surface in the Planning Area) may affect the ability of project proponents to site future ROWs across BLM-administered lands for projects such as CO2 for enhanced oil recovery operations or new transmission lines outside of existing corridors. The extensive exclusion areas under Alternative E may also increase the concentration of linear ROWs on and through private lands compared to the other alternatives. Where such exclusion areas occur in large, contiguous blocks (such as the Greater Sage-Grouse Key Habitat Areas ACEC), finding practicable alternative routes that avoid BLM-administered lands may be difficult.</p> <p>Surface disturbances would be limited to one disturbance per 640 acres and less than 3 percent of the total Greater Sage-Grouse habitat (subject to valid existing rights), compared to a larger allowable disturbance of 5 percent in these areas under Alternative B. However, the BLM anticipates that even with these additional restrictions, oil and gas wells would be developed and ROWs across BLM-administered land would be approved at the same rate as Alternative B, and impacts would be similar to Alternative B.</p> <p>As with Alternative B, the BLM does not suspend existing non-producing oil and gas leases in</p>	<p>percent, 22 percent, 92 percent, and 18 percent, respectively), and a 2.5 percent decrease compared to Alternative D.</p> <p>Management of the Greater Sage-Grouse PHMAs ACEC under Alternative F requires additional consideration and mitigation of impacts for leased mineral estate similar to management of Key Habitat Areas under Alternative E, but to a lesser degree. Like Alternative E, the BLM requires a full reclamation bond to insure restoration of disturbed areas to their original condition in the Greater Sage-Grouse PHMAs ACEC and places greater limitations on surface-disturbing activities. Additional conservation measures and appropriate Fluid Mineral BMPs also apply in the Greater Sage-Grouse PHMAs ACEC on split estate. However, unlike Alternative E, Alternative F considers waivers to these stipulations where resource uses do not preclude the achievement of Greater Sage-Grouse habitat objectives.</p> <p>Overall, additional protections for Greater Sage-Grouse under Alternative F would result in more adverse impacts to oil and gas development than alternatives A, C, and D, but less than alternatives B and E.</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	<p>greater under Alternative B because of the application of the more restrictive major constraints (NSOs) under Alternative B.</p> <p>Limiting noise sources at the perimeter of occupied Greater Sage-Grouse leks may require mitigation or technologies that reduce noise levels, which may increase project costs. This may result in adverse impacts to oil and gas development. Oil and gas development activities may be restricted where sound levels cannot be limited below ambient noise levels.</p>	(see above)	<p>across the Planning Area, depending on the projected development potential for oil and gas. For BLM-administered lands, constraints on oil and gas development around Greater Sage-Grouse leks, in nesting and early brood-rearing habitat, and in winter concentration areas under Alternative D are more prohibitive and would affect more acreage of moderate- and low-potential areas than alternatives A and C.</p> <p>Similar to Alternative B, Alternative D would limit noise sources at the perimeter of occupied Greater Sage-Grouse leks to not exceed 10 dBA above ambient noise; however, as new research is completed, Alternative D would establish more specific limitations through coordination with the WGFD and partners, which could result in less adverse impacts than under Alternative B.</p>	<p>areas closed to mineral leasing and, after such leases expire, would not offer the land for future leasing under Alternative E. However, Alternative E would result in additional adverse impacts to the development of existing oil and gas leases in the Greater Sage-Grouse Key Habitat Areas ACEC. Specifically, upon the expiration or termination of existing leases, nominations or expressions of interest for parcels would not be accepted in this ACEC, resulting in greater losses of future oil and gas development opportunities when compared to the other alternatives. Additional conservation measures and appropriate Fluid Mineral best management practices (BMPs) would also apply in the Greater Sage-Grouse Key Habitat Areas ACEC on split estate.</p> <p>Alternative E would also close the proposed Greater Sage-Grouse Key Habitat Areas ACEC to geophysical exploration, which would limit the use of seismic technology to obtain subsurface stratigraphic and structural information useful for exploration of oil and gas reserves to a greater extent than any other alternative.</p>	(see above)



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Leasable Minerals Geothermal</b>					
Areas open subject to standard lease stipulations, open with constraints, and closed to geothermal exploration and development, and resulting impacts, are the same as those described in Section 4.2.5 Leasable Minerals Oil and Gas for Alternative A. Approximately 151,931 acres are closed to geothermal leasing under Alternative A, resulting in direct adverse impacts to potential development of geothermal resources on these lands. Compared to the other alternatives, Alternative A designates the least amount of land as closed to geothermal leasing.	Under Alternative B, 2,453,193 acres are closed to geothermal leasing, which would result in impacts similar to those described in Section 4.2.5 Leasable Minerals Oil and Gas for Alternative B. However, under Alternative B, more acreage is closed to geothermal leasing than oil and gas leasing because federal mineral estate is closed to geothermal leasing within 15 miles of Hot Springs State Park.	Under Alternative C, lands open to leasing subject to standard lease stipulations, open with constraints, and closed to geothermal exploration and, and the resulting impacts, would be roughly the same as those described for Alternative A, and described in Section 4.2.5 Leasable Minerals – Oil and Gas for Alternative C. Compared to the other alternatives, Alternative C designates the least amount of land as closed to geothermal leasing (145,836 acres).	Under Alternative D, 361,777 acres are closed to geothermal leasing, which would result in impacts similar to those described in Section 4.2.5 Leasable Minerals Oil and Gas for Alternative D. However, more acreage is closed to geothermal leasing than oil and gas leasing under Alternative D because of the closure of federal mineral estate to geothermal leasing within 5 miles of Hot Springs State Park.	Under Alternative E, lands open to leasing subject to standard lease stipulations, open with constraints, and closed to geothermal exploration and development are the same as Alternative B, and impacts to geothermal resources would be the same as Alternative B.	Under Alternative F, lands open to leasing subject to standard lease stipulations, open with constraints, and closed to geothermal exploration and development are the same as Alternative D, except within the Greater Sage-Grouse PHMAs ACEC. In this ACEC, the BLM applies an NSO stipulation within 0.6 mile of Greater Sage-Grouse leks, which would result in more adverse impacts to geothermal exploration and development than alternatives A, C, and D, but fewer than alternatives B and E.
<b>Locatable Minerals</b>					
<i>Impacts Common to All Alternatives</i> For all alternatives, the BLM would respect all valid existing rights within those areas subject to review, including unpatented mining claims within sage grouse Key Habitat Areas or PHMAs. All mining claims located within an area that are subsequently withdrawn are subject to validity examinations prior to the approval of any operations. Mining claims which have not demonstrated discovery of a valuable mineral deposit or use and occupancy as defined in the mining laws prior to the withdrawal date, have no valid and existing rights and could be contesting by the BLM, whether or not they are located in greater Sage-Grouse Key Habitat Areas or PHMAs.					
See <i>Impacts Common To All Alternatives</i>	See <i>Impacts Common To All Alternatives</i>	See <i>Impacts Common To All Alternatives</i>	See <i>Impacts Common To All Alternatives</i>	Alternative E would pursue withdrawal from appropriation under the mining laws for locatable minerals on 1,759,312 acres, or 42 percent, of the federal mineral estate in the Planning Area. The area of withdrawal from mineral entry under Alternative E would be substantially larger than under any other alternative due to the withdrawal of the proposed Greater Sage-Grouse Key Habitat Areas ACEC (1,232,583 acres). This alternative would withdraw 1,686,451 more acres from mineral entry than Alternative A. Adverse impacts to locatable mineral development would be	Impacts from resource protective management would be greater under Alternative F than under alternatives A and D due to restrictions on surface disturbance and motorized vehicle use, and potential seasonal restrictions within the proposed Greater Sage-Grouse PHMAs ACEC. However, authorized or permitted uses that specify allowable access would not be affected by travel management designations.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	(see above)	substantially greater under Alternative E than under any other alternative due to the withdrawal of the proposed Greater Sage-Grouse Key Habitat Areas ACEC for the protection of Greater Sage-Grouse (1,232,583 acres). Management actions to protect resources outside of this ACEC would be the same as Alternative B, and impacts would be the same as described under Alternative B.	(see above)
Salable Minerals					
			With the exception of activities within important Greater Sage-Grouse habitats, such as within 0.6 mile of occupied leks in PHMAs and a 500-foot buffer for surface waters and riparian/wetland areas, few management actions explicitly prohibit surface-disturbing activities or mineral materials disposal to protect other resources under Alternative D. However, several management actions require avoidance and would prohibit surface-disturbing activity unless the impacts can be mitigated, resulting in adverse impacts to mineral materials disposal through increased costs and delays associated with mitigation.	Closing public lands to mineral materials disposal would result in similar impacts as those described for Alternative B, although to a greater extent due to the closure of the Greater Sage-Grouse Key Habitat Areas ACEC. Mineral materials closures outside this ACEC are the same as Alternative B, and impacts would be the same as Alternative B.	Impacts to salable minerals from resource management actions would be similar to Alternative D, but slightly more adverse within the Greater Sage-Grouse PHMAs ACEC due to additional limitations on surface disturbance. Similar to Greater Sage-Grouse Key Habitat Areas under Alternative E, greater long-term adverse impacts would result from the requirement that salable mineral pits no longer in use be restored to meet Greater Sage-Grouse habitat conservation objectives.



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Paleontology</b>					
Restrictions on surface-disturbing activities for the protection of other resources (such as soil, water, biological resources, and special designations) under Alternative A may provide additional protection for paleontological resources, because management that limits the potential for disturbance would result in beneficial impacts.	As with Alternative A, exploration for and development of locatable minerals, leasable minerals, and mineral materials are likely to result in direct and indirect adverse impacts from disturbance and improved access. However, because Alternative B would result in less surface disturbance associated with minerals development, it also would result in fewer impacts to paleontological resources compared to Alternative A. Making Greater Sage-Grouse Key Habitat Areas closed to mineral leasing would result in indirect beneficial impacts by limiting the potential degradation of paleontological resources in these areas.	The BLM anticipates that Alternative C would result in the most short-term and long-term surface disturbance. Therefore, this alternative would result in the most adverse impacts to paleontological resources of any alternative. Projected impacts to paleontological resources from surface disturbance under Alternative C.	The BLM anticipates that Alternative D would result in slightly more surface disturbance and associated adverse and beneficial impacts to paleontological resources than Alternative A. However, the amount of surface disturbance varies by resource use, and certain resource uses that adversely affect paleontological resources (e.g., mineral development) would be similar to or disturb less area than Alternative A.	Among all the alternatives, Alternative E would result in a similar, though slightly reduced, amount of surface and subsurface disturbances to Alternative B; the type of impacts would be the same as Alternative A, and the magnitude of adverse impacts would be similar to Alternative B. When compared to the other alternatives, Alternative E provides the most restrictions on surface-disturbing activities and allows for the greatest protection of other resources, which may subsequently provide additional protection from disturbance for paleontological resources. In particular, Alternative E manages Greater Sage-Grouse Key Habitat Areas to minimize anthropogenic disturbances, resulting in the fewest acres of disturbance and fewest impacts to paleontological resources.	Surface disturbances and associated adverse impacts to paleontological resources under Alternative F would be similar, though slightly reduced, to Alternative D. Under Alternative F, restrictions on surface-disturbing activities for the protection of other resources (such as soil, water, biological resources, and special designations) are the same as Alternative D, except for areas within the Greater Sage-Grouse PHMAs ACEC, where additional restrictions to protect Greater Sage-Grouse would apply. Impacts to paleontological resources from surface-disturbing activities would be the same as Alternative A, but to a lesser extent due to these additional restrictions on surface disturbance.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Recreation</b>					
Under all alternatives, the construction of new recreation facilities is prohibited in Greater Sage-Grouse PHMAs unless the development would result in a net conservation gain or is required for visitor or resource protection. Combined with other restrictions on recreation and OHV use in PHMAs, management of these areas would generally favor nonmotorized forms of recreation.					
Management actions under Alternative A that benefit fish and wildlife would benefit recreational activities such as fishing, hunting, bird watching, and general wildlife viewing. However, management actions that restrict public access to protect wildlife or its habitat from disturbance (e.g., restricting OHV use in areas with fragile soils) would limit access for motorized recreation opportunities. These management actions would interfere with some recreationists' goals and experiences, but would enhance the experiences and benefits for those pursuing non-motorized related activities and experiences.	Under Alternative B, the BLM would close Greater Sage-Grouse Key Habitat Areas to livestock grazing. This action may indirectly benefit hunters and wildlife viewers, but would also adversely impact livestock grazing permittees. Management actions under Alternative B that would benefit fish and wildlife would enhance recreational activities such as fishing, hunting, bird watching, and general wildlife viewing more than the other alternatives. However, these management actions also would restrict public access and limit opportunities for motorized recreational travel more than under Alternative A.	Management actions under Alternative C that would benefit fish and wildlife would enhance recreational activities such as fishing, hunting, bird watching, and general wildlife viewing; however, benefits impacts would be the least under Alternative C compared to the other alternatives. These management actions would permit public access and create opportunities for motorized recreational travel the most compared to the other alternatives. Semi-primitive settings would be affected by this management, and recreationists desiring those settings would not achieve a realization of beneficial outcomes and may seek those benefits in other areas.	Management actions under Alternative D would benefit fish and wildlife, and therefore enhance recreational activities such as fishing, hunting, bird watching, and general wildlife viewing, more than alternatives A and C but less than Alternative B. Correspondingly, management actions to protect wildlife habitat would restrict public access and limit opportunities for motorized travel more than alternatives A and C, but less than Alternative B.	Under Alternative E, management actions that would benefit fish and wildlife while also enhancing recreational activities such as fishing, hunting, bird watching, and general wildlife viewing would be the same as Alternative B. However, additional restrictions within the Greater Sage-Grouse Key Habitat Areas ACEC would restrict public access and limit opportunities for motorized recreational travel more than management under Alternative B or the other alternatives.	Under Alternative F, management actions that would benefit fish and wildlife while also enhancing recreational activities such as fishing, hunting, bird watching, and general wildlife viewing are the same as Alternative D. However, Greater Sage-Grouse protective management applied to the Greater Sage-Grouse PHMAs ACEC would restrict public access and limit opportunities for motorized recreational travel to a greater extent than under alternatives A, C, and D, but less so than under alternatives B and E.
<b>Renewable Energy</b>					
Under Alternative A, no specific renewable energy avoidance or exclusion areas are identified. Renewable energy projects are considered on a case-by-case basis. However, exclusion and avoidance areas for ROWs would apply to the development of wind-energy (and solar and biomass) facilities. Wind-energy development also is constrained by existing management policies and prohibitions involving lands with high resource values. Case-by-case permitting of renewable energy projects increases the processing timeframe and costs associated with these facilities. Case-by-case permitting of renewable energy could also result in a distributed	Avoiding wind-energy development in big game winter ranges, raptor concentration areas, and mitigating wind-energy development for the protection of Greater Sage-Grouse nesting, brood-rearing, and winter concentration areas would result in long-term adverse impacts to renewable energy by limiting development in these areas.	Under Alternative C, a total of 1,428,360 acres are open to renewable energy development (area not included in renewable energy avoidance or exclusion areas). Identifying areas open to renewable energy development would reduce the potential for adverse impacts associated with case-by-case permitting described under Alternative A. Implementation of Alternative C would result in an approximate 469 percent increase in area open for renewable energy development compared to Alternative B.	Under Alternative D, a total of 1,315,309 acres are open to renewable energy development (area not included in renewable energy avoidance or exclusion areas). Identifying areas open to renewable energy development would reduce the potential for adverse impacts associated with case-by-case permitting described under Alternative A. Alternative D would result in approximately 424 percent more area open for renewable energy development than Alternative B and approximately 8 percent less than Alternative C. Avoiding wind-energy projects in big game winter range, raptor concentration areas, and greater Sage-Grouse PHMAs	Under Alternative E, a total of 254,151 acres are open to renewable energy development (areas not included in renewable energy avoidance or exclusion areas), which is slightly more than Alternative B (251,203 acres), and impacts to renewable energy development would be similar to those described under Alternative B. The single largest contributing factor to the increase in renewable energy exclusion areas under Alternative E, compared to Alternative B, is the management of the Greater Sage-Grouse Key Habitat Areas ACEC (1,232,583 acres).	Under Alternative F, a total of 607,429 acres are open to renewable energy development (areas not included in renewable energy avoidance or exclusion areas). Identifying areas open to renewable energy development would reduce the potential for adverse impacts associated with case-by-case permitting described under Alternative A. Alternative F would manage more area open for renewable energy development than alternatives B and E, but less than alternatives C and D. Alternative F manages habitat (including big game winter ranges and raptor concentration areas) consistent with Alternative D, except that Alternative F

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
pattern of renewable energy development and require additional ROW authorizations to support required infrastructure such as transmission lines to distribute the energy.	(see above)	(see above)	would result in long-term impacts to renewable energy similar to Alternative B. Avoidance in these areas would constrain the development of wind resources.	(see above)	manages the Greater Sage-Grouse PHMAs ACEC as a renewable energy avoidance area. Within the Greater Sage-Grouse PHMAs ACEC, the BLM only authorizes new applications for wind power development where a proponent could demonstrate that no declines in Greater Sage-Grouse PHMA populations would occur. In addition, proponents are not permitted to exceed one disturbance per 640 acres or disturb more than 3 percent of sagebrush habitat in PHMAs. Long-term impacts under Alternative F would be similar to Alternative D, except that additional “no decline” requirements and stricter surface disturbance restrictions in priority Greater Sage-Grouse Sage-Grouse habitat would place additional limitations on the ability to develop renewable energy resources.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Rights-of-Way and Corridors</b>					
Prescribing specific timing limitations under Alternative A could eliminate the potential for discretionary seasonal limitations when reviewing and approving ROW authorizations. Additionally, avoiding or excluding surface-disturbing activities (including ROWs) during portions of the year may limit the development of ROWs in these areas by creating start/stop cycles in construction and operation that may make projects infeasible. Under Alternative A, the following areas include timing limitations for ROW avoidance or exclusion: <ul style="list-style-type: none"><li>Greater Sage-Grouse nesting and early brood-rearing habitats within 2 miles of occupied Greater Sage-Grouse leks (834,543 acres) or in identified Greater Sage-Grouse nesting and brood-rearing habitat outside the 2-mile buffer from March 15 to July 15 (February 1 to July 31 in CYFO)</li><li>Greater Sage-Grouse winter concentration areas from November 15 to March 14</li></ul>	Under Alternative B, impacts to ROWs from management of Greater Sage-Grouse would be similar to Alternative A, although to a greater extent because Alternative B has more year-round restrictions. Alternative B manages the following areas as ROW mitigation or exclusion areas: <ul style="list-style-type: none"><li>Within 0.6 mile of occupied Greater Sage-Grouse leks (117,398 acres)</li><li>Within 3 miles of occupied Greater Sage-Grouse leks (1,526,277 acres) or in identified nesting and early brood-rearing habitat outside the 3-mile buffer from February 1 through July 31</li><li>Greater Sage-Grouse winter concentration areas</li><li>Greater Sage-Grouse Key Habitat Areas (1,232,583 acres)</li></ul> Timing limitations for the protection of nesting raptors would result in impacts similar to Alternative A, although to a greater extent because Alternative B includes larger buffer areas associated with timing limitations.	Adverse impacts to ROWs from management of Greater Sage-Grouse under Alternative C would be similar to under Alternative A, except that shorter periods associated with certain seasonal limitations could reduce impacts from project delay and disruption to a greater extent under this alternative.	Impacts to ROWs from management of Greater Sage-Grouse would be greater than under Alternative A, because Alternative D includes more restrictions and timing limitations inside and outside greater Sage-Grouse PHMAs. Alternative D only authorizes major overhead powerlines in Greater Sage-Grouse PHMAs if they are constructed within 0.5 miles of existing 115 kV or greater powerlines or within a designated corridor, which could increase the costs and complexity of utility projects by limiting development to specific corridors where construction, maintenance, and repairs must be coordinated with other utility owners.	Alternative E would manage wildlife habitat, cultural sites, and other resource considerations consistent with Alternative B, except that Alternative E would manage the Greater Sage-Grouse Key Habitat Areas ACEC (1,232,583 acres) as a ROW energy exclusion area and allows only below ground ROWs in designated ROW corridors within this ACEC.	Alternative F manages wildlife habitat, cultural sites, and other resource considerations consistent with Alternative D within Greater Sage-Grouse priority habitat managed as part of the Greater Sage-Grouse PHMAs ACEC (1,116,698 acres). In the Greater Sage-Grouse PHMAs ACEC, proponents are not permitted to exceed one disturbance per 640 acres or disturb more than 3 percent of sagebrush habitat in PHMAs; reclamation to remediate existing disturbance would need to be implemented before new ROW-related disturbances would be permitted in areas that exceed the disturbance cap. Long-term impacts under Alternative F would be similar to Alternative D, except that these stricter surface disturbance restrictions in Greater Sage-Grouse PHMAs (35 percent of BLM-administered surface lands) would limit the ability to develop, or increase the cost and difficulty of siting new ROWs compared to alternatives A and D through a large portion of the Planning Area.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Soils</b>					
Management actions under Alternative A designed to protect wildlife and special status species habitat from the impacts of surface-disturbing and disruptive activities also would protect soil resources from these activities. Management actions such as applying a controlled surface use (CSU) stipulation within ¼ mile of occupied Greater Sage-Grouse leks would reduce the chance of erosion. Vegetation management in crucial wildlife habitat is an additional beneficial impact for soil resources.	Alternative B applies greater restrictions on surface-disturbing activities designed to protect wildlife and special status species habitat than Alternative A and therefore has a greater beneficial impact on soil resources. Vegetation management in crucial wildlife habitat is an added beneficial impact for soil resources.	In contrast to the other alternatives, Alternative C applies fewer management restrictions on surface- disturbing and disruptive activity designed to protect wildlife and special status species. The absence or reduction of these restrictions results in greater potential for adverse impacts to soil resources.	Management designed to protect fish and wildlife, special status species, and other biological resources would provide benefits to soil by limiting surface-disturbing activities and other actions that could degrade soil health. The beneficial impacts would be similar to those described under Alternative A except that several areas would require avoidance of surface-disturbing activities. In these areas, surface-disturbing activities would be prohibited unless the impacts could be mitigated, thereby limiting long-term adverse impacts.	Post-fire reclamation requirements within the Greater Sage-Grouse Key Habitat Areas ACEC would result in additional beneficial impacts on soil retention through management practices that ensure long-term persistence of seeded and pre-treatment native plants.	Disturbance from fuels treatments and prescribed fire under Alternative F would be the same as Alternative D, with the exception of additional fire management restrictions within the Greater Sage-Grouse PHMAs ACEC that would be designed to maintain or improve sagebrush habitat. The additional ACEC restrictions would decrease the potential adverse impacts to soil resources from fire management activities compared to alternatives A and D.
<b>Special Designations and Management Areas</b>					
<b>ACECs</b>					
The Greater Sage-Grouse Key Habitat Areas and PHMAs are not proposed as ACECs under alternatives A, B, C, or D.	The Greater Sage-Grouse Key Habitat Areas and PHMAs are not proposed as ACECs under alternatives A, B, C, or D.	The Greater Sage-Grouse Key Habitat Areas and PHMAs are not proposed as ACECs under alternatives A, B, C, or D.	The Greater Sage-Grouse Key Habitat Areas and PHMAs are not proposed as ACECs under alternatives A, B, C, or D.	Alternative E designates the Greater Sage-Grouse Key Habitat Areas as an ACEC (1,232,583 acres); the other alternatives do not. Overall, the relative size and additional restrictions on surface-disturbing activities and resource uses in the proposed Greater Sage-Grouse Key Habitat Areas ACEC under Alternative E would provide the greatest protections to Greater Sage-Grouse and other special status species habitat by reducing fragmentation, the potential for invasive species infestation, and the disturbance of sensitive status species or their habitat during sensitive times of the year.	Under Alternative F, the BLM designates Greater Sage-Grouse PHMAs as an ACEC. In this ACEC, the BLM manages the density of disturbance (e.g., roads, oil and gas wells, pipelines, etc.) to not exceed one disturbance per 640 acres and cover less than 3 percent of existing sagebrush habitat. As a whole, management of surface-disturbing activities within this ACEC would provide greater protection for values of concern than alternatives A, C, and D, but fewer than alternatives B and E.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>National Historic Trails and Other Historic Trails</b>					
Restrictions on surface-disturbing activities for the protection of other resources (e.g., soil, water, biological resources, and special designations) under Alternative A provide additional protection for trail resources.	Surface disturbance affects fewer acres under Alternative B, and thus has less direct impact on the Nez Perce NHT and Other Historic Trails compared to Alternative A. As with Alternative A, actions that may physically impact the trails, particularly the Nez Perce NHT, would be limited through enforcement of a National Trail Management Corridor.	Alternative C is projected to result in the greatest acreage of surface disturbance and, consequently, the greatest potential to the Nez Perce NHT and Other Historic Trails. As with the other alternatives, compliance with BLM management practices and the NHPA would limit adverse impacts through development of treatment plans and limitations on development within the Nez Perce National Trail Management Corridors.	The amount of surface disturbance projected under Alternative D is similar to Alternative A, falling between the amount of disturbance projected under alternatives B and C. As with Alternative A, actions that would directly affect these trails, particularly the Nez Perce NHT, would be limited due to management that restricts certain resource uses within the National Trail Management Corridor and areas within view of Other Historic Trails.	Additional restrictions in the Greater Sage-Grouse Key Habitat Areas ACEC would limit access for fire management activities compared to the other alternatives, which may reduce adverse impacts from fire suppression, stabilization, and rehabilitation compared to the other alternatives.	Fire and fuels management under Alternative F, except for areas in the proposed Greater Sage-Grouse PHMAs ACEC, is the same as Alternative D; impacts to trail resources outside the ACEC would be the same as Alternative D. Additional restrictions in the Greater Sage-Grouse PHMAs ACEC would limit the ability to use prescribed fire and implement fuels reduction in certain habitats, potentially resulting in fewer adverse impacts from fire and fuels management than alternatives A and D.
<b>Special Status Species</b>					
<b>Plants</b>					
Alternative A manages habitat, on a case-by-case basis, for the presence of special status species, potentially benefitting BLM special status plants in the long term.	<p>Under Alternative B, approximately 2,464,754 acres are closed to oil and gas leasing, approximately 9.5 times more acreage than under Alternative A. While required mitigation and reclamation under all alternatives minimizes adverse impacts from mineral development, Alternative B results in fewer adverse impacts to BLM special status plant species than Alternative A due to the greater acreage closed to oil and gas leasing.</p> <p>Livestock grazing is more limited under Alternative B than under Alternative A, as approximately 1,229,612 acres of greater Sage-Grouse Key Habitat Areas are closed to livestock grazing.</p>	Alternative C sets aside the least amount of land of any alternative for areas that have management actions to benefit BLM special status plant species. Similar to Alternative B, buffers and restrictions for other resources and surface-disturbing activities around BLM special status plant species will likely provide indirect beneficial impacts to habitats for special status plants.	Alternative D requires reclamation plans, stipulations, or measures before authorized surface-disturbing activities and develops reclamation plans in coordination with stakeholders. Alternative D restricts mineral development in this area less than Alternative B—by using a mix of CSU, TLS, NSO, and closed to leasing restrictions— but more than Alternative C and Alternative A (under which this management area is not recognized).	The resource management of Alternative E and additional management practices to protect and restore sagebrush habitats within the proposed Greater Sage Grouse Key Habitat Areas ACEC would provide the most beneficial impacts to special status plant species by reducing surface disturbance, soil erosion, and compaction in the largest area when compared to the other alternatives. Impacts on special status species plants from other management actions to protect resources would be the same as Alternative B for areas outside of the Greater Sage-Grouse Key Habitat Areas ACEC.	Decreased surface disturbance under this alternative would reduce soil erosion and compaction to a greater extent than Alternative D, increasing less adverse impacts to special status plant species. Similar to Alternative E, management actions for habitat restoration, invasive species management, and fire and fuels management that emphasize the conservation and restoration of sagebrush habitats would provide additional benefits to special status plant species within the proposed Greater Sage-Grouse PHMAs ACEC. Impacts on special status plant species from other management actions to protect resources would be the same as Alternative D.



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Fish</b>					
The BLM projects 15,646 acres of long-term surface disturbance from BLM-authorized actions under Alternative A (Table 4-1) resulting in an estimated erosion rate of 25,065 tons per year (Appendix V). Surface-disturbing activities remove vegetation and disturb soil, thereby increasing the potential for offsite erosion and sediment delivery to the Bighorn, Shoshone, and Clarks Fork of the Yellowstone rivers, among the waterways in the Planning Area that drain into the Yellowstone River. Sedimentation fills in pools and covers stream bottoms with a more uniform layer of sediment that adversely affects special status fish species. Surface-disturbing activities would reduce water quality and degrade Yellowstone cutthroat trout and other special status fish species habitat in the Planning Area. The greater the surface disturbance, the greater potential for adverse impacts to special status fish species.	Impacts to special status fish species would be similar to those described under Alternative A, although to a lesser extent. Surface disturbance under Alternative B (Table 4-1) would result in a 31 percent decrease in long-term erosion (Appendix V) from the baseline condition, which would reduce adverse impacts to special status fish species.	Adverse impacts to special status fish species from surface disturbance would be greatest under Alternative C. Surface disturbance under Alternative C would be the highest of the alternatives (Table 4-1), resulting in a 165 percent increase in long-term erosion (Appendix V) compared to Alternative A and, therefore, the greatest adverse impact to special status fish species.	Impacts to special status fish species from surface disturbance would be similar to those described under Alternative A. The projected surface disturbance is slightly more under Alternative D—estimated to result in a 17 percent increase in long-term erosion compared to Alternative A (Appendix V)—but reclamation and restoration practices are likely to limit erosion and sedimentation more than under Alternative A.	Impacts to special status fish species from management actions for resource protection would be similar to Alternative B, but with slightly greater beneficial impacts due to reduced surface disturbance and erosion within the proposed Greater Sage-Grouse Key Habitat Areas ACEC. Habitat restoration, invasive species management, and fire and fuels management within this ACEC would prioritize the conservation and restoration of native sagebrush habitats, with potential beneficial indirect effects to adjacent fish habitats.	Management actions for resource protection and related impacts to special status fish species would be the same as Alternative D, with slightly greater beneficial impacts in the proposed Greater Sage-Grouse PHMAs ACEC due to reduced surface disturbance and erosion rates. Similar to Alternative E, habitat restoration, invasive species management, and fire and fuels management within this ACEC would prioritize the conservation and restoration of native sagebrush habitats, with potential beneficial indirect effects to adjacent fish habitats.
<b>Wildlife</b>					
Under Alternative A, the BLM manages grassland and shrubland communities on a small portion of the Planning Area for watershed protection and livestock grazing without any specific management actions for improving these habitats for wildlife. Reclamation of grassland and shrubland vegetation, especially in lower precipitation zones, would minimize long-term impacts to special status wildlife species that depend on these habitats. Under Alternative A, the BLM reclaims disturbed areas by	Grassland and shrubland management under Alternative B would provide greater potential beneficial impacts to special status wildlife species than Alternative A. Under Alternative B, the BLM manages grassland and shrubland communities to achieve or make progress towards the reference state plant community based on ESDs, and maintains and enhances important plant communities on large, contiguous blocks of land. These measures are likely to result in the greatest natural vegetation	Alternative C has the most acres open to mineral development, resulting in the greatest potential loss of special status wildlife species habitat, compared to the other alternatives. Alternative C is projected to result in 1,304 new federal oil and gas wells that would result in more adverse impacts from habitat loss and noise disturbance than Alternative A.  Grassland and shrubland management under Alternative C would provide more beneficial	Estimated short- and long-term surface disturbance from BLM actions in the Planning Area (Table 4-1) under Alternative D would result in similar loss, degradation, and fragmentation of sagebrush habitat as under Alternative A. However, measures to limit erosion and reclaim and restore habitat implemented under Alternative D are likely to mitigate adverse impacts from surface disturbance more than under Alternative A. Alternative D has the second most area available to	Surface disturbances under this alternative would be the same as Alternative B, except in the Greater Sage-Grouse Key Habitat Areas ACEC, where fewer acres of surface disturbance would result from mineral development, renewable energy development, and ROW development. Impacts to special status wildlife species from minerals development would generally be the same as Alternative B, except in the Greater Sage-Grouse Key	Alternative F would result in 137,064 acres of short-term and 17,663 acres of long-term surface disturbance. Impacts to wildlife from surface disturbance under Alternative F are projected to be greater than under alternatives A, B, and E, but less than under alternatives C and D. Resource uses under Alternative F would result in fewer adverse impacts to wildlife habitat than Alternative D and slightly greater impacts than Alternative A. In general, proactive management actions

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
routinely seeding, or requiring permittees and operators to seed, these areas with native seed mixes without specific requirements regarding topsoil salvage, temporary protective surface treatments, or reclamation plans. Special status wildlife species categories directly affected by grassland and shrubland management and reclamation include the Greater Sage-Grouse , raptors, migratory birds, and nongame mammals.	diversity and slow the spread of invasive species, benefitting special status wildlife species, especially Greater Sage-Grouse, nongame mammals, and migratory birds.	impacts to special status wildlife species than Alternative A, but less than alternatives B and D. Under Alternative C, the BLM manages grassland and shrubland communities toward meeting the Wyoming Standards for Healthy Rangelands (Appendix N) with appropriate functional and structural plant groups. These measures are likely to result in a modest improvement in vegetation diversity, but are unlikely to slow the spread of invasive species. Reclamation requirements are more stringent than Alternative A, but less than alternatives B and D. Due to the larger amount of anticipated surface disturbance and invasive species spread under Alternative C, grassland and shrubland communities are likely to be lost or degraded the most under this alternative, affecting special status wildlife species proportionately.	locatable minerals entry, but the second least area open to oil and gas development, with more area closed than alternatives A and C in sagebrush habitat to limit impacts to Greater Sage-Grouse . Alternative D is projected to result in 1,143 new federal wells that would impact special status wildlife species from habitat loss and noise disturbance more than Alternative B, but less than alternatives A and C. In general, proactive management actions under Alternative D provide more benefits and mitigate adverse impacts to special status wildlife species to a greater extent than under alternatives A and C, but less than under Alternative B.	Habitat Areas ACEC, which would be withdrawn from locatable mineral entry and closed to mineral materials disposal under Alternative E. Impacts resulting from travel management under Alternative E would be the same as Alternative B and would benefit special status wildlife species by placing the most limitations on and closures to motorized vehicle use of any alternative.	under Alternative F provide more benefits and mitigate adverse impacts to special status wildlife species to a greater extent than alternatives A and C; slightly more than Alternative D due to the designation of the Greater-Sage Grouse PHMAs ACEC; and less than alternatives B and E.
<b>Greater Sage-Grouse</b>					
Combined with the lack of an overall management strategy to address landscape-level threats to sagebrush habitat from human and natural activities, Alternative A is anticipated to result in adverse impacts to Greater Sage-Grouse in the short and long term. Management of livestock grazing under Alternative A may not improve the quality or quantity of habitats for greater Greater Sage-Grouse, particularly given the other threats affecting the species. Because this alternative does not manage specifically to maintain contiguous blocks of native vegetation	Alternative B would result in less surface disturbance and habitat loss, degradation, and fragmentation and therefore less impact to greater Sage-Grouse than Alternative A. ACECs under Alternative B encompass 96,272 acres of Greater Sage-Grouse Key Habitat Areas (Table 4- 22), which would restrict resource uses and activities that could adversely impact Greater Sage-Grouse.	As under Alternative A, Alternative C does not include specific management to preserve large contiguous blocks of native vegetation communities, and therefore landscape-level adverse impacts to sagebrush habitat such as fragmentation and the loss of connectivity between leks and seasonal habitats could occur under this alternative. Under Alternative C, Oil and Gas Management Areas and ROW corridors are exempt from discretionary wildlife timing limitations, which could result in adverse impacts to Greater Sage-Grouse leks in these areas if	Overall, resource use and activity restrictions under Alternative D would minimize impacts to Greater Sage-Grouse in PHMAs more than alternatives A and C, but less than Alternative B. Outside of PHMAs, restrictions on resource uses and activities would result in similar beneficial impacts as under Alternative B, although to a lesser extent due to the decreased size of protective lek buffers. Impacts to Greater Sage-Grouse from mineral leasing under Alternative D would generally be more adverse than under Alternative B, but less adverse than under Alternative A.	Under Alternative E, estimated short- and long-term surface disturbance from BLM actions in the Planning Area would result in the least amount of loss, degradation, and fragmentation of sagebrush habitat of any alternative due to the relative size and additional surface-disturbance limitations associated with the proposed Greater Sage-Grouse Key Habitat Areas ACEC. Prohibitions on surface-disturbing and disruptive activities (including ROWs) are more restrictive than under Alternative B, and this alternative would generally result in less	Overall, Alternative F management would result in greater beneficial and reduced adverse impacts to Greater Sage-Grouse than would management under alternatives A or C, similar impacts to alternatives B and D, and fewer beneficial impacts and greater adverse impacts than management under Alternative E. Adverse impacts to Greater Sage-Grouse from mineral leasing under Alternative F would be reduced compared to Alternative A and similar to under Alternative D. Adverse impacts to Greater Sage-Grouse from ROW and renewable energy



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
communities, it may result in the fragmentation of habitat and may reduce the potential for habitat to meet all Greater Sage-Grouse needs. the anticipated continued expansion and spread of invasive species under Alternative A would result in adverse impacts to Greater Sage-Grouse and sagebrush habitats.	(see above)	development occurs during lekking, nesting, or other sensitive time periods. As a result, Alternative C could result in additional stress and displacement of birds into suboptimal habitats compared to Alternative A. Restrictions on the location of ROWs under Alternative C would result in impacts similar to management under Alternative A. Wildland fire and fuels treatments under Alternative C are similar to those under Alternative A, and would result in similar short-term adverse and long-term beneficial impact to those described under that alternative. Compared to the other alternatives, Alternative C would increase the potential for disparities between habitat objectives and actual rangeland conditions, potentially reducing cover and forage for Greater Sage-Grouse. Overall, because surface disturbance and habitat loss, degradation, and fragmentation are greater than under the other alternatives and the reclamation requirements are comparable to Alternative A and less stringent than Alternative B, the associated adverse impacts to Greater Sage-Grouse habitats from these activities would likely be greater than under Alternative C.	Alternative D manages PHMAs as avoidance areas for wind-energy and ROW development, which would provide similar protections to Greater Sage-Grouse habitat as Alternative B. Fire and fuels management and potential adverse and beneficial impacts would be similar to those described under Alternative A. Travel management under Alternative D would be the same as under Alternative C, and impacts would be the same as described under that alternative. Impacts to Greater Sage-Grouse habitat from vegetation treatments and management would be similar to under Alternative C. The management of conifer encroachment in sagebrush under Alternative D would be similar to management under alternatives A and B, but potentially more beneficial because Alternative D manages areas treated for conifer encroachment to toward comprehensive vegetation community goals, as determined through a site's ESD, that include a broader range of habitat suitability factors that could benefit Greater Sage-Grouse.	surface disturbance and habitat loss, degradation, and fragmentation of Greater Sage-Grouse habitat than management under any other alternative. Managing disturbance within Greater Sage-Grouse Key Habitat Areas to not exceed one location per 640 acres and cover less than 3 percent of priority Greater Sage-Grouse habitat would result in the least potential for Greater Sage-Grouse habitat fragmentation of any alternative. Impacts to Greater Sage-Grouse from mineral leasing would be the same as Alternative B; however, because Alternative C withdraws the Greater Sage-Grouse Key Habitat Areas ACEC to locatable mineral entry and closes it to mineral materials disposal, overall adverse impacts from all mineral development would likely be reduced under this alternative. Unlike management under Alternative B, Alternative E allows the use of livestock grazing as a management tool to address certain goals (such as the reduction of fine fuels), which could help achieve some of the potential beneficial effects of livestock grazing in the closed Key Habitat Areas. Alternative E specifically retains all lands in the proposed Greater Sage-Grouse Key Habitat Areas ACEC, providing additional protection for these areas from disposal out of federal management. Impacts from vegetation management would be similar to those described under alternatives A,	management would be similar to Alternative E, but to a greater extent because Alternative F includes fewer ROW exclusion areas in Greater Sage-Grouse habitat. Alternative F manages livestock grazing similar to Alternative D, and impacts would be similar to those described under that alternative. Alternative F includes the second largest area of special designations of any alternative, and would provide the similar benefits to Greater Sage-Grouse as Alternative E from the additional, restrictive management applied in these locations. Travel management under Alternative F is the same as under Alternative D, and impacts would be the same as under that alternative. Impacts from vegetation management would be similar to those described under alternatives A, B, and D, except that Alternative F emphasizes habitat restoration and improvements that would specifically benefit Greater Sage-Grouse. Like Alternative E, proactive management under Alternative F includes the development of a statewide adaptive management plan for Greater Sage-Grouse.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	(see above)	(see above)	(see above)	B, and D, except that Alternative E places greater focus on Greater Sage-Grouse habitat restoration and improvement.	(see above)
<b>Transportation and Transportation Management</b>					
<p>Travel designations (e.g., seasonal restrictions) and mitigation measures to protect wildlife resources and threatened and endangered species and important habitats would restrict the timing of surface- disturbing and other disruptive activities, which would limit or restrict the development of new roads.</p> <p>Under Alternative A, requiring the closure of spur roads after completion of timber management practices and limiting motorized vehicle use to designated roads and trails in areas with fragile soil, which may require the closure of some existing, undesignated routes in these areas, would result in adverse impacts to CTTM. The closure of spur roads may limit opportunities for new access if they occur in areas where routes did not previously exist.</p>	<p>Under Alternative B, the emphasis of resource protection over resource use would result in more restrictions on motorized vehicle use compared to Alternative A. Increased restrictions that limit or close motorized travel would result in adverse impacts to CTTM.</p> <p>Travel designations (e.g., seasonal restrictions) and mitigation measures to protect wildlife resources, special status species, and important habitats would result in impacts to CTTM similar to Alternative A, although to a greater extent because Alternative B includes more restrictions in these areas. Limiting motorized vehicle use to designated roads and trails (with seasonal closures) in big game crucial winter range would restrict access to and opportunities for travel in these areas. Seasonally closing Greater Sage-Grouse Key Habitat Areas from March 15 to June 31 would adversely affect travel in these areas by restricting the use of some routes or eliminating opportunities for travel through some areas during a portion of the year to a considerably higher degree than under Alternative A.</p>	<p>Management and restrictions in wildlife, special status species, and crucial habitat would result in less adverse impacts to CTTM compared to Alternative B.</p>	<p>In general, Alternative D emphasizes resource protection more than alternatives A and C, but less than Alternative B, resulting in proportional access restrictions and adverse impacts to CTTM. Adverse impacts from travel designations (e.g., seasonal restrictions) and mitigation measures to protect wildlife resources, special status species, and important habitats would be similar in type to Alternative A, although to a greater extent than under alternatives A and C and a lesser extent than under Alternative B.</p>	<p>Alternative E prioritizes the conservation of Greater Sage-Grouse Key Habitat Areas (1,232,583 acres) above other uses, potentially leading to greater route limitations in this area than under other alternatives. However, authorized or permitted uses that specify allowable access would not be affected by travel management designations.</p>	<p>Management of wildlife habitat, forest products, vegetation treatments, cultural sites, and other resource considerations under Alternative F are the same as Alternative D, and impacts to CTTM from restrictions to protect resources would be the same as Alternative D. Like Alternative D, Alternative F emphasizes resource protection more than alternatives A and C, but less than alternatives B and E, resulting in proportional access restrictions and adverse impacts to CTTM.</p>
<b>Vegetation</b>					
<b>Grassland and Shrubland Communities</b>					
<p>Limiting surface-disturbing activities around Greater Sage-Grouse leks and in winter, nesting, and early brood-rearing habitats</p>	<p>Compared to Alternative A, Alternative B places greater limitations on surface disturbance around Greater Sage-Grouse leks</p>	<p>Compared to the other alternatives, Alternative C applies the least surface-disturbance restrictions around Greater Sage-</p>	<p>Alternative D restricts surface-disturbing activities around Greater Sage-Grouse leks and in winter, nesting, and early brood-</p>	<p>With exception of lands within the Greater Sage-Grouse Key Habitat Areas ACEC, vegetation management under Alternative E</p>	<p>Disturbance from fuels treatments and prescribed fire under Alternative F would be the same as Alternative D and would</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
would create short-term beneficial impacts to grassland and shrubland communities in these areas. However, if these restrictions prevent vegetation treatments that would improve grassland and shrubland health in the long term, they may adversely impact communities in these areas. The short-term beneficial impacts of preventing vegetation loss from surface disturbance may outweigh potential loss of long- term benefits from vegetation treatments.	and in winter, nesting, and early brood-rearing habitats, which would result in a greater beneficial impact. However, Alternative B may also reduce long-term beneficial impact in these areas in comparison to Alternative A by restricting vegetation treatments in areas where the plant community is extremely degraded, especially by the occurrence of noxious weeds, or by the increase in certain conifer species (e.g., juniper). The short-term beneficial impacts of preventing vegetation loss from surface disturbance may outweigh potential loss of long-term benefits from vegetation treatments where they are necessary to restore degraded vegetation communities.	Grouse leks and in nesting and early brood-rearing habitats, does not apply restrictions in winter concentration areas, and exempts Oil and Gas Management Areas from discretionary wildlife seasonal stipulations. These management actions would result in the least short-term beneficial impacts by preventing vegetation removal or degradation in these areas, compared to the other alternatives. However, Alternative C allows vegetation treatments over a greater area than the other alternatives, providing a long-term benefit by reducing fuel loads. The short-term adverse impacts of vegetation loss from surface disturbance may outweigh potential long-term benefits from vegetation treatments.	rearing habitats more than Alternative A. Restricting surface-disturbing activities may limit vegetation treatments in areas needing restoration where the plant community is extremely degraded; however, the short-term beneficial impacts of preventing vegetation loss from surface disturbance may outweigh potential loss of long-term benefits from vegetation treatments. Overall, wildlife management would result in more indirect beneficial impacts than alternatives A and C, but less than Alternative B.	is the same as Alternative B. Vegetation management in the Greater Sage-Grouse Key Habitat Areas ACEC emphasizes the restoration and preservation of native sagebrush ecosystems to create a landscape pattern that most benefits Greater Sage-Grouse habitat. However, Alternative E may result in fewer long-term beneficial impacts in these areas by restricting vegetation treatments in plant community that are degraded, especially by the occurrence of noxious weeds, or by the increase in certain conifer species (e.g., juniper). The short-term beneficial impacts of preventing vegetation loss from surface disturbance may outweigh the potential loss of long-term benefits from vegetation treatments where they are necessary to restore degraded vegetation communities. Overall, the management of resources under Alternative E would result in the most short- and long-term beneficial impacts to grassland and shrubland communities when compared to the other alternatives.	result in impacts similar to those under Alternative A. However, in the Greater Sage-Grouse PHMAs ACEC, additional restrictions on fuels treatment and a management priority of protecting sagebrush communities would result in impacts similar to those under Alternative E in the Greater Sage-Grouse Key Habitat Areas ACEC.
<b>Riparian/Wetland Resources</b>					
Management actions under Alternative A designed to protect wildlife and special status species habitat from the impacts of surface-disturbing and disruptive activities will also protect riparian/wetland resources from these activities. For example, applying NSO and CSU restrictions in crucial wildlife	Management actions designed to protect wildlife and special status species habitat apply greater restrictions on surface-disturbing activities than Alternative A and therefore have a greater beneficial impact on riparian/wetland resources.	Alternative C applies fewer management restrictions on surface-disturbing and disruptive activity designed to protect wildlife and special status species. By not prohibiting surface-disturbing activities, Alternative C results in the fewest beneficial impacts compared to the other alternatives.	Management actions to protect wildlife and special status species under Alternative D would result in similar beneficial impacts to those under Alternative A, but to a greater degree.	Under Alternative E, fire and fuels management practices and impacts are the same as Alternative B with the exception of lands within the Greater Sage-Grouse Key Habitat Areas ACEC, which would be managed with an emphasis on protecting existing sagebrush ecosystems. In general, fuels treatments are	Fuels treatments and prescribed fire management under Alternative F is the same as Alternative D except in the Greater Sage-Grouse PHMAs ACEC. Restrictions on fuels treatment and prescribed fire under Alternative F in the Greater Sage-Grouse PHMAs ACEC are similar to management

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
habitat would reduce the chance of sediment loading into streams in these areas. Other beneficial impacts include performing restoration of streams and fisheries habitat on a case-by-case basis, which would have direct beneficial impacts on riparian/wetlands areas.	(see above)	(see above)	(see above)	minimized in priority Greater Sage-Grouse habitat and are focused instead on interfaces with human habitation or significant existing disturbances. Limiting areas subject to fuels treatments could reduce short-term impacts from prescribed fire compared to Alternative A, but could increase long-term adverse impacts compared to the other alternatives if additional fuel loading leads to an increase in high-intensity fires. Impact from management designed to protect wildlife and special status species habitat would be the same as under Alternative B, except in the Greater Sage-Grouse Key Habitat Areas ACEC where restrictions on surface-disturbing activities would result in greater beneficial impacts than under the other alternatives.	in the Greater Sage-Grouse Key Habitat Areas ACEC under Alternative E; impacts to riparian/wetland areas would be similar to those under Alternative E. Impact from management designed to protect wildlife and special status species habitat would be the same as under Alternative D except in the Greater Sage-Grouse PHMAs ACEC, where restrictions on surface-disturbing activities and managing riparian/wetland areas to achieve proper functioning condition/attain ESD would result in greater beneficial impacts than under the Alternative D. Overall, management wildlife and special status species habitat under Alternative F would result in more beneficial impacts to riparian/wetland areas than alternatives A, C, and D, but less than alternatives B and E.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
<b>Visual Resources</b>					
Under Alternative A, all surface-disturbing activities anticipated to occur in the Planning Area may affect visual resources, although the intensity of the impact will vary by resource use and the visual values of the location.	Alternative B emphasizes conservation of resources over resource use and would result in less adverse impacts compared to Alternative A by reducing development that may affect visual values, and by increasing proactive management.	Management of visual resources under Alternative C places a greater emphasis on resource use and development compared to the other alternatives, and more impacts to visual values from surface-disturbing and other activities would result than under the other alternatives.	Compared to the other alternatives, management of visual resources under Alternative D would balance the protection of visual values with resource uses and development.	Under Alternative E, Greater Sage-Grouse Key Habitat Areas are managed so that anthropogenic disturbances (e.g., roads, oil and gas wells, pipelines, etc.) do not exceed one disturbance per 640 acres and cover less than 3 percent of the total Greater Sage-Grouse habitat, compared to a larger allowable disturbance of 5 percent in these areas under Alternative B. Therefore, Alternative E would reduce development affecting visual values to the greatest extent of any alternative.	Compared to Alternative D, additional restrictions on surface-disturbing activities for the protection of resources would provide greater protection from new visual contrast, especially where they overlap areas of less-restrictive VRM. In particular, Alternative F is projected to result in less surface disturbance associated with mineral development due to restrictive management for lands in the Greater Sage-Grouse PHMAs ACEC. These restrictions would provide a beneficial impact to visual values by reducing the amount of visual contrast on the landscape resulting from mineral development.
<b>Water</b>					
Reclamation requirements to manage soil resources would result in beneficial impacts to water quality in the short term by reducing erosion and associated sedimentation, and water quality and quantity in the long term by reestablishing vegetation to reduce runoff. Under Alternative A, the BLM routinely seeds, or requires permittees and operators to seed, disturbed areas with native plant species or approved seed mixtures and reestablishes vegetative cover over disturbed areas within 5 years of initial seeding, but does not require temporary protective surface treatments for mechanically disturbed areas. These management actions would result in beneficial impacts to soils and ultimately water quality under Alternative A.	Alternative B would result in less adverse impacts to water resources from short-term surface disturbance than Alternative A because it applies the most stringent requirements to minimize erosion. The BLM reestablishes native plant communities in disturbed areas; requires temporary protective surface treatments of disturbed areas, such as mulch, matting, netting, or tackifiers; requires interim and final reclamation of disturbed areas at the earliest feasible time; and closes or relocates heavily eroded or washed out roads and trails. Specifically, Alternative B requires the reestablishment of 50 percent of pre-disturbance levels of desired vegetative cover within three growing seasons following	To prevent erosion, Alternative C requires 30 percent of pre-disturbance vegetation cover within three growing seasons of initial seeding. However, unlike Alternative B, Alternative C does not institute long-term vegetation cover requirements. Alternative C would result in the greatest adverse impact to water resources from short-term surface disturbance due to the greater acreage disturbed under this alternative and because it applies the second-least stringent requirements to minimize erosion. Alternative C does require reclamation plans on a case-by-case basis and stabilizes heavily eroded or washed out trails, which are a major source of runoff and sediment. These management practices under Alternative C	Alternative D would help to reduce erosion and subsequent sediment loading in streams by reestablishing native or desired plant communities in disturbed areas; requiring temporary protective surface treatments of disturbed areas when appropriate; requiring interim and final reclamation of disturbed areas at the earliest feasible time; and closing and reclaiming heavily eroded roads and trails if other stable roads and trails are available. While Alternative D does not specify timing requirements for achieving vegetative cover after surface disturbance, a potential adverse impact, it also does not consider successful final reclamation of vegetative cover to be achieved until conditions are equal to or	Management and impacts under Alternative E would be the same as Alternative B except in the Greater Sage-Grouse Key Habitat Areas ACEC, with additional management regarding re-establishment of sagebrush cover and understory vegetation. Fire and fuels management under Alternative E would be the same as Alternative B, except in the Greater Sage-Grouse Key Habitat Areas ACEC, which includes additional restrictions on the use of prescribed fire and post-fire reclamation requirements compared to Alternative B. Alternative E would result in the fewest short-term adverse impacts to surface water quality and quantity from soil erosion related to fuels treatments and prescribed fire.	Alternative F would allow fewer surface-disturbing resource uses and subsequent adverse impacts to water resources than alternatives A, C, and D, but more than alternatives B and E. As a result of additional restrictions in the Greater Sage-Grouse PHMAs ACEC, the number of new roads from ROW development and user-pioneered roads would be greater under Alternative F than alternatives A, B, and E, but less than alternatives C and D. In the Greater Sage-Grouse PHMAs ACEC, Alternative F would result in fewer mineral development-related surface disturbances than alternatives A, C, and D. In areas outside the Greater Sage-Grouse PHMAs ACEC, management for mineral resources, CTTM, and

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
(see above)	surface disturbance and 80 percent within 5 years of initial seeding to prevent erosion. These management practices under Alternative B would reduce adverse impacts to water quality from oil and gas development more than Alternative A.	would result in the greatest potential adverse impacts to water quality from oil and gas development, compared to the other alternatives.	better than pre-disturbance site conditions, a potential beneficial impact. Overall, measures to prevent erosion under Alternative D would result in a greater beneficial impact to surface water than under alternatives A and C, but less than under Alternative B.	However, fuels management under Alternative E could result in the largest adverse impacts to water quality from catastrophic fires.	ROWs would be similar to Alternative D, and impacts to water resources would generally be the same as described for that alternative.  Livestock grazing management under Alternative F is similar to management under Alternative D, and impacts to water would be similar to Alternative D. However, management for the Greater Sage-Grouse PHMAs ACEC includes additional livestock grazing management restrictions to promote vegetative cover compared to management under Alternative D, which could reduce adverse impacts to water quality and quantity from surface runoff compared to alternatives A, C, and D.  Alternative F also limits travel in the Greater Sage-Grouse PHMAs ACEC to designated roads and trails, resulting in greater beneficial impacts than alternatives A, C, and D, but fewer than alternatives B and E.
<b>Wild Horses</b>					
Under Alternative A, 28,392 acres (16 percent) of HMAs are within WSAs, which will limit adverse impacts to HMAs from surface-disturbing activities. Surface disturbance and the removal of vegetation would directly limit the available forage for wild horses and other grazing animals and, without appropriate reclamation or rehabilitation, may also lead to the establishment and spread of invasive species, potentially	Impacts of surface disturbance on wild horses would be similar to those described under Alternative A, although to a lesser extent, because the projected overall surface disturbance in the Planning Area is less under Alternative B. Management of minerals would result in impacts similar to those under Alternative A, although to a lesser extent. Implementation of Alternative B would close fewer acres in HMAs to mineral activity.	In general, management under Alternative C would emphasize resource use over resource conservation, which would result in more adverse impacts to forage and the health of wild horses, compared to the other alternatives. As a result, management of resources under Alternative C would have the greatest adverse impacts on wild horses compared to other alternatives.	Management designed to protect resources such as soil, water, and vegetation would benefit wild horses by limiting surface-disturbing activities and minimizing impacts to forage and habitat. Several management actions require avoidance of surface-disturbing activities for the protection of resources under Alternative D. In areas that require avoidance, surface-disturbing activities would be	Impacts from surface disturbance on wild horses under this alternative would be the same as Alternative B, except in the Greater Sage-Grouse Key Habitat Areas ACEC. Under Alternative E, greater restrictions on locatable mineral entry, mineral materials disposal, renewable energy development, and ROW development would apply in the proposed Greater Sage-Grouse Key Habitat Areas	Management designed to protect resources such as soil, water, and vegetation would benefit wild horses by limiting surface-disturbing activities and minimizing impacts to forage and habitat. These benefits would be slightly greater under this alternative than under Alternative D due to additional management actions that require avoidance of surface-disturbing activities for the protection of resources

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan	Alternative E	Alternative F
contributing to forage reduction. Reductions in forage would impact wild horses by increasing competition between livestock and other wildlife. Evaluating and potentially allowing fences in the McCullough Peaks HMA on a case-by-case basis may result in beneficial and adverse impacts to wild horses. Fences may help achieve healthier rangelands by allowing for rotational livestock grazing. Any fence decision would require site-specific analysis with public participation under NEPA to ensure the consideration of adequate alternatives and mitigations, including gate management and horse movement, before construction. Mitigating surface-disturbing and disruptive activities in the Fifteenmile HMA would result in beneficial impacts to wild horses by reducing adverse impacts associated with these activities, as previously described.	Alternative B would result in greater potential to increase forage availability for wild horses, resulting in the greatest benefit to health and vigor for the constrained number of horses in the HMAs (i.e., 70 to 160 horses for the Fifteenmile HMA and 70 to 140 horses for the McCullough Peaks HMA). In general, management under Alternative B emphasizes the conservation and protection of resources (e.g., vegetation, water, and soils) which may improve forage and the health of wild horses. As a result, management of resources under Alternative B would have greater beneficial indirect impacts to wild horses compared to Alternative A.	(see above)	prohibited unless the impacts could be mitigated, thereby limiting long-term adverse impacts to wild horses.	ACEC. Implementation of Alternative E would result in the least amount of short- and long-term surface disturbance compared to the other alternatives, and would therefore have the fewest adverse impacts to wild horses. Impacts from the management of resources under Alternative E would be the same as Alternative B, except in the proposed Greater Sage-Grouse Key Habitat Areas ACEC. Management actions for habitat restoration /vegetation, invasive species, and fire and fuels within the proposed Greater Sage-Grouse PHMAs ACEC may indirectly improve wild horse forage and health by incorporating objectives for the conservation and restoration of sagebrush habitats. Conversely, additional restrictions on fuels treatments in these areas also may increase the potential for larger, more intense fires in the long term and associated adverse impacts to wild horses. However, as under Alternative A, such fires would likely remain uncommon due to the historical absence of wildfires in the HMAs.	within the proposed Greater Sage-Grouse PHMAs ACEC. In areas that require avoidance, surface-disturbing activities would be prohibited unless the impacts could be mitigated, thereby limiting long-term adverse impacts to wild horses.



This table is a 2015 Wyoming ARMPA Summary of Environmental Consequences that were incorporated by reference into the 2019 planning effort and considered throughout the process. **Table 4-2d**, presents a comparison summary of impacts from management actions proposed for the alternatives considered in the 2014 Lander Field Office RMP Revision.

**Table 4-2d**  
**2014 Lander Field Office RMP Revision Summary of Environmental Consequences**

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>Cultural Resources</b>			
Restrictions on surface-disturbing activities for the protection of other resources (e.g., soil, water, biological resources, and special designations) under Alternative A provide would additional protections from surface-disturbing activities for cultural resources.	Restrictions on surface-disturbing activities for the protection of other resources (e.g., soil, water, biological resources, and special designations) are greatest under Alternative B, which would provide additional protections for cultural resources and reduce adverse impacts.	Because Alternative C places more of an emphasis on resource use, there are fewer restrictions on surface-disturbing activities for the protection of other resources (e.g., soil, water, biological resources, and special designations). Therefore, there would be more adverse impacts to cultural resources under Alternative C than under alternatives A and B.	Management for wildlife protection is stronger and applied to more areas under Alternative D although less so than Alternative B. This management would beneficially impact cultural resources.
<b>Fire and Fuels Management</b>			
<p>Avoiding surface-disturbing activities in special status species habitat, such as Greater Sage-Grouse nesting areas, would adversely impact fire suppression because of potential limitations on suppression tactics in these areas. These limitations may allow fires detrimental to landscapes to grow larger and result in more impacts in terms of acres burned.</p> <p>Protections for the benefit of Greater Sage-Grouse would result in adverse impacts to fuels management. Alternative A has moderate Greater Sage-Grouse protections with moderately adverse impacts to the fire programs.</p>	<p>Greater Sage-Grouse management under Alternative B would result in adverse impacts to fire suppression, with restrictions on surface-disturbing and disruptive activities within 3 miles of nesting areas. These limitations may allow fires detrimental to landscapes to grow larger and result in a greater impact in terms of acres burned.</p> <p>Limiting surface disturbance in buffers around Greater Sage-Grouse leks would have more of an adverse impact than Alternative A to fuels management, such as prescribed fire, especially in the mountain shrub-woodland interface, which demonstrates the greatest benefit from mechanical and fire treatments.</p>	<p>Many wildlife restrictions under Alternative C, including distance requirements for surface-disturbing activities around Greater Sage-Grouse leks, are similar to those under Alternative A. These restrictions would adversely impact fire suppression activities. This would potentially limit suppression actions and allow fires detrimental to the landscape to grow larger and cause more impacts in terms of acres burned.</p> <p>Alternative C has the same Greater Sage-Grouse management as Alternative A with the same limited adverse impacts to the fire and fuels program, particularly in comparison to Alternative B.</p>	<p>Many wildlife restrictions under Alternative D, including distance requirements for surface-disturbing activities around Greater Sage-Grouse leks in the Core Area, are similar to Alternative B. However, Alternative D is less restrictive outside the Core Area than Alternative B. Restrictions would result in adverse impacts to fire suppression activities. This would potentially limit suppression actions and allow fires detrimental to the landscape to grow larger and cause more impacts in terms of acres burned.</p> <p>Protections for Greater Sage-Grouse would adversely impact the fire and fuels program but less than under Alternative B, which has more restrictive prescriptions.</p>



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>Wildlife Resources</b>			
Alternative A requires, on a case-by-case basis, surveys to determine presence or absence of BLM sensitive species be completed prior to authorizing actions on public land. If species are present, measures are required to protect the species and limit adverse impacts to their habitat. Beneficial impacts to other wildlife using these same habitats would occur if mitigation measures were applied. Surface-disturbing and disruptive activities are prohibited on or within ¼ mile of occupied greater sage-grouse leks and avoided in greater sage-grouse nesting habitat within 2 miles of occupied leks from February 1 to July 31. This action would provide long-term protection of 16,283 acres of lek habitat and short-term protection of 794,452 acres of nesting habitat on public surface. Protections that eliminate habitat loss or restrict activities during sensitive breeding and birthing periods would result in beneficial impacts to many sagebrush-obligate wildlife species that use these same habitats. Alternative A management prescriptions do not vary by Greater Sage-Grouse Core Area or non-Core Area.	Alternative B prohibits livestock water development projects in greater sage-grouse nesting areas, which would prevent heavy grazing utilization and make more vegetation available to wildlife in those areas. Alternative B prohibits surface-disturbing and disruptive activities within 0.6 mile of occupied or undetermined greater sage-grouse leks, which also protects habitat for other wildlife utilizing the same area. Alternative B protects 93,410 acres of habitat on public surface lands over the long term, which represents an almost 600 percent increase in habitat protected over Alternative A. Alternative B avoids surface-disturbing and disruptive activities from February 1 to July 31 within 3 miles of occupied Greater Sage-Grouse leks, equating to approximately 1,339,609 acres of public surface lands. This seasonal protection would have a beneficial impact on many other species of sagebrush-obligate neotropical migrants nesting in these habitats. Alternative B protects 69 percent more acres of nesting habitat (794,452 acres) in the short term than Alternative A. Alternative B closes the designated Greater Sage-Grouse Core Area to oil and gas leasing, which would beneficially impact other wildlife species by eliminating habitat loss and animal disturbance/displacement from development and operations activities. Overall, Alternative B would result in greater beneficial impacts to wildlife from the larger buffer areas and the closure of the Greater Sage-Grouse Core Area to oil and gas leasing than Alternative A.	Alternative C management of the Greater Sage-Grouse Core Area and the size of Greater Sage-Grouse lek and nesting protection buffers is the same as Alternative A, and much less restrictive than management under Alternative B; therefore, Alternative C would provide fewer habitat and seasonal protections than Alternative B.	Alternative D opens the designated Greater Sage-Grouse Core Area to oil and gas leasing subject to thresholds for project locations and acres of disturbance. Limiting the amount of disturbance in the Greater Sage-Grouse Core Area would result in beneficial impacts to other wildlife occupying the same lands. Alternative D would result in fewer beneficial impacts than Alternative B and fewer adverse impacts than alternatives A and C. Greater Sage-Grouse lek buffers under Alternative D are the same as under Alternative B for the Core Area and the same as under alternatives A and C outside of the Core Area. Alternatives B and D would protect more wildlife habitat in the Core Area in the long term; Alternative D would protect fewer acres outside the Core Area than Alternative B. Alternative D applies a seasonal nesting TLS to all suitable nesting habitat in the Greater Sage-Grouse Core Area, which would protect more acres of habitat than all the other alternatives and result in beneficial impacts to nesting neotropical migrants and raptors utilizing these same acres.  Alternative D allows livestock water developments in Greater Sage-Grouse nesting habitat so long as they would be compatible with, and contribute to, improved Greater Sage-Grouse habitat. Alternative D would result in greater beneficial impacts to other wildlife species that use these same habitats than alternatives A and C, but fewer than Alternative B.
<b>Invasive Species and Pest Management</b>			
Management actions under Alternative A designed to protect wildlife and special status species habitat from the impacts of surface-disturbing and surface-disruptive activities would also protect the planning area from adverse impacts associated with the presence of INNS. Restrictions such as NSO and CSU in crucial wildlife habitat would limit development in these areas and provide a mutual beneficial impact for INNS management. This alternative closes and reclaims unnecessary roads and old mineral exploration trails to improve habitat on a case-by-case basis. The degree of this	Management actions under Alternative B designed to protect wildlife and special status species habitat from the impacts of surface-disturbing and surface-disruptive activities also serve to protect against INNS invasion. This alternative restricts and prohibits surface-disturbing activities to a much greater degree than Alternative A. In Greater Sage-Grouse nesting areas, surface-disturbing activities are highly restricted on 1,339,609 acres, somewhat more than Alternative A. While this is only a timing restriction it does limit surface disturbance during a time that is ideal for the introduction of INNS in soils that are wet in the spring. Buffers around occupied Greater Sage-Grouse leks	Alternative C places the fewest restrictions on surface-disturbing activities based on wildlife and special status species concerns. Therefore, Alternative C would be expected to result in a greater degree of development in critical wildlife habitats, and in turn result in the highest potential for INNS introduction and establishment compared to the other alternatives. In Greater Sage-Grouse nesting areas, Alternative C prohibits surface-disturbing activities the same as Alternative A. Alternative C has the same nesting stipulations as Alternative A, which is less beneficial to soils and thus INNS management during a vulnerable season.	Alternative D places more restrictions on surface-disturbing activities for the protection of wildlife and special status species than alternatives A and C, but not as many as Alternative B. Accordingly, adverse impacts under Alternative D from INNS establishment and spread would be less than those under alternatives A and C, but more than those under Alternative B although limits on surface disturbance through the use of Required Design Features would reduce the adverse impacts. Restrictions on surface disturbance due to special status species would limit the amount of bare ground allowed, particularly in the Greater Sage-

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<p>less protective management depends on whether disturbance would be likely for development.</p> <p>Management for the benefit of Greater Sage-Grouse minimally limits surface disturbance and thus provides only a small protection from INNS. It is likely that the 1/4-mile buffer will only relocate disturbance and will not serve to cap it.</p>	<p>prohibit surface-disturbing activities on 93,410 acres of BLM surface acres, substantially more than Alternative A.</p>	<p>Alternative C management of wildlife resources does not close and reclaim unnecessary roads and old mineral exploration trails, unlike Alternative A, which does on a case-by-case basis, and Alternative B, which requires more active identification and rehabilitation of redundant and hazardous roads. Addressing these road-related erosion problems through rehabilitation denies INNS preferred germination sites.</p>	<p>Grouse Core Area, and therefore would decrease potential locations for INNS establishment.</p> <p>Like Alternative B, Alternative D closes and reclaims redundant and hazardous roads and old mineral exploration trails and has Greater Sage-Grouse objectives for road reclamation. Addressing these road-related erosion problems through rehabilitation would deny INNS preferred germination sites and therefore would result in more beneficial impacts to INNS management than Alternative A, which closes and reclaims redundant and hazardous roads and old mineral exploration trails on a case-by-case basis. Alternative C provides the least protection for special status species, alternatives A and D provide a mid-level of protection, and Alternative B provides the most protection to special status species and by imposing the most restrictive limits for surface-disturbing impacts.</p>
<b>Lands with Wilderness Characteristics</b>			
<p>Alternative A does not manage the Little Red Creek Complex as non-VSA land with wilderness characteristics. The alternative does not prescribe management actions to enhance or maintain the wilderness characteristics of the area. This management would result in impacts to wilderness characteristics from other programs because mitigation actions and proactive management will focus on enhancing the area for other resources (primarily wildlife).</p>	<p>Alternative B air, soil, water, and wildlife management beneficially impacts the Little Red Creek Complex by limiting surface disturbance and intrusion of human presence.</p>	<p>Alternative C air, soil, water, and wildlife management is less protective than Alternative A and thus has fewer beneficial impacts to wilderness characteristics. These resources are managed with standard stipulations which would allow more surface disturbance which would reduce the wilderness characteristics of the area.</p>	<p>Alternative D impacts to lands with wilderness characteristics from resources management would be the same as Alternative B. Air, water, soil, and riparian-wetland management limits surface disturbance which beneficially impacts wilderness. Wildlife management protects habitat from surface disturbance, disruptive activities, and closes the entire Dubois area to oil and gas leasing because of wildlife resources, particularly threatened and endangered species. These protections for other resources would beneficially impact the wilderness characteristics of the Little Red Creek Complex.</p>
<b>Livestock Grazing Management</b>			
<p>Special status species management under Alternative A would result in a minor adverse impact to livestock grazing. A substantial adverse impact would result from management for the protection of Greater Sage-Grouse. Alternative A closes a 1/4-mile buffer around Greater Sage-Grouse leks to surface disturbance, including water development and other range improvement projects. However, only 785 acres within the 1/4-mile buffer are not already served by a water development project. Other than seasonal</p>	<p>Greater Sage-Grouse management under Alternative B would result in substantially more adverse impacts to livestock grazing than under Alternative A. Alternative B does not adopt the Core Area concept, but instead buffers all leks by 0.6 mile and closes all Greater Sage-Grouse nesting habitat to water developments. Approximately 56 percent of the planning area, some 1,339,609 acres, are in Greater Sage-Grouse nesting habitat. However, most of this area is already served by water development projects. Only 225,833 acres (17 percent of nesting habitat) are more than 2 miles from</p>	<p>Alternative C management of special status species would result in adverse impacts similar to Alternative A. Alternative B management is more favorable to special status species and less favorable to livestock grazing because of the protections and special management requirements for other resource values.</p>	<p>Wildlife management actions under Alternative D would result in the next most adverse impacts to livestock grazing after Alternative B, but not much more than Alternative A or Alternative C. Alternative D includes the continued development of range improvements, but focuses them as tools to implement the Comprehensive Grazing Strategy in consideration of adverse impacts to wildlife and other resources. Moreover, the adverse impacts cannot outweigh the beneficial impacts of the projects. Although Alternative D does</p>

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limitations on when range improvement projects can be built, Alternative A does not limit projects in Greater Sage-Grouse nesting areas.	a water development project, the maximum distance livestock will walk to obtain water. In addition, 16,283 acres (0.7 percent) of nesting habitat is within ¼ mile of the perimeters of leks, which are closed to surface disturbance, including water development projects, under Alternative A.	(see above)	<p>not give priority to livestock in terms of use of forage as does Alternative C, under Alternative D this would happen by default because of the utilization levels. However, Alternative D will consider wildlife and special status species such as Greater Sage-Grouse when considering forage use. This consideration will be incorporated into the comprehensive grazing strategies through stocking rate evaluations that allow for appropriate residual forage to meet the needs of big game and hiding cover for Greater Sage-Grouse. In many cases, this could result in a reduction in stocking rate to meet resource objectives associated with wildlife.</p> <p>Management of special status species under Alternative D would result in impacts similar to Alternative A, although slightly more restrictive, which would result in substantially fewer adverse impacts to livestock grazing than Alternative B. Alternative D is more favorable to special status species and less favorable to livestock grazing, but would result in fewer adverse impacts than Alternative B because Alternative D adopts the Core Area approach to management for the benefit of Greater Sage-Grouse. As a result, only the leks in the Core Area are buffered from surface disturbance by 0.6 mile, which would allow range improvement projects on an additional 8,801 acres. This would result in fewer adverse impacts to livestock grazing than Alternative B, but more than Alternative A or Alternative C. Although seasonal limitations on surface-disturbing or disruptive activities are applied over a greater area under Alternative D than under alternatives A and C, and less than Alternative B, this would not result in adverse impacts to livestock grazing, although it would reduce the time available for implementing range improvement projects. Potential range improvements might need to be modified to avoid and buffer Greater Sage-Grouse habitat to mitigate impacts of increased livestock use in the area.</p>

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<b>Minerals</b>			
<b>Locatable Minerals</b>			
<p>The greatest adverse impact of resource management on locatable mineral activities comes from decisions to withdraw areas to protect wildlife, special status species, cultural resources, or visual resources. However, the actual adverse impact to locatable minerals would be very minor because there is little overlap between the withdrawal areas and the areas of high potential for locatable minerals (BLM 2009b).</p>	<p>Special Designations addresses Alternative B mineral withdrawals for the benefit of wildlife because such withdrawals occur only in proposed ACECs; however, Alternative B management outside of the Greater Sage-Grouse ACEC prohibits surface disturbance over a larger area than Alternative A. This protection would not preclude locatable mineral entry if necessary to obtain the mineral.</p>	<p>Alternative C includes the same restrictions on surface disturbance for the protection of Greater Sage-Grouse as Alternative A and substantially fewer than Alternative B. These restrictions would not preclude mining development and might impact only exploration or other activities short of actual mining.</p> <p>Alternative C includes the fewest restrictions on locatable minerals for the benefit of wildlife of any of the alternatives. Alternative C includes the same protections for Greater Sage-Grouse as Alternative A and fewer than Alternative B, but the impact of this management is primarily in time and cost of processing applications rather than constituting adverse impacts to the locatable mineral program. There could also be a cost associated with the prohibition of certain activities (e.g., surface-disturbing or disruptive) during certain times of year due to unavailability of workforce, higher maintenance costs, or inclement weather, which would be proportional to the relative amounts of surface under those stipulations. The Alternative C protections for Greater Sage-Grouse are the same as Alternative A and much less restrictive than Alternative B.</p>	<p>Management for protection of Greater Sage-Grouse under Alternative D results in a less adverse impact to locatable mineral exploration than Alternative B, but substantially more than alternatives A and C. Like Alternative B, Alternative D closes areas within 0.6 mile of Greater Sage-Grouse leks to surface disturbance but locatable mineral development is not subject to this limitation by the BLM. Alternative D also places fewer restrictions on the height of objects in Core Area than Alternative B. The Alternative D determination that exploration activities in Core Area during seasonal timing restrictions for protection of Greater Sage-Grouse nesting and early brood-rearing habitat would constitute unnecessary degradation would adversely impact the locatable mineral program, but only from a timing perspective, with perhaps increased operator cost as a consequence, but would not preclude development. The limitation would have the most impact in the areas containing uranium south of Jeffrey City to Green Mountain that are in Core Area; most areas with uranium potential are outside Core Area because of habitat loss related to earlier mining activities.</p>
<b>Leasable Minerals Oil and Gas</b>			
<p>Management of Greater Sage-Grouse, a high-profile special status species, under Alternative A does not incorporate the Core Area concept and applies a ¼-mile buffer around Greater Sage-Grouse leks. Nesting areas are avoided by 2 miles. Alternative A does not specially manage the areas identified by the Wyoming Governor as the Greater Sage-Grouse Core Area and has no density or disturbance caps in those areas or any other. Therefore, the adverse impacts to the oil and gas program are limited.</p>	<p>Alternative B manages areas identified as having high and moderate potential for oil and gas using existing (Alternative A) management stipulations, except within the boundaries of the proposed Government Draw/Upper Sweetwater Greater Sage-Grouse ACEC, which is closed to leasing. This closure adversely impacts oil and gas leasing. See the Socioeconomic Resources section for an analysis of the economic impact associated with this closure.</p> <p>Compared to Alternative A, Greater Sage-Grouse management under Alternative B would result in substantially more adverse impacts to oil and gas development. Alternative B manages areas utilizing the Core Area identified by the Governor of Wyoming. The Core Area is closed to oil and gas leasing, and development of existing leases must meet density</p>	<p>Management of fish, wildlife, special status plants, special status fish, and special status wildlife under Alternative C would adversely impact oil and gas development through closure of areas to oil and gas leasing, and implementing restrictions through TLS, CSUs, and NSOs. Under Alternative C, oil and gas leases have stipulations for the protection of fish, wildlife, special status plants, special status fish, and special status wildlife, but these stipulations have the lowest level of restrictions on oil and gas development that meets BLM's obligation for minimum resource protections. Site-specific applications of moderate stipulations would not adversely impact oil and gas development beyond a very limited amount. The difference in moderate and major constraints among alternatives A, B, and C are reflected in the variation from baseline</p>	<p>Under Alternative D, restrictions and constraints on oil and gas development result from management for the protection of other resources. The most wide-ranging impacts to oil and gas leasing from management of other resources result from Greater Sage-Grouse protections and from management that closes the area to oil and gas leasing or makes it an NSO for the protection of wildlife, or applies cultural resources mitigation measures. This management is primarily in Special Designations (see below).</p> <p>In areas open to oil and gas leasing, all leases are subject to standard lease stipulations. Additional stipulations may be applied in some areas to the lease or as COAs. Alternative D has Required Design Features that are applied to all leases; the</p>

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(see above)	limitations and a surface disturbance cap that considers disturbance from all resource uses on public, state, and private lands. Inside and outside the Core Area, the buffers around leks are substantially larger under Alternative B than under Alternative A thus preventing surface disturbance in approximately two and one half times the acres as Alternative A. While the adverse impacts from the disturbance cap can be calculated only on a site-specific basis, the disturbance cap has the potential to result in substantially more adverse impacts to oil and gas development than Alternative A, which does not impose such a limitation. However, the surface caps are applied in areas of lower oil and gas potential. Adverse impacts to oil and gas development from the increased lek buffer were considered when calculating the decrease in the baseline unconstrained projection identified above.	discussed above. Alternative C has the least reduction from baseline.	<p>Required Design Features vary between what is required inside and outside of Core Area, although some Required Design Features, such as the design of impound ponds, apply to the entire planning area in an approach to limiting WNV through reducing breeding grounds for mosquitoes.</p> <p>Alternative D manages areas identified as having high and moderate potential for oil and gas, including DDAs, using existing (Alternative A) management stipulations, except within the area from Hudson to Atlantic City which is managed as NSO, a substantial adverse impact. Alternative D would impose more restrictions on oil and gas development associated with Greater Sage-Grouse management in the Core Area than alternatives A and C, but fewer than Alternative B, depending on existing surface disturbance, regardless of which program caused the disturbance. While most areas with moderate and high potential for oil and gas are outside the Core Area, Greater Sage-Grouse management would adversely impact existing and projected oil and gas development. The degree of this adverse impact can only be quantified on a site-specific basis, but management under Alternative D could result in the relocation of or limitations to oil and gas development because of existing, unreclaimed disturbance. For example, historic mining disturbances such as uranium mines where sagebrush habitat had not been restored would be included in the calculation for purposes of meeting the Alternative D 5-percent cap. This would be less adverse than the 2.5-percent cap under Alternative B, but more adverse than alternatives A and C.</p> <p>Required Design Features to reduce impacts to Greater Sage-Grouse (both inside and outside of Core Area) would adversely impact oil and gas development. However, the Required Design Features would not be applied to existing leases, and exceptions would be allowed if the lease holder were able to show that the Required Design Features would preclude development. Additional BMPs identified for the benefit of Greater Sage-Grouse would adversely impact oil and gas if applied</p>



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(see above)	(see above)	(see above)	as COAs following site-specific analysis. The BMPs would be applied unless technically unfeasible; the adverse impacts to oil and gas would be analyzed in site-specific NEPA documents.
<b>Salable Minerals</b>			
<p>Wildlife-related impacts under Alternative A include restrictions such as closures, NSOs, and timing and surface-use restrictions. Greater Sage-Grouse leks are considered NSO on or within a ¼-mile buffer around occupied leks, and under Alternative A would result in closures of 16,283 acres of surface. This would adversely impact mineral materials disposals. In addition, surface-disturbing and surface-disruptive activities are to be avoided in Greater Sage-Grouse nesting habitat within 2 miles of occupied leks from February 1 through July 31. This stipulation would adversely impact the availability of mineral materials from new surface disturbance by constraining activities to only a few months out of the year in these areas, which total 794,452 acres of surface estate. This is an economic and convenience issue for the applicant rather than an adverse impact that closes the areas.</p> <p>Alternative A Greater Sage-Grouse management increases the likelihood the species would be listed under the ESA because a ¼-mile buffer and a 2-mile buffer area are less than the science recommends, and because other program management that contributed to a downward trend in Greater Sage-Grouse populations is continued. Listing would result in fewer potential impacts to the mineral materials program than to the locatable minerals program because the BLM's ability to control locatable mineral development is more limited even though it must comply with the ESA.</p>	<p>Wildlife-related impacts to mineral materials availability are largest under Alternative B and include restrictions such as closures, NSOs, and timing and surface-use restrictions. Adverse impacts to mineral materials disposals due to Greater Sage-Grouse concerns increase in acreage under Alternative B because the buffer of NSO is increased to 0.6 mile around occupied leks, resulting in closures of 93,410 acres of surface estate (a minor increase over Alternative A).</p>	<p>Wildlife-related impacts to mineral material availability would be much less under Alternative C than under Alternative B and Alternative C would have similar impacts compared to Alternative A.</p>	<p>Alternative D management for protection of wildlife including Greater Sage-Grouse would result in fewer adverse impacts to mineral materials disposals than Alternative B, but many more than alternatives A and C. Alternatives B and D close the area within 0.6 mile of leks to surface disturbance, including surface mining of leasable minerals, and many other areas for resource protections, including wildlife. Alternative D would be somewhat less adverse than Alternative B in the amount of surface disturbance allowed both inside and outside Greater Sage-Grouse Core Area because Alternative B applies limits to all disturbance, including mineral materials disposals. However, disturbance limits under Alternative D do not apply to mineral materials disposals, rangeland improvement projects, or other ROWs and are limited geographically to the Core Area. Outside the Core Area, Alternative D restricts surface disturbance to within ¼ mile of leks. This reduces the areas protected from surface disturbance outside the Core Area in comparison to Alternative B. Alternative D also places fewer restrictions on the height of objects in the Core Area.</p>

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<b>Paleontological Resources</b>			
Restrictions on surface-disturbing activities for the protection of other resources (e.g., soil, water, biological resources, and special designations) under Alternative A provide additional protection for paleontological resources.	Restrictions on surface-disturbing activities for the protection of other resources (e.g., soil, water, biological resources, and special designations) are greatest under Alternative B, which would provide additional protection for paleontological resources and reduce adverse impacts.	Because Alternative C places a greater emphasis on resource use, there are fewer restrictions on surface-disturbing activities for the protection of other resources (e.g., soil, water, biological resources, and special designations). Therefore, there would be more adverse impacts to paleontological resources than under alternatives A and B.	Limitations on disturbance to protect wildlife, which also protect paleontological resources, are less in Alternative D than B, but greater than Alternative A and substantially more than Alternative C. The Core Area Strategy and the management to benefit resources in the Lander Front-Hudson-Atlantic City area would strongly benefit paleontological resources, and Alternative D is second only to Alternative B in these protections. However, development would still be authorized, with resulting adverse impacts to paleontological resources.
<b>Recreation</b>			
Overall, allowable use decisions to protect resources (e.g., wildlife) would limit development associated with resource uses. Therefore, most allowable use decisions associated with resources would result in the maintenance of recreation settings, a beneficial impact to recreation management.	Alternative B closes 71,761 acres to motorized vehicles year-round to protect resources. The year-round closures would result in 71,761 acres trending toward primitive setting. This trend would reduce opportunities for motorized recreation activities and enhance nonmotorized activities. Stipulations for resources (e.g., wildlife and cultural resources) could conflict with recreation settings and opportunities in important recreation areas. Conflict would be local and random, and occur at a lower rate than Alternative A.	Alternative C does not close areas or limit motorized travel seasonally. As a result, no settings in the planning area would trend toward primitive. Compared to Alternative A, this would result in fewer opportunities for nonmotorized recreation activities and provide more acreage for motorized activities. In addition, without allowable use decisions to sustain or enhance recreation opportunities, standard stipulations on resources (e.g., wildlife and cultural resources) could conflict with recreation settings and opportunities in important recreation areas. These conflicts would be local and random; therefore, it is not possible to predict the scale and locations of the impacts.	Allowable use decisions to protect resources (e.g., wildlife) would limit development associated with resource uses, including increased road densities, decreased naturalness, and increased contacts with other humans (setting trending toward urban/industrial). Therefore, most allowable use decisions associated with resources would result in the maintenance of recreation settings. This would be particularly true in Core Area, but would also apply to protections for the benefit of other resources, including wildlife and historic trails. The Required Design Features that would reduce road densities and require reclamation of unnecessary roads would have adverse impacts on recreation similar to impacts under Alternative B.

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<b>Renewable Energy</b>			
Alternative A mitigation measures (i.e., seasonal restrictions to protect wildlife resources and critical habitat) would restrict the timing of surface-disturbing and other disruptive activities, but would not preclude construction at another time of the year. This wildlife management would not adversely impact the renewable energy program.	Adverse impacts from management of special status wildlife, however, would be much greater under Alternative B, because the alternative places substantially more limitations on ROWs and surface disturbance. Particularly regarding protections for Greater Sage-Grouse, Alternative B would open many fewer areas to wind-energy development and place more restrictions on the allowable height of poles or structures where adverse impacts to Greater Sage-Grouse would result. This would restrict or preclude many utility ROWs and turbines. Alternative B surface disturbance limitations and closure of the Greater Sage-Grouse Core Area would close 2,328,951 acres to wind-energy development. In addition, nesting habitat outside the Core Area have limits on the number of energy disturbances and the percent of surface disturbance from any source, including on private and state owned lands, which would require a site-specific analysis to determine if disturbance caps have been reached or would be reached by the wind-energy project. While adverse impacts to wind-energy development cannot be quantified, these limits could preclude wind-energy development outside the Core Area, making adverse impacts to wind-energy development under Alternative B the greatest of any alternative.	Alternative C includes many fewer protections for special status species and therefore would result in many fewer adverse impacts to wind-energy development from this management than any other alternative. However, the BLM must still manage to protect special status species under Alternative C, so these adverse impacts may be only slightly fewer under this alternative. Therefore, even without RMP prescriptions such as limitations on height of structures in the Greater Sage-Grouse Core Area, each project would be considered for adverse impacts in the Core Area and the height of proposed structures would be analyzed. However, management under Alternative C would be likely to accelerate the downward trend in Greater Sage-Grouse populations and would be the most likely alternative to lead to Greater Sage-Grouse listing under the ESA.	Alternative D Greater Sage-Grouse management would be much less adverse to wind-energy development than Alternative B, because Alternative D limits the protected area for Greater Sage-Grouse to Core Area while Alternative B applies them to all nesting habitat. Core Area is managed as an avoidance area for wind energy in this alternative, but applications for wind-energy development will be denied in Greater Sage-Grouse avoidance zones until research on the impact of wind energy on Greater Sage-Grouse has been completed and mitigation identified. There are 57,669 more acres of land open with wind development potential in Alternative D compared to Alternative B. In addition, the Alternative D surface disturbance cap for Greater Sage-Grouse Core Area protection is double that of Alternative B (as opposed to alternatives A and C, which have no cap). Like Alternative B, Alternative D limits energy projects, including wind, to one project per section (640 acres). Required Design Features for the benefit of wildlife protections would have additional adverse impacts to the renewable energy program by restricting the size and location of development.



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>Rights-of-Way and Corridors</b>			
Alternative A mitigation measures (i.e., seasonal restrictions to protect wildlife resources and critical habitat) would restrict the timing of surface-disturbing and other surface-disruptive activities, but would not preclude construction at another time of the year. This wildlife management would not adversely impact ROWs.	Adverse impacts to ROWs from protection of special status plants under Alternative B would be the same as under Alternative A. Adverse impacts from management of special status wildlife would be much greater under Alternative B than under Alternative A because Alternative B places substantially more limitations on ROWs. Particularly regarding protections for Greater Sage-Grouse, Alternative B opens fewer areas to ROWs and places more restrictions on the allowable height of poles or structures. This would restrict or preclude many utility ROWs.	Protections for fish, wildlife, and special status species under Alternative C would result in fewer adverse impacts to the ROW program than any other alternative. Therefore, those protections would be less likely to result in a change in location or design of ROWs than Alternative B. The difference in adverse impacts between alternatives A and C would likely mean little, because under all alternatives the BLM must specially manage to protect special status species. Therefore, even without RMP prescriptions such as limitations on the height of structures in Greater Sage-Grouse Core Area, the BLM would consider each site-specific project for adverse impacts in the Core Area and would analyze the height of proposed structures. Across the planning area, Alternative C would result in the fewest restrictions for the benefit of resources and therefore would result in the fewest adverse impacts to the ROW program. However, management under Alternative C would be likely to accelerate the downward trend in Greater Sage-Grouse populations and would be the alternative most likely to lead to Greater Sage-Grouse listing under the ESA.	Alternative D would result in fewer adverse impacts than Alternative B from wildlife protections. However, in effect, this more restrictive management might mean little because under all alternatives the BLM must specially manage to protect special status species. Therefore, even without RMP prescriptions such as limitations on the heights of structures in the Core Area, the BLM would consider each site-specific project for adverse impacts in the Core Area and analyze the height of proposed structures. Avoiding ROWs in Core Area would result in far fewer adverse impacts than Alternative B. The one area in which Alternative D management of special status species could result in substantially less adverse impact to the ROW program than Alternative B is that Greater Sage-Grouse Core Area surface disturbance calculations are applied only to energy ROWs and transmission lines and not to other ROWs. However, the disturbance associated with all ROWs could limit mineral development which in turn would adversely impact the demand for ROWs. The Required Design Features to limit adverse impacts associated with surface disturbance as well as those that require aggressive reclamation would adversely impact the ROW program. However, measures to minimize disturbance footprints would reduce the cost of reclamation. These limits, coupled with strict avoidance criteria would make the adverse impacts more similar to Alternative B than to Alternative A.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>Riparian-Wetland Resources</b>			
Management actions under Alternative A designed to protect wildlife and special status species habitat from the impacts of surface-disturbing and surface-disruptive activities would also protect riparian-wetland resources from the impacts of these activities. For example, applying NSO and CSU restrictions in crucial wildlife habitat would reduce the chance of sediment loading into streams in these areas. Other beneficial impacts would include restoring streams and fisheries habitat on a case-by-case basis, which would result in a direct beneficial impact to riparian-wetland areas. Alternative A limits surface disturbance within ¼ mile of Greater Sage-Grouse leks, but the degree of beneficial impact of this management would depend on the amount of riparian-wetland areas within ¼ mile of leks.	Management actions designed to protect wildlife and special status species habitat apply greater restrictions on surface-disturbing activity under Alternative B than under the other alternatives, and therefore would result in more beneficial impacts to riparian-wetland resources. The expansion of the Greater Sage-Grouse buffer to 0.6 miles under Alternative B would result in moderate to major beneficial impacts to riparian-wetland areas because there would be no degradation of riparian-wetland resources from surface disturbance.	Like Alternative A, Alternative C applies fewer management restrictions on surface-disturbing and surface-disruptive activities designed to protect wildlife and special status species. The absence of or decrease in these restrictions would result in fewer beneficial impacts to riparian-wetland resources compared to Alternative B. To the extent that the 0.6-mile buffer includes many more riparian-wetland areas, adverse impacts under Alternative C would be much more substantial when compared to Alternative B. Management actions designed to improve fisheries would be similar to Alternative A and would therefore result in similar beneficial impacts.	Alternative D applies more restrictions on surface-disturbing activities than alternatives A and C, but not as many as Alternative B for the protection of wildlife. Accordingly, impacts to riparian-wetland resources would be less than those under alternatives A and C, but more than those under Alternative B. Restrictions on surface disturbance due to special status species limit the amount of bare ground allowed, particularly in the Greater Sage-Grouse Core Area, and therefore would reduce overland flow and sedimentation into riparian-wetland areas. Impacts to riparian-wetland areas from surface disposal are more likely under Alternative D than Alternative B, which prohibits surface disturbance. However, whether the impacts would be beneficial or adverse would depend on site-specific factors. Required Design Features would limit adverse impacts associated with many mineral developments. Outside the Core Area, the limitation on surface disturbance around leks is the same under Alternative D as under alternatives A and C, with moderate to major adverse impacts to riparian-wetland areas. The closure of the Dubois area under Alternative D to surface-disturbing activities such as oil and gas development, phosphate leasing, mineral materials disposals, and major ROWs would result in a net beneficial impact to riparian-wetland resources by reducing sedimentation from upland runoff.
<b>Soils</b>			
Management actions under Alternative A designed to protect wildlife and special status species habitat from the adverse impacts of surface-disturbing and disruptive activities also would protect soil resources from these adverse impacts. While timing limitations would not beneficially impact soils, some wildlife protections (e.g., closing the area within ¼ mile of Greater Sage-Grouse leks) would beneficially impact soil resources in those areas.	Management actions under Alternative B designed to protect wildlife and special status species habitat from the adverse impacts of surface-disturbing and disruptive activities also would protect soil resources from these activities. Alternative B increases the areas closed to surface-disturbing activities for the protection of wildlife. While this management action would not affect areas already leased, if the leases expire, the area would not be re-leased. Closing Greater Sage-Grouse Core Area to leasing would avoid surface disturbances associated with oil and gas development, which would result in a substantial beneficial impact to soil resources compared to Alternative A.	Alternative C wildlife management is generally the same as management under Alternative A regarding wildlife protections, including protections for Greater Sage-Grouse leks. The difference in adverse impacts to soils between alternatives A and C would be minor.	Alternative D is similar to Alternative B in its wildlife protections, including Greater Sage-Grouse lek protections, except that Alternative D is less protective, particularly outside Core Area and regarding solid minerals leasing. Alternative D wildlife management is more protective of soil resources than Alternative A, and considerably more protective than Alternative C, because Alternative D closes much more area to surface disturbance.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>Special Designations</b>			
<b>Congressionally Designated Trails Cultural and Historic Resources</b>			
Restrictions on surface-disturbing activities for the protection of other resources (e.g., soil, water, biological resources, and special designations) under Alternative A provide additional protections for NHT resources. A total of 27,728 acres surrounding the trails, and additional acres identified on a site-specific basis, are protected from surface disturbances under this alternative.	Restrictions on surface-disturbing activities for the protection of other resources (e.g., soil, water, biological resources, and special designations) are greatest under Alternative B, providing additional protections for NHT resources and reducing adverse impacts. This is particularly true in connection with protections for the benefit of Greater Sage-Grouse nesting habitat and leks. Under Alternative B, 1,229,358 acres are within the 15-mile NHT protection buffer, and 89 percent of those acres are closed to surface disturbance primarily for the protection of Greater Sage-Grouse.	Because Alternative C places more emphasis on resource use, it includes fewer restrictions on surface-disturbing activities for the protection of other resources (e.g., soil, water, biological resources, and special designations). Therefore, Alternative C would result in more adverse impacts to NHTs than alternatives A and B. These impacts are described in other resource sections. The most substantial difference between alternatives B, A, and C is the acreage are closed to surface disturbance for the protection of Greater Sage-Grouse. Because much of the NHTs are in areas closed for this reason (approximately 89 percent of the 15 miles on either side of the NHTs are in areas closed under Alternative B), this sensitive species management would result in substantial beneficial impacts to NHTs that would be minimal under alternatives A and C.	Alternative D protections for Greater Sage-Grouse and other wildlife close fewer acres to surface disturbance than Alternative B, but substantially more acres than Alternative A or Alternative C. Consequently, Alternative D special status species management would be substantially more beneficial to NHTs than Alternative A or Alternative C, and almost as beneficial as Alternative B. Required Design Features to limit adverse impacts from surface disturbance would limit the adverse impacts that would otherwise occur, but not to the extent of Alternative B.
<b>ACECs</b>			
<u>Lander Slope</u> Wildlife management in the Lander Slope ACEC includes seasonal closures for the benefit of large concentrations of wintering big game. However, wildlife management under Alternative A does not prohibit fences, which could result in adverse impacts. However, if the fences were utilized for improvement of riparian-wetland areas, a minor beneficial impact could result. Greater Sage-Grouse management would result in marginal beneficial impacts to ACEC values by buffering leks against surface disturbance, but only by minimal amounts.	<u>Lander Slope</u> Wildlife management under Alternative B would result in more beneficial impacts to the Lander Slope ACEC values than Alternative A. Under Alternative B, livestock forage is adjusted as needed to meet big-game herd objectives, and vegetation management emphasizes wildlife needs. Alternative B would remove some existing fences and would not authorize new fences on public lands. Alternative B road closures to benefit wildlife would result in a long-term beneficial impact to ACEC wildlife values. However, the closures are not anticipated to result in any short-term benefits. Greater Sage-Grouse management buffers leks with a larger buffer than in Alternative A, which increases the areas closed to surface disturbance in the Greater Sage-Grouse Core Area.	<u>Lander Slope</u> Alternative C wildlife management would result in more adverse impacts to wildlife than under Alternative B. Alternative C does not limit habitat fragmentation or increase vegetation by closing roads or limiting the footprint of projects, which would adversely impact wildlife. Alternative C does not apply seasonal restrictions to oil and gas O&M actions, therefore, there would be adverse impacts to wildlife during important seasons in their life-cycles due to disruptions from O&M actions. Because the Lander Slope ACEC is open to oil and gas development, O&M activities can occur year-round, despite adverse impacts to wildlife.	<u>Lander Slope</u> Wildlife management under Alternative D would result in more beneficial impacts to ACEC wildlife values than alternatives A and C, but fewer than Alternative B. The acres closed to surface disturbance around Greater Sage-Grouse leks is the same as Alternative B in the Core Area but less outside of the Core Area. Alternative D is the same as Alternative A with regard to authorizing roads, which would result in more adverse impacts than Alternative B, which closes the ACEC to new roads for wildlife protections and also includes more proactive road closures of redundant roads to reduce adverse impacts to habitat. It is not clear how different the impacts would be because no alternative assumes new roads in the area. However, with the trend toward subdividing private lands near or adjoining the ACEC the difference could increase in importance over time.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<p><u>Red Canyon</u> Alternative A would result in limited protections for Greater Sage-Grouse although 8,392 acres are in the Wyoming Governor's Core Area. Wildlife management under Alternative A does not prohibit fences, which would cause an adverse impact by removing vegetation, creating livestock concentration areas, fragmenting habitat, and impeding migration. Much of the Red Canyon ACEC wildlife migrates between winters in the ACEC and summer habitat in the Shoshone National Forest, so fences result in an important adverse impact. However fences can also improve riparian-wetland areas resulting in a long-term benefit to the elk if the fences are ultimately removed and livestock grazing in the riparian-wetland area is appropriately managed. Buffers around Greater Sage-Grouse leks benefit ACEC values by limiting surface disturbance.</p>	<p><u>Red Canyon</u> Greater Sage-Grouse management buffers leks with a larger buffer than in Alternative A, which increases the acres closed to surface disturbance.</p>	<p><u>Red Canyon</u> Alternative C wildlife management is similar to Alternative A and would be somewhat more adverse to ACEC values than Alternative B because forage allocations under Alternative C emphasize livestock grazing use rather than wildlife and Alternative C has the same Greater Sage-Grouse buffer as Alternative A. Alternative C does not limit habitat fragmentation or increase vegetation by closing roads or limiting the footprint of projects. Although Alternative C does not apply seasonal protections from oil and gas O&amp;M activities as does Alternative B, this would result in a minimal impact because there is very low potential for oil and gas in the ACEC.</p>	<p><u>Red Canyon</u> Alternative D wildlife management would result in more beneficial impacts to Red Canyon ACEC wildlife values than Alternative A, substantially more than Alternative C, and similar impacts to Alternative B. Alternative D would limit surface disturbance in the 8,392 acres of the Core Area.</p>
<p><u>Beaver Rim</u> Wildlife Greater Sage-Grouse management would beneficially impact ACEC values both in the ACEC and the expanded area because the areas within ¼ mile of Greater Sage-Grouse leks are closed to surface disturbance. This would visually limit some intrusive development in the ACEC viewshed but would not be fully protective of Greater Sage-Grouse.</p>	<p><u>Beaver Rim</u> Alternative B management of Greater Sage-Grouse habitat would beneficially impact ACEC values by reducing considerably more acres around leks to surface disturbance as well as imposing disturbance caps. Disturbance caps and limits on the number of energy developments under Alternative B would provide additional beneficial impacts to ACEC values.</p>	<p><u>Beaver Rim</u> Alternative C includes the same management of Greater Sage-Grouse habitat as Alternative A, and therefore, would result in fewer beneficial impacts to ACEC values than Alternative B.</p>	<p><u>Beaver Rim</u> Alternative D wildlife management would result in more beneficial impacts to ACEC wildlife values than Alternative A, substantially more than Alternative C, and the same as Alternative B because of the more extensive Greater Sage-Grouse buffers that are applied to surface disturbance in both the ACEC and the expanded area (which are both in the Core Area).</p>
<p><u>Green Mountain</u> Alternative A applies minimal protections to Greater Sage-Grouse habitat in the 9,934 acres of Core Area in the ACEC, but those minimal protections would result in a beneficial impact to ACEC values because surface disturbance is not allowed within the buffer around leks.</p>	<p><u>Green Mountain</u> Alternative B management to protect Greater Sage-Grouse habitat would limit surface disturbance in a much larger buffer around leks in the Core Area than Alternative A. This management would limit adverse impacts from surface-disturbing and disruptive actions on more acres than under Alternative A.</p>	<p><u>Green Mountain</u> Alternative C would manage Greater Sage-Grouse habitat similar to Alternative A, which limits surface disturbance in a smaller buffer area than Alternative B.</p>	<p><u>Green Mountain</u> Alternative D special status species management would be similar to Alternative B, as Greater Sage-Grouse management would beneficially impact the portions of the ACEC that are in the Core Area.</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<p><u>South Pass Historic Mining Area</u> Alternative A would limit surface disturbance within ¼ mile of a Greater Sage-Grouse lek and does not limit the number of disturbances or cap acres of disturbance for the benefit of Greater Sage-Grouse. Therefore, Alternative A would result in only a limited benefit to the South Pass Historic Mining Area ACEC.</p>	<p><u>South Pass Historic Mining Area</u> Alternative B management of Greater Sage-Grouse would restrict surface disturbance in more areas of the South Pass Historic Mining Area ACEC than Alternative A. Restrictions on surface-disturbing activities for the protection of other resources (e.g., soil, water, biological resources, and special designations) are greatest under Alternative B, provide additional protection for South Pass Historic Mining Area resources, and would reduce adverse impacts compared to Alternative A.</p>	<p><u>South Pass Historic Mining Area</u> Because Alternative C does not designate the area as an ACEC and places a greater emphasis on resource use, it would place fewer restrictions on surface-disturbing activities for the protection of other resources (e.g., soil, water, biological resources, and special designations). This management would result in more adverse impacts to the mining area’s historical resources than alternatives A and B.</p>	<p><u>South Pass Historic Mining Area</u> The greatest beneficial impacts to ACEC values would result from management for the protection of Greater Sage-Grouse. Although Alternative D does not designate a large Greater Sage-Grouse ACEC, it would prohibit or severely limit surface disturbance in the Lander Front-Hudson-Atlantic City area for many resource values, including general and crucial winter habitat, special status species, cultural values and viewsheds. ACEC values would benefit from these protections, but not as much as under Alternative B.</p>
<p><u>Sweetwater Rocks</u> Alternative A wildlife management includes limited protections for Greater Sage-Grouse. The alternative would close ¼ mile around leks to surface disturbance and would not limit the number of energy developments or place caps on surface disturbance in the ACEC or the area outside the ACEC within its viewshed.</p>	<p><u>Sweetwater Rocks</u> Alternative B wildlife management would result in substantially more beneficial impacts to the ACEC because of protections for Greater Sage-Grouse habitat. The ACEC is in the Greater Sage-Grouse Core Area and limitations on surface disturbance for the protection of Greater Sage-Grouse would beneficially impact the ACEC viewshed. Alternative B wildlife management closes the ACEC to mineral and realty disturbances and prohibits other surface disturbance, such as range improvement projects, within the lek boundaries. Outside the ACEC, Alternative B would limit the number of mineral leasing and energy ROW projects per section and would apply a cap on surface disturbance.</p>	<p><u>Sweetwater Rocks</u> Alternative C wildlife habitat management, particularly for Greater Sage-Grouse, is the same as Alternative A and would not result in similar beneficial impacts as described under Alternative B.</p>	<p><u>Sweetwater Rocks</u> Alternative D includes wildlife management that would result in beneficial impacts to the ACEC viewshed similar to Alternative B. The limits on surface disturbance for the protections of Greater Sage-Grouse would make 3,147 acres closed to surface-disturbing activities but to a smaller degree. Alternative D would designate fewer areas as ACECs than Alternative B and the protections for Greater Sage-Grouse habitat under Alternative D would become more important in the protections they afford the Sweetwater Rocks viewshed. Alternative D would limit surface disturbance on 3,147 acres in the ACEC for protection of leks and a substantial number of acres in the viewshed outside the ACEC. While the beneficial impacts of this management would have to be identified in a site-specific analysis, this benefit would likely be substantial because there are a number of leks in the viewshed. In addition, the Alternative D adoption of the Core Area concept with one energy development per section and a cap on surface disturbance (although an area twice as large as the one under Alternative B) would limit unreclaimed surface disturbance inside and outside the ACEC.</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<p><u>Government Draw/Upper Sweetwater Greater Sage-Grouse</u></p> <p>Alternative A would not designate any portion of either the Local Working Group area or the expanded area as the Government Draw/Upper Sweetwater Greater Sage-Grouse ACEC (although portions of the expanded area would be designated for other values such as the NHTs). Alternative A would manage the Local Working Group area and the expanded area for a variety of uses and with a variety of prescriptions. Generally, Alternative A would utilize management prescriptions for Greater Sage-Grouse that are less protective than current research indicates and would be the same as those that have contributed to the downward trend in Greater Sage-Grouse numbers.</p>	<p><u>Government Draw/Upper Sweetwater Greater Sage-Grouse</u></p> <p>Alternative B would designate the expanded area (1,246,791 acres) as an ACEC. In addition, Alternative B management generally protects resources, even at the expense of resource uses.</p>	<p><u>Government Draw/Upper Sweetwater Greater Sage-Grouse</u></p> <p>Alternative C would not designate any portion of the Local Working Group area or the expanded area as an ACEC. The Alternative C emphasis on resource uses over physical and biological resources would result in more adverse impacts to ACEC values. As with Alternative A, Alternative C would likely result in the continued downward trend of Greater Sage-Grouse.</p>	<p><u>Government Draw/Upper Sweetwater Greater Sage-Grouse</u></p> <p>Alternative D would designate 35,102 acres in the area identified by the Local Greater Sage-Grouse Working Group as the Twin Creek ACEC (a small portion of the area designated as the Government Draw/Upper Sweetwater Greater Sage-Grouse ACEC under Alternative B) to protect important wildlife resources including Greater Sage-Grouse. The Twin Creek ACEC would be managed as NSO for oil and gas leasing, closed to solid mineral leasing, closed to mineral materials disposals, closed to geophysical operations, withdrawn from locatable mineral entry, and avoided for major and minor ROWs. Given the importance of the area to Greater Sage-Grouse and other values, the following analysis describes impacts to values of concern beyond the geographical boundary of the Twin Creek ACEC. The area of analysis encompasses the entire Hudson to Atlantic City area (so named because the Hudson to Atlantic City Road makes a large loop through the area) which includes the Twin Creek ACEC. When the larger protected area including Red Canyon and South Pass is referred to, it is called the Lander Front-Hudson-Atlantic City area, which includes all of the South Pass Historical Landscape ACEC. The analysis identifies the special management for only the Greater Sage-Grouse component of management because Greater Sage-Grouse were identified as the relevant and important values in the ACEC originally nominated by WGFD.</p>



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>Special Status Species</b>			
<b>Plants</b>			
Management actions that establish additional protections for wildlife and special status wildlife species and their habitats would beneficially impact special status plant communities. Alternative A prohibits surface-disturbing activities in a ¼-mile buffer around Greater Sage-Grouse leks. This buffer would protect special status plants on approximately 16,283 acres from activities that could remove or damage plants.	Compared to Alternative A, Alternative B increases protections for wildlife and special status wildlife species and their habitats, which would increase the protection of special status plant communities. Alternative B increases the size of Greater Sage-Grouse lek buffers, which would protect 77,127 more acres from surface-disturbing activities than Alternative A. Alternative B is more protective, and therefore would result in greater beneficial impacts to special status plants than Alternative A, which addresses these issues only on a case-by-case basis.	Alternative C protects Greater Sage-Grouse leks with a ¼-mile buffer, which is the same number of acres of associated special status plant habitat protected as Alternative A and 17 percent of the total acres protected under Alternative B. Alternative C would result in more adverse impacts to special status plant species than Alternative A and much more adverse impacts than Alternative B.	Alternative D protects Greater Sage-Grouse leks from surface-disturbing activities with a 0.6-mile buffer in the Core Area and ¼-mile buffer outside the Core Area. This combination of buffer distances represents 102,212 acres of special status plant habitat also protected. Acres protected under Alternative D are 3.6 percent more than under Alternative A, 0.4 percent more than under Alternative B, and 3.6 percent more than under Alternative C. Alternative D would result in fewer beneficial impacts to special status plant species than Alternative B and more beneficial impacts than alternatives A and C.
<b>Wildlife</b>			
<p>Alternative A requires surveys on a case-by-case basis to determine the presence or absence of BLM sensitive species prior to authorizing actions on public land. If species are present, mitigation measures are required to protect the species and limit adverse impacts to their habitats. The requirement for surveys is based on the availability of suitable habitat in the project area.</p> <p>Alternative A establishes limits of acceptable habitat loss on a case-by-case basis to reduce declines in special status wildlife populations. These management actions would beneficially impact special status wildlife.</p> <p>Alternative A includes a number of management actions directed specifically at protecting Greater Sage-Grouse and their habitat. Surface-disturbing and disruptive activities are prohibited on or within ¼ mile of occupied greater sage-grouse leks. Greater Sage-Grouse have a high fidelity to breeding areas; therefore, protecting leks and surrounding nesting habitat would ensure long-term availability of these sites for Greater Sage-Grouse and for other sagebrush-obligate neotropical migrants. Disruptive activities occurring on or near leks can cause Greater Sage-Grouse to leave the lek and can result in lower reproduction rates and subsequent population</p>	<p>Alternative B closes Greater Sage-Grouse habitat in the Core Area to oil and gas and geothermal leasing to provide long-term protection of habitat from development activities. Alternative B allows leasing outside the Core Area. Alternative B would result in much greater beneficial impacts than Alternative A because Alternative B protects Greater Sage-Grouse habitat in approximately 70 percent of the planning area from adverse impacts associated with oil gas and geothermal development activities.</p> <p>Alternative B prohibits surface-disturbing and disruptive activities within 0.6 mile of occupied or undetermined greater sage-grouse leks. Alternative B protects 93,410 acres of breeding habitat on public surface lands for the long term, which represents almost a 600 percent increase in habitat protected than under Alternative A. In addition, BLM-authorized human activity on this same area is prohibited between 1 hour before sunset to 1 hour after sunrise between March 1 and May 15, unless the activity is specific to inventorying, monitoring, or viewing greater sage-grouse. This action would prevent noise and disruptive activities in and around leks during the breeding season that could interfere with Greater Sage-Grouse breeding and cause a localized population decline. Alternative B avoids surface-disturbing and disruptive activities from February 1 to July 31 within 3 miles of occupied leks, equating to approximately 1,339,609 acres of public</p>	<p>Like Alternative A, Alternative C opens the Greater Sage-Grouse Core Area to oil and gas and geothermal leasing. Alternative C would result in impacts the same as Alternative A and much more adverse impacts than Alternative B, which closes the Core Area to leasing and eliminating the potential for adverse impacts from new development activities. Alternative C prohibits surface-disturbing and disruptive activities in or within ¼ mile of occupied greater sage-grouse leks and avoids surface-disturbing and disruptive activities in nesting habitat within 2 miles of occupied leks from February 1 to July 31. Management and impacts under Alternative C would be the same as under Alternative A, because Alternative C management actions would provide long-term protection of 16,283 acres of lek habitat and short-term protection for 794,452 acres of Greater Sage-Grouse nesting habitat. Alternatives A and C would protect substantially fewer acres of lek habitat and nesting habitat than Alternative B. Alternative C avoids BLM-authorized human activities within ¼ mile of the perimeter of occupied Greater Sage-Grouse leks between 8 p.m. and 8 a.m. from March 1 to May 15 unless activity is specific to inventorying, monitoring, or viewing Greater Sage-Grouse. Alternative C would result in the same beneficial impacts as Alternative A and fewer beneficial impacts than Alternative B.</p>	<p>Alternative D establishes acceptable limits for habitat loss, modification, fragmentation, and loss of function for special status species on a case-by-case basis and limits for Greater Sage-Grouse in Core Area are established using the identified disturbance thresholds and uses Required Design Features to limit surface disturbance and improve habitat reclamation. This alternative would beneficially impact species identified as being at greater risk from habitat changes that can contribute to localized population declines. There could be uncontrolled habitat loss for species not on the priority list under Alternative D. Alternative B establishes limits for all special status wildlife species and would result in greater beneficial impacts than Alternative D. Alternative D opens the Greater Sage-Grouse Core Area to oil and gas and geothermal leasing. There would be a greater risk of habitat loss and fragmentation resulting from lease development activities under Alternative D than under Alternative B, and the same risk as under alternatives A and C. Alternative D limits disturbances in the Core Area to an average of one oil and gas or mining location per 640 acres and does not allow the cumulative value of existing disturbances to exceed 5 percent of the habitat within those same 640 acres. Alternative D would result in greater beneficial impacts than alternatives A and C, which do not limit the density of disturbances or the cumulative acres of surface</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<p>declines for that particular area. Alternative A will avoid disruptive human or noise activities within ¼ mile of the perimeter of occupied leks between 8 p.m. and 8 a.m. from March 1 to May 15 on a case-by-case basis. Disruptive activities include actions such as non-emergency project maintenance, road blading, project staking, and resource inventories. Alternative A avoids surface-disturbing and disruptive activities in greater sage-grouse nesting habitat within 2 miles of occupied leks from February 1 to July 31. This action would result in short-term beneficial impacts to nesting birds, but would not protect habitats in the long term because Alternative A allows surface-disturbing activities in this same area outside the nesting season. This action would provide long-term protection of 16,283 acres of lek habitat and short-term protection of 794,452 acres of nesting habitat on public surface. Alternative A does not establish disturbance densities or cumulative surface disturbance thresholds in greater sage-grouse breeding, nesting, and brood-rearing habitat, which could adversely impact the ability to maintain existing populations.</p> <p>On a case-by-case basis, Alternative A requires equipment or techniques that reduce the noise decibel output to be installed on facilities such as compressor stations to minimize the impacts of noise to breeding and nesting Greater Sage-Grouse. Noise levels that interfere with Greater Sage-Grouse vocalizations can adversely impact the reproductive success of males. This management action, if applied, would beneficially impact Greater Sage-Grouse using leks close to noise sources. High-profile structures that can be used by raptors as hunting perches are prohibited within Greater Sage-Grouse nesting habitats on a case-by-case basis. Greater Sage-Grouse are susceptible to predation during breeding and nesting periods and structures that give raptors a hunting advantage could contribute to a population decline. In addition to Greater Sage-Grouse, overhead structures can increase raptor predation on white-tailed prairie dogs, mountain plovers, and pygmy rabbits. Alternative A allows, on a case-by-case</p>	<p>surface lands, to protect nesting Greater Sage-Grouse. Alternative B protects 69 percent more acres of nesting habitat in the short term than Alternative A (794,452 acres). Overall, Alternative B would result in greater beneficial impacts to Greater Sage-Grouse breeding and nesting habitats than Alternative A.</p> <p>Alternative B limits the density of disturbances in identified Greater Sage-Grouse breeding, nesting, and brood-rearing habitat to one disturbance per 640 acres, and manages cumulative surface disturbance to be less than or equal to 2.5 percent of the sagebrush habitat in the same 640 acres. Reducing the number and size of disturbances would reduce habitat loss and fragmentation, maintain habitat connectivity, and ensure large patches of habitat are available for Greater Sage-Grouse. Alternative B would result in greater beneficial impacts than Alternative A, which does not impose such limitations.</p> <p>To prevent area avoidance by Greater Sage-Grouse, Alternative B prohibits new permanent structures taller than 12 feet within 1 mile of occupied nesting habitat. Alternative B would result in greater long-term beneficial impacts to special status wildlife than Alternative A, which avoids these types of structures on a case-by-case basis.</p> <p>Alternative B limits noise from facilities to 10 A-weighted decibels above natural ambient noise (approximately 39 A-weighted decibels) when measured at the perimeter of occupied greater sage-grouse leks. This level would likely reduce adverse impacts from noise that can drown out Greater Sage-Grouse vocalizations during the breeding season; however, research is currently ongoing to identify whether 10 A-weighted decibels above ambient noise is the most appropriate noise level to protect breeding Greater Sage-Grouse. Alternative B requires anti-perching devices on all new overhead powerlines in greater sage-grouse, white-tailed prairie dog, mountain plover, and pygmy rabbit habitats to reduce predation from raptors. In addition, the BLM will work with ROW holders to identify conflict areas and get anti-perching devices installed on existing overhead</p>	<p>Like Alternative A, Alternative C does not limit the density of disturbances or acres of surface disturbance in identified Greater Sage-Grouse breeding, nesting, and brood-rearing habitat. Surface disturbances that are close together could adversely impact the availability and usability of habitats and could decrease localized Greater Sage-Grouse populations. Alternative C would result in more adverse impacts than Alternative B, which establishes disturbance densities, and the same impacts as Alternative A.</p> <p>Alternative C allows high-profile structures in greater sage-grouse nesting habitats. Increased predation on nesting Greater Sage-Grouse would occur from raptors utilizing tall structures as hunting perches, which could lead to Greater Sage-Grouse population declines in localized areas.</p> <p>Alternative C would result in more adverse impacts from this management action than Alternative A, which allows tall structures on a case-by-case basis, and Alternative B, which prohibits tall structures within 1 mile of occupied Greater Sage-Grouse nesting habitat.</p> <p>Alternative C limits facilities that generate noise 10 A-weighted decibels above natural ambient noise when measured at the perimeter of occupied greater sage-grouse leks during the period of March 1 to May 15. This management would reduce noise that can affect male Greater Sage-Grouse vocalizations during breeding activities. Alternative C would result in fewer beneficial impacts than Alternative B because Alternative C protects Greater Sage-Grouse from noise impacts only during the breeding season and not during the remainder of the year. Alternative C would result in greater beneficial impacts than Alternative A, which endeavors to reduce, but not specifically limit, facility noise around occupied leks.</p> <p>Alternative C allows the construction of aboveground utility lines in greater sage-grouse,</p>	<p>disturbance in Greater Sage-Grouse habitat. However, Alternative D would result in more adverse impacts than Alternative B, which limits cumulative surface disturbance to 2.5 percent of the sagebrush habitat in the same 640 acres, half the limit than under Alternative D.</p> <p>Alternative D prohibits surface-disturbing and disruptive activities on or within 0.6 mile of the perimeter of occupied Greater Sage-Grouse leks in the Core Area and on or within ¼ mile outside the Core Area. Alternative D protects 102,212 acres of breeding habitat on public surface lands for the long term, which represents a 3.6 percent increase in habitat protected for the long term over Alternative A, a 3.6 percent increase over Alternative C, and a 0.4 percent increase over Alternative B. The differences reflect that a ¼-mile buffer was used around a single point in alternatives A, B, and C whereas the buffer in Alternative D was calculated around the newly mapped perimeter of the lek. In suitable Greater Sage-Grouse habitat in the Core Area, Alternative D prohibits surface-disturbing and disruptive activities between March 15 and June 30 and extends those protections to locatable mineral exploration under a Notice to protect nesting activities. Outside the Core Area, Alternative D prohibits surface-disturbing and disruptive activities between March 15 and June 30 within 2 miles of the perimeter of occupied greater sage-grouse leks. Alternative D shortens the nesting protection period by 4 weeks at the beginning of the period and by 2 weeks on the end of the period over the February 1 to July 31 dates under alternatives A, B, and C. Delaying the start of the nesting period protection would not likely be an adverse impact on Greater Sage-Grouse because they typically do not initiate nests before mid-March. Cutting 2 weeks off the end of the nesting period could result in adverse impacts because nesting might not be completed before the end of June in higher elevation areas or for birds that re-nest when first-attempt eggs/chicks are lost. Alternative D prohibits disruptive activities between 6 p.m. and 8 a.m. from March 1 to May 15 on or within an 0.6-mile radius of the perimeter of Greater</p>



Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<p>basis, overhead powerlines in Greater Sage-Grouse, white-tailed prairie dog, mountain plover, and pygmy rabbit habitats. To reduce predation opportunities, Alternative A requires on a case-by-case basis that anti-perching devices be installed on overhead powerlines and that low voltage powerlines be buried. Reducing noise and predation opportunities would beneficially impact special status wildlife.</p>	<p>powerlines in these same habitats. White-tailed prairie dogs and pygmy rabbits are typically not as susceptible to predation from raptors using overhead powerlines as Greater Sage-Grouse and mountain plover. Installing anti-perching devices would likely result in beneficial impacts to Greater Sage-Grouse and mountain plover, whereas the action will likely result in a neutral impact to white-tailed prairie dogs and pygmy rabbits. Where feasible, Alternative B requires that new low-voltage and high-voltage utility lines be buried in greater sage-grouse, white-tailed prairie dog, mountain plover, and pygmy rabbit habitats. This action would result in beneficial and adverse impacts to these species and prevent raptor deaths due to collisions with wires and electrocution. Burying powerlines would reduce raptor predation opportunities on special status wildlife, but could also result in the loss of habitat from trenching activities to bury the lines.</p>	<p>white-tailed prairie dog, mountain plover, and pygmy rabbit habitats and requires, on a case-by-case basis, that utility lines be buried. Alternative C would result in adverse and beneficial impacts the same as Alternative A and more adverse impacts than Alternative B, which requires that more utility lines be buried to prevent electrocution and eliminate or reduce opportunities for predation by raptors. Alternative C requires anti-perching devices on new overhead powerlines on a case-by-case basis, which would not alleviate predation concerns in areas where devices are not installed. Alternative C would result in impacts the same as Alternative A, and alternatives A and C would result in greater adverse and fewer beneficial impacts than Alternative B, which requires anti-perching devices on all new overhead powerlines and seeks opportunities to retrofit existing powerlines.</p>	<p>Sage-Grouse leks in the Core Area and 1/4-mile radius outside of the Core Area to protect Greater Sage-Grouse strutting on leks and to protect breeding activities. This management action is similar to the other alternatives (8 p.m. to 8 a.m. from March 1 to May 15), except that the affected time starts 2 hours earlier in the evening. Greater Sage-Grouse usually arrive at leks approximately 2 hours before sunrise, but when there is a fuller moon phase, they can arrive after sunset and be on the lek all night. Alternative D would beneficially impact Greater Sage-Grouse during these times by prohibiting disruptive activities earlier in the evening.</p> <p>Alternative D limits noise levels from March 1 to May 15 to 10 A-weighted decibels above natural ambient noise, or the level determined appropriate through scientific findings, when measured at the perimeter of occupied greater sage-grouse leks. This level would likely reduce adverse impacts caused by noise that drowns out Greater Sage-Grouse vocalizations during the breeding season. This alternative also allows for noise sources to be measured and mitigated in other habitats important for Greater Sage-Grouse to minimize impacts to the birds (Patricelli et al. 2012). Alternative D management is similar to Alternative C, slightly less restrictive than Alternative B, and more restrictive than Alternative A.</p> <p>Alternative D allows new permanent, high-profile structures in Greater Sage-Grouse nesting habitat on a case-by-case basis. The requirement that all new structures will have anti-perching devices installed will deter predation opportunities and provide protection to nesting Greater Sage-Grouse. Raptors use high-profile structures as hunting perches, and cause Greater Sage-Grouse to avoid areas of suitable habitat, resulting in a reduction of usable habitat. In addition to Greater Sage-Grouse, overhead structures can increase raptor predation on white-tailed prairie dogs, mountain plovers, and pygmy rabbits. On a case-by-case basis, Alternative D allows the construction of overhead powerlines in Greater Sage-Grouse, white-tailed prairie dog,</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
(see above)	(see above)	(see above)	mountain plover, and pygmy rabbit habitats and requires the installation of anti-perching devices. Low-voltage powerlines could be required to be buried to reduce predation opportunities. These management actions under Alternative D would result in the same or fewer adverse impacts as Alternative A and the same or more adverse impacts than Alternative B, which prohibits new high-profile structures within 1 mile of Greater Sage-Grouse nesting habitat. Alternative C does not restrict tall structures, and therefore would result in the greatest risk for adverse impacts.
<b>Trails and Travel Management</b>			
As a result of resource-oriented management actions under Alternative A, a total of 70 percent of the planning area has restrictions that would limit flexibility and options in the travel management program. Primarily, these restrictions would limit BLM ability to create new roads, maintain/enhance existing roads, or implement other travel management mitigation measures. It is assumed that conflicts among resources and travel planning would be limited to solutions and mitigation options that would result in priority being given to resource protection. These restrictions would limit travel planning options and new road development, but would not change the amounts and types of access currently available in the planning area.	As a result of resource oriented management actions, Alternative B imposes restrictions on more acres than Alternative A that would limit flexibility and options in the travel management program. Primarily, these restrictions would limit BLM ability to create new roads, maintain/enhance existing roads, or implement other travel management mitigation measures. It is assumed that in these areas, conflicts among resources and travel planning would be limited to solutions and mitigation options that would result in priority being given to resource protection. These restrictions would limit travel planning options and new road development, but would not change the amounts and types of access currently available in the planning area.	Based on travel management objectives for specific areas, Alternative C would result in travel management systems that provide an increased resource protection focus only in WSAs totaling 56,247 acres, or 2 percent of the planning area (Table 4.30, “Travel Management Focus under Alternative C” (p. 1058)). In contrast, objectives for the rest of the planning area would result in travel management systems that provide an increased access focus on 2,337,958 acres, or 98 percent of the planning area. This alternative allocates more acres to increased access (through travel management planning) than Alternative A, and fewer acres to increased resource protection. Under alternatives A, B, and D it can be assumed that as the BLM finalizes implementation of travel management decisions more acres would move to enhanced resource protection standards. This would not occur under Alternative C because it identifies WSAs as the only areas where travel management would result in enhanced resource protection.	Impacts from resource oriented management actions under Alternative D would be similar to impacts under Alternative B.
<b>Vegetation</b>			
<b>Forests, Woodlands, and Aspen Communities</b>			
Management actions specific to wildlife and special status species could beneficially impact forests and woodlands if they restrict activities that could adversely impact forest and woodland health. An example of the beneficial impact of wildlife and special status species management to forest and woodland management is the restoration of aspen	Limitations on surface disturbance under Alternative B for the protection of Greater Sage-Grouse would not be likely to adversely impact forest management because there is little overlap of Greater Sage-Grouse habitat with forest units. However, Alternative B’s closure of Core Area to oil and gas leasing would beneficially impact the unique plant communities in the Beaver Rim area more so than under Alternative A	Management actions under Alternative C designed to protect wildlife and special status species habitat from the adverse impacts of surface-disturbing and surface-disruptive activities would be similar to those under Alternative A.	Aspen would benefit from the emphasis on addressing juniper encroachment rather than the use of prescribed fire where it could harm Greater Sage-Grouse habitat. Management actions under Alternative D designed to protect wildlife and special status species habitat from the adverse impacts of surface-disturbing and surface-disruptive activities

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<p>stands, which is beneficial to forest health and enhances wildlife habitat conditions.</p> <p>Management actions specific to wildlife and special status species can also adversely impact forests and woodlands if they restrict forest management practices or timber product sales with seasonal closures, and individual species timing and distance stipulations that have the practical effect of limiting access to an area to a short period that makes sales impossible. Wildlife and wild/feral horse browsing in areas such as Green Mountain can adversely impact management of aspen stands.</p>	<p>which protects only those communities located on slopes of 25 percent or more steepness.</p>	<p>(see above)</p>	<p>would be similar to those under Alternative B, but to a lesser extent.</p>
<b>Grassland and Shrubland Communities</b>			
<p>Alternative A places moderate limitations on surface disturbance for the benefit of wildlife. This alternative closes ¼ mile around Greater Sage-Grouse leks to surface disturbance. This would beneficially impact grasslands and shrubland resources, except to the extent that it would preclude vegetation treatment that would otherwise benefit the vegetative community, especially shrublands.</p>	<p>The Alternative B prohibition on clear-cuts might conflict with proposed management regarding aspen regeneration and would have fewer beneficial impacts to aspen regeneration efforts compared to Alternative A. While other treatments, such as partial or selective cutting, would be authorized, these approaches have a lower likelihood of success than clear-cutting (Shepperd 2001). The use of fire in areas outside of Core Area would result in many of the beneficial impacts associated with clear-cutting, but could result in unintended consequences if not successful (Shepperd 2001). Within the WUI and in Core Area, prescribed fire is not likely to result in beneficial impacts. In addition, under Alternative B, emphasizing vegetation treatment projects rather than range infrastructure would result in more acres of treatment than under Alternative A, including both fire and mechanized treatment, that would beneficially impact aspen regeneration.</p>	<p>Wildlife management actions under Alternative C would result in the least beneficial impacts to grassland and shrubland communities, compared to the other alternatives. Compared to the other alternatives, Alternative C applies the same surface disturbance restrictions around Greater Sage-Grouse leks and in nesting and early brood-rearing habitats as Alternative A, and many fewer than Alternative B.</p>	<p>Wildlife management actions under Alternative D would beneficially impact grassland and shrubland communities more than under alternatives A and C, but less than under Alternative B because of limitations on surface disturbance and Required Design Features. In the Greater Sage-Grouse Core Area, alternatives D and B would beneficially impact grasslands and shrubland communities by prohibiting surface disturbance within 0.6 miles of Greater Sage-Grouse leks.</p> <p>However, Alternative B is more beneficial to grasslands because Core Area is closed to new oil and gas leasing for the benefit of Greater Sage-Grouse. The difference in benefit is limited, however, by the relatively limited amount of oil and gas potential inside Core Area. Outside the Core Area, Alternative D applies a ¼-mile buffer around leks, which would be moderately more adverse than the Alternative B 0.6-mile buffer, which would preclude development in areas with oil and gas potential that is likely to be developed. (However, many of the lands within the 0.6-mile buffer outside of Core Area with oil and gas potential are already leased, and the new restrictions of Alternative B are further limited.) Limits on surface disturbance would result in beneficial impacts by preventing vegetation removal or degradation and long-term beneficial impacts where reclamation or reestablishment of predisturbance conditions is not likely or the vegetation is permanently removed.</p>

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>Visual Resources</b>			
Often during the planning process areas with resource concerns are assigned a higher VRM Class than shown in VRI Classes. This allows VRM to complement the objective of protecting resources. Under Alternative A, 10 percent of VRI Class III or IV area is designated at the higher management Classes of I and II. This is probably due in part to VRM Class II designation in the Castle Gardens area. This designation was placed to primarily dovetail VRM with cultural resource management. The VRM Class II designation in the Castle Gardens area has a beneficial impact on visual resources because it allows an area inventoried at a lower level to be afforded the protections of a higher VRM Class.	Resource impacts are similar to those detailed under Alternative A except that Alternative B's limitations on surface disturbance for the benefit of Greater Sage-Grouse would limit adverse impacts to visual resources in a much larger area.	Under Alternative C, the 3.4 percent of the planning area designated as VRM Classes I and II is based primarily around WSAs and Congressionally Designated Trails. This alternative designates less area than Alternative A to VRM Classes I and II.	The impacts to visual resources from resource management would be the same as Alternative A.
<b>Water</b>			
Alternative A management actions designed to protect wildlife and special status species habitat from the impacts of surface-disturbing and disruptive activities also would protect water resources from the adverse impacts associated with these activities.	Management actions under Alternative B designed to protect wildlife and special status species habitat from the impacts of surface-disturbing and disruptive activities also would protect water resources from impacts associated with these activities. Alternative B limits substantially more surface disturbance than Alternative A, including closing Greater Sage-Grouse Core Area to oil and gas leasing, limiting surface disturbance within 0.6 mile of leks, and applying timing restrictions that would have the effect of protecting soil and therefore water during vulnerable times. Less surface disturbance means fewer adverse impacts to soil, vegetation, and water resources. Alternative B management would systematically inventory and close unnecessary roads and trails and prescribe rehabilitation for them, which would help control runoff and sediment. Comparatively, Alternative A, on a case-by-case basis, closes and reclaims unnecessary roads and old mineral exploration trails, which would result in fewer beneficial impacts to water resources. The difference in beneficial impacts would depend on reclaiming roads that contribute to erosion and sedimentation of waters.	Alternative C wildlife and special status species program management is very similar to Alternative A, and would result in the same beneficial impacts. Alternative C wildlife resources management does not close and reclaim unnecessary roads and old mineral exploration trails, and would not have the beneficial impacts to water quality that might be achieved under Alternative A or B. Alternative C provides the fewest protections for special status species, and would have more potential for adverse impacts to water resources.	Alternative D is similar to Alternative B in its wildlife protections, including Greater Sage-Grouse Sage-Grouse lek protections, except that Alternative D is less protective, particularly in non-Core Area and regarding solid mineral leasing. Alternative D wildlife management is more protective of water resources than Alternative A, and considerably more protective than Alternative C, because Alternative D closes more area to surface disturbance (Appendix T (p. 1641)). Withdrawals associated with wildlife and other resources makes Alternative D more like Alternative B. Alternative D increases mineral prescriptions for the benefit of wildlife and are analyzed below under Resource Uses.

Alternative A	Alternative B	Alternative C	Alternative D Proposed Plan
<b>Wild Horses</b>			
Management of special status plant and animal species in HMAs could limit opportunities for enhancement of wild-horse populations. Some proposed actions for Greater Sage-Grouse also would limit these opportunities. Establishment of forage utilization limits in Greater Sage-Grouse nesting areas could require reductions in wild-horse numbers in HMAs. To protect special status plants, wild-horse gathering or exclusion could be required on a site-specific basis; however, this would not adversely impact the wild-horse program because other gather locations are available. Management of special status species that improves habitat and reduces fences would beneficially impact wild-horse habitat.	Management of special status species under Alternative B would result in impacts similar to Alternative A, although to a much greater degree in the case of Greater Sage-Grouse. Under Alternative B, 70,078 HMA acres are outside the Greater Sage-Grouse Core Area and would not be impacted by Greater Sage-Grouse protections. Alternative B Greater Sage-Grouse protections close 517,280 acres of HMAs to surface disturbance, range improvement projects, and wind-energy development. There are strict limits on density and number of developments. Alternative B would be more likely than Alternative A to prevent Greater Sage-Grouse listing under the ESA, which would result in direct and indirect beneficial impacts to wild horses.	Alternative C management of special status wildlife or plant species would result in impacts similar to those under Alternative A, although to a greater degree because Alternative C allows more development and surface disturbance. This is particularly true with Greater Sage-Grouse management. Like Alternative A, Alternative C applies a ¼-mile buffer around Greater Sage-Grouse leks rather than the Alternative B 0.6-mile buffer, which opens 19,781 acres of HMAs to surface disturbance. However, Alternative C includes more range development in the unbuffered areas. Like Alternative A, Alternative C management would accelerate the downward trend in Greater Sage-Grouse population numbers, which would result in direct (due to loss of vegetation) and indirect (due to potential changes in herd numbers should the Greater Sage-Grouse be listed under the ESA) adverse impacts to wild horses.	Alternative D management of special status wildlife or plant species would result in impacts similar to Alternative B, although to a substantially lesser degree in the case of Greater Sage-Grouse. Alternative D Greater Sage-Grouse protections close 32,231 acres of HMAs to surface disturbance from a smaller list of activities than Alternative B. Alternative D applies the same limits on density and number of developments in connection with oil and gas and wind-energy development projects and transmission lines (although only in the Greater Sage-Grouse Core Area and not nesting habitat, as under Alternative B), but applies no similar limitations on range improvement projects, solid mineral leasing, and non-energy ROWs, which would result in less-beneficial impacts to wild horses. While Alternative D Greater Sage-Grouse management would result in fewer beneficial impacts to wild horses than Alternative B, Alternative D management would result in substantially more beneficial impacts than alternatives A and C.

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## **4.5 ENVIRONMENTAL IMPACTS OF THE MANAGEMENT ALIGNMENT ALTERNATIVE AND THE PROPOSED RMP AMENDMENT**

The section below identifies potential impacts identified with the implementation of both the Management Alignment Alternative and the Proposed RMP Amendment. Due to the minor differences between the two, impacts identified for the Management Alignment Alternative would be the same as those identified for the Proposed RMP Amendment.

### **4.5.1 Modifying Habitat Management Area Designations**

#### ***Impacts on Greater Sage-Grouse***

The existing ARMPA and revisions identified that as new occupied Greater Sage-Grouse habitat is found or occurs either through additional inventories or expansion into previously unoccupied habitat, the BLM would incorporate, through appropriate processes and analyses, these areas into the GHMA category and manage them as such, until the earliest review occurs by the SGIT. At that time, they will be considered for PHMA status or continue to be managed as GHMA and will be added to the statewide map. The BLM would continue to work with the SGIT in the SGIT and Governor's identification of new core and connectivity areas (PHMA) or the removal of areas from core and connectivity (PHMA) habitat, as well as identification of additional winter concentration areas. Depending on the magnitude of the proposed change, the BLM would update its Greater Sage-Grouse management areas in conjunction with the State of Wyoming's core areas, upon issuance of any Wyoming Governor's EO revising or amending the core area boundaries.

Updating the BLM's PHMA to match the State of Wyoming's core area boundaries has the potential to affect Greater Sage-Grouse and other resources through additional or fewer restrictions imposed on development and other types of land use activities. This would ensure that current and future renditions of habitat management area boundaries accurately reflect Greater Sage-Grouse habitat on the ground and guide management actions appropriately. As the boundaries are updated, the land use plan allocations associated with each habitat management area would be adjusted to match the newest habitat management area boundaries. This would help to conserve the species by ensuring allocations and any of their associated restrictions are applied in the appropriate areas, while allowing infrastructure and economic development to occur in areas that would not affect the species.

There would likely be beneficial impacts on Greater Sage-Grouse conservation where additional PHMA are added and the potential for local adverse effects in areas where PHMA are reduced, depending on the value and quantity of the respective habitats being added or removed. The State of Wyoming established the core area boundaries based on Greater Sage-Grouse lek location and attendance data, as identified through modeling of bird populations and habitat, overlaid with areas of valid existing rights, and other factors.

A series of reviews conducted by the Local Working Groups (LWGs) and others with thorough understanding of local Greater Sage-Grouse use occurred in order to ensure that areas included as core habitat were a true representation of actual conditions on the ground. Similar processes will continue to be used to refine the core population area mapping, which resulted in the core area boundaries identified in the Governor's EO 2015-4.

Consistent application of management actions across the state's core areas and the BLM's PHMA would result in beneficial impacts on the species in Wyoming, but it may result in locally adverse impacts on

areas previously located in core areas but then removed to non-core; however, this is not anticipated to affect Greater Sage-Grouse conservation in Wyoming. It is likely to improve consistent management of the habitat across the state, thus benefiting Greater Sage-Grouse conservation in Wyoming.

The BLM has existing plan maintenance authority to correct minor errors in administrative boundaries or update habitat information, such as aligning big game crucial winter range or mapped Greater Sage-Grouse habitats to those delineated by the State or providing appropriate lease stipulations to those areas. The analysis presented below is predicated on the assumption that only minor changes would occur and therefore the use of a maintenance action would be appropriate. If major changes to the habitat management area boundaries are proposed, the BLM would be required to consider the changes under its requirements of NEPA. Impacts would be further assessed at the time a change to the habitat management areas is proposed; however, the BLM anticipates that any impact resulting from a change in core area boundaries, and therefore PHMA, would be similar to those described in the 2015 Final EISs.

### ***Impacts on Vegetation***

Impacts on vegetation have been disclosed in detail in the Vegetation sections of the 2014 and 2015 Final EISs. The Proposed RMP Amendment would update the habitat management area boundaries for PHMA and GHMA to reflect the best available science. Unless major changes were to occur to the size and location of PHMA and GHMA, updating habitat management area boundaries would not substantially affect vegetation resources, as they would continue to be managed according to their underlying habitat management area and associated allocations and management decisions. As described in the 2014 and 2015 Final EISs, disturbance to vegetation as a result of increased surface disturbance in new areas of GHMA could include removal of vegetation, with a resulting compaction of soil and increased runoff and erosion. Plant community health could be reduced, and increased habitat fragmentation could occur.

Increased surface disturbance in new areas of GHMA could contribute to modification of the composition and structure of vegetation communities within development areas and increase proliferation of noxious weeds; however, new areas of PHMA would likely offset these negative impacts to vegetation by requiring additional restrictions on development. Avoiding and/or heavily restricting surface-disturbing activities in areas of new PHMA would reduce impacts on vegetation and would likely result in improved structure of vegetation communities and vegetation health.

There may be local, adverse impacts that would result to vegetation in areas that were previously identified as PHMA and were redesignated as GHMA, but impacts on vegetation on a landscape scale would be negligible.

### ***Impacts on Lands, Realty, and Renewable Energy***

Impacts on the lands and realty programs as a result of changes to habitat management areas would likely be minor over the landscape, with site-specific impacts potentially occurring when new restrictions are applied in areas that previously did not have those restrictions (i.e., new PHMA in what was previously GHMA). This would require some projects to have additional restrictions, and projects in other areas that were PHMA and are now GHMA would have fewer restrictions. Depending on the magnitude of the change in acreage, impacts on lands and realty would likely be negligible.

As described in the 2015 Final EISs, ROWs proposed in newly identified areas of PHMA would be required to comply with the additional restrictions and requirements of PHMA. It is likely that additional



relocations, delays, and potentially longer routes could result based on the additional requirements and stipulations necessary in PHMA. In areas that are redesignated as GHMA, however, operators would benefit from fewer restrictions and incentives for developing outside of PHMA.

Wind development in PHMA would continue to be managed under the 2014 and 2015 decisions. If additional PHMA were identified in areas that were previously GHMA, then it could become more challenging for wind energy development to occur in those newly identified PHMA due to the restrictions on wind energy development in PHMA. However, if any areas were identified as GHMA (that were previously PHMA), those areas would then be available and open to wind energy development.

There would be no impact on solar energy development, as the 2014 and 2015 plans did not identify management actions for solar energy beyond what was identified in the previous RMPs.

### ***Impacts on Minerals***

Impacts on minerals as a result of changes to habitat management areas would likely be minor over the landscape, with site-specific impacts potentially occurring when new restrictions are applied in areas that previously did not have those restrictions (i.e., new PHMA in what was previously GHMA). This would require some projects to have additional restrictions, and projects in other areas that were PHMA and are now GHMA would have fewer restrictions. Depending on the magnitude of the change in acreage, impacts on minerals would likely be negligible. Restrictions in PHMA would likely shorten the drilling season and limit an operator's ability to complete activities (especially on multi-well pads). They could result in a need for a phased development approach and a potential for decreased drilling efficiency in PHMA. Areas that are newly identified as GHMA, however, would have fewer restrictions, and, depending on other resource conflicts, could result in increased drilling efficiencies and fewer conflicts, delays, and relocations.

### ***Impacts on Vegetation and Livestock***

As identified in the 2015 Final EISs, changes in habitat management areas could result in impacts on livestock. Areas newly identified as GHMA may result in loss of forage, loss of forage production, increase in noxious weed proliferation, and decreased vegetation as a result of increased surface disturbance potential; however, areas identified as PHMA would have increased protections. They would, therefore, result in reduced disturbance and would decrease the potential for vegetation loss. Within PHMA, livestock management would be implemented that would improve rangeland health over time, which would be beneficial to livestock and increase forage availability in PHMA.

### ***Impacts on Socioeconomics***

Changes in habitat management areas have the potential to affect costs of exploration and development of multiple types of energy, mineral, and other land use resources, including solid, fluid, locatable, saleable, and leasable minerals. These costs could either be increased in areas with new restrictions or decreased in areas when restrictions are removed. On the landscape scale, however, if only minor changes in the acreage occur, the impacts on socioeconomics would likely be negligible. As identified in the 2015 Final EISs, increased costs in PHMA could occur as a result of the need for additional planning, potential relocations, and accommodating additional restrictions. Areas designated as GHMA would likely have the potential for reduced costs as a result of fewer restrictions.

#### **4.5.2 Sagebrush Focal Areas and Withdrawal**

Under the Management Alignment Alternative and Proposed RMP Amendment, there would be no designation of SFAs. The environmental impacts of not designating SFAs were analyzed in the Final EIS for the ARMPA under Alternative A (Chapter 4, page 4-108) as well as Alternative A in the Draft EIS for the SFA Withdrawal. No other RMPs in Wyoming considered designating SFAs. Because management of Greater Sage-Grouse in SFAs was identified as the same as management of Greater Sage-Grouse in Wyoming PHMA, there are no additional impacts associated with not identifying Wyoming SFAs in the Proposed RMP Amendment.

Under the Management Alignment Alternative and Proposed RMP Amendment, the BLM would continue to not pursue withdrawal of 252,160 acres of SFA from location and entry under the General Mining Act of 1872. The impacts associated with not pursuing withdrawal were discussed in the 2015 Final EIS for the ARMPA, under Alternative A, beginning on page 4-108. In addition, impacts associated with not pursuing withdrawal are also discussed under the No-Action Alternative in Chapter 4 of the Draft EIS for SFA Withdrawal (BLM 2016). Impacts on Greater Sage-Grouse, vegetation, realty, minerals, livestock grazing, and socioeconomics would be as discussed in the 2015 Final EISs for the 2015 Proposed LUPAs.

While there is no way to foresee where locatable mineral development would likely occur on the landscape, impacts on resources as a result of mining activity could include surface disturbance with resulting disturbance to vegetation and habitat. Habitat fragmentation and disturbance to leks could occur as a result of locatable mineral development; however, the development may or may not occur in areas sensitive to Greater Sage-Grouse.

There would likely be little to no impacts on livestock as a result of not pursuing the withdrawal, with the exception of disturbance to vegetation as a result of mineral development and the potential for reduced forage. There would be increased revenue potential in areas where mineral development is occurring; the magnitude of this would depend on where the proposed mining was occurring and what commodity was being developed. If no mines are proposed in the areas previously recommended for withdrawal, then there would be no impacts on any resources. There is the potential for increased applications and subsequent authorizations of ROWs and other realty actions, but these would be dependent on the location of the mineral development area and potential.

Although the BLM did identify in the 2015 Final EIS/Proposed RMPA that the designation of SFAs and the recommend withdrawal would result in increased conservation benefits for Greater Sage-Grouse, the BLM later (in the Draft EIS for the SFA Withdrawal; BLM 2016) determined that those conservation benefits would likely be limited.

#### **4.5.3 Habitat Objectives**

##### ***Impacts on Greater Sage-Grouse***

Proposed changes to Management Objective #6 from the ARMPA would have minimal impacts on Greater Sage-Grouse habitat and would be similar to those identified in the 2015 Final EISs. The Proposed RMP Amendment would include clarifying language for the intent of the habitat objectives tables. It also would modify the value of a greater than or equal to 7 inches for perennial grass and forb height indicator to reflect ESD site potential or best available science in consideration of local variability.

Impacts associated with this alternative would be similar to those identified in the No-Action Alternative.

Because the Management Alignment Alternative and the Proposed RMP Amendment continue to stress the importance of providing nesting cover, local impacts on Greater Sage-Grouse would be minor, and changes to this management objective could result in improved vegetation, which would have beneficial impacts on Greater Sage-Grouse. As identified in the 2015 Final EISs, relying on site ESD and potential could balance the impacts of grazing while sustaining wildlife and Greater Sage-Grouse habitat. Adjustments to grazing management as a result of monitoring, ESD, and site potential could provide overall improvements in landscape health, reduce or prevent the spread of invasive plants, and allow for greater cover habitat.

#### ***Impacts on Vegetation and Livestock Grazing Management***

Impacts on livestock grazing management would be similar to those described in the Final EIS for the 2015 RMP Amendments; however, there would be increased flexibility regarding completion of site-scale assessments for Greater Sage-Grouse, which would be informed via ESD site potential and local variability. In addition, this would allow for the development of local desired conditions and ecological site capability of sagebrush communities, thus potentially improving the management of vegetation, livestock, and sagebrush habitat based on local conditions. Using site potential could enhance vegetation production, age class, structural diversity, and plant community vigor, which would benefit livestock grazing by increasing forage availability. Grazing operations could be affected by requiring additional requirements for monitoring.

#### **4.5.4 Livestock Management—Permit Renewals**

##### ***Impacts on Greater Sage-Grouse***

The Management Alignment Alternative and the Proposed RMPA do not include a requirement for incorporation of terms and conditions for achieving the habitat objectives identified in **Section 4.5.3**; rather, they require achievement of Land Health Standard #4 (Wildlife/special status species). The Proposed RMP Amendment would not have an explicit requirement for analysis of thresholds and responses during permit renewal or modification; however, it would require analysis of one alternative that would allow for adaptive management to meet or make progress toward meeting the wildlife/Special Status Species standard.

Allotments in PHMA would not be prioritized for field checks under the Proposed RMP Amendment; however, there would be more discretion to identify the allotments with the highest needs at the local level for monitoring actual use, utilization, use supervision, etc., which may already be those allotments in PHMA.

The Management Alignment Alternative and the Proposed RMP Amendment clarify the process for appropriately setting, applying, and measuring Greater Sage-Grouse habitat objectives in grazing allotments and measuring effects of the authorized use.

Under the Management Alignment Alternative and the Proposed RMP Amendment, permit renewals in PHMA where the wildlife/special status species standard is not being met would include actions necessary to achieve or make progress toward achieving the standard in accordance with 43 CFR 4180. If current livestock grazing is a significant causal factor in the failure to achieve the wildlife/special status

species standard and Greater Sage-Grouse are affected, livestock grazing management would be adjusted to achieve or make progress toward achieving the standard, including action to improve or maintain Greater Sage-Grouse habitat as needed.

The Proposed RMP Amendment would emphasize balanced grazing between riparian areas/wet meadows and uplands to promote beneficial grass and forb abundance during the brood-rearing season for Greater Sage-Grouse in PHMA. If implemented, these actions could result in beneficial effects on Greater Sage-Grouse habitat. As identified in the 2015 Final EISs, making adjustments to permit renewals, if necessary, based on monitoring would likely benefit overall landscape health. The impacts of implementing the Proposed RMP Amendment for livestock grazing/permit renewals would be similar to those for the No-Action Alternative. Localized, adverse impacts on Greater Sage-Grouse in GHMA may occur, but conservation of Greater Sage-Grouse in Wyoming would not be affected.

### ***Impacts on Vegetation and Livestock***

Impacts on vegetation and livestock would be similar to those identified in the No-Action Alternative in the Draft EIS and the Proposed LUPAs in the 2015 Final EIS. Vegetation would be managed to achieve not only Greater Sage-Grouse objectives but also other resource objectives, which could reduce negative effects on vegetation. Prioritization of grazing permits and leases in areas not meeting standards within PHMA would benefit vegetation and livestock by addressing those identified issues first, before they get worse, and thus providing an overall benefit to vegetation in PHMA. However, areas in GHMA that are not meeting standards may be detrimentally affected if the areas in PHMA take priority over them, which could result in longer-term impacts on vegetation, wildlife, and habitat in those areas until they are addressed.

#### **4.5.5 Livestock Management—Existing Range Improvement Structures**

##### ***Impacts on Greater Sage-Grouse***

The impacts associated with the proposed change to MD LG 8 from the ARMPA would be minimal. The only change between the existing management decision and the Management Alignment Alternative and Proposed RMP Amendment is to remove the requirement for the BLM to assess the potential risk to Greater Sage-Grouse and its habitats from existing structural range improvements. The potential for modification of those improvements identified as posing a risk would be evaluated, and the requirement in GHMA would be removed. Maintenance of existing improvements would help to disperse use and reduce localized impacts; evaluation of existing range improvements would likely prevent vegetation from degradation and would result in benefits to habitat and to Greater Sage-Grouse.

There would likely be less of a priority to evaluate existing range improvements in GHMA, which could result in localized impacts on areas surrounding range improvements in need of maintenance. This could result in increased damage to vegetation and habitat, which could result in localized adverse impacts on Greater Sage-Grouse. However, the BLM would still be required to evaluate and modify existing range improvements in PHMA; therefore, this would be unlikely to affect Greater Sage-Grouse conservation in Wyoming. Supplements and supplemental feeding would continue to be authorized where appropriate, which would prevent damage to riparian areas thus protecting late season brood-rearing habitat and preventing overall habitat loss.

***Impacts on Vegetation and Livestock***

As identified in the 2015 Final EISs, impacts on vegetation and livestock would include dispersal of use and reducing localized impacts in PHMA, but with the potential to detrimentally affect vegetation and riparian areas near improvements (i.e., ones in GHMA) that would not get evaluated as often or as timely as those improvements in PHMA.

The BLM would be required to analyze the impact of modifying range improvements, regardless of habitat type, and the impacts on Greater Sage-Grouse and other resources would need to be evaluated in any case. Because of this, there would be minimal differences between the impacts of these alternatives; however, there is the potential for increased risk of exposure to West Nile virus or other risks to Greater Sage-Grouse if some structural range improvements go unevaluated for long periods; therefore, there is the potential for a local adverse impact on Greater Sage-Grouse if existing range improvements are not periodically evaluated for risks to Greater Sage-Grouse. This, however, would be unlikely to affect Greater Sage-Grouse conservation in Wyoming.

**4.5.6 Livestock Management—Riparian Area Management*****Impacts on Greater Sage-Grouse***

The impacts associated with the Management Alignment Alternative and the Proposed RMP Amendment for riparian area management would be similar to those identified in the No-Action Alternative.

Livestock grazing management would be adjusted if needed to promote the production and availability of beneficial grasses and forbs for use during brood-rearing in PHMA riparian areas and/or wet meadows, as opposed to also including nesting, late brood-rearing in meadows/mesic habitats/riparian pastures, and GHMA (as identified in the No-Action Alternative). Because of this, there may be impacts on the nesting and brood-rearing habitats. This would likely result in local adverse impacts on Greater Sage-Grouse. This would be the case in areas where livestock grazing is not managed to promote beneficial forbs and grasses in nesting and brood-rearing habitats; however, it would not be likely to affect the conservation of Greater Sage-Grouse in Wyoming.

In PHMA, riparian areas and wetlands could be improved as a result of this management action; managing livestock to achieve an abundance of beneficial grasses and forbs would benefit Greater Sage-Grouse during brood-rearing.

***Impacts on Vegetation and Livestock***

As identified in the 2015 Final EISs, managing livestock to achieve an abundance of beneficial grasses and forbs would be an overall benefit to vegetation and livestock. There may be additional requirements on livestock operators in terms of timing of grazing, rotations, and other management changes.

**4.5.7 Noise**

The impacts associated with clarifying that the noise measurement and monitoring condition of approval (COA) would apply only to leks within Greater Sage-Grouse PHMA would have similar impacts as those described under the No-Action Alternative for the RMPAs and for the RMP revisions.

Impacts of noise on Greater Sage-Grouse are discussed in the following locations:

- Final EIS for the RMPAs—Chapter 4, page 4-249
- Final EIS for the Bighorn Basin RMP—Chapter 4, Section 4.4.9.3, page 4-338
- Final EIS for the Buffalo RMP—Chapter 4, Section 4.4.9.4, page 1252
- Final EIS for the Lander RMP—Chapter 4, page 963

The need for the application of a noise measurement and monitoring COA to a project would be identified at the time of site-specific and/or project-level environmental review.

Noise restrictions in PHMA (core only) would benefit Greater Sage-Grouse, as impacts of noise on Greater Sage-Grouse have been shown to include temporary displacement of the birds from breeding and nesting habitat, increased stress, and reduced reproductive success. In addition, adverse effects on communication abilities of strutting males and reduced lek attendance may be a result of noise. Limits to noise in PHMA (core only) would allow males to continue to use leks near drilling operations and would limit displacement of birds from nesting and breeding areas. The removal of noise restrictions in GHMA would likely result in localized, adverse impacts on Greater Sage-Grouse but would not affect Greater Sage-Grouse conservation in Wyoming.

#### ***Impacts on Minerals, Lands, and Realty***

When a noise restriction is imposed on a site-specific authorization, operators would be required to apply the noise restriction at the project level. This could lead to the need for additional preplanning, relocation, or other potential delays on projects in PHMA; however, projects in GHMA would no longer consider the noise restriction and therefore could result in increased project efficiency and reduced burdens on operators for projects in GHMA.

#### **4.5.8 Adaptive Management**

Impacts associated with identifying that management of Greater Sage-Grouse would return to previous management actions once adaptive management action objectives in the interim response strategy have been met would be similar to those identified in Alternative E of the 2015 Final EIS for the RMPA and Revisions. There would be no change as to the identification of triggers, nor to the application of adaptive management. The only change for adaptive management would be at the implementation level, when the AMWG identifies a process for returning to previous management. The impacts associated with returning to previous management would be the same as those identified in the final EISs for the 2014 and 2015 proposed land use plan amendments and revisions. The AMWG was established in consultation with the SGIT to provide appropriate guidance for agencies with the ability to affect Greater Sage-Grouse populations and/or habitat through their permitting authority and includes representatives from the BLM, the USFWS, and the State of Wyoming. More detailed information regarding the AMWG and the adaptive management process established in the 2015 ARMPA and ARMPs is available in Appendix D, Section 6 of the ARMPA.

#### ***Compensatory Mitigation***

##### ***Impacts on Greater Sage-Grouse***

The BLM has determined that FLPMA does not require the BLM to mandate public land users to provide compensatory mitigation as a condition of obtaining authorization for the use of the public

lands. The BLM further determined that FLPMA does not limit the ability of public land users to voluntarily offer to provide compensatory mitigation, for public land users to provide compensatory mitigation to satisfy state recommendations or standards, or for the BLM to take such voluntary or state-focused efforts into account when assessing the overall environmental impact of a proposed action. Consistent with that determination and with BLM IM 2018-093, Compensatory Mitigation, the Proposed Plan Amendment clarifies how voluntary compensatory mitigation or a state recommended mitigation should be considered in the management of Greater Sage-Grouse habitat. This clarification aligns the Proposed Plan Amendment with BLM policy and the scope of compensatory mitigation authority expressly provided by FLPMA.

Compensatory mitigation is meant to be an additional tool that, in the best circumstances, can attempt to offset residual impacts remaining after applying other mitigation actions. It does not supplant other tools under the mitigation hierarchy, including avoiding and minimizing on-site impacts.

Further, it is impossible to predict the amount of compensatory mitigation that might voluntarily occur in the future and the environmental consequences of that compensatory mitigation. Therefore, analysis of the environmental impact of compensatory mitigation is more appropriate for future project-specific NEPA, where it is possible to assess any project-specific compensatory mitigation that is offered voluntarily or to satisfy state recommendations or standards, in addition to the benefits already gained through other forms of mitigation, including avoidance, minimization, and rectification measures applicable to the specific project and site.

Thus, the effects of these changes to the BLM's approach to compensatory mitigation are speculative and nominal at most. The BLM would continue to ensure consistency of its actions and authorizations with the land use planning level goals and objectives of the Proposed Plans. Additionally, the BLM is deferring to the State of Wyoming's mitigation framework, which, due to its provisions for durability and additionality, would still provide conservation gains and benefits consistent with the goals of this RMPA and the 2015 Plans. The implementation of compensatory mitigation actions would be directed by MOAs that describe how the BLM would align with State authorities and incorporated in the appropriate NEPA analysis subsequent to the Proposed RMP Amendment. While the conservation benefit of compensatory mitigation may be limited when weighed against the threats to Greater Sage-Grouse, particularly in the Great Basin region where wildland fire remains a key threat, the BLM is committed to implementing state-imposed mitigation requirements to help minimize the impacts of anthropogenic disturbance and habitat fragmentation throughout the range of Greater Sage-Grouse.

Further, the BLM is committed to implementing beneficial habitat management actions to reduce the threats of fire and invasive species to Greater Sage-Grouse. The BLM has committed resources to habitat restoration and has treated 2.6 million acres of Greater Sage-Grouse habitat range-wide over the past 5 years. In fiscal year 2019, the BLM funded approximately \$38 million in Greater Sage-Grouse management actions resulting in approximately 632,000 acres of treated habitat. In Fiscal Year 2020, the BLM invested approximately \$37 million in the implementation of habitat management projects resulting in approximately 584,000 acres of treated habitat.

Since the signing of the ARMPA in September of 2015, BLM Wyoming has committed over \$15 million to complete more than 230 Greater Sage-Grouse habitat improvement projects. This work includes a wide variety of invasive species and fuels reduction treatments, riparian improvements, energy reclamation, habitat monitoring, and leading research identifying impacts associated with land use

proposals. This funding also helped leverage state partner funding contributions and state-wide initiatives such as the Wyoming Landscape Conservation Initiative and the Powder River Basin Restoration Initiative that adopts an “all hands, all lands” approach to engaging stakeholder involvement.

In 2015, the USFWS determined Greater Sage-Grouse was “not warranted” for listing under the Endangered Species Act. The USFWS found that BLM’s 2015 land use plans were adequate regulatory mechanisms and that the species no longer warranted listing under the Act. At the time of that decision, The USFWS acknowledged the RMP requirements that compensatory mitigation achieve a net gain standard. The BLM is not proposing any action that would preclude proponents from offering compensatory mitigation; it is clarifying the BLM’s reliance on voluntary compensatory mitigation consistent with federal law.

Anecdotally, the existing conservation credit systems, banks, and exchanges designed to offset impacts to Greater Sage-Grouse or its habitat have had mixed success. The BLM is aware of three mitigation banks (one commercial bank agreement in Wyoming and two single-user bank agreements with mining companies in Nevada) and one exchange system in Colorado specific to Greater Sage-Grouse currently in operation. However, the BLM does not have access to data or information that would further assess the relative benefit provided by these systems.

In all designated Greater Sage-Grouse habitat, the BLM would ensure both mitigation and management actions that achieve the planning-level management goals and objectives identified in this RMPA. The BLM has a variety of tools available to effectively achieve those management goals such as restoration projects and habitat improvements.

The BLM would continue plan effectiveness monitoring to provide the data needed to evaluate BLM actions toward reaching the goals and objectives set forth in the RMPAs. Effectiveness monitoring methods would encompass multiple larger scales, from areas as large as the WAFWA MZ to the scale of this RMPA. Effectiveness data used for these larger-scale evaluations would include all lands in the area of interest, regardless of surface management, and would help inform where finer-scale evaluations are needed.

#### ***Impacts on Minerals, Lands, and Realty***

Impacts on third-party land users as a result of the removal of the net conservation gain standard would likely be negligible, as the net conservation gain standard associated with compensatory mitigation would be replaced by the State of Wyoming’s Greater Sage-Grouse Compensatory Mitigation Framework. It would be speculative, however, to assume impacts from site-specific implementation projects at the land use planning-level, especially when the potential for the application of compensatory mitigation is unknown.

#### **4.5.9 Prioritization of Fluid Mineral Leasing**

This action identifies that the BLM would prioritize leasing outside PHMA, as a method of incentivizing development in unsuitable Greater Sage-Grouse habitat in GHMA and other areas outside the current range of Greater Sage-Grouse habitat. Implementation of this prioritization would be subject to valid existing rights and any applicable law or regulation. Impacts associated with prioritizing leasing outside PHMA would be beneficial to Greater Sage-Grouse conservation in Wyoming, with the potential for locally adverse impacts on habitat in GHMA. This would be a result of potentially concentrating



development in the GHMA or non-core areas; however, locally adverse impacts would not be likely to affect the conservation of Greater Sage-Grouse in Wyoming.

Impacts on vegetation in GHMA would be similar to those identified in the proposed land use plan amendments and revisions from the 2014 and 2015 Final EISs, and could include increased disturbance and removal of vegetation in GHMA as more area in GHMA is leased relative to PHMA. This action, however, could beneficially affect vegetation in PHMA as less vegetation may be disturbed a result of potentially leasing fewer areas in PHMA.

Impacts on fluid minerals may occur, as more emphasis would be placed on leasing outside of PHMA rather than both PHMA and GHMA, and would likely result in additional planning and placement of development within GHMA as opposed to PHMA.

#### **4.6 CUMULATIVE EFFECTS ANALYSIS**

This section presents the anticipated cumulative impacts on the environment that could occur from implementing the alternatives presented in **Chapter 2**. A cumulative impact is the impact on the environment that results from the incremental impact of the action, when added to other past, present, and reasonably foreseeable actions, regardless of what agency (federal or nonfederal) or person undertakes such actions.

Cumulative impacts can result from individually minor, but collectively significant actions taking place over time. The cumulative impacts resulting from the implementation of the alternatives in this RMPA/EIS may be influenced by other actions, as well as activities and conditions on other public and private lands, including those beyond the planning area boundary. These include the concurrent Forest Service planning effort to amend land management plans for National Forests in Idaho, Montana, Nevada, Utah, Colorado, and Wyoming, which were previously amended in September 2015 to incorporate conservation measures to support the continued existence of the Greater Sage-Grouse. As a result, the sum of the effects of these incremental impacts involves determinations that often are complex, limited by the availability of information, and, to some degree, subjective.

This RMPA/EIS incorporates by reference the analysis in the 2015 Final EISs and the 2016 SFA Withdrawal Draft EIS, which comprehensively analyzed the cumulative impacts associated with these planning decisions under consideration in that process. The 2015 EISs, and to some degree the 2016 SFA EIS evaluated the cumulative impacts associated with the No-Action Alternative in this RMPA/EIS. The Proposed Plan Amendment's effects are effectively within the range of effects analyzed by the 2015 and 2016 EISs. The 2015 Final EISs are quite recent, and we have determined that conditions in the Rocky Mountain Region (Wyoming) have not changed significantly based, in part, on the USGS science review (see **Chapter 3**) as well as the BLM's review of additional past, present, and reasonably foreseeable actions in 2018. Conditions on public land have changed little since the 2015 Final EISs, and to the extent that there have been new actions or developments, the impacts associated with those actions or developments are in line with the projections in the 2015 Final EISs regarding reasonably foreseeable actions and effects. Additionally, changes that have occurred on a smaller level, like wildfires, received prompt responses. Since the nature and context of the cumulative effects scenario has not appreciably changed since 2015, and the 2015 analysis covered the entire range of the Greater Sage-Grouse, the BLM's consideration of cumulative effects in the 2015 Final EISs adequately addresses most, if not all, of the planning decisions to be made through this planning effort.

While the cumulative impacts analysis in the 2015 Final EISs thus offers a comprehensive foundation for this planning effort, the BLM is improving upon that analysis by integrating additional quantitative analysis specific to this planning effort. The purpose of this additional analysis is to facilitate a comparison of allocation decisions between the No-Action Alternative and the Proposed Plan Amendment at scales beyond the individual planning areas associated with the 2018 amendment process. Our analysis focuses on the relevant changes in habitat delineations and allocation decisions each BLM state office is proposing and how those changes may impact our understanding of cumulative effects at the MZ scale.

Conservation and management partners sought to work in advance of the 2015 USFWS listing decision to develop conservation objectives for the Greater Sage-Grouse that could help direct conservation and management actions for the species. Upon further review of the best available science and commercial information, the USFWS concluded in 2010 that the Greater Sage-Grouse warranted protection under the ESA. Two factors leading to the decision to list the species as “warranted but precluded” were threats to habitat and the inadequacy of existing regulatory mechanisms. In 2012, at the request of the Greater Sage-Grouse Task Force, state and federal representatives produced a report that identified the most significant areas for Greater Sage-Grouse conservation, the principal threats within those areas, and the degree to which such threats need to be reduced or ameliorated to conserve the Greater Sage-Grouse so that it would not be in danger of extinction or likely to become so in the foreseeable future.

A principal component of Greater Sage-Grouse management is the implementation of mitigation actions to ameliorate the threats and impacts to Greater Sage-Grouse and its habitats. In 2015, the USFWS determined Greater Sage-Grouse was “not warranted” for listing under the ESA. The USFWS found that BLM’s 2015 land use plans were adequate regulatory mechanisms and that the species no longer warranted listing under the ESA. At the time of that decision, the USFWS acknowledged the RMP requirements that compensatory mitigation achieve a net gain standard. The BLM is not proposing any action that would preclude proponents from offering compensatory mitigation; it is clarifying the BLM’s reliance on voluntary compensatory mitigation consistent with federal law.

While the BLM has more than 90 RMPs, 9 strategies, and 45 agreements in active use that contain or address compensatory mitigation, the BLM has identified only limited implementation of compensatory mitigation consistent with the 2015 Greater Sage-Grouse Plans. Using data gathered in 2017, the BLM identified 13 Greater Sage-Grouse projects across 5 BLM states with a mandatory compensatory mitigation component or net gain standard implemented between October 2008 and June 2017. The most common compensatory actions used by the BLM in those cases were habitat restoration, habitat improvements, rangeland improvements, and invasive species control actions consistent with the BLM’s own investment in management action described previously. In many cases, it is still too soon in the implementation of these mitigation actions to measure the effectiveness or degree of benefit each action provides.

Currently BLM has six state-specific RMPA efforts that are all aligning mitigation with their relevant State authorities. All of the Proposed Plan Amendments modify the existing standard for compensatory mitigation but maintain that the BLM will pursue conservation efforts as a broader planning goal and objective. Cumulatively, if the BLM is implementing planning decisions across the broader range, such actions would preclude any cumulative impacts from modifying the net conservation gain standard at the project level.

The BLM has updated certain data that it collected and evaluated in the 2015 Final EIS concerning the 2015 plan allocation decisions to reflect maintenance-related changes, adaptive management responses, and refined source data. The BLM used these data to represent the No-Action Alternative for the current plan analysis. The BLM also identified 2015 data which are not subject to change in any alternatives associated with the 2019 planning process. These data were carried forward as the alternative allocation decision data. The BLM was also able to provide allocation decision data representing changes included in the 2018 Draft EIS alternatives, which were then used in the comparative analysis.

The BLM analyzed cumulative effects at two levels in the 2019 planning process. Each state analyzed cumulative effects across the Greater Sage-Grouse range by considering, across each state, reasonably foreseeable future actions and their effects in every WAFWA management zone (excluding WAFWA Zone VI). Each state further analyzed cumulative effects at the WAFWA management zone level for their state. See **Section 4.6.1** and **Table I** in **Appendix D** for the range wide analysis, which addresses the cumulative effects from reasonably foreseeable future actions across all WAFWA management zones, including those that do not connect directly to Wyoming. See Wyoming's WAFWA management zone analysis in **Sections 4.6.3, 4.6.4, and 4.6.6** below. Both analyses use WAFWA Management Zones. Wyoming's WAFWA Zone analysis included Zones I, II/VII, IV that include all or portions of Wyoming, Montana, North Dakota, South Dakota, Colorado, Utah, Idaho, Nevada, and Oregon (**Figure 4-1**).

#### **4.6.1 Range-wide Cumulative Effects Analysis Greater Sage-Grouse**

The 2015 ARMPA is the No-Action Alternative in this RMPA/EIS and was part of the cumulative impact analysis for Greater Sage-Grouse at the WAFWA zone scale in the 2015 Final EIS (see **Table 4-1**). Additionally, the cumulative impacts anticipated from the Management Alignment Alternative and the Proposed Plan Amendment presented in this SEIS are entirely within the range of effects analyzed by the 2015 Final EIS. While the analysis for the 2015 Final EIS is quite recent, the BLM has reviewed conditions in Wyoming to verify that they have not changed significantly. Conditions on BLM-administered lands have changed little since the 2015 Final EIS, and to the extent that there have been new actions or developments, the impacts associated with those actions or developments are in line with the projections in the 2015 Final EIS regarding reasonably foreseeable future actions and effects.

The BLM's assessment that conditions and cumulative impacts have not changed significantly is based, in part, on the USGS science review (see **Chapter 3**) and the BLM's review of additional past, present, and reasonably foreseeable actions in 2018. Since the nature and context of the cumulative effects scenario have not appreciably changed since 2015, and the 2015 plans included analysis by WAFWA MZ across the entire range of the Greater Sage-Grouse, the cumulative effects analysis in the 2015 Final EIS applies to this planning effort and provides a foundation for the BLM to identify any additional cumulative impacts.

The remainder of this chapter and related appendices includes additional quantitative analysis using the existing cumulative impacts across the range and integrating additional quantitative analysis specific to this planning effort to provide a comprehensive range-wide view of cumulative impacts. The purpose of this additional analysis is to facilitate a comparison of allocation decisions between the No-Action and Management Alignment (Proposed Plan Amendment) Alternatives at scales beyond the individual planning areas associated with the 2018 amendment process. The analysis focuses on the relevant

changes in habitat delineations and allocation decisions each BLM state office is proposing and how those changes may affect the understanding of cumulative effects at the WAFWA MZ scale across the range of Greater Sage-Grouse.

Under the Management Alignment Alternative, the recommendation to withdraw sagebrush focal areas (SFA) from location and entry under the Mining Law of 1872 would be removed, as the EIS process considering the proposed withdrawal was canceled on October 11, 2017. In its 2016 SFA Withdrawal EIS, the BLM quantified the possible adverse effects from locatable mineral exploration and mining on the approximately 10 million acres of SFAs proposed for withdrawal, finding that they would be limited to approximately 9,000 acres rangewide of surface disturbance over 20 years, with approximately 0.58 percent of Greater Sage-Grouse male birds possibly affected per year. The other action alternatives evaluated in the 2016 SFA Withdrawal Draft EIS similarly demonstrated negligible benefit of the proposed withdrawal to Greater Sage-Grouse and its habitat.<sup>1</sup>

The cumulative effects of implementing the Management Alignment Alternative are as described in the 2016 SFA Withdrawal Draft EIS, under the No-Action Alternative, in which SFAs are not carried forward for withdrawal. Greater Sage-Grouse would not be affected as a result of the removal of the recommendation to withdraw SFAs from location and entry under the Mining Law of 1872, as the recommendation itself does not have any on-the-ground effects. Conservation benefits of a future withdrawal would be minimal, as documented in the 2016 SFA Withdrawal Draft EIS and as explained above; therefore, there would be negligible cumulative impacts associated with the decision to remove the SFA designation. The direct and indirect impact analysis specifically enumerates how each BLM allocation decision to apply NSO stipulations and waivers, exceptions, or modifications overlaps with the SFA designation.

#### **4.6.2 Why Use WAFWA Management Zones?**

The WAFWA represents state and provincial fish and wildlife agencies and supports sound resource management and building partnerships to conserve wildlife for the use and benefit of all citizens, now and in the future.

The BLM is analyzing habitats and allocation decisions at the scale of the six WAFWA delineated Greater Sage-Grouse MZs within which the plan amendments are occurring to enable the decision maker to understand the impacts on Greater Sage-Grouse at a biologically meaningful scale. The MZs were delineated based on floristic provinces (identified by Connelly et al. 2004) within which the vegetative communities comprising Greater Sage-Grouse habitat as well as the Greater Sage-Grouse populations are responding similarly to environmental factors and management decisions (Stiver et.al. 2006).

The cumulative effects analysis area for Greater Sage-Grouse extends beyond a state, political, or planning area boundary to reflect the WAFWA MZs because they encompass areas with similar issues,

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<sup>1</sup>Importantly, mining operations that do occur are subject to regulation under the BLM's surface management regulations at 43 CFR 3809. These regulations ensure that operators comply with environmental standards in conducting exploration, mining, and reclamation. For example, the BLM must approve a plan of operations for locatable mining operations on public lands, which includes compliance with the NEPA, National Historic Preservation Act, and ESA. Plans of operation must also include those measures to meet specific performance standards and to prevent unnecessary or undue degradation of the lands (43 CFR 3809.411).

threats, and vegetative conditions important Greater Sage-Grouse habitat management. Each suite of threats to specific Greater Sage-Grouse populations have been identified in the COT report, 2015 regional RODs, and listing decision]. The 2015 regional RODs identify how planning level allocation decisions address the identified threats to populations, which are aggregated in this analysis by MZs. The threats vary geographically and may have more or less impact on Greater Sage-Grouse and its habitat in some parts of the MZs, depending on such factors as climate, land use patterns, and topography.

**Table 4-3** shows the resource and location of applicable cumulative effects analysis from the 2015 Final EIS. Unless otherwise addressed in this chapter, the cumulative effects of the alternatives analyzed in this Draft RMPA/EIS are covered by the 2015 Final EIS and the 2016 SFA Withdrawal Draft EIS. This includes the incremental impacts across the range of BLM- and Forest Service-administered lands being amended in concurrent plan amendment efforts. See the 2015 Final EIS for additional information.

**Table 4-3**  
**Cumulative Effects Analysis Incorporated by Reference**

<b>Resource Topic</b>	<b>Location of Cumulative Effects Analysis and Updated Impacts Analysis</b>
Greater Sage-Grouse	Proposed LUPA/Final EIS: Sections 4.23.6 & 4.23.7 Buffalo Proposed RMP/Final EIS: Section 4.4.9.7 Bighorn Basin Proposed RMP/Final EIS: Section 7.1.6 Lander Proposed RMP/Final EIS: Section 4.10.1 SFA Withdrawal Draft EIS: Section 4.5.9
Vegetation	Proposed LUPA/Final EIS: Section 4.22.3 Buffalo Proposed RMP/Final EIS: Sections 4.4.1.7, 4.4.2.7, 4.4.3.7 Bighorn Basin Proposed RMP/Final EIS: Section 4.9.1.3 Lander Proposed RMP/Final EIS: Section 4.10 SFA Withdrawal Draft EIS: Section 4.4.9
Land Use and Realty	Proposed LUPA/Final EIS: 4.22.3 Buffalo Proposed RMP/Final EIS: 4.6.2.7 Bighorn Basin Proposed RMP/Final EIS: Section 4.9.1.3 Lander Proposed RMP/Final EIS: 4.10
Fluid Minerals	Proposed LUPA/Final EIS: Section 4.22.3 Buffalo Proposed RMP/Final EIS: Section 4.2.3.7 Bighorn Basin Proposed RMP/Final EIS: Section 4.9.1.7 Lander Proposed RMP/Final EIS: Section 4.10 SFA Withdrawal Draft EIS: Section 4.2.9
Solid Minerals	Proposed LUPA/Final EIS: Section 4.22.3 Buffalo Proposed RMP/Final EIS: Section 4.2.1.7 Bighorn Basin Proposed RMP/Final EIS: Section 4.9.1.3 Lander Proposed RMP/Final EIS: Section 4.10
Socioeconomics	Proposed LUPA/Final EIS: Section 4.22.3 Buffalo Proposed RMP/Final EIS: Sections 4.8.1.7, 4.8.2.7 Bighorn Basin Proposed RMP/Final EIS: Section 4.9.1.3 Lander Proposed RMP/Final EIS: Section 4.10 SFA Withdrawal Draft EIS, Section 4.3.13
Livestock Grazing	Proposed LUPA/Final EIS: Section 4.22.3 Buffalo Proposed RMP/Final EIS: Section 4.6.8.7 Bighorn Basin Proposed RMP/Final EIS: Section 4.9.1.3 Lander Proposed RMP/Final EIS: Section 4.10

The sum of past, present, and reasonably foreseeable actions listed in **Appendix D** represent cumulative effects across the range of Greater Sage-Grouse habitat and management areas. These effects are important to consider for future management of the species as a whole and are not solely being analyzed at the local or state level.

Other management actions contained in the proposed plans are described in more detail in **Chapter 2**. This section also briefly describes the threats to Greater Sage-Grouse and its habitat. The magnitude of change between the No Action Alternative and Proposed RMPAs, by decision, is represented in pie charts and tables within this section and in **Appendix D**. Those effects, in addition to synthesizing the plan decisions and comparing the current condition to the condition that will be in effect when the proposed plans are finalized, allow for a comparison of the change in management direction within management zones and across planning regions.

Disturbance from energy development, mining, and infrastructure, as well as the resulting habitat fragmentation, remain the greatest threat to Greater Sage-Grouse in the Rocky Mountain Region. Wildfire threat also remains a concern in the area and is the greatest threat to Greater Sage-Grouse in the Great Basin region. Between 2008 and 2018, wildfires burned an average of 900,000 acres per year in Greater Sage-Grouse habitat management areas rangewide; this is within the range of projected wildland fire analyzed in the 2015 Final EIS. The BLM has committed resources to habitat restoration and has treated 1.4 million acres of Greater Sage-Grouse habitat rangewide over the past 5 years. The interagency (including the BLM) WAFWA-led Wildfire and Invasive Species Working Group reviewed recent information for their May 2018 Gap Report Update to the Wildfire and Invasive Plant Species in the Sagebrush Biome: Challenges that hinder current and future management and protection report. They found that all of the original challenges related to control and reduction of the invasive annual grass/fire cycle were still relevant (policy, fiscal, and science challenges), and they pointed to three new gaps involving program capacity, resource specialists, and developing guidelines on drought and climate adaption to manage sagebrush ecosystems.

The increased flexibility proposed in these amendments can allow for responsible development of other uses in Greater Sage-Grouse habitat and may reduce costs to proponents. But it is not expected to result in a large increase in development proposals on public land. Similarly, the increased protections from the 2015 Final EIS have not resulted in a large decrease in ROW applications or an increase in rejected applications; therefore, the changes proposed under the Management Alignment Alternative are not expected to result in large changes to the rate of development across the range, or in its economy.

Some 350 species of plants and wildlife rely on sagebrush steppe ecosystems and coexist with Greater Sage-Grouse. They may be similarly affected by development or disturbance; however, nothing in the considered alternatives would lessen the BLM's authority or responsibility to provide for the needs of special status species, as described in BLM LUPs, Policies, and Laws, including Manual 6840; the ESA; and FLPMA. Increased flexibility for other uses within Greater Sage-Grouse habitat does not necessarily increase potential impacts on other wildlife or plant species. Site-specific NEPA analysis, including an evaluation of impacts on special status species, is required for on-the-ground projects within the planning area.

#### **4.6.3 Cumulative Effects on Greater Sage-Grouse: Management Zone I**

In addition to the analysis in the 2015 Final EIS other anticipated incremental impacts are discussed below in association with planning issues being analyzed in this RMPA/EIS.

MZ I encompasses portions of Wyoming, Montana, North Dakota, and South Dakota. Montana is currently not undergoing a plan amendment process; therefore, none of the proposed changes described in this section apply to Greater Sage-Grouse in Montana. Under the Proposed Land Use Plan Amendments in WAFWA MZ I, PHMA and GHMA designations would not change from those identified in the No-Action Alternative. In addition, no changes in allocations are proposed in either of the planning areas in this MZ. Approximately 16 percent of the planning area across MZ I is designated as PHMA, and 38 percent is GHMA. Future adjustments to PHMA and GHMA in MZ I would be based on best available science and to align with the respective states' delineations for Greater Sage-Grouse habitat.

Wyoming's current planning effort, and Montana's existing plans, incorporate management flexibility to allow for site specific adjustments to land use plan authorizations for adaptive management strategies, livestock grazing management, and other proposed land uses. The use and application of compensatory mitigation in the planning area would follow the respective State plans, resulting in greater consistency across the MZ. For these actions, cumulative impacts on Greater Sage-Grouse habitat and populations across MZ I would be consistent with those impacts described in the 2015 Final EISs for the then Proposed Plan Amendments. The currently Proposed Land Use Plan Amendment changes from the No-Action Alternative are minor, and still maintain prescriptive management for Greater Sage-Grouse habitat across the MZ for surface disturbing activities. Disturbance from energy development, mining, and infrastructure, as well as the resulting habitat fragmentation, remain the greatest threat to Greater Sage-Grouse in the Rocky Mountain Region. Because the land use prescriptions and allocations are not proposed for change in Wyoming's land use plan amendment, there would be no additional cumulative impact on Greater Sage-Grouse populations or habitat within MZ I.

**A summary of potential cumulative impacts by proposed management action is presented below.**

Impacts on Greater Sage-Grouse as a result of surface disturbance would likely be greater where development and disturbance is more intense and in areas where development overlaps sensitive habitats. The degree of impact would depend on the timing of development activities and whether the amount of development activity and disruption outpaces successful reclamation and revegetation efforts in disturbed areas. Increased flexibility for updating habitat management areas across MZ I would not result in any additive impacts on Greater Sage-Grouse and could result in beneficial impacts as a result of consistent management across the zone. Any future modifications of habitat management areas would be documented using the appropriate level of NEPA analysis that would, as applicable, provide analysis regarding any potential impacts; however, because the underlying habitat management area allocations and the respective restrictions on those allocations put in place to conserve Greater Sage-Grouse would not change, and any proposed updates would reflect the most recent knowledge concerning Greater Sage-Grouse habitat use and distribution, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse habitat or population.

Approximately 99 percent of GHMA and PHMA habitat in MZ I is open to livestock grazing, and this is not proposed for change in Wyoming's proposed land use plan amendment; Montana is also not proposing any changes to livestock management at this time; therefore, no additional cumulative impacts beyond those identified in the 2015 Final EISs are anticipated. In general, livestock can influence habitat by modifying plant biomass, plant height and cover, and plant species composition. As a result, livestock grazing could cause changes in habitat; changes in plant composition could occur in varying degrees and could change vegetative structure, affecting cover for nesting birds; however, grazing can be used to reduce fuel loads and reduce the risk of wildfire and can also be managed to reduce the spread of invasive grasses.

Much of the landscape in MZ I is adapted to withstand grazing disturbance, having been grazed by bison before the West was settled. In addition, the BLM has applied Standards for Rangeland Health since 1997 in order to enhance sustainable livestock grazing and wildlife habitat while protecting watersheds and riparian ecosystems. Under proposed management in MZ I, the BLM would be able to adjust forage levels to meet rangeland health standards based on site-specific information that would inform livestock management decisions. While the Proposed Land Use Plan Amendment in Wyoming would remove the Greater Sage-Grouse specific language Management Action 4 (see Table 2-1, Permit Renewals, in the Wyoming Proposed RMPA/Final EIS), the wildlife/special status species standards are emphasized. As Greater Sage-Grouse would continue to be considered at the implementation level with site-specific analysis, following management prescriptions analyzed in the 2014 and 2015 Final EISs, no additive impact of this change is anticipated.

#### ***Adaptive Management, Mitigation, and Prioritization of Leasing***

Similarly, no appreciable additive impacts are anticipated from Wyoming establishing a process whereby adaptive management actions are reviewed and reversed once the identified causal factor is resolved. This process would ensure that the BLM is utilizing the best available science and decision support tools to guide management at the appropriate spatial scale, thus improving the BLM's assessment and response to ever-changing conditions that could affect Greater Sage-Grouse populations and/or habitat, as well as ensuring that once causal factors are resolved, management reverts to pre-adaptive management actions. Because any specific response to tripping a hard or soft trigger would be based on the causal factors responsible, presuming a specific response to unknown future conditions would be speculative at best and not reasonably foreseeable. As Montana is not proposing to change any part of its adaptive management process, and Wyoming did not identify any additional direct or indirect impacts as a result of this proposed change, there are no additional cumulative impacts associated with the proposed changes to adaptive management implementation.

Under the Proposed Land Use Plan Amendment in Wyoming, language would be added to clarify how implementation-level decisions would be guided regarding mitigation and prioritization of fluid mineral leasing to better align with state conservation plans and management strategies. As identified in the direct and indirect effects section of this Final EIS, impacts on Greater Sage-Grouse would be minor as a result of these changes and could include localized detrimental impacts in some areas and beneficial impacts in others, but would not affect Greater Sage-Grouse conservation. As a result, there would be no appreciable additive impact from the implementation of these clarifications on Greater Sage-Grouse habitat or population across MZ I.



BLM's proposed land use plan amendments in MZ I are also unlikely to preclude the reasonably foreseeable actions listed in **Appendix D** from proceeding. Some small, localized populations may be at continued risk due to reasonably foreseeable infrastructure and energy development projects over the next 20 years, when combined with unplanned events such as wildfires, drought, and associated decline in Greater Sage-Grouse habitat quality; however, the proposed plan amendments retain conservation measures that would be applied consistent with state management plans. They would continue proactive habitat restoration efforts being completed by private, local, state, and federal partners across the MZ, to adequately conserve and manage Greater Sage-Grouse habitat.

#### **4.6.4 Cumulative Effects on Greater Sage-Grouse: Management Zone II/VII**

In addition to the analysis in the 2015 Final EIS, other anticipated incremental impacts are discussed below in association with planning issues being analyzed in this RMPA/EIS.

MZ II/VII encompass portions of Wyoming, Colorado, Utah, Montana, and Idaho. Under the Proposed Land Use Plan Amendments in this MZ, PHMA would decrease by 1 percent and GHMA would decrease by 1 percent, compared to the acreage values in the No-Action Alternative. The proposed change in habitat management area acres reflects changes in Utah, where PHMA would be reduced by approximately 35,000 acres and GHMA (826,000 acres) would be removed in an effort to align with the Greater Sage-Grouse Management Areas identified by the State of Utah. In Idaho, approximately 50,000 acres would change from PHMA to IHMA for population monitoring purposes; however, as a result of a tripped adaptive management trigger, the habitat would continue to be managed as PHMA, which results in no net change to overall acreages included in the habitat management areas. Across this MZ, no other modifications to habitat management areas are currently proposed. Montana is currently not undergoing a plan amendment process; therefore, none of the proposed changes described in this section apply to Greater Sage-Grouse in Montana.

In Colorado, in the No-Action Alternative, PHMA within 1 mile of active leks is closed to leasing. The proposed action would open 1 mile of active leks to leasing, subject to NSO stipulations with restrictive criteria for waivers, exceptions, and modifications. Although that allocation change would make additional acres available to leasing, the impact on Greater Sage-Grouse is likely to be minimal because surface disturbance, fragmentation, and indirect habitat loss would not be expected to increase due to restrictions on surface disturbance. Additionally, better coordination with the state provides more of an all-lands approach that, due to multiple jurisdictions with regulatory authority over land and mineral ownership, may result in better landscape-scale protections for Greater Sage-Grouse and Greater Sage-Grouse habitat.

For the remainder of the planning areas within MZ II and VII, land use plan allocations tied to habitat management areas did not change between the No-Action Alternative and the Proposed Land Use Plan Amendment.

The decrease in PHMA and GHMA as a result of better alignment with the State of Utah's Greater Sage-Grouse management plan between the No-Action Alternative and the Proposed Land Use Plan Amendment would have negligible to minimal impacts on Greater Sage-Grouse and its habitat in the context of the entire MZ. The reduction of PHMA was associated with timbered mountains that do not include Greater Sage-Grouse habitat. The removal of GHMA in Zones II and VII affects populations where the BLM has very little decision space (surface or mineral estates) or areas with very small

populations that are already heavily affected by existing oil and gas development resulting in infrastructure at a density above what science has indicated Greater Sage-Grouse will persist. Additionally, the relevant distribution of land use plan allocations associated with these habitat management area changes would not significantly change (0-3 percent, see **Appendix D**).

The planning efforts being undertaken in this MZ would incorporate management flexibility in Colorado, Utah, and Idaho plans that would allow exceptions to allocation decisions similar to flexibility already in the Wyoming and Montana plans. These changes would allow for site-specific adjustments for land use authorizations based on site conditions. In addition, there would be adjustments to existing adaptive management strategies for all plans in this MZ. Within this MZ, all plans would remove the recommendation to withdraw SFAs from location and entry under the 1872 Mining Law, would make slight adjustments to habitat objectives, and Colorado and Idaho plans would identify new exceptions to seasonal timing restrictions to provide for consideration of site-specific conditions already present in the Utah, Wyoming and Montana plans.

Despite these actions, cumulative impacts on Greater Sage-Grouse populations and habitat across MZ II/VII would be consistent with those impacts identified in the 2015 Final EISs for the then Proposed Plan Amendments. The currently Proposed Land Use Plan Amendments change from the No-Action Alternative would be minor. Disturbance from energy development, mining, and infrastructure, as well as the resulting habitat fragmentation, remain the greatest threat to Greater Sage-Grouse in the Rocky Mountain Region. Because the land use prescriptions within designated habitat management areas and the allocations associated with those habitat management areas are not being proposed for change in any plan in MZ II/VII, there would be no additional cumulative impacts on Greater Sage-Grouse across this MZ.

**A summary of potential cumulative impacts by proposed management action is presented below.**

Impacts on Greater Sage-Grouse as a result of surface disturbance would likely be greater where development and disturbance are more intense and in areas where development overlaps sensitive habitats. The degree of impact would depend on the timing of development activities and whether the amount of development activity and disruption outpaces successful reclamation and revegetation efforts in disturbed areas. Increased flexibility for updating habitat management areas across MZ II/VII would not result in any additive impacts on Greater Sage-Grouse and could result in beneficial impacts as a result of consistent management across these zones. Future modifications of habitat management areas would be documented using the appropriate level of NEPA that would, as applicable, provide analysis regarding any potential impacts; however, because the underlying habitat management area allocations and the respective restrictions on those allocations put in place to conserve Greater Sage-Grouse would not change, and any proposed updates would reflect the most recent knowledge concerning Greater Sage-Grouse habitat use and distribution, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse habitat or population.

The allocation exception process would be updated in Colorado, Utah, and Idaho to simplify the various exemptions contained in the 2015 Final EIS. While the availability of exceptions to land use plan allocations attached to PHMA and GHMA could increase the possibility of leasing, permitting, or ground-disturbing activities within a given habitat management area, the established criteria would ensure that projects are either in unsuitable Greater Sage-Grouse habitat; do not result in direct,

indirect, or cumulative impacts on Greater Sage-Grouse; benefit Greater Sage-Grouse or its habitat; or can be offset, with the exception of those needed for public health and safety; therefore, there would be no appreciable additive impact from the implementation of this action on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

In MZ II/VII, approximately 216,000 acres of PHMA in Wyoming and 164,000 acres of PHMA in Utah were recommended for withdrawal from location and entry under the 1872 Mining Law in the current RMPs. This recommendation, if implemented through a future separate withdrawal action supported by its own NEPA, would apply to approximately 3 percent of the MZ. The proposed change to the withdrawal recommendation itself would not have any on-the-ground effects, and the conservation benefits of a future withdrawal would be minimal, as documented in the 2016 SFA Withdrawal Draft EIS and as explained above.

Approximately 99 percent of GHMA and PHMA in MZ II/VII is open to livestock grazing; this is not proposed for change in any states' land use plan amendments; therefore, no additional cumulative impacts beyond those identified in the 2015 Final EISs are anticipated. In general, livestock can influence habitat by modifying plant biomass, plant height and cover, and plant species composition. Improper livestock grazing could cause changes in habitat; changes in plant composition could occur in varying degrees and could change vegetative structure, affecting cover for nesting birds; however, proper grazing can be used to reduce fuel loads and reduce the risk of wildfire and can also be managed to reduce the spread of invasive grasses. Specific impacts on Greater Sage-Grouse habitat from livestock grazing are incorporated by reference from the 2015 Final EIS. All ongoing planning efforts in MZ II/VII would make slight adjustments to habitat objectives, and, in Wyoming and Utah, would provide for more flexibility for making site-specific adjustments to livestock grazing management if the site-specific monitoring indicated adjustments were necessary.

Under the Proposed Land Use Plan Amendments, language would be added to clarify how some implementation level decisions, including mitigation, prioritization of fluid mineral leasing, disturbance caps, and clarification of required design features would be guided to better align with state conservation plans and management strategies. As identified in the direct and indirect effects section of this Final EIS, impacts on Greater Sage-Grouse would be minor as a result of these changes and could include localized detrimental impacts in some areas and beneficial impacts in others, but would not cumulatively compromise Greater Sage-Grouse conservation efforts throughout the individual states. As a result, there would be no appreciable additive impact from the implementation of these clarifications on Greater Sage-Grouse habitat or population across this MZ.

Similarly, no appreciable additive impacts are anticipated from updating the adaptive management process as described in the Proposed Land Use Plan Amendments. In Wyoming and Utah, this process would be updated at the implementation level to ensure that adaptive management actions are reviewed and reversed once the identified causal factor is resolved. In all states in this MZ, this update would ensure that the BLM is using the best available science and decision support tools to guide management at the appropriate spatial scale, thus improving the BLM's assessment and response to ever-changing conditions that could affect Greater Sage-Grouse populations and/or habitat. Because any specific response to tripping a hard or soft trigger would be based on the causal factors responsible, presuming a specific response to unknown future conditions would be speculative and not reasonably foreseeable.

In Idaho, removal of the project disturbance cap would not result in any changes to allocation decisions; rather, it would allow the BLM to cluster development in PHMA and IHMA only after meeting the anthropogenic disturbance screening criteria and the disturbance development criteria. Lek buffer modifications would also not result in any allocation changes. Some lek buffers would be increased as a result of the Proposed Land Use Plan Amendment, but, in some cases, the lek buffers may be smaller than those identified in the No-Action Alternative; however, the existing disturbance screening criteria and the disturbance development criteria would restrict development activities in both PHMA and IHMA; therefore, the changes in lek buffers sizes would have no additive effect.

The BLM's Proposed Land Use Plan Amendments in MZ II/VII are also unlikely to preclude the reasonably foreseeable actions listed in **Appendix D** from proceeding. Some small, localized populations may be at continued risk due to reasonably foreseeable infrastructure and energy development projects over the next 20 years, when combined with unplanned events such as wildfires, drought, and an associated decline in Greater Sage-Grouse habitat quality; however, the proposed plan amendments retain conservation measures that would be applied consistent with State management plans, and continued proactive habitat restoration efforts being completed by private, local, state, and federal partners across the MZ, to adequately conserve and maintain Greater Sage-Grouse habitat. The Rawlins Field Office in Wyoming approved a RMP Amendment for Visual Resource Management (VRM) and the expansion of the Blowout Penstemon ACEC during this Greater Sage-Grouse planning effort. The VRM decisions are implementation level decisions which would be applied on a project-specific basis and do not represent changes in allocations, thus would not have cumulative impacts for Greater Sage-Grouse in MZ II. The Blowout Penstemon ACEC has been expanded from approximately 17,000 acres to 29,000 acres (an increase of approximately 12,000 acres) and was originally established in the 2008 Rawlins RMP to protect the endangered blowout penstemon. The expanded ACEC is closed to new oil and gas leasing and is an exclusion area for wind energy development, as well as being closed to mineral material disposals. These management decisions are the only changes in allocations and would only impact a small portion of the Rawlins Field Office and MZ II. A small portion of the ACEC overlaps with Greater Sage-Grouse PHMA and these more restrictive land uses in the ACEC would serve to further protect Greater Sage-Grouse PHMA. There would be no additional cumulative impacts on Greater Sage-Grouse in MZ II as a result of the Rawlins RMP Amendment.

#### **4.6.5 Cumulative Effects on Greater Sage-Grouse: Management Zone III**

In addition to the analysis in the 2015 Final EIS, other anticipated incremental impacts are discussed below in association with planning issues being analyzed in this RMPA/EIS.

This area encompasses portions of California, Nevada, and Utah. Under the Proposed Land Use Plan Amendments in Nevada and Northeastern California and Utah, PHMA would decrease by 1 percent, GHMA would decrease by 2 percent, and for Nevada and Northeastern California only, Occupied Habitat Management Area (OHMA) would decrease by 2 percent, as compared to the acreages identified in the No-Action Alternative. The proposed change in habitat management area acres between the No-Action Alternative and the Proposed Plan Amendment in Nevada and Northeastern California is based on adjustments made to habitat modeling used to delineate habitat management areas and improve alignment with the State of Nevada's delineations for habitat management areas, which the State of Nevada adopted by in December 2015. In Utah, GHMA (approximately 860,000 acres) was removed in the Proposed Plan Amendment in an effort to align with the habitat management areas identified by the State of Utah. Following this habitat management area modification, planning-level

allocation decisions have also been adjusted in the Proposed Plan Amendments to reflect the distribution of habitat in Nevada/Northeastern California.

In both planning areas within this MZ, land use plan allocations tied to habitat management areas did not change between the alternatives. The decrease in PHMA, GHMA, and OHMA within WAFWA MZ III between the No-Action Alternative and the Proposed Plan Amendment would therefore have negligible-to-minimal impacts on Greater Sage-Grouse and its habitat in the context of the entire MZ, as the relevant distribution of land use plan allocations associated with these habitat management areas is not significantly changing (only an overall 0-3 percent decrease, see **Appendix D**).

Both planning efforts' Proposed Plan Amendments in MZ III incorporate management flexibility that would allow exceptions to allocation decisions within PHMA, GHMA, and OHMA in Nevada and Northeastern California, and in both planning areas would allow for site-specific adjustments for land use authorizations and adjustments to existing adaptive management strategies. Under both sets of Proposed Land Use Plan Amendments, the BLM would remove the recommendation to withdraw SFAs from location and entry under the Mining Law of 1872, make slight adjustments to habitat objectives, and identify new exceptions to seasonal timing restrictions. The cumulative impacts of these proposed changes to Greater Sage-Grouse populations across MZ III would be consistent with the cumulative impacts analyzed and disclosed in the 2015 Final EISs. Moreover, these proposed changes, which focus on anthropogenic disturbances, would have only a minor or limited effect on efforts to manage and conserve Greater Sage-Grouse in this MZ, where wildfire, invasive plants, and conifer encroachment are the greater threats to the Greater Sage-Grouse and its habitat.

The BLM's Proposed Plan Amendments in the MZ are also unlikely to preclude the reasonably foreseeable actions listed in **Appendix D** from proceeding. Some small, localized populations may be at continued risk due to the reasonably foreseeable future infrastructure and energy development projects over the next 20 years, when combined with unplanned events such as wildfires, drought, and associated decline in Greater Sage-Grouse habitat quality; however, the Proposed Plan Amendments retain conservation measures in combination with continued proactive habitat restoration efforts being completed by private, local, state, and federal partners across the MZ to adequately conserve and maintain Greater Sage-Grouse habitat.

**A summary of potential cumulative impacts by proposed management action is presented below.**

Under the Proposed Plan Amendment, habitat management area boundaries in Nevada would be adopted or revised to incorporate the best available science (Coates et al. 2016). Because the underlying habitat management area allocations put in place to conserve Greater Sage-Grouse would not change, and these updates reflect the most recent knowledge concerning Greater Sage-Grouse habitat use and distribution, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse or the resources/uses analyzed herein.

Similarly, no appreciable additive impacts are anticipated from updating the adaptive management process as described in the Proposed Plan Amendment. This update would ensure that the BLM is utilizing the best available science and decision support tools to guide management at the appropriate spatial scale, thus improving the BLM's assessment and response to ever-changing conditions that could affect Greater Sage-Grouse populations and/or habitat. Because any specific response to tripping a hard

or soft trigger would be based on the causal factors responsible, presuming a specific response to unknown future conditions would be speculative at best and not reasonably foreseeable.

Under the Proposed Plan Amendment, the allocation exception process would be updated to simplify the various exemptions contained in the 2015 Final EIS. While the availability of exceptions to land use plan allocations attached to PHMA and GHMA could increase the possibility of leasing, permitting, or ground-disturbing activities within a given habitat management area, the established criteria would ensure that projects are either in unsuitable Greater Sage-Grouse habitat; do not result in direct, indirect, or cumulative impacts on Greater Sage-Grouse; or can be offset, with the exception of those needed for public health and safety; therefore, there would be no appreciable additive impact from the implementation of this action on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

Under the Proposed Plan Amendment, language would be added to clarify how implementation-level decisions would be guided regarding mitigation, seasonal timing restrictions, and modifying habitat objectives to better align with state conservation plans and management strategies. As these updates did not result in any new identifiable direct or indirect impacts, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

#### **4.6.6 Cumulative Effects on Greater Sage-Grouse: Management Zone IV**

In addition to the analysis in the 2015 Final EIS, other anticipated incremental impacts are discussed below in association with planning issues being analyzed in this RMPA/EIS.

MZ IV encompasses portions of Idaho, Nevada, Montana, Oregon, Utah, and a small portion of Wyoming. Under the Proposed Plan Amendment PHMA would decrease by 2 percent, IHMA (Idaho) would decrease by 0 percent, GHMA would decrease by 0 percent, and OHMA (Nevada and California) would decrease by 1 percent, as compared to the acreage identified in the No-Action Alternative (**Appendix D**). The proposed change in habitat management area acres between the No-Action Alternative and the Proposed Plan Amendment in Nevada is based on adjustments made to habitat modeling used to delineate habitat management areas and to improve alignment with the State of Nevada's delineations for habitat management areas. In Idaho, minor proposed changes in habitat management areas are based on cleaning up habitat mapping errors, removing non-Greater Sage-Grouse habitat that is being managed as PHMA as a result of SFA designation in the 2015 Decision, and reallocating an area of PHMA to IHMA because there was no historic lek routes in the PHMA polygon. This made it impossible to apply the adaptive management framework in that polygon. Habitat management areas are not proposed to change in Wyoming, Utah, or Oregon in MZ IV.

The direct and indirect effects of proposed management changes in the Wyoming, Idaho, Utah, Nevada, and Oregon Proposed Land Use Plan Amendments are disclosed in each state's Final EIS. Change in allocation decisions is a better indicator to determine how changes across a MZ will affect Greater Sage-Grouse populations; therefore, this cumulative effects analysis relied on changes in planning allocations as the metric to measure cumulative effects in MZ IV. Idaho comprises 50 percent of the MZ while Wyoming only comprises 0.3 percent.

In all planning areas within MZ IV, land use plan allocations tied to habitat management areas would not change between the No-Action Alternative and Proposed Plan Amendment. The decrease in PHMA, GHMA, and OHMA within WAFWA MZ IV between the No-Action Alternative and the Proposed Plan Amendment would therefore have negligible to minimal impacts on Greater Sage-Grouse and its habitat in the context of the entire MZ, as the relevant distribution of land use plan allocations associated with these habitat management areas is not significantly changing (0-2 percent, see **Appendix D**).

Each planning efforts' Proposed Plan Amendment in MZ IV incorporate management flexibility that would allow exceptions to allocation decisions within habitat management areas and would allow for site specific adjustments for land use authorizations and adjustments to existing adaptive management strategies. Under all Proposed Plan Amendments, the BLM would remove the recommendation to withdraw SFAs from location and entry under the Mining Law of 1872, make slight adjustments to habitat objectives, and identify new exceptions to seasonal timing restrictions. The cumulative impacts of these proposed changes to Greater Sage-Grouse populations across MZ IV would be consistent with cumulative impacts described in the 2015 Final EIS. Moreover, these proposed changes, which focus on anthropogenic disturbances, would have only a minor or limited effect on efforts to manage and conserve Greater Sage-Grouse in these MZ s, where wildfire, invasive plants, and conifer encroachment are greater threats to the grouse and its habitats.

BLM's Proposed Plan Amendments in the MZ are also unlikely to preclude the reasonably foreseeable actions listed in **Appendix D** from proceeding. Some small, localized populations may be at continued risk due to reasonably foreseeable future infrastructure and energy development projects over the next 20 years, when combined with unplanned events such as wildfires, drought, and associated decline in Greater Sage-Grouse habitat quality; however, the Proposed Plan Amendments retain conservation measures in combination with continued proactive habitat restoration efforts being completed by private, local, state, and federal partners across the MZ to adequately conserve and manage Greater Sage-Grouse habitats.

**A summary of potential cumulative impacts by proposed management action is presented below.**

The proposed plans vary from state to state as does each state contribution to MZ IV. Montana is not engaging in an amendment process; therefore, Montana will not be contributing to any cumulative effects. Wyoming only has about 4,000 acres of PHMA and about 20,000 acres of GHMA within MZ IV making their potential contribution to cumulative effects within the approximately 80-million-acre MZ IV negligible.

The portion of Utah that is within MZ IV is an isolated area with little or no development potential for fluid minerals and is predominantly used for livestock grazing. The RFDs for the area predicts zero wells. The changes proposed in Utah's proposed plan would have no additive effect Greater Sage-Grouse habitats within MZ IV.

The Oregon RMPA would change livestock grazing on 21,959 acres in all or portions of key Research Natural Areas from unavailable to grazing to available for grazing. No other states within MZ IV are proposing changes to grazing allocation decisions. This change would not add measurably to other actions occurring within the approximately 80-million-acre MZ IV.

The area of MZ IV that includes Utah is extremely isolated. The dominate use is grazing. Grazing management will follow rangeland land health standards, and changes to Utah's Table 2-2 that incorporate local science that will benefit Greater Sage-Grouse and ensure that grazing management is conducted properly and would not add cumulatively to Greater Sage-Grouse effects. The area continues to be a ROW avoidance area and is closed to wind energy development. The RFDs for the area predicts zero wells so the change to limited exceptions waivers and modifications are moot.

The changes proposed in Utah's proposed plan would not add measurably to other actions occurring within the approximately 80-million-acre MZ IV.

Nevada's proposed plan would revise the habitat management area boundaries to incorporate the best available science (Coates et al. 2016) but would not change the allocations associated with each habitat management area. Nevada would also update its adaptive management process to ensure that the BLM is utilizing the best available science and decision support tools to guide management at the appropriate spatial scale. These changes would not add measurably to other actions occurring in MZ IV.

In Idaho, removal of the project disturbance cap would not result in any changes to allocation decisions; rather, it would allow the BLM to cluster development in PHMA and IHMA only after meeting the anthropogenic disturbance screening criteria and the disturbance development criteria. Lek buffer modifications would also not result in any allocation changes. Some lek buffers would be increased as a result of the Proposed Land Use Plan Amendment, but, in some cases, the lek buffers may be smaller than those identified in the No-Action Alternative; however, the existing disturbance screening criteria and the disturbance development criteria would ensure that impacts from development activities in both PHMA and IHMA would not result in a net loss to Greater Sage-Grouse habitat.

Within MZ IV Oregon would retain its SFA designations, while Idaho and Nevada would remove SFA designations. Under the proposed plan in Idaho and Nevada the NSO stipulations without WEMs would change to NSO with limited Exceptions. The exception criteria could ensure that projects are either in unsuitable Greater Sage-Grouse habitat; do not result in direct, indirect, or cumulative impacts on Greater Sage-Grouse; or can be offset, with the exception of those needed for public health and safety; therefore, there would be no appreciable additive impact from the implementation of this action on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

Under the proposed plan, language would be added to clarify how implementation-level decisions would be guided regarding mitigation, seasonal timing restrictions, and modifying habitat objectives to better align with state conservation plans and management strategies. As these updates did not result in any new identifiable direct or indirect impacts, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

#### **4.6.7 Cumulative Effects on Greater Sage-Grouse: Management Zone V**

In addition to the analysis in the 2015 Final EIS, other anticipated incremental impacts are discussed below in association with planning issues analyzed in this RMPA/EIS. All changes in the extent of habitat management areas and areas recommended for withdrawal within the MZ occur under the Nevada/Northeastern California amendment. The Oregon amendment did not propose any changes in



the extent of habitat management areas (PHMA and GHMA). Oregon removed the recommendation for a withdrawal in the SFA under a plan maintenance action in May, prior to the start of this amendment process. That action resulted in no difference between the No-Action Alternative and the Proposed Plan Amendments in terms of withdrawals.

Under the Proposed Plan Amendments in Nevada and Northeastern California, PHMA would decrease by 1 percent, GHMA would decrease by 2 percent, and for Nevada and Northeastern California only, OHMA would decrease by 2 percent, as compared to the acreages identified in the No-Action Alternative. The proposed change in habitat management area acres between the No-Action Alternative and the Proposed Plan Amendment in Nevada and Northeastern California is based on adjustments made to habitat modeling used to delineate habitat management areas and improve alignment with the State of Nevada's delineations for habitat management areas, which the State of Nevada adopted by in December 2015. Following this habitat management area modification, planning level allocation decisions have also been adjusted to reflect the distribution of habitat in Nevada/Northeastern California. Future adjustments to habitat management areas in Nevada/Northeastern California would be based on best available science and to align with the respective states' delineations for Greater Sage-Grouse habitat.

In Oregon, the only proposed decision under the Management Alignment Alternative (Proposed Plan Amendment) would retain livestock grazing within key Research Natural Areas in order to provide ungrazed controls and better assess the impacts of grazing on Greater Sage-Grouse habitat elements, such as insects and forbs important to Greater Sage-Grouse, as discussed earlier in this chapter. This modification would result in returning livestock grazing to 21,959 acres within the Proposed Plan Amendment. In the context of the entire MZ, this change would have negligible to no effects on Greater Sage-Grouse populations. Well-managed grazing practices are compatible with sagebrush ecosystems and Greater Sage-Grouse persistence; however, Greater Sage-Grouse population response to grazing varies with local vegetation productivity, underscoring the need for long-term replicated grazing studies across the sagebrush ecosystem and within different ecological sites across the range of Greater Sage-Grouse to better understand the different effects of grazing on Greater Sage-Grouse habitat selection, vital rates, and population trends (DOI 2016).

**A summary of potential cumulative impacts by proposed management action is presented below.**

Under the Nevada/Northeastern California amendment, the Management Alignment Alternative (Proposed Plan Amendment) would increase PHMA by less than 1 percent, decrease GHMA by 1 percent, and decrease OHMA by 2 percent. This change in habitat management area acres between the No-Action Alternative and Proposed Plan Amendment would be the result of improved habitat modeling used to delineate habitat management areas (best available science) and to align with the State of Nevada's delineations for habitat management areas (adopted by the State of Nevada in December 2015). Following this habitat management area modification, planning level allocation decisions have also been adjusted to reflect the distribution of habitat in Nevada/Northeastern California.

The Management Alignment Alternative (Proposed Plan Amendment) for Nevada/Northeastern California would also remove the recommendation for a withdrawal in the SFAs; allow exceptions to allocation decisions within PHMA, GHMA, OHMA; modify the existing adaptive management strategy; make slight adjustments to habitat objectives; and identify new exceptions to seasonal timing restrictions. Removing the recommendation to withdraw SFAs from location and entry under the Mining

Law of 1872 would result in a 3 percent decrease of acres recommended for withdrawal (see **Appendix D**). The largest percent allocation change between the alternatives within the MZ would be consistent with those impacts described in the 2015 Final EIS for the then Proposed Plan Amendments because the Management Alignment Alternatives (Proposed Plan Amendments) changes from the No-Action Alternative are minor and deal largely with anthropogenic disturbances. The greatest threats to populations in this MZ would remain wildfire, invasive plants, and conifer encroachment.

The decreases in GHMA and OHMA within WAFWA MZ V between the No-Action Alternative and Management Alignment Alternative (Proposed Plan Amendment) would therefore have negligible to no effect on Greater Sage-Grouse populations and their habitat in the context of the entire MZ, as the relevant distribution of land use plan allocations associated with these habitat management areas would result in an estimated 2.5 to 3 percent decrease, all from Nevada and Northeastern California (see **Appendix D**).

The BLM's Proposed Plan Amendments in MZ V are unlikely to preclude the reasonably foreseeable actions listed in **Appendix D** from proceeding. Overall, the Proposed Plan Amendments retain conservation measures in combination with continued proactive habitat restoration efforts being completed by private, local, state, and federal partners across the MZ; however, smaller populations, particularly those at the edge of the species range, would remain at highest risk of extirpation (Aldridge et al. 2008; Garton et al. 2011.), which the reasonably foreseeable actions may exacerbate as unplanned events such as wildfires, drought, and other natural disturbances lead to declines in Greater Sage-Grouse habitat quality.

Under the Proposed Plan Amendment, habitat management area boundaries in Nevada/California would be adopted or revised to incorporate the best available science (Coates et al. 2016). Because the underlying habitat management area allocations put in place to conserve Greater Sage-Grouse would not change, and these updates reflect the most recent knowledge concerning Greater Sage-Grouse habitat use and distribution, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse or the resources/uses analyzed herein.

Similarly, no appreciable additive impacts are anticipated from updating the adaptive management process as described in the Management Alignment Alternative. This update would ensure that the BLM is utilizing the best available science and decision support tools to guide management at the appropriate spatial scale, thus improving the BLM's assessment and response to ever-changing conditions that could affect Greater Sage-Grouse populations and/or habitat. Because any specific response to tripping a hard or soft trigger would be based on the causal factors responsible, presuming a specific response to unknown future conditions would be speculative at best and not reasonably foreseeable.

Under the Proposed Plan Amendment, the allocation exception process would be updated to simplify the various exemptions contained in the 2015 Final EIS. While the availability of exceptions to land use plan allocations attached to PHMA and GHMA could increase the possibility of leasing, permitting, or ground-disturbing activities within a given habitat management area, the established criteria would ensure that projects are either in unsuitable Greater Sage-Grouse habitat; do not result in direct, indirect, or cumulative impacts on Greater Sage-Grouse; or can be offset, with the exception of those needed for public health and safety; therefore, there would be no appreciable additive impact from the implementation of this action on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

Under the Proposed Plan Amendment, language would be added to clarify how implementation-level decisions would be guided regarding mitigation, seasonal timing restrictions, and modifying habitat objectives to better align with state conservation plans and management strategies. As these updates did not result in any new identifiable direct or indirect impacts, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

#### **4.7 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

Section 102(2)(C) of NEPA requires a discussion of any irreversible or irretrievable commitments of resources from an alternative, should it be implemented. An irreversible commitment of a resource is one that cannot be reversed, such as the extinction of a species or loss of a cultural resource site without proper documentation. An irretrievable commitment of a resource is one in which the resource or its use is lost for a period of time, such as the extraction of oil and gas. Should oil and gas deposits underlying Greater Sage-Grouse habitat be extracted, that oil and gas resource would be lost.

#### **4.8 UNAVOIDABLE ADVERSE IMPACTS**

Section 102(C) of NEPA requires disclosure of any adverse environmental impacts that could not be avoided should the proposal be implemented. Unavoidable adverse impacts are those that remain following the implementation of mitigation measures or impacts for which there are no mitigation measures. Some unavoidable adverse impacts happen from implementing the Proposed RMPA/Final EIS; others are a result of public use of BLM-administered lands in the planning area.

This section summarizes major unavoidable impacts discussions of the impacts of each management action (in the discussion of alternatives) and provides greater information on specific unavoidable impacts.

Surface-disturbing activities would result in unavoidable adverse impacts. Although these impacts would be mitigated to the extent possible, unavoidable damage would be inevitable under both the No-Action Alternative and the Proposed Plan Amendment.

Impacts from permanent conversion of areas to other uses, such as transportation and mineral and energy development or off highway vehicle (OHV) use, would be greater under the Proposed Plan Amendment, but overall it would be minimal for both alternatives. Both the No-Action Alternative and the Proposed Plan Amendment would place restrictions on many types of development, which would most likely result in fewer visual intrusions and fewer instances of unavoidable wildlife habitat loss.

Wildlife, livestock, wild horses and burros, and other herbivores consume vegetation and affect soils through hoof action and possible compaction. When these impacts are kept at appropriate levels, natural processes, such as plant growth and recovery, freeze-thaw periods, and microbial activity in the soil surface, result in recovery from these impacts and maintain site stability and health. Vegetation treatments promoting recovery of Greater Sage-Grouse habitats would destroy the target species, be it annual grasses, noxious weeds, or encroaching juniper. Some level of competition for forage between wildlife, livestock, and wild horses would occur. Displacement, harassment, and injury to these species could also occur. Both the No-Action Alternative and the Proposed Plan Amendment would place restrictions on development and surface-disturbing activities, which would minimize the likelihood of displacement, harassment, and injury.

Development of mineral resources and general use of the decision area would introduce additional ignition sources into the planning area, which would increase the probability of wildland fire and the need for its suppression. These activities, combined with continued fire suppression, would also affect the overall composition and structure of vegetation communities; this could increase the potential for high-intensity wildland fires. Restrictions on development under both alternatives would decrease the potential for ignitions in the decision. However, the No Action Alternative has greater restrictions on development.

Numerous land use restrictions imposed throughout the decision area to protect Greater Sage-Grouse habitat and other important values, by their nature, affect the ability of operators, individuals, and groups who use the public lands to do so without limitations. Although attempts would be made to minimize these impacts, unavoidable adverse impacts to public land users could occur under the No-Action Alternative or the Proposed Plan Amendment.

#### **4.9 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES AND LONG-TERM PRODUCTIVITY**

Section 102(C) of NEPA requires a discussion of the relationship between local, short-term uses of the human environment and the maintenance and enhancement of long-term productivity of resources. As described in the introduction to this chapter, short-term is defined as anticipated to occur within the first 5 years of implementation of the activity and long-term as lasting beyond 5 years to the end of or beyond the life of this Proposed RMPA/Final EIS.

Surface-disturbing activities, including transportation and utility corridor construction, and mineral resource development would result in the greatest potential for impacts on long-term productivity. Management prescriptions and RDFs are intended to minimize the effect of short-term commitments and to reverse change over the long term. These prescriptions and the associated reduction of impacts would be greater under the No-Action Alternative for such resources as vegetation and wildlife habitat; however, some impacts on long-term productivity might occur, despite the prescriptions intended to reduce impacts on Greater Sage-Grouse and its habitat.

ROWs and short-term use of an area to foster energy and mineral development would result in long-term loss of soil productivity and vegetation diversity. Impacts would persist as long as surface disturbance and vegetation loss continue. In general, the loss of soil productivity would be directly at the point of disturbance; even so, long-term vegetation diversity and habitat value could be reduced due to fragmentation and the increased potential for invasive species to spread from the developments or disturbances. Both the No-Action Alternative and the Proposed Plan Amendment would provide for long-term productivity through restrictive allocations that limit development in many areas and through the application of other restrictions on development, such as disturbance caps, RDFs, and other management prescriptions.

ROWs and the short-term use of Greater Sage-Grouse habitat for energy and mineral development could impair the long-term productivity of Greater Sage-Grouse and its habitat and that of other species. This would occur by displacing species from primary habitats and removing components of these habitats that might not be restored for 20 years or longer. These short-term uses could also affect the long-term sustainability of some special status species. The potential for these impacts, however, would be minimal under both the No-Action Alternative and the Proposed Plan Amendment. The short-

term resource uses associated with mineral development (oil and gas seismic exploration, natural gas test well drilling, and the noise associated with these activities) would have adverse impacts on the long-term productivity of Greater Sage-Grouse and its habitat. This would be the case if these resource uses were to infringe on Greater Sage-Grouse seasonal habitats, such as nesting, brood-rearing, and winter habitats. These activities, though short-term individually, could have collective long-term impacts on Greater Sage-Grouse and its habitat if they were to increase in the long term.

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## Chapter 5. Consultation and Coordination

### 5.1 PUBLIC INVOLVEMENT DURING THE 2020 NEPA PROCESS

#### 5.1.1 Public Comments on the DSEIS

The BLM accepted comments on the DSEIS for 90 days after the NOA publishes in the *Federal Register*.

### 5.2 AMERICAN INDIAN TRIBAL CONSULTATION

Various federal laws require the BLM to consult with American Indian tribes during the NEPA process. This section documents the specific consultation and coordination undertaken throughout the process of developing the 2018 Final EIS. No new consultation is being initiated because no new decisions are being considered as the FSEIS solely updates NEPA analysis to clarify the approach taken in the 2018 Final EIS.

In December 2017, the BLM Wyoming sent letters to tribal governments providing notification of the RMPA/EIS and inviting the tribes to participate as cooperating agencies in the planning process. Letters were sent to the following six tribes located in Wyoming and Nebraska:

- Eastern Shoshone
- Northern Arapaho
- Omaha Tribe of Nebraska
- Ponca Tribe of Nebraska
- Santee Sioux Nation of Nebraska
- Winnebago Tribe of Nebraska

### 5.3 LIST OF PREPARERS

An interdisciplinary team of staff from the BLM, in collaboration with Environmental Management and Planning Solutions, Inc. prepared the SEIS.

Name	Role/Responsibility
Jonathan Beck	Team Lead
Ryan Hathaway	Team Lead ( <i>former</i> )
Darren Long	Wildlife Biologist
Jennifer Marzluf	Greater Sage-Grouse State Implementation Lead

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# Glossary

**Adaptive management.** A type of natural resource management in which decisions are made as part of an ongoing science-based process. Adaptive management involves testing, monitoring, and evaluating applied strategies, and incorporating new knowledge into management approaches that are based on scientific findings and the needs of society. Results are used to modify management policy, strategies, and practices.

**Amendment.** The process for considering or making changes in the terms, conditions, and decisions of approved Resource Management Plans or management framework plans. Usually only one or two issues are considered that involve only a portion of the planning area.

**Avoidance/avoidance area.** These terms usually address mitigation of some activity (i.e., resource use). Paraphrasing the CEQ Regulations (40 CFR 1508.20), avoidance means to circumvent, or bypass, an impact altogether by not taking a certain action, or parts of an action. Therefore, the term “avoidance” does not necessarily prohibit a proposed activity, but it may require the relocation of an action, or the total redesign of an action to eliminate any potential impacts resulting from it. Also see “right-of-way avoidance area” definition.

**Best Management Practices (BMPs).** A suite of techniques that guide or may be applied to management actions to aide in achieving desired outcomes. BMPs are often developed in conjunction with land use plans, but they are not considered a planning decision unless the plans specify that they are mandatory.

**Biologically Significant Unit (BSU).** A geographical/spatial area within Greater Sage-Grouse habitat that contains relevant and important habitats that is used as the basis for comparative calculations to support evaluation of changes to habitat.

**Compensatory mitigation.** Compensating for the residual impact by replacing or providing substitute resources or environments (40 CFR 1508.20).

**Controlled Surface Used (CSU).** CSU areas are open to fluid mineral leasing, but the stipulation allows the BLM to require special operational constraints, or the activity can be shifted more than 200 meters (656 feet) to protect the specified resource or value.

**Connectivity Habitat.** Connectivity habitats (as defined in Wyoming EO 2015-4) are state-designated areas identified as important for to maintain transmission of genetic material between core area populations. It may not include breeding, late brood-rearing, or winter habitats. Along with core habitat, connectivity habitat is one of two components of PHMA.

**Cooperating agency.** Assists the lead federal agency in developing an environmental assessment or environmental impact statement. These can be any agency with jurisdiction by law or special expertise for proposals covered by NEPA (40 CFR 1501.6). Any tribe or Federal, State, or local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency.

**Core Habitat.** Core habitats (as defined in Wyoming EO **2015-4**) are state-designated areas identified as the most important for Greater Sage-Grouse and include breeding, late brood-rearing, and winter habitats. It does not include known migration or connectivity corridors or winter concentration areas. Along with connectivity habitat, core habitat is one of two components of PHMA.

**Council on Environmental Quality (CEQ).** An advisory council to the President of the US established by NEPA. It reviews federal programs to analyze and interpret environmental trends and information.

**Cumulative effects.** The direct and indirect effects of a proposed project alternative's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action.

**Decision area.** Public lands and mineral estate managed by the US DOI, BLM that are within the planning area and are encompassed by all designated habitat.

**Direct impacts.** Direct impacts are caused by an action or implementation of an alternative and occur at the same time and place.

**Environmental impact statement (EIS).** A detailed statement prepared by the responsible official in which a major federal action that significantly affects the quality of the human environment is described, alternatives to the proposed action are provided, and effects are analyzed.

**Fluid minerals.** Oil, gas, coal bed natural gas, and geothermal resources.

**General Habitat Management Area (GHMA).** Areas of seasonal or year-round Greater Sage-Grouse habitat outside of priority habitat.

**Geographic Information System (GIS).** A system of computer hardware, software, data, people, and applications that capture, store, edit, analyze, and display a potentially wide array of geospatial information.

**Habitat.** An environment that meets a specific set of physical, biological, temporal, or spatial characteristics that satisfy the requirements of a plant or animal species or group of species for part or all of their life cycle.

**Impact.** The effect, influence, alteration, or imprint caused by an action.

**Indirect impacts.** Indirect impacts result from implementing an action or alternative but usually occur later in time or are removed in distance and are reasonably certain to occur.

**Leasable minerals.** Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. These include energy-related mineral resources such as oil, natural gas, coal and geothermal, and some non-energy minerals, such as phosphate, sodium, potassium, and sulfur. Geothermal resources are also leasable under the Geothermal Steam Act of 1970.

**Lease stipulation.** A modification of the terms and conditions on a standard lease form at the time of the lease sale.

**Lek.** An arena where male Greater Sage-Grouse display for the purpose of gaining breeding territories and attracting females. These arenas are usually open areas with short vegetation within sagebrush habitats, usually on broad ridges, benches, or valley floors where visibility and hearing acuity are excellent.

**Long-term effect.** The effect could occur for an extended period after implementation of the alternative. The effect could last several years or more.

**Management decision.** A decision made by the BLM to manage public lands. Management decisions include both land use plan decisions and implementation decisions.

**Minimization mitigation.** Minimizing impacts by limiting the degree or magnitude of the action and its implementation (40 CFR 1508.20 (b)).

**Mitigation.** Includes specific means, measures or practices that could reduce, avoid, or eliminate adverse impacts. Mitigation can include avoiding the impact altogether by not taking a certain action or parts of an action, minimizing the impact by limiting the degree or magnitude of the action and its implementation, rectifying the impact by repairing, rehabilitation, or restoring the affected environment, reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, and compensating for the impact by replacing or providing substitute resources or environments.

**Modification.** A change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.

**No surface occupancy (NSO).** A major constraint where use or occupancy of the land surface for fluid mineral exploration or development and all activities associated with fluid mineral leasing (e.g., truck-mounted drilling, construction of wells and/or pads) are prohibited to protect identified resource values. Areas identified as NSO are open to fluid mineral leasing, but surface occupancy or surface-disturbing activities associated with fluid mineral leasing cannot be conducted on the surface of the land. Access to fluid mineral deposits would require horizontal drilling from outside the boundaries of the NSO area.

**Planning area.** The geographical area for which resource management plans are developed and maintained regardless of jurisdiction.

**Planning criteria.** The standards, rules, and other factors developed by managers and interdisciplinary teams for their use in forming judgments about decision making, analysis, and data collection during planning. Planning criteria streamlines and simplifies the resource management planning actions.

**Planning issues.** Concerns, conflicts, and problems with the existing management of public lands. Frequently, issues are based on how land uses affect resources. Some issues are concerned with how land uses can affect other land uses, or how the protection of resources affects land uses.

**Policy.** This is a statement of guiding principles, or procedures, designed and intended to influence planning decisions, operating actions, or other affairs of the BLM. Policies are established interpretations of legislation, executive orders, regulations, or other presidential, secretarial, or management directives.

**Priority Habitat Management Areas (PHMA).** Priority Habitat Management Areas (PHMA). Areas that have been identified as having the highest conservation value to maintaining sustainable Greater Sage-Grouse populations; they include breeding, late brood-rearing, and winter habitats. As defined in Wyoming EO 2015-4, core and connectivity habitats are PHMA.

**Required Design Features (RDFs).** Means, measures, or practices intended to reduce or avoid adverse environmental impacts. A suite of features that would establish the minimum specifications for certain activities (i.e., water developments, mineral development, and fire and fuels management) and mitigate adverse impacts. These design features would be required to provide a greater level of regulatory certainty than through implementation of Best Management Practices. In general, the design features are accepted practices that are known to be effective when implemented properly at the project level.

**Resource management plan (RMP).** A land use plan as prescribed by FLPMA that establishes, for a given area of land, land-use allocations, coordination guidelines for multiple-use, objectives, and actions to be achieved.

**Short-term effect.** The effect occurs only during or immediately after implementation of the alternative.

**Stipulation (general).** A term or condition in an agreement or contract.

**Stipulation (oil and gas).** A provision that modifies standard oil and gas lease terms and conditions in order to protect other resource values or land uses and is attached to and made a part of the lease. Typical lease stipulations include NSO, Timing Limitations, and CSU. Lease stipulations are developed through the land use planning process.

**Timing Limitation (TL).** Areas identified for timing limitations, a moderate constraint, are closed to fluid mineral exploration and development, surface-disturbing activities, and intensive human activity during identified timeframes. This stipulation does not apply to operation and basic maintenance activities, including associated vehicle travel, unless otherwise specified. Construction, drilling, and other operations considered to be intensive are not allowed. Intensive maintenance, such as workover operations, is not permitted. TLs can overlap spatially with no surface occupancy and controlled surface use, as well as with areas that have no other restrictions.

**Winter Concentration Areas.** Winter Concentration Areas are a habitat feature where biologically significant numbers of core habitat Greater Sage-Grouse persistently congregate in an area outside of PHMA between December 1 and March 14.

# Index

Connectivity Habitat, 2-52, 2-80, 2-122, 2-229,  
2-239, 2-271, 2-277, 2-278, 2-282, 2-295,  
2-302, 2-304, 4-40

Controlled Surface Use (CSU), 2-155, 2-224,  
2-287, 2-288, 2-296, 2-303, 2-304, 2-304,  
2-342, 2-343, 2-387, 2-408, 2-437, 4-9, 4-26,  
4-27, 4-32, 4-35, 4-40, 4-41, 4-54, 4-56, 4-65,  
4-66, 4-71, 4-77, 4-80, 4-86

Core Habitat, 2-51, 2-65, 2-68, 2-70, 2-71, 2-72,  
2-77, 2-79, 2-81, 2-92, 2-100, 2-103, 2-108,  
2-109, 2-115, 2-124, 2-126, 2-139, 2-146,  
2-151, 2-153, 2-165, 2-175, 2-192, 2-196,  
2-200, 2-201, 2-210, 2-218, 2-221, 2-238,  
2-245, 2-269, 2-287, 2-295, 2-303, 2-435,  
4-14, 4-99

Council on Environmental Quality (CEQ), 2-43

Federal Land Policy and Management Act  
(FLPMA), ES-5, 1-4, 2-2, 2-15, 2-16, 2-17,  
2-18, 2-19, 2-104, 2-105, 2-355, 2-420, 2-419,  
4-106, 4-114

General Habitat Management Area (GHMA),  
1-5, 1-10, 2-5, 2-7, 2-25, 2-40, 2-48, 2-52,  
2-57, 2-58, 2-68, 2-80, 2-103, 2-104, 2-107,  
2-126, 2-127, 2-150, 2-176, 2-207, 2-208,  
2-218, 2-253, 2-258, 2-259, 2-305, 2-318,  
2-356, 2-360, 3-7, 4-9, 4-15, 4-56, 4-99,  
4-100, 4-101, 4-104, 4-105, 4-106, 4-108,  
4-109, 4-115, 4-116, 4-117, 4-118, 4-119,  
4-120, 4-121, 4-122, 4-123, 4-125, 4-126

Geothermal, 4-9, 4-29, 4-59

Important Habitat Management Area (IHMA),  
4-117, 4-120, 4-122, 4-124

Lease, 1-10, 2-5, 2-6, 2-11, 2-13, 2-14, 2-15,  
2-17, 2-18, 2-19, 2-21, 2-23, 2-24, 2-26, 2-29,  
2-37, 2-39, 2-40, 2-48, 2-49, 2-57, 2-58, 2-59,  
2-70, 2-100, 2-104, 2-106, 2-111, 2-116,  
2-117, 2-118, 2-119, 2-122, 2-138, 2-139,  
2-150, 2-151, 2-152, 2-153, 2-154, 2-155,  
2-156, 2-157, 2-158, 2-159, 2-160, 2-164,  
2-172, 2-173, 2-174, 2-175, 2-177, 2-178,  
2-183, 2-184, 2-185, 2-186, 2-187, 2-188,  
2-189, 2-190, 2-191, 2-192, 2-193, 2-194,  
2-195, 2-211, 2-271, 2-278, 2-279, 2-284,  
2-285, 2-290, 2-294, 2-298, 2-304, 2-305,  
2-306, 2-308, 2-310, 2-315, 2-318, 2-323,  
2-324, 2-325, 2-327, 2-343, 2-344, 2-354,  
2-361, 2-362, 2-363, 2-364, 2-376, 2-383,  
2-387, 2-391, 2-394, 2-402, 2-403, 2-408,  
2-419, 2-420, 2-421, 2-422, 2-428, 2-437,  
2-439, 2-442, 2-447, 2-448, 3-9, 4-5, 4-8, 4-9,  
4-11, 4-13, 4-14, 4-18, 4-25, 4-26, 4-29, 4-35,  
4-39, 4-40, 4-47, 4-56, 4-57, 4-58, 4-59, 4-61,  
4-66, 4-68, 4-69, 4-77, 4-78, 4-80, 4-81, 4-86,  
4-89, 4-90, 4-91, 4-94, 4-95, 4-96, 4-97,  
4-100, 4-104, 4-108, 4-109, 4-116, 4-117,  
4-118, 4-119, 4-120, 4-122, 4-126

- Lek, ES-3, 1-2, 1-4, 2-2, 2-7, 2-10, 2-13, 2-14, 2-16, 2-21, 2-22, 2-41, 2-42, 2-69, 2-84, 2-101, 2-102, 2-103, 2-122, 2-128, 2-129, 2-130, 2-135, 2-136, 2-138, 2-159, 2-160, 2-173, 2-205, 2-210, 2-211, 2-212, 2-216, 2-252, 2-259, 2-261, 2-277, 2-278, 2-279, 2-280, 2-282, 2-283, 2-284, 2-285, 2-287, 2-288, 2-289, 2-290, 2-291, 2-295, 2-296, 2-297, 2-298, 2-299, 2-302, 2-303, 2-303, 2-305, 2-308, 2-309, 2-312, 2-313, 2-333, 2-342, 2-343, 2-345, 2-346, 2-347, 2-351, 2-352, 2-353, 2-354, 2-358, 2-372, 2-381, 2-387, 2-389, 2-390, 2-391, 2-392, 2-393, 2-394, 2-395, 2-397, 2-398, 2-399, 2-400, 2-428, 2-429, 2-432, 2-434, 2-446, 3-3, 3-8, 4-9, 4-12, 4-14, 4-15, 4-21, 4-22, 4-23, 4-24, 4-25, 4-26, 4-27, 4-28, 4-29, 4-30, 4-31, 4-33, 4-34, 4-35, 4-36, 4-38, 4-39, 4-40, 4-41, 4-42, 4-43, 4-46, 4-56, 4-57, 4-58, 4-59, 4-60, 4-64, 4-65, 4-68, 4-70, 4-71, 4-70, 4-76, 4-77, 4-78, 4-79, 4-80, 4-81, 4-82, 4-86, 4-87, 4-88, 4-89, 4-91, 4-92, 4-91, 4-92, 4-91, 4-92, 4-92, 4-93, 4-95, 4-96, 4-97, 4-99, 4-100, 4-102, 4-105, 4-106, 4-117, 4-120, 4-122, 4-124
- Minerals, fluid, 4-9, 4-26, 4-56
- Minerals, locatable, 4-10, 4-30, 4-59
- Minerals, material, 4-10, 4-31, 4-60
- National Environmental Policy Act (NEPA), ES-4, ES-5, 1-3, 1-4, 2-1, 2-2, 2-3, 2-4, 2-6, 2-10, 2-13, 2-18, 2-24, 2-28, 2-32, 2-36, 2-37, 2-43, 2-45, 2-47, 2-51, 2-62, 2-85, 2-98, 2-99, 2-102, 2-109, 2-116, 2-117, 2-157, 2-158, 2-165, 2-165, 2-167, 2-170, 2-176, 2-184, 2-185, 2-188, 2-190, 2-221, 2-240, 2-247, 2-248, 2-272, 2-307, 2-324, 2-326, 2-329, 2-355, 2-356, 2-362, 2-387, 4-1, 4-32, 4-75, 4-82, 4-100, 4-107, 4-112, 4-114, 4-115, 4-118, 4-119, 4-127, 4-128, 5-1
- No Surface Occupancy (NSO), 1-10, 2-157, 2-158, 2-159, 2-173, 2-278, 2-323, 2-325, 2-342, 2-345, 2-347, 2-402, 2-421, 2-447, 2-448, 4-8, 4-9, 4-13, 4-18, 4-22, 4-26, 4-27, 4-28, 4-32, 4-41, 4-46, 4-54, 4-56, 4-57, 4-59, 4-66, 4-71, 4-77, 4-80, 4-81, 4-82, 4-86, 4-90, 4-112, 4-117, 4-124
- Priority Habitat Management Area (PHMA), 1-5, 1-7, 1-9, 1-10, 2-2, 2-4, 2-5, 2-6, 2-7, 2-10, 2-14, 2-17, 2-25, 2-29, 2-30, 2-31, 2-36, 2-37, 2-38, 2-39, 2-40, 2-41, 2-42, 2-43, 2-48, 2-49, 2-52, 2-57, 2-58, 2-63, 2-64, 2-65, 2-66, 2-68, 2-70, 2-71, 2-72, 2-77, 2-78, 2-80, 2-81, 2-82, 2-84, 2-86, 2-98, 2-99, 2-100, 2-101, 2-102, 2-103, 2-104, 2-107, 2-108, 2-109, 2-111, 2-115, 2-116, 2-117, 2-118, 2-122, 2-124, 2-125, 2-126, 2-127, 2-138, 2-139, 2-140, 2-146, 2-147, 2-148, 2-150, 2-151, 2-153, 2-154, 2-164, 2-165, 2-166, 2-167, 2-168, 2-172, 2-174, 2-175, 2-176, 2-179, 2-180, 2-181, 2-182, 2-183, 2-184, 2-187, 2-188, 2-192, 2-193, 2-196, 2-197, 2-198, 2-200, 2-201, 2-205, 2-206, 2-207, 2-208, 2-210, 2-214, 2-215, 2-216, 2-218, 2-220, 2-221, 2-222, 2-224, 2-225, 2-227, 2-229, 2-230, 2-233, 2-234, 2-235, 2-236, 2-237, 2-238, 2-239, 2-240, 2-241, 2-244, 2-245, 2-246, 2-247, 2-248, 2-249, 2-251, 2-252, 2-253, 2-257, 2-258, 2-259, 2-268, 2-269, 2-271, 2-272, 2-273, 2-277, 2-282, 2-287, 2-295, 2-302, 2-303, 2-304, 2-305, 2-308, 2-309, 2-315, 2-318, 2-319, 2-323, 2-325, 2-329, 2-339, 2-341, 2-342, 2-345, 2-346, 2-347, 2-348, 2-349, 2-351, 2-352, 2-353, 2-354, 2-355, 2-357, 2-360, 2-361, 2-362, 2-366, 2-367, 2-368, 2-369, 2-370, 3-1, 3-7, 3-8, 4-3, 4-9, 4-14, 4-15, 4-19, 4-21, 4-48, 4-49, 4-50, 4-51, 4-52, 4-54, 4-55, 4-56, 4-57, 4-59, 4-60, 4-61, 4-62, 4-63, 4-64, 4-65, 4-66, 4-67, 4-68, 4-69, 4-71, 4-72, 4-73, 4-74, 4-75, 4-99, 4-100, 4-101, 4-102, 4-103, 4-104, 4-105, 4-106, 4-108, 4-109, 4-115, 4-116, 4-117, 4-118, 4-119, 4-120, 4-121, 4-122, 4-123, 4-124, 4-125, 4-126
- Timing Limitation (TL), 2-154, 2-211, 2-287, 2-295, 2-304, 2-369, 4-23, 4-32, 4-33, 4-35, 4-43, 4-54, 4-64, 4-68, 4-86
- Vegetation, wetlands, 4-5
- Wilderness Characteristics, 4-7, 4-24, 4-53
- Wyoming Game and Fish Department, 1-9, 1-10, 2-3, 2-44, 2-45, 2-62, 2-69, 2-70, 2-72, 2-100, 2-165, 2-167, 2-168, 2-221, 2-224, 2-227, 2-241, 2-245, 2-249, 2-268, 2-304, 2-309, 2-313, 2-319, 2-321, 2-336, 2-339, 2-353, 2-371, 2-377, 2-384, 2-385, 2-387, 2-388, 2-389, 2-393, 2-397, 2-400, 2-409, 2-413, 2-427, 3-6, 3-7, 4-19, 4-29, 4-58, 4-90



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# Appendix A

Proposed RMP Amendment with Management  
Goals, Objectives, and Decisions



# Appendix A. Proposed RMP Amendment with Management Goals, Objectives, and Decisions

This appendix presents the proposed changes and the existing, ongoing management goals, objectives, and decisions for Greater Sage-Grouse habitat on BLM-administered surface and federal mineral estate in Wyoming. The purpose of this appendix is to show the existing management decisions (which are not proposed for change) and the management decisions that are proposed for change in this Proposed RMP Amendment. The tables below take existing management decisions, identify the proposed changes via either ~~strikeout~~ or **bold** font, and also demonstrate the management decisions that will remain the same for each RMP affected by the Proposed RMP Amendment.

**Table A-1**  
**Proposed RMPA with All Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**

Changes from the 2015 ARMPA are represented by ~~strikeout~~ (removed text) or **bold** (added text).

<b>Action #</b>	<b>2018 Proposed RMPA</b>
Management Goal 1	Conserve, restore, and enhance Greater Sage-Grouse habitat on a landscape scale consistent with local, state, and federal management plans and policies, as practical, while providing for multiple use of BLM-administered lands.
Management Objective (MO) 1	In cooperation with the State of Wyoming and its agencies, local governments, private landowners, local Greater Sage-Grouse working groups, partners, and stakeholders, develop site-specific conservation strategies to maintain or enhance Greater Sage-Grouse habitats and habitat connectivity.
MO 2	Maintain and enhance quality/suitable habitat to support the expansion of Greater Sage-Grouse populations on federally administered lands within the planning area.
MO 3	Manage Greater Sage-Grouse seasonal habitats and maintain habitat connectivity to support population objectives set by the State of Wyoming in cooperation with the agencies.
MO 4	Identify and prioritize opportunities for habitat enhancement and conservation within Greater Sage-Grouse core habitat areas based on threats and the ability to manage Greater Sage-Grouse habitat.
MO 5	Restore native (or desirable) plants and create landscape patterns that most benefit Greater Sage-Grouse.
MO 6	Develop specific habitat objectives to protect, enhance, or restore Greater Sage-Grouse priority habitat based on ESDs and BLM land health evaluations (including within wetlands and riparian areas) taking into account site history (historic treatments or habitat manipulations) that have changed the soil chemistry, possibly altering the ESD. <del>If an effective grazing system that meets sage-grouse habitat requirements is not already in place, analyze at least one alternative that conserves, restores, or enhances sage-grouse habitat in the NEPA document prepared for grazing management (Doherty et al. 2011, Williams et al. 2011).</del>
MO 7	Establish measurable objectives related to Greater Sage-Grouse habitat from baseline monitoring data, ESDs, or land health assessments/evaluations.
MO 8	Manage for vegetation composition and structure consistent with ecological site potential to achieve Greater Sage-Grouse seasonal habitat objectives.
MO 9	Incorporate available site information collected using the Sage-Grouse Habitat Assessment Framework or similar methods to evaluate existing resource conditions and to develop any necessary resource solutions in cooperation with the State of Wyoming and its agencies, the local governments, private landowners, project proponents, partners, and stakeholders.
MO 10	Incorporate management practices that will provide for maintenance and/or enhancement of Greater Sage-Grouse habitats, including specific attention to maintenance of desired understories of sagebrush plant communities. When developing objectives for residual cover and species diversity, identify the ecological site types within the planning area and refer to the appropriate ESDs.
MO 11	In determining appropriate management actions that will be considered, refer to the document, <i>Grazing Influence, Management, and Objective Development in Wyoming's Greater Sage-Grouse Habitat</i> (Cagney et al. 2010) for guidance.
MO 12	Identify PHMA and GHMA for each WAFWA MZ across the current geographic range of Greater Sage-Grouse that are large enough to stabilize populations in the short term and enhance populations over the long term. Greater Sage-Grouse habitat in this planning area overlaps two WAFWA MZs: (1) MZ I - Great Plains and (2) MZ II - Wyoming Basin.
MO 13	Protect PHMA and GHMA from anthropogenic disturbance that will reduce distribution or abundance of Greater Sage-Grouse.

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MO 14	<b>Leasing is allowed in PHMA. To the extent consistent with federal regulation, law, and policy, priority would be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMA.</b> <del>Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMA and GHMA.</del> When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA and GHMA, and subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority would be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse. The implementation of these priorities will be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 U.S.C. 226(p) and 43 CFR 3162.3-1(h). Where a proposed fluid mineral development project on an existing lease could adversely affect Greater Sage-Grouse populations or habitat, the BLM will work with the lessees, operators, or other project proponents to avoid, reduce, and mitigate adverse impacts on the extent compatible with lessees' rights to drill and produce fluid mineral resources. <b>To incentivize development to locate outside of PHMA,</b> the BLM would work with the lessee, operator, or project proponent in developing an APD for the lease to avoid and minimize impacts on Greater Sage-Grouse or its habitat and will ensure that the best information about the Greater Sage-Grouse and its habitat informs and helps to guide development of such federal leases.
MO 15	In <del>all SFAs and</del> PHMA, the desired condition is to maintain all lands ecologically capable of producing sagebrush (but no less than 70 percent) with a minimum of 15 percent sagebrush cover or as consistent with specific ecological site conditions. The attributes necessary to sustain these habitats are described in <i>Interpreting Indicators of Rangeland Health</i> (BLM Tech Ref 1734-6).
MO 16	The habitat objectives ( <b>see Tables 2-2 and 2-3</b> ) will be part of the Greater Sage-Grouse habitat assessment to be used during land health evaluations (see Monitoring Framework in 2018 Proposed RMPA <b>Appendix C</b> ). These habitat objectives are not obtainable on every acre within the designated Greater Sage-Grouse habitat management areas. Therefore, the determination on whether the objectives have been met will be based on the specific site's ecological ability to meet the desired condition identified in the table.
MO 17	Effects of infrastructure projects, including siting, will be minimized using the best available science, updated as monitoring information on current infrastructure projects becomes available.
Management Direction (MD) General Management Direction (GMD) 1	Continue to support the development of statewide Greater Sage-Grouse seasonal habitat models for the State of Wyoming.
MD GMD 2	Field offices will work with project proponents, partners, and stakeholders to avoid or minimize impacts and/or implement direct mitigation (e.g., relocating disturbance, timing restrictions, etc.), and utilize best management practices (BMPs).

**Table A-1**  
**Proposed RMPA with All Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**

Changes from the 2015 ARMPA are represented by ~~strikeout~~ (removed text) or **bold** (added text).

Action #	2018 Proposed RMPA
MD GMD 3	Utilize the Wyoming SGIT and LWG plans or other state plans, analyses, and other sources of information to guide development of conservation objectives for local management of Greater Sage-Grouse habitats. The BLM will collaborate with appropriate federal agencies, and the State of Wyoming as contemplated under the Governor's applicable Greater Sage-Grouse Strategy, to: (1) develop appropriate conservation objectives; (2) define a framework for evaluating situations where Greater Sage-Grouse conservation objectives are not being achieved on federal land, to determine if a causal relationship exists between improper grazing (by wildlife or wild horses or livestock) and Greater Sage-Grouse conservation objectives; and (3) identify appropriate site-based action to achieve Greater Sage-Grouse conservation objectives within the framework.
MD GMD 4	Include the collection of baseline data and outline post-project monitoring components in project planning, as appropriate and necessary.
MD GMD 5	The BLM will coordinate new recommendations, mitigation, habitat objectives, and management considerations applied for Greater Sage-Grouse with the WGFD and other appropriate agencies, local government cooperators, and the Wyoming SGIT. These measures will be analyzed in site-specific NEPA documents, and planning-level documents, as necessary.
MD GMD 6	Apply appropriate seasonal restrictions for implementing vegetation management treatments according to the type of seasonal habitats present within Greater Sage-Grouse habitat. Vegetation treatments must include monitoring to determine achievement of objectives and their long-term success.
MD GMD 7	Ensure site-specific, measurable conservation and mitigation objectives are included in project planning within Greater Sage-Grouse habitats.
MD GMD 8	Each BLM field office will develop landscape-scale restoration, conservation, and maintenance strategies, including special management of seasonal habitats and identified connectivity zones outside of PHMA, working with voluntary partners and cooperating agencies. These strategies and habitat designations must be coordinated and reconciled with Wyoming's Greater Sage-Grouse Core Area Protection strategy (EO 2015-4), and where possible, with adjoining management entities that share habitats or populations.
MD GMD 9	Design all projects in a manner that minimizes potential for invasive species establishment. Monitor and treat invasive species associated with all permitted activities consistent with BLM Handbook H-1740-2.
MD GMD 10	Apply all appropriate RDFs (Proposed 2018 RMPA <b>Appendix B</b> ) as mandatory Stipulations/COA/Terms and Conditions within PHMA for all program areas as applicable.
MD GMD 11	Integrated vegetation management will be used to control, suppress, and eradicate, where possible, noxious and invasive species per BLM Handbook H-1740-2. Manage weed treatments to maintain and improve Greater Sage-Grouse habitat. RDFs and BMPs will be applied to the permit as COA as determined through the site-specific analysis.

**Table A-1****Proposed RMPA with All Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**Changes from the 2015 ARMPA are represented by ~~strikeout~~ (removed text) or **bold** (added text).

<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD GMD 12	<p>Existing notices and approved plans of operations under 43 CFR 3809: For projects that overlap PHMA, operators may be requested to submit modifications to the accepted notice or approved plan of operations so that the operations minimally affect PHMA (core only). The AO may convey to the operator suggested conservation measures, based on the notice or plan level operations and the geographic area of those operations (also called the project area, which is defined in 43 CFR 3809.5). These suggested conservation measures include measures that support the overall goals and objectives of the priority/core population area strategy and may not be reasonable or applicable to the BLM's determination of whether the proposed operations will cause unnecessary or undue degradation under 43 CFR 3809.5. The request containing the suggested conservation measures must make clear that the operator's compliance is not mandatory.</p> <p>Notices or plans of operation, or modifications thereto, submitted following the issuance of this guidance: As part of the 15-day completeness review of notices (or modifications thereto) and 30-day completeness review of plans of operations (or modifications thereto), the proposed project area(s) where exploration, development, mining, access and reclamation would take place will be reviewed for overlap of Greater Sage-Grouse PHMA in the corporate GIS database. If there is overlap, the BLM AO may notify the operator of ways that they may minimize impacts on PHMA (core only) and request the operator to amend its notice or plan to include such measures. The request to amend the submitted notice or plan of operations must make clear that the operator's compliance is not mandatory and that including such measures is not a requirement for completeness of either the notice or a plan of operations, nor is it a condition of acceptance of the notice or approval of the plan of operations.</p>
MD GMD 13	As new occupied Greater Sage-Grouse habitat is found or occurs either through additional inventories or expansion into previously unoccupied habitat, the BLM will incorporate, through appropriate processes and analyses, these areas into the GHMA category and manage them as such, until the earliest review occurs by the SGIT. At that time, they will be considered for PHMA status or continue to be managed as GHMA and will be added to the statewide map.
MD GMD 14	Contribute to actions that help to ground-truth the statewide Greater Sage-Grouse seasonal habitat models for the State of Wyoming.
MD GMD 15	Use the Sage-grouse Habitat Assessment Framework or best available assessment tool (approved by the AO) when assessing or evaluating Greater Sage-Grouse habitats at multiple scales.
MD GMD 16	The official Wyoming Greater Sage-Grouse lek database is maintained by the WGFD in accordance with Appendix 4B of the Umbrella MOU between the WGFD and BLM (WGFD and BLM 1990). The MOU states that agencies will meet at least annually to coordinate and review the accuracy of data, and incorporate the most up-to-date information.
MD GMD 17	Many Greater Sage-Grouse seasonal habitats within and outside of PHMA (core only) are encumbered by valid existing rights, such as mineral leases or existing rights-of-way. Fluid mineral leases often will include less stringent lease stipulations than the timing, distance, and density requirements identified for consideration in this plan. The BLM will work with proponents holding valid existing leases that include less stringent lease stipulations than the timing, distance, and density restrictions described within this plan to ensure that measurable Greater Sage-Grouse conservation objectives (such as, but not limited to, consolidation of infrastructure to reduce habitat fragmentation and loss, and effective conservation of seasonal habitats and habitat connectivity to support management objectives set by the WGFD) are included in all project proposals.

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD GMD 18	PHMA will be designated as OHV Limited Areas. The OHV limitation will ultimately be to “Designated Routes” as determined through a subsequent implementation/activity-level Travel Management Plan. In the interim, motorized use on existing routes may occur; however, no new routes may be created without specific authorization.
MD GMD 19	Complete activity-level travel plans within 5 years of the record of decision (ROD) for this planning effort. During activity-level planning, where appropriate, designate routes in PHMA with current administrative/agency purpose or need to administrative access only. Existing plans shall be assessed for consistency with Greater Sage-Grouse conservation objectives.
MD GMD 20	Construct roads needed for production activities to minimum design standards within PHMA, in compliance with the Density and Disturbance Calculation Tool (DDCT) process.
MD GMD 21	Field office staff will work with project proponents (including those within the BLM) and the WGFD to site their projects in locations that meet the purpose and need for their project, utilize the DDCT, and have been determined to contain the least sensitive habitats.
MD GMD 22	Evaluate opportunities to coordinate management plans and strategies on multiple allotments where coordination under a single management plan/strategy will result in enhancing Greater Sage-Grouse populations or its habitat, as determined in coordination with the state wildlife agency and with project proponents, partners, and stakeholders.
MD GMD 23	Existing RMP decisions, pertaining to non-Greater Sage-grouse resources, will be retained unless vacated or modified by decisions in this ARMPA. Where more restrictive land use allocations or decisions are made in existing RMPs, those more restrictive land use allocations or decisions will remain in effect and will not be amended by this ARMPA. Where inconsistencies between the 2015 ARMPA and this 2018 Proposed RMP Amendment arise, the 2018 Proposed RMP Amendment decisions apply.
MD GMD 24	Fire and fuels management actions will be designed to contribute to the protection and enhancement of sagebrush habitat that support Greater Sage-Grouse populations (including large, contiguous blocks of sagebrush).
MD GMD 25	BLM planning units (Districts), in coordination with the USFWS and relevant state agencies, will complete and continue to update Greater Sage-Grouse Landscape Wildfire & Invasive Species Habitat Assessments to prioritize at-risk habitats, and identify fuels management, preparedness, suppression and restoration priorities necessary to maintain sagebrush habitat to support interconnecting Greater Sage-Grouse populations. These assessments and subsequent assessment updates will also be a coordinated effort with an interdisciplinary team to take into account other Greater Sage-Grouse priorities identified in this plan. 2015 ARMPA Appendix L describes a minimal framework example and suggested approach for this assessment. Implementation actions will be tiered to the Local (District) Greater Sage-Grouse Landscape Wildfire & Invasive Species Assessment using the best available science related to the conservation of Greater Sage-Grouse. In coordination with the USFWS and relevant state agencies, the BLM planning units (Districts) will identify annual treatment needs for wildfire and invasive species management as identified in local unit-level Landscape Wildfire and Invasive Species Assessments. Annual treatment needs will be coordinated across state/regional scales and across jurisdictional boundaries for long-term conservation of Greater Sage-Grouse. These landscape assessment implementation efforts will be reviewed annually with appropriate USFWS and state agency personnel.
MD GMD 26	Implement a coordinated inter-agency approach to fire restrictions based on National Fire Danger Rating System thresholds (fuel conditions, drought conditions, and predicted weather patterns) for Greater Sage-Grouse habitat.



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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD GMD 27	Within acceptable risk levels, utilize a full range of fire management strategies and tactics, including the management of wildfires, to achieve resource objectives across the range of Greater Sage-Grouse habitat consistent with land use plan direction.
MD SSS 1	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: The BLM, in coordination with the State of Wyoming and its agencies, other local partners and stakeholders, will establish monitoring framework (2018 Proposed RMPA <b>Appendix C</b>) for Greater Sage-Grouse populations and habitat that will be incorporated into individual project approvals, including small and in-house projects, as appropriate and necessary.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>Bates Hole and Fish Creek/Willow Creek: The areas will have priority for vegetation treatments to improve Greater Sage-Grouse habitats and for vegetation monitoring to ensure residual herbaceous vegetation is maintained for nesting cover on public lands.</p>
MD SSS 2	In PHMA (core only), the density of disturbance of an energy or mining facility ( <del>Appendix D</del> ) will be limited to an average of one site per square mile (640 acres) within the DDCT, subject to valid existing rights. The one location and cumulative value of existing disturbances will not exceed 5 percent of suitable habitat of the DDCT area. Inside PHMA, all suitable habitat disturbed (any program area) will not exceed 5 percent within the DDCT area using the DDCT process.
MD SSS 3	Inside PHMA (connectivity only), all suitable habitat disturbed (any program area) will not exceed 5 percent of suitable habitat within the DDCT area using the DDCT process.
MD SSS 4	<p><del>Within PHMA, Specific to management for Greater Sage-Grouse, all RMPs are amended as follows: In undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss and degradation in PHMA, the BLM will require and ensure mitigation that provides a net conservation gain to the species including accounting for any uncertainty associated with the effectiveness of such mitigation. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions. In Wyoming, the USFWS has found that “the core area strategy, if implemented by all landowners via regulatory mechanism, would provide adequate protection for Greater Sage Grouse and their habitats in the state.” The BLM will implement actions to achieve the goal of net conservation gain consistent with the Wyoming Strategy (EO2015-4) that includes “compensatory mitigation as a strategy that should be used when avoidance and minimization are inadequate to protect Core Population Area Greater sage grouse.” Adopt the State of Wyoming’s Greater Sage-Grouse Compensatory Mitigation Framework to the extent consistent with federal law, regulations, and policy. The BLM would follow the NEPA process in determining appropriate avoidance, minimization, and other mitigation measures in accordance with the CEQ mitigation hierarchy as appropriate at the site-specific project level and would defer to the State of Wyoming regarding the applicability, and, if deemed applicable, the determination of compensatory mitigation.</del></p> <p><b>In all Greater Sage-Grouse habitat, when authorizing third-party actions in designated Greater Sage-Grouse habitat, the BLM will seek to achieve the planning-level Greater Sage-Grouse management goals and objectives through implementation of mitigation and management actions, consistent with valid existing rights and applicable law. Under this Proposed Plan Amendment, management would be consistent with the Greater Sage-Grouse goals and objectives,</b></p>

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Action #	2018 Proposed RMPA
MD SSS 4 (continued)	<p>and in conformance with <b>BLM Manual 6840, Special Status Species Management</b>. In accordance with <b>BLM Manual 6840</b>, the <b>BLM</b> will undertake planning decisions, actions and authorizations “to minimize or eliminate threats affecting the status of [Greater Sage-Grouse] or to improve the condition of [Greater Sage-Grouse] habitat” across the planning area.</p> <p><b>Accordingly, before authorizing third-party actions that result in habitat loss and degradation, the BLM will complete the following steps, in alignment with the applicable Governor of Wyoming’s Greater Sage-grouse strategy Executive Order(s) :</b></p> <ol style="list-style-type: none"> <li><b>1. Work jointly with the WGFD to evaluate projects and recommend mitigation in the form of avoidance and minimization.</b></li> <li><b>2. The WGFD will determine if the State requires or recommends any additional mitigation – including compensatory mitigation – under State regulations, policies, or programs related to the conservation of Greater Sage-Grouse.</b></li> <li><b>3. Incorporate state required or recommended mitigation into the BLM’s NEPA decision-making process, if the WGFD determines that compensatory mitigation is required to address impacts to GRSB habitat as a part of State policy or authorization, or if a proponent voluntarily offers mitigation.</b></li> <li><b>4. Analyze whether the compensatory mitigation:</b> <ul style="list-style-type: none"> <li><b>• achieves measurable outcomes for Greater Sage-Grouse habitat function on a landscape scale as determined by WGFD that are at least equal to the lost or degraded values in accordance with the applicable Governor of Wyoming’s Greater Sage-grouse strategy Executive Order(s).</b></li> <li><b>• provides benefits that are in place for at least the duration of the impacts</b></li> <li><b>• accounts for a level of risk that the mitigation action may fail or not persist for the full duration of the impact</b></li> </ul> </li> <li><b>5. Ensure mitigation outcomes are consistent with the State of Wyoming’s mitigation strategy and principles outlined in 2018 Proposed RMPA Appendix C, The Greater Sage-Grouse Habitat Management Strategy</b></li> </ol> <p>The BLM has determined that compensatory mitigation must be voluntary unless required by other applicable law and in recognition that State authorities may also require compensatory mitigation (IM 2019-018, <i>Compensatory Mitigation</i>, December 6, 2018). Therefore, consistent with valid existing rights and applicable law, when authorizing third-party actions that result in habitat loss and degradation, the BLM will consider voluntary compensatory mitigation actions only as a component of compliance with a State mitigation plan, program, or authority, or when offered voluntarily by a project proponent.</p> <p>Project-specific analysis will be necessary to determine how a compensatory mitigation proposal addresses impacts from a proposed action. The BLM will cooperate with the State to determine appropriate project design and alignment with State policies and requirements, including those regarding compensatory mitigation. When the BLM is considering compensatory mitigation as a component of the project proponent’s submission or based on a mitigation requirement from the State, the BLM’s NEPA analysis would evaluate the need to avoid or</p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD SSS 4 (continued)	<p>minimize impacts of the proposed project and achieve the goals and objectives of this RMPA. The BLM will defer to the appropriate State authority to quantify habitat offsets, durability, and other aspects used to determine the recommended compensatory mitigation action.</p> <p>Remove the phrase “net conservation gain” from all management actions across all RMPs and appendices, including in reference to MD REC 2.</p> <p><del>Outside of PHMA and/or for values other than Greater Sage Grouse, the following RMP decisions remain in effect with the modification described above:</del></p> <p><del><u>Pinedale RMP:</u></del></p> <p><del>Off-site mitigation proposed by oil and gas or other operators shall be considered and analyzed in future environmental documents as possible mitigation for proposed activities within the planning area. Proposed off-site mitigation will be described and analyzed for effectiveness in detail on a project-specific basis. Planning for off-site mitigation will be performed in coordination with local government agencies. The need for off-site mitigation will be determined in conformance with current BLM policy, as updated.</del></p> <p><del>The order of use of mitigation methods from most to least preferred is as follows:</del></p> <p><del>On-site mitigation directly resolving impacts created by the action</del></p> <p><del>Off-site mitigation to the resources affected by the action that cannot be resolved on-site</del></p> <p><del>Off-site mitigation to similar or related resources affected by the action that cannot be resolved on-site. The following stipulations apply to off-site mitigation measures:</del></p> <p><del>Off-site mitigation will be used as a last choice when developing mitigation measures.</del></p> <p><del>Off-site mitigation proposals will describe the replacement or substitution activities or methods that are used to address potential impacts on specific resources or environments or both.</del></p> <p><del>Off-site mitigation must be as close to “in-kind” in replacement or substitution of resources, habitat function, or environments as practicable (e.g., elk habitat for elk habitat, historical properties for historical properties).</del></p> <p><del>Off-site mitigation practices must last as long as the impacts are expected to occur.</del></p> <p><del>Off-site mitigation practices are to be developed, conducted or performed, and funded by the project proponent.</del></p> <p><del>Off-site mitigation activities must be conducted subject to BLM review and approval that the mitigation will actually address the impacts occurring on the public lands.</del></p> <p><del>The priority order for mitigating resource impacts on-site or off-site is as follows:</del></p> <p><del>On-site Mitigation—On-site (avoid, minimize, rectify, or reduce in time).</del></p> <p><del>Off-site Mitigation—Local (unless greater resource benefits can be achieved through regional or interstate mitigation).</del></p> <p><del>Off-site Mitigation—Regional (unless greater resource benefits can be achieved through interstate mitigation).</del></p> <p><del>Off-site Mitigation—Interstate: The preferred area for conducting off-site mitigation is as near (local off-site mitigation) to the project or affected area as possible or as scientific information and impact analysis suggests.</del></p> <p><del>Off-site Mitigation—Interstate: The preferred area for conducting off-site mitigation is as near (local off-site mitigation) to the project or affected area as possible or as scientific information and impact analysis suggests.</del></p>

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Action #	2018 Proposed RMPA
MD SSS 5	Greater Sage-Grouse leks inside PHMA: Surface occupancy and surface-disturbing activities will be prohibited on or within a 0.6-mile radius of the perimeter of occupied Greater Sage-Grouse leks (Map 2-8). <b>The authorized officer may grant an exception on a case-by-case basis subject to appropriate site-specific analysis, mitigation requirements, and consultation with the State of Wyoming and consistent with the applicable State management strategy (currently Governor of Wyoming's Executive Order 2015-4) (see MD SSS 4).</b> <del>The AO may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not impair the function or utility of the site for the current or subsequent seasonal habitat, life history, or behavioral needs of Greater Sage-Grouse.</del>
MD SSS 6	Greater Sage-Grouse leks outside PHMA: Surface occupancy and surface-disturbing activities will be prohibited on or within a 0.25-mile radius of the perimeter of occupied Greater Sage-Grouse leks (Map 2-8). <b>The authorized officer may grant an exception on a case-by-case basis subject to appropriate site-specific analysis, mitigation requirements, and consultation with the State of Wyoming and consistent with the applicable State management strategy (currently Governor of Wyoming's Executive Order 2015-4)(see MD SSS 4).</b> <del>The AO may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not impair the function or utility of the site for the current or subsequent seasonal habitat, life history, or behavioral needs of Greater Sage-Grouse.</del>
MD SSS 7	Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat inside PHMA (core only): Surface-disturbing and/or disruptive activities will be prohibited from March 15–June 30 to protect Greater Sage-Grouse breeding, nesting, and early brood rearing habitat. This timing limitation will be applied throughout the PHMA (core only). Activities in unsuitable habitats will be evaluated under the exception and modification criteria and shall be allowed on a case by case basis. <b>The authorized officer may grant an exception on a case-by-case basis subject to appropriate site-specific analysis, mitigation requirements, and consultation with the State of Wyoming and consistent with the applicable State management strategy (currently Governor of Wyoming's Executive Order 2015-4) (see MD SSS 4).</b> <del>Where credible data support different timeframes for this seasonal restriction, dates may be expanded by up to 14 days prior to or subsequent to the above dates, but not both.</del>
MD SSS 8	Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat inside PHMA (connectivity only): Surface-disturbing and/or disruptive activities will be prohibited <del>within PHMA (connectivity only)</del> from March 15–June 30 to protect breeding, nesting, and early brood-rearing habitats within 4 miles of the <del>lek or lek</del> perimeter of any occupied Greater Sage-Grouse lek within identified PHMA (connectivity only). <del>This timing limitation will be applied throughout the PHMA (connectivity only)</del> Activities in unsuitable habitats will be evaluated under the exception and modification criteria and may be allowed on a case-by-case basis. <b>The authorized officer may grant an exception on a case-by-case basis subject to appropriate site-specific analysis, mitigation requirements, and consultation with the State of Wyoming and consistent with the applicable State management strategy (currently Governor of Wyoming's Executive Order 2015-4) (see MD SSS 4).</b> <del>Where credible data support different timeframes for this seasonal restriction, dates can be shifted by 14 days prior or subsequent to the above dates, but not both.</del>

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MD SSS 9	Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat outside PHMA: Surface-disturbing and/or disruptive activities will be prohibited from March 15—June 30 to protect Greater Sage-Grouse <b>breeding</b> , nesting, and early brood rearing habitat within 2 miles of the <del>lek or lek</del> perimeter of an occupied lek located outside PHMA. <b>Activities in unsuitable habitats will be evaluated under the exceptions and modification criteria and shall be allowed on a case by case basis. The authorized officer may grant an exception on a case-by-case basis subject to appropriate site-specific analysis, mitigation requirements, and consultation with the State of Wyoming and consistent with the applicable State management strategy (currently Governor of Wyoming's Executive Order 2015-4) (see MD SSS 4).</b> —Where credible data support different timeframes for this seasonal restriction, dates may be expanded up to 14 days prior to or subsequent to the above dates <b>but not both</b>
MD SSS 10	Greater Sage-Grouse Winter Concentration Areas: Surface-disturbing and/or disruptive actives in Greater Sage-Grouse winter concentration areas would be prohibited from December 1—March 14. Activities in unsuitable habitats <del>within PHMA</del> would be evaluated under the exception and modification criteria and could be allowed on a case-by-case basis. <b>The authorized officer may grant an exception on a case-by-case basis subject to appropriate site-specific analysis, mitigation requirements, and consultation with the State of Wyoming and consistent with the applicable State management strategy (currently Governor of Wyoming's Executive Order 2015-4) (see MD SSS 4).</b> —Protection of additional mapped winter concentration areas in GHMA would be implemented where winter concentration areas are identified as supporting populations of Greater Sage-Grouse that attend leks <del>within PHMA (core only)</del> <b>mapped and designated by the State of Wyoming.</b> Appropriate seasonal timing restrictions and habitat protection measures would be considered and evaluated on consultation with the WGFD in all identified winter concentration areas.
MD SSS 11	The BLM will support other agencies in their efforts to minimize impacts from predators. The BLM will implement strategies and techniques in land management decisions that address predators shown to pose a threat to Greater Sage-Grouse <b>(2015 ARMPA Appendix N).</b> The BLM will support and encourage other agencies in their efforts to minimize impacts from predators on Greater Sage-Grouse where needs have been documented.
MD SSS 12	<b>Within PHMA (core only),</b> new project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of the lek from 6:00 pm to 8:00 am during the breeding season (March 1—May 15). <b>These measures would be considered at the site-specific project level where and when appropriate. The authorized officer may grant an exception on a case-by-case basis subject to appropriate site-specific analysis, mitigation requirements, and consultation with the State of Wyoming and consistent with the applicable State management strategy (currently Governor of Wyoming's Executive Order 2015-4) (see MD SSS 4).</b> In coordination with the State of Wyoming, specific noise protocols for measurement and implementation will be developed as additional research and information emerges.
MD SSS 13	The Greater Sage-Grouse adaptive management plan <b>(Wyoming RMP Amendment Appendix C)</b> provides a means of addressing and responding to unintended negative impacts on Greater Sage-Grouse, and its habitat will be addressed before consequences become severe or irreversible. The Wyoming Greater Sage-Grouse ARMPA will include the requirement for projects requiring an EIS to develop adaptive management strategies in support of the population management objectives for Greater Sage-Grouse set by the State of Wyoming. Wyoming ADPPs will include an adaptive management plan, as reviewed by the BLM WO, Solicitor's Office, and USFWS, which includes: Upon determination that a hard trigger is tripped, the BLM will immediately defer issuance of discretionary authorizations for new actions for a

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Action #	2018 Proposed RMPA
MD SSS 13 (continued)	<p>period of 90 days. In addition, within 14 days of a determination, the AMWVG will convene to develop an interim response strategy and initiate an assessment to determine the causal factors. <b>The AMWVG would define a process to review and reverse adaptive management actions once the identified causal factor is resolved (e.g., returning to previous management once objectives of interim management strategy have been met).</b></p> <p>Adaptive management triggers are essential for identifying when potential management changes are needed in order to continue meeting Greater Sage-Grouse conservation objectives. With respect to Greater Sage-Grouse, all regulatory entities in Wyoming, including the BLM, use soft and hard triggers. Soft and hard triggers are focused on three metrics: 1) number of active leks, 2) acres of available habitat, and 3) population trends based on annual lek counts.</p> <p>In making amendments to this plan, the BLM will coordinate with the USFWS as the BLM continues to meet its objective of conserving, enhancing, and restoring Greater Sage-Grouse habitat by reducing, minimizing, or eliminating threats to that habitat. The hard and soft trigger data will be analyzed as soon as it becomes available after the signing of the ROD and then at a minimum, analyzed annually thereafter.</p> <p><u>Soft Triggers:</u></p> <p>Soft triggers are indicators that management or specific activities may not be achieving the intended results of conservation action or that unanticipated changes to populations or habitats have occurred that have the potential to place habitats or populations at risk. The soft trigger is any deviation from normal trends in habitat or population in any given year. Metrics include, but are not limited to, annual lek counts, wing counts, aerial surveys, habitat monitoring, and DDCT evaluations. BLM field offices, with the assistance of their respective land and resource management plan implementation groups, local WGFD offices, and local Greater Sage-Grouse working groups, will evaluate the metrics with the AMWVG on an annual basis. For population metrics, normal population trends are calculated as the 5-year running mean of annual population counts. The purpose of these strategies is to address localized Greater Sage-Grouse population and habitat changes by providing the framework in which management will change if monitoring identifies negative population and habitat anomalies in order to avoid crossing a hard trigger threshold.</p> <p><u>Hard Triggers:</u></p> <p>Hard triggers are indicators that management is not achieving desired conservation results. Hard triggers will be considered a catastrophic indicator that the species is not responding to conservation actions, or that a larger-scale impact or set of impacts is having a negative effect. Within the range of normal population variables (5-year running mean of annual population counts), hard triggers shall be determined to take effect when two of the three metrics exceeds 60 percent of normal variability for the area under management in a single year, or when any of the three metrics exceeds 40 percent of normal variability for a 3-year time period within a 5-year range of analysis. A minimum of 3 consecutive years in a 5-year period is used to determine trends (i.e., Y1-2-3, Y2-3-4, Y3-4-5).</p>
MD SSS 14	<p><del>Designate SFAs as shown on Map 1-2 (1,915,990 acres). SFAs will be managed as PHMA, with the following additional management:</del></p> <p><del>Recommended for withdrawal from the General Mining Act of 1872, subject to valid existing rights, the lands shown in Map 2-3 (252,160 acres), and 2) Prioritized for vegetation management and conservation actions in these areas, including, but not limited to land health assessments, wild horse and burro management actions, review of livestock grazing permits/leases, and habitat restoration (see specific management sections).</del></p>

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MD Vegetation (VEG) 1	Manage vegetation composition, diversity, and structure, as determined by ESD, or other methods that reference site potential, and WGFD protocols, to achieve Greater Sage-Grouse habitat management objectives, in cooperation with stakeholders.
MD VEG 2	Within PHMA in northeast Wyoming (as mapped in EO 2015-4), vegetation treatments in nesting and wintering habitat that will reduce sagebrush canopy to less than 15 percent will not be conducted.
MD VEG 3	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: For vegetation treatments in sagebrush within PHMA, refer to 2015 ARMPA Appendix H, WGFD Protocols for Treating Sagebrush to Benefit Sage-Grouse (WGFD 2011, as updated) and BLM Washington Office Instruction Memorandum 2013-128 (Sage-grouse Conservation Related to Wildland Fire and Fuels Management). These recommended protocols will be used in determining whether proposed treatment constitutes a “disturbance” that will contribute toward the 5 percent threshold within PHMA maintenance. Additionally, these protocols will be used to determine whether the proposed treatment configuration is expected to have neutral or beneficial impacts for PHMA (core only) populations or if they represent additional habitat loss or fragmentation.</p> <p>Treatments to enhance sagebrush/grasslands habitat for Greater Sage-Grouse will be evaluated based on habitat quality and the functionality/use of treated habitats post-treatment.</p> <p>The BLM will work collaboratively with partners at the state and local level to maintain and enhance Greater Sage-Grouse habitats. Seasonal restriction would be applied, as needed, for implementing fuels management treatments according to the type of seasonal habitat present.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Green River RMP:</u></p> <p>Prescribed burns generally will be conducted in areas having greater than 35 percent sagebrush composition, 20 percent desirable grass composition, and greater than 10 inches of precipitation. Other vegetation manipulation methods will be considered on a case-by-case basis depending on objectives and cost benefits.</p> <p><u>Casper RMP:</u></p> <p>Decision 4053: The areas (Bates Hole and Fish Creek/Willow Creek) will have priority for vegetative treatments to improve Greater Sage-Grouse habitats and for vegetation monitoring to ensure residual herbaceous vegetation is maintained for nesting cover on public lands.</p>
MD VEG 4	Within PHMA, grazing will be deferred on treated areas for two full growing seasons unless vegetation objectives or vegetation recovery indicates a shorter or longer rest period is necessary based on vegetation monitoring results.
MD VEG 5	Reclamation of surface disturbances in PHMA will be consistent with the Wyoming Reclamation Policy (BLM 2009a), vegetation objectives ( <b>Tables 2-2 and 2-3</b> ), and 2015 ARMPA Appendix M. A monitoring plan will be developed for each restoration or reclamation project and will report progress and changes in resource condition.

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MD VEG 6	<p>Areas for vegetation restoration and/or restoration criteria that include state Greater Sage-Grouse conservation plans and appropriate local information will be identified. The use of native plants and seeds for restoration will be required unless the probability for success is low (nonnative plants and seeds may be used as long as they meet Greater Sage-Grouse habitat objectives), and restoration management will be designed to obtain long-term persistence based on ESD.</p> <p>Reestablishment of sagebrush cover and desirable understory plants will be the highest priority for restoration efforts.</p> <p>Landscape patterns that most benefit Greater Sage-Grouse will be restored and created, considering potential changes in climate.</p>
MD VEG 7	<p>Within PHMA, implementation of restoration projects will be prioritized based on environmental variables that improve chances for project success in areas most likely to benefit Greater Sage-Grouse. Restoration will be prioritized in seasonal habitats that are thought to be limiting Greater Sage-Grouse distribution and/or abundance.</p>
MD VEG 8	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Where probability of success or native seed availability is low or where there is a specific identified purpose that cannot be met with natives, nonnative seeds can be used provided they meet Greater Sage-Grouse habitat conservation and vegetation (see <b>Tables 2-2 and 2-3</b>) objectives. The use of native seeds for fuels management treatment will be prioritized based on availability, adaptation (site potential), and probability of success. Where probability of success or native seed availability is low, non- native seeds may be used to meet Greater Sage-Grouse habitat objectives to trend toward restoring the fire regime. When reseeding, use fire resistant native and nonnative species, as appropriate, to provide for fuel breaks.</p> <p>Native seed allocation will be prioritized for use in Greater Sage-Grouse habitat.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Kemmerer RMP:</u></p> <p>Require the use of certified weed-free seed and mulch for rehabilitation projects. <u>Pinedale RMP:</u></p> <p>Disturbed areas will be reclaimed to native site plant composition. If reclamation of original plant composition is impossible or not desirable, reclamation will achieve a native plant community that meets the Wyoming Standards for Rangeland Health.</p>
MD VEG 9	<p>Post emergency stabilization and rehabilitation (ES&amp;R) and burn area emergency rehabilitation (BAER) management will be designed to ensure long-term persistence of seeded or pre-burn native plants. This may require temporary or long-term changes in livestock grazing, wild horse, and travel management, etc., to achieve and maintain the desired condition of ES&amp;R and BAER projects to benefit Greater Sage-Grouse (Eiswerth and Shonkwiler 2006).</p>
MD VEG 10	<p>Evaluate the role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to Greater Sage-Grouse habitat to determine if they should be restored to sagebrush or habitat of higher quality for Greater Sage-Grouse. If these seedings provide value in conserving or enhancing Greater Sage-Grouse habitats, then no restoration would be necessary. Assess the compatibility of these seedings for Greater Sage-Grouse habitat during the land health assessments.</p>



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MD VEG 11	Priority will be given for implementing specific Greater Sage-Grouse habitat restoration projects in areas invaded by annual grasses first to sites that are adjacent to or surrounded by PHMA. Areas invaded by annual grasses will be second priority for restoration when the sites are not adjacent to PHMA, but are within 2 miles of PHMA. The third priority for areas invaded by annual grasses habitat restoration projects will be sites beyond 2 miles of PHMA. The intent will be to focus restoration outward from existing, intact habitat.
MD VEG 12	In fire prone areas where sagebrush seed is required for Greater Sage-Grouse habitat restoration, the BLM will consider establishing seed harvest areas that are managed for seed production and are a priority for protection from outside disturbances.
MD VEG 13	Vegetation treatment proposals must include evaluation of soils, precipitation, invasive/exotic plants, as well as the current condition of PHMA. Avoid aerial pesticide/herbicide spraying in favor of ground applications to minimize drift into nontarget areas in Greater Sage-Grouse habitat unless benefits of treatments are likely to outweigh impacts.
MD VEG 14	Treat areas that contain cheatgrass and other invasive or noxious species to minimize competition and favor establishment of desired species.
MD VEG 15	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>The BLM can implement treatments within PHMA where outbreaks of grasshopper or Mormon cricket populations are expected to rise above economic levels. Treatments must be conducted only following reduced agent-area treatments protocols. The BLM will work collaboratively with partners at the federal, state, and local levels, including the Wyoming Weed and Pest Districts within the counties where the treatment is to occur, to maintain and enhance Greater Sage-Grouse habitats in a manner consistent with the core population area strategy for conservation.</p> <p>The BLM will be directed to utilize the Wyoming Grasshopper and Mormon Cricket Control website as a resource for updated information when conducting analysis of grasshopper and Mormon cricket control in Greater Sage-Grouse habitats.</p> <p>Avoid aerial pesticide/herbicide spraying in favor of ground applications to minimize drift into nontarget areas in Greater Sage-Grouse habitat unless benefits of treatments are likely to outweigh impacts.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>Work with Animal and Plant Health Inspection Service to control outbreaks of grasshoppers and Mormon crickets on public lands in the planning area in accordance with the MOU between U.S. Department of the Interior and Animal and Plant Health Inspection Service.</p>
MD FIRE 1	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: For Wildland Fire Management, the protection of human life is the single, overriding priority. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be done based on the values to be protected, human health and safety, and the costs of protection. The goal is to restore, enhance, and maintain areas suitable for Greater Sage-Grouse. Greater Sage-Grouse habitat (GHMA) will be prioritized commensurate with local fire plans, property values and other important habitat to be protected, with the goal to restore, enhance, and maintain areas suitable for Greater Sage-Grouse.</p> <p>PHMA (and Priority Areas for Conservation, if so determined by individual RMP efforts) will be the highest priority for conservation and protection during fire operations and fuels management decision-making. The PHMA will be viewed as more valuable than GHMA when</p>

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MD FIRE I (continued)	<p>priorities are established. When suppression resources are widely available, maximum efforts will be placed on limiting fire growth in GHMA polygons as well. These priority areas will be further refined following completion of the Greater Sage-Grouse Landscape Wildfire and Invasive Species Habitat Assessments described in 2015 ARMPA Appendix L.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p>Casper RMP:</p> <p>Appropriate management response will be used on all wildfires in the planning area. Full protection strategies and tactics will be used in the following areas:</p> <p>Wildland Urban Interface (WUI)</p> <p>Wildland industrial interface</p> <p>Developed recreation sites</p> <p>Developed electronics sites of all types.</p> <p>In all other areas appropriate management response (AMR) strategies and tactics will be determined by (but not limited to) the following:</p> <p>Firefighter and public safety</p> <p>Resource values at risk</p> <p>Proximity to private land</p> <p>Firefighting resource availability. Tactical constraints follow:</p> <p>The use of retardant within 300 feet of surface water (standing or running) is prohibited.</p> <p>No trees are to be cut during suppression activities within 200 yards of an identified bald eagle roost. No heavy equipment will be used within the following areas, except when human safety is at risk:</p> <p>Areas of cultural resource sensitivity</p> <p>Riparian/wetland habitats</p> <p>Big game crucial winter range habitats</p> <p>Greater Sage-Grouse leks</p> <p>Areas of highly erosive soils.</p> <p>In areas not identified as full protection, heavy equipment usage will be limited to existing roads and trails or immediately adjacent to them.</p> <p><u>Kemmerer RMP:</u></p> <p>In areas of high-density urban and (or) industrial interface with intermingled BLM-administered lands, suppression objectives will follow the AMR in an approved fire management plan for the planning area to provide first for human health and safety, while minimizing loss of property and threats to other surface owners. Generally, wildland fires are suppressed in these areas. In areas of low-density urban and (or) industrial interface where BLM-administered lands occur in large contiguous blocks, fire suppression objectives will follow the AMR in an approved fire management plan for the planning area to provide first for human health and safety, while allowing for achievement of resource objectives.</p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD FIRE I (continued)	<p><u>Newcastle RMP:</u> Full suppression will be used on fires endangering human life or that spread to within 0.25 miles of state or private lands, structures and facilities, oil and gas fields, important riparian habitat, or other sensitive resources. All wildfires will be evaluated to determine the need for rehabilitation or restoration measures. Restoration of burned areas will be by natural succession unless a special need is identified to prevent further resource damage.</p> <p><u>Pinedale RMP:</u> Wildland fire mitigation and fuels activities will be managed to provide for firefighter and public safety as a first priority. Public lands within intermixed land ownership areas will be managed in association with the adjoining and nearby private and state lands. Areas of mixed land ownership, communities at risk as identified in the <i>Federal Register</i>, Volume 66, Number 160, 2001 (Antelope Run, Beaver Creek area, Boulder, Cottonwood Creek, Daniel, Forty Rod, Hoback Ranches, New Fork, Pinedale, Pocket Creek, and Upper Green); urban and industrial interface areas; and areas containing high-priority resource values have high priority for response to wildland fires and/or for fuels reduction and mitigation. Wildland fire suppression activities will be based on the AMR.</p> <p><u>Rawlins RMP:</u> A high priority for fire management activities will be given to areas identified as communities at risk, industrial interface areas, and areas containing resource values considered high priority within the RMP planning area.</p> <p><u>Green River RMP:</u> Wildfire suppression will emphasize AMR. Immediate control actions will be used only in cases of arson, direct threat to public safety, or a strong potential threaten structural property. Fire suppression actions will be based on achieving the most efficient control and allowing historical acres burned to increase. Activity plans will be developed for designated fire management areas defining specific parameters for all fire occurrences.</p> <p><u>JMH CAP:</u> Appropriate management response to protect the basin big sagebrush/lemon scurfpea plant communities will be applied. Wildland and prescribed fires will be managed in all vegetation types to maintain or improve biological diversity and the overall health of the public lands. In particular, plant species and age class diversity will be a priority; thus, AMR for all wildland fires will be identified and implemented depending on the resources and management objectives for the area. Suppression techniques and hazardous fuels reduction activities will be identified to reduce wildland fire severity and occurrence on portions of the landscape where fire causes undesirable changes in plant community composition and structure. A site-specific analysis will be prepared for sensitive resource areas, such as special status plant species sites, heritage sites, historic trails, and areas of critical environmental concern (ACECs), to determine the type of fire suppression activity that will be acceptable. Fire equipment and fire suppression techniques, such as vegetation clearing, will be limited to existing roads and trails in special status plant species habitat. As appropriate, the Fire Management Plan will be updated to reflect the appropriate suppression activity in sensitive resource areas.</p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD FIRE 2	<p>In PHMA, fuels treatments will be designed and implemented with an emphasis on protecting existing sagebrush ecosystems and enhancing and protecting future sagebrush ecosystems (refer to WGFD Protocols for Treating Sagebrush to Benefit Sage-grouse [WGFD 2011, as updated]) and 2015 ARMPA Appendix H.</p> <p>These recommended protocols will be used in determining whether proposed treatment constitutes a “disturbance” that will contribute toward the 5 percent threshold for habitat maintenance.</p> <p>Fuel treatments will be designed through an interdisciplinary process to expand, enhance, maintain, and protect Greater Sage-Grouse habitat. Green strips (using native fire resistant/resilient species) and/or fuel breaks will be used, where appropriate, to protect seeding efforts from subsequent fire events.</p> <p>In coordination with the USFWS and relevant state agencies, BLM planning units (Districts) with large blocks of Greater Sage-Grouse habitat will develop, using the assessment process described in 2015 ARMPA Appendix L, a fuels management strategy which considers an up-to-date fuels profile, land use plan direction, current and potential habitat fragmentation, sagebrush and Greater Sage-Grouse ecological factors, and active vegetation management steps to provide critical breaks in fuel continuity, where appropriate. When developing this strategy, planning units will consider the risk of increased habitat fragmentation from a proposed action versus the risk of large scale fragmentation posed by wildfires if the action is not taken.</p> <p>Utilizing an interdisciplinary approach, a full range of fuel reduction techniques will be available. Fuel reduction techniques such as grazing, prescribed fire, chemical, biological, and mechanical treatments will be acceptable.</p> <p>Upon project completion, fuels projects will be monitored and managed to ensure long-term success, including persistence of seeded species and/or other treatment components. Invasive vegetation post-treatment will be controlled.</p> <p>Wildfire prevention plans will be developed that explain the resource value of Greater Sage-Grouse habitat and include fire prevention messages and actions to reduce human-caused ignitions.</p>
MD FIRE 3	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>For fuels management, the BLM will consider multiple tools for fuels reduction and will analyze in NEPA compliance documentation before electing to implement prescribed fire in PHMA.</p> <p>If prescribed fire is used in Greater Sage-Grouse habitat, the NEPA analysis for the Burn Plan will address:</p> <ul style="list-style-type: none"> <li>Why alternative techniques were not selected as a viable options</li> <li>How Greater Sage-Grouse goals and objectives will be met by its use</li> <li>How the COT (Conservation Objectives Team) report objectives will be addressed and met</li> </ul> <p>A risk assessment to address how potential threats to Greater Sage-Grouse habitat will be minimized.</p> <p>Prescribed fire as a vegetation or fuels treatment shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Prescribed fire can be used to meet specific fuels objectives that protect Greater Sage-Grouse habitat in PHMA (e.g., creation of fuel breaks that disrupt the fuel continuity across the landscape in stands where annual invasive grasses are a minor component in the understory, burning slash piles from conifer reduction treatments, used as a component with other treatment methods to combat annual grasses and restore native plant communities).</p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD FIRE 3 (continued)	<p>Prescribed fire in known winter range shall only be considered after the NEPA analysis for the Burn Plan has addressed the four bullets outlined above. Any prescribed fire in winter habitat will need to be designed to strategically reduce wildfire risk around and/or in the winter range and designed to protect winter range habitat quality. Refer to 2015 ARMPA Appendix H, WGFD Protocols for Treating Sagebrush to Benefit Sage-grouse (WGFD 2011, as updated) and BLM Washington Office Instruction Memorandum 2013-128. If prescribed fire activities are not in compliance with these protocols, the treatment will be considered a PHMA disturbance.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>Use prescribed burning to achieve measurable 5th-order watershed objectives from (1) other resources, including, but not limited to, forestry, wildlife, range, vegetation, and watershed; (2) the reduction of hazardous fuels; and (3) the introduction of fire into fire-adapted ecosystems.</p> <p><u>Green River RMP/JMH CAP:</u></p> <p>Prescribed fire will generally be the preferred method of vegetation manipulation to convert decadent stands of brushland to grasslands and to stimulate sprouting of old, decadent aspen stands and/or shrub species. Prescribed burns are preferred in areas having greater than 35 percent sagebrush composition, 20 percent desirable grass composition, and greater than 10 inches of precipitation.</p> <p><u>Rawlins RMP:</u></p> <p>Fuel treatments, including prescribed fire, mechanical, chemical, and biological treatments will be used for fuels reduction and to meet other multiple-use resource objectives, including returning fire to its natural role in the ecosystem. WUIs and communities at risk will receive priority for fuels reduction.</p>
MD FIRE 4	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Remove conifers encroaching into sagebrush habitats in a manner that considers tribal cultural values. Prioritize treatments closest to occupied Greater Sage-Grouse habitats and near occupied leks, and where juniper encroachment is phase 1 or phase 2. Use of site-specific analysis and principles like those included in the FIAT (Fire and Invasive Species Assessment) report (Chambers et. al., 2014) and other ongoing modeling efforts to address conifer encroachment will help refine the location for specific priority areas to be treated.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p>Casper RMP: Treat woodland encroachment in grassland, sagebrush, aspen, and other vegetative communities where it is determined to be detrimental to other resource values or uses. Manage 630,180 acres of sagebrush communities toward Desired Plant Community.</p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD FIRE 5	<p>The following RMP decisions remain in effect for both PHMA and GHMA:</p> <p><u>Pinedale RMP:</u> In the WUI or industrial interface, fuels reduction methods best suited to the area will be used to reduce the risk of catastrophic fire to these areas.</p> <p><u>Casper RMP:</u> Use prescribed burning to achieve measurable 5th-order watershed objectives from (1) other resources, including, but not limited to, forestry, wildlife, range, vegetation, and watershed; (2) the reduction of hazardous fuels; and (3) the introduction of fire into fire-adapted ecosystems. Utilize an integrated management technique approach (defined as prescribed fire, mechanical, chemical, or biological, followed by desired reseeding) to reduce fuels to protect high priority areas or resource values defined as, but not limited to the following: Urban and industrial interface areas Developed recreation areas Commercial timber areas Wildlife habitats Range-improvement facilities Communication sites Municipal watersheds. Decision 3008 Fuels Management.</p> <p><u>Rawlins RMP:</u> A high priority for fire management activities will be given to areas identified as communities at risk, industrial interface areas, and areas containing resource values considered high priority within the RMP planning area.</p> <p><u>JMH CAP:</u> Appropriate management response to protect the basin big sagebrush/lemon scurfpea plant communities will be applied. Wildland and prescribed fires will be managed in all vegetation types to maintain or improve biological diversity and the overall health of the public lands. In particular, plant species and age class diversity will be a priority; thus, AMR for all wildland fires will be identified and implemented depending on the resources and management objectives for the area. Suppression techniques and hazardous fuels reduction activities will be identified to reduce wildland fire severity and occurrence on portions of the landscape where fire can cause undesirable changes in plant community composition and structure. A site-specific analysis will be prepared for sensitive resource areas, such as special status plant species sites, heritage sites, historic trails, and ACECs, to determine the type of fire suppression activity that will be acceptable. Fire equipment and fire suppression techniques, such as vegetation clearing, will be limited to existing roads and trails in special status plant species habitat. As appropriate, the Fire Management Plan will be updated to reflect the appropriate suppression activity in sensitive resource areas.</p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD FIRE 6	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Burned areas within PHMA will be restored to suitable habitat with consideration given to ESDs, reference sites, site potential, habitat objectives and local variability.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p>Kemmerer RMP:</p> <p>Implement BLM Emergency Stabilization and Rehabilitation standards located in the DOI Interagency Burned Area Emergency Response Guidebook and BLM Burned Area Emergency Stabilization and Rehabilitation Handbook on wildland fires to protect and sustain healthy ecosystems and protect life and property.</p> <p>Newcastle RMP:</p> <p>All wildfires will be evaluated to determine the need for rehabilitation or restoration measures. Restoration of burned areas will be by natural succession unless a special need is identified to prevent further resource damage.</p> <p>Rawlins RMP:</p> <p>Rehabilitation and restoration efforts specific to a fire event will be undertaken to protect and sustain ecosystems, public health and safety, and to help communities protect infrastructure.</p>
MD FIRE 7	<p>Within PHMA, post fuels management projects will be designed to ensure long-term persistence of seeded or pre-treatment native plants (<del>while controlling for erosion and treating infestation of invasive plant species</del>), to return to suitable Greater Sage-Grouse habitat.</p>
MD LG 1	<p>The BLM policy in WO-IM-2009-007 and BLM Handbook H-4180-1 will be used to evaluate land health standards achievement in PHMA (core only) and, where not achieved, to determine if existing grazing management practices or levels of grazing use on public lands are significant factors in failing to achieve the standards and conform with the guidelines, which through this process will identify appropriate actions to address nonachievement and nonconformance.</p> <p>When determining appropriate actions to address nonachievement of land health standards and nonconformance with the guidelines due to existing grazing management practices or levels of grazing use, management actions including but not limited to the following will be considered singly or in combination:</p> <p>Season or timing of use</p> <p>Numbers of livestock (includes temporary nonuse or livestock removal)</p> <p>Distribution of livestock use</p> <p>Intensity of use</p> <p>Kind of livestock (e.g., cattle, sheep, horses, llamas, alpacas and goats)</p> <p>Class of livestock (e.g., yearlings versus cow calf pairs)</p> <p>Range improvements.</p> <p>Refer to the document, "Grazing Influence, Management, and Objective Development in Wyoming's Greater Sage-Grouse Habitat" (Cagney et al. 2010) for guidance when considering appropriate management actions to achieve conformance.</p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD LG 2	Within PHMA the BLM will work cooperatively with permittees, lessees, and other landowners to develop voluntary grazing management strategies that integrate both public and private lands into single management units to improve Greater Sage-Grouse habitat.
MD LG 3	<p>The following RMP decisions remain in effect:</p> <p><u>Casper RMP:</u> Grazing leases will be adjusted where an evaluation of monitoring, field observations, or other data indicate changes, and either increases or decreases, in forage allocation are needed or when necessary or required by other applicable law or regulation.</p> <p><u>Kemmerer RMP:</u> Vegetative communities will be managed in accordance with Wyoming Standards for Healthy Rangelands. Appropriate livestock grazing management actions will be developed and integrated to address rangeland health standards, improve forage for livestock, and enhance rangeland health.</p> <p><u>Newcastle RMP:</u> Any adjustments in livestock grazing use will be made as a result of monitoring and consultation with grazing permittees. Monitoring studies will be conducted using the current BLM-approved methodology.</p> <p><u>Pinedale RMP:</u> Monitoring of the range and the vegetation resource will be conducted at a level sufficient to detect changes in grazing use, trend, and range conditions. Monitoring will be tied to land health standards and indicators that help determine change in status and progress toward meeting objectives. Data will be used to direct and support grazing management decisions consistent with national policy.</p> <p><u>Rawlins RMP:</u> Livestock grazing will be managed to meet the Wyoming Standards for Healthy Rangelands. <u>Green River RMP/JMH CAP:</u> The kinds and seasons of livestock grazing use will continue to be licensed until monitoring, negotiation, consultation, or a change in resources conditions indicate that a modification is needed. Monitoring will be continued or initiated following adjustments in grazing use to assure that grazing and other management objectives are being met.</p>



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Action #	2018 Proposed RMPA
MD LG 4	<p>Within PHMA, all <del>BLM use authorizations will contain terms and conditions regarding the actions needed to meet or progress toward meeting the habitat objectives.</del> if monitoring data show the <b>wildlife/special status species standard</b> habitat objectives has not been met nor progress being made toward meeting that standard <del>then</del>, there would be an evaluation and a determination made as to the cause. If it is determined that the <b>current</b> authorized <b>livestock</b> use is a significant <b>causal</b> factor in failing to achieve the <b>wildlife/special status species</b> standards, <b>the BLM would address the achievement or progress toward achieving the LHSs (43 CFR 4180.2) and, if needed, Greater Sage-Grouse habitat maintenance or improvement.</b> <del>for healthy rangelands, the use will be adjusted by the response specified in the instrument that authorized the use.</del></p> <p>The NEPA analysis for renewals and modifications of livestock grazing permits/leases that includes lands within SFAs and PHMA will include specific management thresholds based on GRSG habitat objectives (Tables 2-2 and 2-3) and Land Health Standards (43 CFR 4180.2), and one or more defined responses that will allow the authorizing officer to make adjustments to livestock grazing that have already been subjected to NEPA analysis.</p> <p><b>When NEPA analysis is required for a specific implementation action, one alternative would include mechanisms to make adjustments to meet or make progress toward meeting the wildlife/special status species standard. The analysis should also identify the BLM-approved data collection methodologies used for monitoring conditions and determining when adjustments are necessary. If current grazing management meets land health standards and provides for Greater Sage-Grouse habitat, there would be no need to analyze an alternative for Greater Sage-Grouse.</b></p> <p><b>Authorized uses in PHMA that incorporate habitat objectives for Greater Sage-Grouse must develop desired conditions based on Greater Sage-Grouse habitats present in the allotment and the ecological potential of sites that supports these habitats. Metrics used to monitor for objectives must be developed and inform the wildlife/SSS portion of the Standards for Healthy Rangelands.</b></p> <p><b>Within PHMA, seasonal habitat objectives for Greater Sage-Grouse apply only to those habitats delineated within an allotment during the specific season (e.g., breeding season objectives during breeding season). Data needed to inform the relationship between the authorized use and habitat condition would come from sample locations that appropriately reflect the impact of the authorized use on habitat conditions. Data points should fall within Greater Sage-Grouse seasonal habitat areas and be collected on ecological sites that have the potential to produce Greater Sage-Grouse habitat.</b></p>
MD LG 5	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>BLM monitoring would be used to evaluate progress toward achieving land health standards within PHMA and, where not achieved, to determine if existing grazing management practices or levels of grazing use on public lands are significant factors in failing to meet, maintain or make progress toward achieving the standards and conform with the guidelines, which through this process will identify appropriate actions to address nonachievement and nonconformance.</p> <p><del>Allotments within SFAs, followed by those within PHMA, and focusing on those containing riparian areas, including wet meadows, will be prioritized for field checks to help ensure compliance with the terms and conditions of the grazing permits. Field checks include monitoring for actual use, utilization, and use supervision.</del></p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD LG 5 (continued)	<p>The BLM would prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in <del>SFAs followed by PHMA outside of the SFAs</del>. In setting workload priorities, precedence would be given to existing permits/leases in these areas not meeting LHSs, with focus on those containing riparian areas, including wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., fire) and legal obligations.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u> Conversions in kinds of livestock and changes in season of use will be considered on a case-by-case basis through an environmental analysis. Such changes will be consistent with rangeland health objectives. Grazing leases will be adjusted to accurately reflect the kind of livestock use on public land in all allotments.</p> <p><u>Kemmerer RMP:</u> Current amounts, kinds, and seasons of livestock grazing uses will be authorized until rangeland health standards assessment results and (or) monitoring indicates a grazing use adjustment is necessary, or that a kind and (or) class of livestock or season of use modification can be accommodated.</p> <p><u>Newcastle RMP:</u> Any adjustments in livestock grazing use will be made as a result of monitoring and consultation with grazing permittees. Monitoring studies will be conducted using the current BLM-approved methodology.</p> <p><u>Pinedale RMP:</u> Conversions from one type of livestock to another will be evaluated on a case-by-case basis, including an environmental analysis, and will be authorized in conformance with the goals and objectives of the RMP.</p> <p><u>Rawlins RMP:</u> The current amounts, kinds, and seasons of livestock grazing use will be authorized until monitoring, field observations, ecological site inventory, or other data acceptable to BLM indicates a grazing use adjustment is needed, as appropriate. Requests for changes in season-of use or kind-of-livestock will be considered on a case-by-case basis. Any decision regarding changes in grazing use will include cooperation, consultation, and coordination with the grazing permittees and the interested public.</p> <p><u>Green River RMP:</u> The Wyoming Standards for Healthy Rangelands (BLM 1997a) will apply to all resource uses on BLM- administered lands. These standards are the minimal acceptable conditions that address the health, productivity, and sustainability of the rangeland. The standards describe healthy rangelands rather than rangeland by-products.</p> <p>Achievement of a standard is determined through observing, measuring, and monitoring appropriate indicators. An indicator is a component of a system whose characteristics (e.g., presence, absence, quantity, and distribution) can be observed, measured, or monitored based on sound scientific principles. The standards will direct the management of public lands and focus the implementation of this activity plan toward the maintenance or attainment of healthy rangelands.</p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD LG 6	At the time a permittee or lessee voluntarily relinquishes a permit or lease, the BLM will consider whether the public lands where that permitted use was authorized should remain available for livestock grazing or be used for other resource management objectives, such as reserve common allotments or fire breaks. This does not apply to or impact grazing preference transfers, which are addressed in 43 CFR 4110.2-3.
MD LG 7	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: When periods of drought occur, where appropriate, the AO will evaluate strategies to address drought through coordination with grazing permittee/lessee and annual billings processes. In cooperation with livestock grazing permittees/lessees, drought contingency plans will be developed at the appropriate landscape unit that provide for a consistent/appropriate BLM response. Contingency plans shall establish strategies for addressing ongoing drought and post-drought recovery.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>Other management considerations for use of stock driveway withdrawals (SDW) will include providing emergency use for relief from fire, drought, or other natural causes or to meet management objectives in adjoining allotments that require rest. These other uses will be addressed on a case-by-case basis and may occur any time during the year provided the AO has determined adequate forage is available and it does not interfere with regular trail use. The decision determining there is adequate forage will be documented and filed in the appropriate SDW file. Consultation and coordination with livestock owners who regularly use the respective SDW will be made prior to authorizing this type of use. This use will be authorized in accordance with federal grazing regulations (also see MD LG 9).</p> <p>A drought contingency plan will be developed to maintain adequate habitat components for viable fish, wildlife, and SSS populations.</p>
MD LG 8	<p>In <del>GHMA and</del> PHMA, existing range improvements (e.g., fences, livestock/wildlife watering facilities) would continue to be evaluated and modified when necessary.</p> <p><del>The potential risk to Greater Sage-Grouse and its habitats from existing structural range improvements will be evaluated. The potential for modification of those structural range improvements identified as posing a risk will be addressed.</del></p> <p>Supplements and supplemental feeding would continue to be authorized where appropriate.</p> <p>Outside of PHMA and GHMA, and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>Identified hazard fences will be modified and new fences will be constructed in accordance with the BLM Fencing Handbook 1741-I. Decision 4010.</p> <p>Placement of salt, mineral, or forage supplements for livestock will not be allowed within 0.25 miles of water, wetlands, and riparian areas, unless written analysis shows that watershed, riparian, wetland, wildlife, and vegetative values will not be adversely affected. Forage supplements will be required to be “certified weed- free.”</p> <p><u>Kemmerer RMP:</u></p> <p>BLM fencing standards will be applied to newly constructed fences on BLM-administered lands within the planning area.</p>

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Action #	2018 Proposed RMPA
MD LG 8 (continued)	<p>Existing fences will be eliminated or modified to reduce conflicts on a case-by-case basis.</p> <p>Livestock salt or mineral supplements will be located a minimum of 0.25 miles away from water sources, riparian areas, and aspen stands. Buffers will be based on resource concerns on a case-by-case basis.</p> <p><u>Newcastle RMP:</u></p> <p>Fence construction will be required to meet current BLM fence standards.</p> <p>Fences on BLM-administered land surface that cause documented wildlife conflicts will be removed, reconstructed, or modified, as appropriate or necessary, to eliminate or reduce the conflict.</p> <p>Construction of fences that interfere with movements of big game species in crucial big game winter range will not be allowed on BLM-administered land surface.</p> <p><u>Pinedale RMP:</u></p> <p>Mineral supplement blocks will be placed in locations that promote proper grazing distribution and prevent inappropriate livestock use on riparian habitat; for example, by locating supplements on ridgetops and/or approximately 0.25 miles from riparian habitat. Placement of supplements near water sources, such as wells and reservoirs, will consider rangeland objectives, such as grazing distribution, wildlife habitat requirements, and reclamation success. Mineral supplement blocks will not be placed within 0.25 miles of an occupied Greater Sage-Grouse lek. Mineral supplement blocks will not be placed within 0.25 miles of known Special Status Plant Species locations.</p> <p><u>Rawlins RMP:</u></p> <p>New fence construction will be authorized according to BLM standards unless modified following consultation with affected parties. Existing fences will be modified according to current BLM standards and according to wildlife and livestock management needs.</p> <p><u>Green River RMP/JMH CAP:</u></p> <p>Where documented wildlife conflicts with fencing on public lands occur, fences will be modified, reconstructed, or, if necessary, removed. Herding control of livestock will be encouraged as an alternative to fencing. Fence construction will be in accordance with BLM design standards and located so as not to overly impede wildlife movement. Consideration will also be given to SSS and wild horse movement.</p> <p><u>Green River RMP:</u></p> <p>Livestock water developments and range improvements will be considered to maintain or improve resource conditions, enhance livestock distribution, or both. Compatibility with special status plant species will be required. Water developments and/or range improvements proposed in sensitive areas will be considered only if wildlife habitat and resource conditions are maintained or improved and no significant or irreversible adverse effects will occur.</p> <p>Salt or nutritional supplements will be prohibited within 500 feet of riparian habitat and National Historic and Scenic Trails unless analysis shows that these resources will not be adversely affected. These supplements also will be prohibited on areas inhabited by special status plant species. Placement of supplements at least 500 feet away from wells, troughs, and other human-made water sources will be encouraged to better distribute livestock.</p> <p><u>JMH CAP:</u></p> <p>Livestock water developments and range improvements will be considered to maintain or improve resource conditions, enhance livestock distribution, or both. Compatibility with special status plant species will be required. Water developments and/or range improvements</p>

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Action #	2018 Proposed RMPA
MD LG 8 (continued)	<p>proposed in sensitive areas will be considered only if wildlife habitat and resource conditions were maintained or improved and no significant or irreversible adverse effects will occur.</p> <p>Salt or nutritional supplements will be prohibited within 500 feet of riparian habitat and National Historic and Scenic Trails unless analysis shows that these resources will not be adversely affected. These supplements also will be prohibited on areas inhabited by special status plant species. Placement of supplements at least 500 feet away from wells, troughs, and other human-made water sources will be encouraged to better distribute livestock.</p>
MD LG 9	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Livestock trailing that is authorized will include a trailing plan to utilize non-habitat to the extent possible, include specific routes and timeframes for trailing, utilize existing trails, and avoid stopovers on occupied leks, as appropriate.</p> <p>The following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>The revocation of withdrawals for those trails that are no longer active will be reviewed and recommended and these lands will be incorporated into adjacent allotments (46,050 acres). Grazing leases will be offered to the respective grazing lessees. All remaining SDW lands for trail use (55,680 acres) will be retained.</p> <p><u>Kemmerer RMP:</u></p> <p>Current livestock trails will be retained. Livestock trailing use will occur within 0.5 miles of the mapped centerline.</p> <p><u>Pinedale RMP:</u></p> <p>Adequate stock trails will be maintained to support livestock trailing needs.</p>
MD LG 10	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p><del>Grazing between</del> <b>In PHMA, for riparian habitats and/or wet meadow communities utilized by Greater Sage-Grouse, livestock grazing would be managed</b> <del>and upland habitats will be balanced to promote the production and availability of beneficial forbs to GRS</del> <b>and upland habitats will be balanced to promote the production and availability of beneficial forbs to GRS</b> <del>for use during nesting and brood-rearing, while maintaining upland conditions and functions. Grazing in meadows, mesic habitats, and riparian pastures also will be balanced to promote the production and availability of beneficial grasses and forbs for use during late brood-rearing within PHMA, while maintaining upland conditions and functions.</del></p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>Lotic and lentic wetland/riparian areas will be managed toward Proper Functioning Condition (PFC).</p> <p>The BLM will manage toward PFC and identified Desired Plant Community on 350 miles of lotic and adjacent riparian habitat and 10,000 acres of lentic habitat to meet fish, wildlife, and SSS habitat requirements.</p> <p><u>Kemmerer RMP:</u></p> <p>Livestock conversions will be allowed in allotments with riparian concerns only when a plan is approved to address riparian issues.</p> <p>Management actions and range improvements proposed to address riparian issues will have to be implemented prior to authorizing the</p>

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**Proposed RMPA with All Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**

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Action #	2018 Proposed RMPA
MD LG 10 (continued)	<p>conversion. Livestock conversions may be approved only after completion of a suitability study for the conversion. The conversion may be authorized if it is determined that riparian habitats will be maintained or improved by the conversion.</p> <p><u>Pinedale RMP:</u>  Meet the Wyoming Standards for Rangeland Health and maintain or enhance wetland and riparian vegetation to achieve PFC. Grazing systems will be designed to maintain or improve watershed and range condition; for example, through changing seasons of use, implementing rotational or other grazing management systems, or developing infrastructure for livestock management. In allotments with riparian habitat, grazing management actions will be designed to maintain or achieve proper functioning condition.</p> <p><u>Green River RMP:</u>  Range improvements will be directed at resolving or reducing resource concerns, improvement of wetland/riparian areas, and overall improvement of vegetation/ground cover. New range improvements may be implemented in "I" and "M" category allotments. Maintenance of range improvements will be required in accordance with the BLM Rangeland Improvement Policy.</p> <p><u>JMH CAP:</u>  Implementation of grazing management systems will assist in improving or maintaining the desired range condition. Approved AMPs, or other activity plans intended to serve as the functional equivalent to an AMP, for each of the designated grazing allotments will provide the necessary guidance for achieving grazing management objectives.</p> <p>Appropriate actions for improving degraded rangeland and riparian habitat (i.e., meeting Wyoming Standards for Healthy Rangelands (BLM 1997a)) include, but will not be limited to, reduction of permitted animal unit months, modified turnout dates, livestock water developments, range improvements, modified grazing periods, growing season rest, riparian pastures, exclosures, implementation of forage utilization levels, and livestock conversions. These improvements will be considered individually using the method outlined in Appendix 2 of the JMH CAP ROD to ensure conformance with management objectives for the planning area and other resource values.</p>
MD LG 11	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:  Range improvement projects will be planned and authorized in a way that contributes to rangeland health and maintains and/or improves Greater Sage-Grouse and its habitat.</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Green River RMP:</u>  Water sources may be developed in crucial wildlife winter ranges only when consistent with wildlife habitat needs. Such sources will be designed to benefit livestock, wild horses, and wildlife. Alternative water supplies or facilities for livestock may be provided to relieve livestock grazing pressure along stream bottoms and improve livestock distribution.</p> <p><u>JMH CAP:</u>  Livestock water developments and range improvements will be considered to maintain or improve resource conditions, enhance livestock distribution, or both. Compatibility with special status plant species will be required. Water developments and/or range improvements proposed in sensitive areas will be considered only if wildlife habitat and resource conditions are maintained or improved and no significant or irreversible adverse effects will occur.</p>

Table A-1

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Action #	2018 Proposed RMPA
MD LG 12	Existing water developments associated with springs and seeps will be evaluated and associated pipelines/structures to those developments having a negative effect on PHMA will be modified.
MD Wild Horses and Burro (WHB) 1	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Manage herd management areas (HMAs) in Greater Sage-Grouse habitat within established appropriate management level range to achieve and maintain Greater Sage-Grouse habitat (<del>see Tables 2-2 and 2-3</del>).</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Green River RMP/JMH CAP:</u></p> <p>Specific habitat objectives for herd management areas will be developed. Consideration will be given to desired plant communities, wildlife, watershed, livestock grazing, and other resource needs.</p>
MD WHB 2	PHMA (core only) management objectives will be considered when evaluating appropriate management levels.
MD WHB 3	PHMA (core only) management objectives will be considered when conducting land health assessments in BLM HMAs.
MD WHB 4	When conducting NEPA analysis for wild horse management activities, water developments or other rangeland improvements for wild horses in PHMA, the direct and indirect effects on Greater Sage-Grouse populations and habitat will be addressed. Water developments or rangeland improvements will be implemented using the criteria identified for domestic livestock identified above in PHMA.
MD WHB 5	Coordinate with other resources (Range, Wildlife, and Riparian) to conduct land health assessments within all BLM HMAs.
MD Mineral Resources (MR) 1 Fluid Minerals (Unleased Estate)	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>The BLM will allow oil and gas leasing consistent and subject to the leasing stipulations analyzed in the timing, distance, disturbance, and density restrictions sections (Map 2-2) (<b>see MD SSS 4 through MD SSS 10 and MD SSS 12, see also Wyoming RMP Amendment Appendix A – Fluid Mineral Stipulations</b>). Ensure that leasing activities in PHMA comply with Greater Sage-Grouse resource management plan decisions and remain in compliance with laws, regulations and policy.</p> <p>Fluid mineral leasing will be allowed in PHMA (<del>core only</del>), except in areas that are closed to leasing due to the need to protect other sensitive resources.</p>
MD MR 2 Fluid Minerals (Unleased Estate)	<p>Fluid Minerals (Unleased Estate)</p> <p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Geophysical exploration projects that are designed to minimize habitat fragmentation within PHMA will be allowed, except where prohibited or restricted by existing RMP decisions, and in conformance with timing and distances Management Decisions (<b>see MD SSS 4 through MD SSS 10 and MD SSS 12</b>).</p> <p>Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>The blocks of public land identified as mapped in the Casper Field Office GIS database will be managed to retain intact blocks of native vegetation (192,550 acres, of which 131,880 acres are BLM-administered surface). In these areas, the following restrictions apply:</p>

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Action #	2018 Proposed RMPA
MD MR 2 Fluid Minerals (Unleased Estate) (continued)	<p>These blocks are (1) unavailable for oil and gas leasing, and (2) a geophysical operation on public surface for the life of the plan. Activities for existing oil and gas leases are managed intensively (see Appendix U of the Casper RMP). Existing leases will be allowed to expire and not be renewed.</p> <p>Within these blocks, a withdrawal from the operation of the public land laws, including the mining laws will be pursued.</p> <p>These blocks are closed to mineral material disposal. Existing permits will be allowed to expire without renewal or expansion.</p> <p>These blocks are not open to wind/renewable energy development.</p> <p>These blocks remain open to livestock grazing.</p> <p>All allowed surface-disturbing activities within the designated blocks are subject to a Controlled Surface Use restriction, minimizing surface disturbance to meet management objectives. Decision 4024</p> <p>The North Platte River Special Recreation Management Area will continue to be open to oil and gas leasing and geophysical operations. Decision 7039</p> <p>The area is unavailable for oil and gas leasing and geophysical exploration is not allowed. Decision 7047</p> <p>The MA is unavailable for new oil and gas leasing. No geophysical operations will be allowed on public surface.</p> <p>Activities on existing leases will be managed intensively to meet the objectives of the MA (see Appendix U of the Casper RMP – Intensive Management). To minimize surface-disturbing activities, oil and gas exploration and development will use directional drilling techniques and well twinning whenever practicable. Decision 7059</p> <p>The Red Wall/Gray Wall complex is located entirely within the South Bighorns/Red Wall Management Area and is unavailable for new oil and gas leasing. No geophysical operations will be allowed on public surface. Activities on existing leases will be intensively managed to meet the objectives of the MA (see Appendix U of the Casper RMP– Intensive Management). To minimize surface-disturbing activities, oil and gas exploration and development will use directional drilling techniques and well twinning whenever practicable. Decision 7063</p> <p>Those lands currently open to oil and gas leasing will continue to be open to geophysical operations. Those lands open to oil and gas leasing, but subject to a NSO restriction, may be open to geophysical operations should site specific NEPA analysis disclose a finding of no significant impact. No geophysical operations are allowed in areas closed for oil and gas leasing. Decision 2019</p> <p><u>Kemmerer RMP:</u></p> <p>Allow for geophysical exploration on lands throughout the planning area subject to identified conditions of approval.</p> <p><u>Newcastle RMP:</u></p> <p>Surface-disturbing and disruptive activities associated with all types of minerals exploration and development and with geophysical exploration will be subject to appropriate mitigation measures determined through, but not limited to, use of MD SSS 4.</p> <p><u>Pinedale RMP:</u></p> <p>Vehicle-based geophysical activities will be assessed on a case-by-case basis.</p> <p>The use of surface and/or aboveground (Poulter shot) explosive charges for geophysical exploration will be assessed case by case.</p> <p>Geophysical projects, including projects proposed in areas with an NSO restriction, will be analyzed and mitigation developed on a case-by-case basis.</p> <p>Geophysical activities that are considered casual use actions are allowed within 0.25 miles of active Greater Sage-Grouse leks provided that:</p>



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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD MR 2 Fluid Minerals (Unleased Estate) (continued)	<p>Operations are conducted on designated roads and trails.</p> <p>Operations during the breeding season (March 1 through May 15) are conducted between the hours of 8:00 a.m. and 8:00 p.m.</p> <p>A 150-foot wide strip of undisturbed sagebrush is maintained around the perimeter of the lek for hiding and escape cover.</p> <p><u>Rawlins RMP:</u></p> <p>All lands open to oil and gas leasing consideration will also be open to geophysical exploration, subject to appropriate resource surveys, surface protection measures, adequate bonding, and adherence to State of Wyoming standards for geophysical operations. Vehicular use for “necessary tasks” (as defined in the glossary), such as geophysical exploration including project survey and layout, will be permitted except where specifically prohibited (e.g., some SD/MAs).</p> <p><u>Green River RMP:</u></p> <p>Geophysical exploration (vehicles and detonation) activities will be prohibited within 0.5 miles of the Pinnacles Geologic Feature. Areas of sensitive heritage resources and geologic features, such as Boars Tusk, White Mountain Petroglyphs, special status plant species, wilderness study areas (WSAs), and historic trails, will remain closed. Receiver lines may be laid using foot traffic within these areas. Exceptions to these restrictions may be granted on a case-by-case basis subject to appropriate site-specific analysis and mitigation requirements.</p> <p>The remainder of the planning area will be open to geophysical exploration, with application of appropriate mitigation. Rights-of-way limitations in the planning area apply to on- and off-road vehicle traffic used for geophysical activities. Exploration activities will be allowed in sensitive resource areas only if they can be performed with acceptable mitigation of impacts.</p> <p><u>JMH CAP:</u></p> <p>Geophysical exploration (vehicles and detonation) activities will be prohibited within 0.5 miles of the Pinnacles Geologic Feature. Areas of sensitive heritage resources and geologic features, such as Boars Tusk, White Mountain Petroglyphs, special status plant species, WSAs, and historic trails, will remain closed. Receiver lines may be laid using foot traffic within these areas. Exceptions to these restrictions may be granted on a case-by-case basis subject to appropriate site-specific analysis and mitigation requirements.</p> <p>The remainder of the planning area will be open to geophysical exploration, with application of appropriate mitigation. ROW limitations in the planning area apply to on- and off-road vehicle traffic used for geophysical activities. Exploration activities will be allowed in sensitive resource areas only if they can be performed with acceptable mitigation of impacts.</p>
MD MR 3 Fluid Minerals, Leased Estate	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>In cases where federal oil and gas leases have been issued with stipulations varying from those in 2018 Proposed RMPA Appendix A for the protection of Greater Sage-Grouse or their habitats, as provided in the applicable RMP decision, as revised or amended, their inclusion as APD COAs will be considered when approving exploration and development activities through completion of the environmental record of review (43 CFR 3162.5 and 36 CFR 228.108), including appropriate documentation of compliance with NEPA.</p> <p>Overall consideration shall be given to minimizing the impact on Greater Sage-Grouse through a project design that avoids, minimizes, reduces, rectifies, and/or adequately compensates for direct and indirect impacts on PHMA or use and includes applicable and technical COAs (see MD SSS 4 through MD SSS 10 and MD SSS 12). Selection and application of these measures shall be based on current science and research on the effects on important breeding, nesting, brood-rearing, and wintering areas. For proposed operations in PHMA, the Surface</p>

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Action #	2018 Proposed RMPA
MD MR 3 Fluid Minerals, Leased Estate (continued)	<p>Use Plan of Operations (see 43CFR 3162.3-1(f)) shall address, at a minimum, the anticipated noise, density and amount of disturbance, mechanical movement (e.g., pump jacks), permanent and temporary facilities, traffic, phases of development over time, off-site mitigation, and expected periods of use associated with the proposed project. Seasonal habitats or project features related to potential Greater Sage-Grouse impacts that are not addressed in the Surface Use Plan of Operations based on site- specific or project-specific considerations shall be noted in the project file, along with a rationale for not including them.</p> <p>In this process the BLM will evaluate, among other things:</p> <p>Whether the conservation measure is “reasonable” (43 CFR 3101.1-2) and consistent with valid existing rights</p> <p>Whether the action is in conformance with the approved LUP; and the effectiveness of the proposed mitigation measures (See MD SSS 4).</p> <p>The BLM will work with project proponents in these situations to promote measurable Greater Sage-Grouse conservation objectives such as, but not limited to, consolidation of project related infrastructure to reduce habitat fragmentation and loss and to promote effective conservation of seasonal habitats and PHMA (<del>connectivity only</del>) that support population management objectives set by the state.</p> <p>The BLM will continue to work with project proponents and the WGFD to site their projects in locations that meet the purpose and need for their project, but have been determined to contain the least sensitive habitats (based on vegetation, topography, or other habitat features) and resources whether inside or outside of PHMA (utilizing DDCT analysis process). Valid existing rights will be recognized and respected.</p> <p>For values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Kemmerer RMP:</u></p> <p>Choose and implement appropriate mitigation in a timely manner to minimize decreases in habitat function.</p> <p>Utilize appropriate voluntary off-site compensatory mitigation to reduce impacts. This will be necessary if (1) all on-site mitigation has been accomplished and adverse effects have not been mitigated; or (2) if on-site mitigation is not feasible.</p> <p><u>Pinedale RMP:</u></p> <p>Off-site mitigation proposed by oil and gas or other operators can be considered and analyzed in future environmental documents as mitigation for proposed activities within the planning area. Proposed off-site mitigation will be described and analyzed for effectiveness in detail on a project-specific basis. Off-site mitigation will conform to requirements in the Pinedale RMP regarding the order of use of mitigation methods, stipulations applied to off-site mitigation measures, and priority order for mitigating resource impacts on-site or off-site.</p> <p><u>Green River RMP:</u></p> <p>Development actions will be analyzed on a case-by-case basis to identify mitigation needs to meet RMP objectives, provide for resource protection, and provide for logical development. Limitations on the amount, sequence, timing, or level of development may occur. This may result in transportation planning and in limitations in the number of roads and drill pads, or deferring development in some areas until other areas have been restored to previous uses.</p> <p><u>JMH CAP:</u></p> <p>COAs attached to an APD will be based on site-specific NEPA or other analysis and will establish specific, necessary mitigation measures not covered by stipulations for resource and environmental protection. Some areas will need more intensive mitigation measures to protect sensitive resources and provide for public health and safety. These intensive mitigation measures or COAs will mostly apply to areas with</p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD MR 3 Fluid Minerals, Leased Estate (continued)	overlapping sensitive resources (e.g., Areas 2 and 3). Examples of intensive mitigation that can apply to all activities based on site- specific analysis include off-site placement of facilities, remote control monitoring, restricted or prohibited surface use including road construction, multiple wells from a single pad, central tank batteries/facilities, and pipelines and power lines concentrated in specific areas. In addition, refer to <b>Section 3.12.3</b> for additional mitigation measures that may apply as part of the transportation plan.
MD MR 4	Within PHMA, field offices will work with project proponents (including those within BLM) to site their projects in locations that minimize impacts on sensitive resources (see also MD SSS 4 through MD SSS 10 and MD SSS 12).
MD MR 5	Master Development Plans will be considered and encouraged for projects involving multiple proposed disturbances within PHMA (see also MD SSS 4 through MD SSS 10 and MD SSS 12).
MD MR 6	Within PHMA, unitization will be encouraged as a means of minimizing adverse impacts on Greater Sage-Grouse to reduce fragmentation and surface-disturbing and disruptive activities (see also MD SSS 4 through MD SSS 10 and MD SSS 12).
MD MR 7	The BLM shall closely examine the applicability of categorical exclusions in PHMA and GHMA. If extraordinary circumstances review is applicable, the BLM shall determine whether those circumstances exist. For proposed actions in PHMA, determine whether a categorical exclusion is applicable and if so, closely examine the extraordinary circumstances, if applicable, to determine whether one or more exists that will require preparation of a NEPA analysis. If a categorical exclusion applies, and no extraordinary circumstances exist, determine whether preparing a NEPA analysis will help inform decision making (see also MD SSS 4 through MD SSS 10 and MD SSS 12).
MD MR 8	Federal Regulations, 43 CFR 3104.1 requires that a bond be furnished before any drilling or surface disturbance activities begin. The lessee, sublessee or the operator must furnish a surety or personal bond in the amount of at least \$10,000 to ensure compliance with all the lease terms, including protection of the environment. With the consent of the surety and principal, the operator may use the bond of another party, such as the lessee. Each time there is a new operator, that operator must notify the BLM that he/she is the responsible operator, giving the particulars of the bond under which he/she will operate. The BLM can require an increase in a bond amount any time conditions warrant such an increase.  A reclamation bond will be required on all projects that is commensurate with the scope, scale, size of the project within PHMA. Partial bonding may be appropriate depending on these factors. (see also MD SSS 4 through MD SSS 10 and MD SSS 12)
MD MR 9	Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: Produced water from coalbed natural gas wells will be treated and disposed of in collaboration and consistent with the requirements of the state, and RDFs specified in Management Action 10 (see 2018 Proposed RMPA <b>Appendix B</b> ). Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above: <u>Pinedale RMP:</u> Produced water from coalbed natural gas wells will be treated and disposed of in collaboration and consistent with the requirements of the state. (see also MD SSS 4 through MD SSS 10 and MD SSS 12)

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MD MR 10	<p>Specific to management for Greater Sage-Grouse, within PHMA <del>(core only)</del>, all RMPs are amended as follows:</p> <p>Where the federal government owns the mineral estate, and the surface is in nonfederal ownership, apply the same stipulations, COAs, and/or conservation measures and RDFs applied if the mineral estate is developed on BLM-administered lands in that management area, to the maximum extent permissible under existing authorities, and in coordination with the landowner (see also MD SSS 4 through MD SSS 10 and MD SSS 12).</p> <p>Within PHMA <del>(non-core only)</del> and outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Pinedale RMP:</u></p> <p>BLM-permitted actions on split estate lands are subject to the same stipulations as leased federal mineral estate on federal surface lands, provided the stipulations do not adversely affect the surface owner's land use or actions. Exceptions to surface development restrictions may be granted if requested or agreed to by the surface owner.</p>
MD MR 11	<p>Within PHMA where the federal government owns the surface and the mineral estate is in nonfederal ownership, apply appropriate surface use COAs, stipulations, and mineral RDFs through ROW grants or other surface management instruments, to the maximum extent permissible under existing authorities, in coordination with the mineral estate owner/lessee (see also MD SSS 4 through MD SSS 10 and MD SSS 12).</p>
MD MR 12	<p>Locatable Minerals</p> <p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p><del>252,160 acres within SFAs (see MD SSS 14 for identification of SFAs) will be recommended for withdrawal from the General Mining Act of 1872, subject to valid existing rights.</del> A total of approximately <b>21,251,690</b> acres are open to locatable mineral location and entry (Map 2-3).</p> <p>Operators may be requested to submit modifications to the accepted notice or approved plan of operations so that the operations minimally impact PHMA. The AO may convey to the operator suggested conservation measures, based on the notice or plan level operations and the geographic area of those operations (also called the project area which is defined in 43 CFR 3809.5 and 36 CFR 228.3). These suggested conservation measures include measures that support the overall goals and objectives of the core population area strategy, though measures listed for protection of Greater Sage-Grouse breeding, nesting, brood-rearing, and wintering may not be reasonable or applicable to the BLM's determination of whether the proposed operations will cause unnecessary or undue degradation under 43 CFR 3809.5 and 36 CFR 228.3. The request containing the suggested conservation measures must make clear that the operator's compliance is not mandatory.</p> <p>Notices or Plans of Operation, or modifications thereto, submitted following the issuance of this guidance: As part of the 15-day completeness review of notices [or modifications thereto] and 30-day completeness review of plans of operations [or modifications thereto], the proposed project area(s) where exploration, development, mining, access and reclamation will take place shall be reviewed for overlap of PHMA in the corporate GIS database. If there is overlap, the BLM AO may notify the operator of ways that they may minimize impacts on PHMA and request the operator to amend its notice or plan to include such measures. The request to amend the submitted notice or plan of operations must make clear that the operator's compliance is not mandatory and that including such measures is not a</p>

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MD MR 12 (continued)	<p>requirement for completeness of either the notice or a plan of operations, nor is it a condition of acceptance of the notice or approval of the plan of operations. (see also MD SSS 4 through MD SSS 10 and MD SSS 12) For values other than Greater Sage-Grouse, the following RMP decisions remain in effect: 1,785,230 acres are withdrawn from mineral entry for the protection of sensitive resources.</p>
MD MR 13	<p>Salable Minerals PHMA will be open to mineral material exploration, sales, and free use permits, except in areas that are unavailable due to the need to protect other resource values. All salable mineral activities within PHMA will be considered, provided they can be completed in compliance within surface occupancy, seasonal restrictions, and disturbance and density stipulations (Map 2-4 and MD SSS 2, 3,4 through 10 and 12)) analyzed through the DDCT process.</p>
MD MR 14	<p>Salable Minerals Within PHMA closure and restoration of salable mineral pits no longer in use will be considered to meet Greater Sage-Grouse habitat conservation objectives (see also MD SSS 4 through MD SSS 10 and MD SSS 12). Emphasis will be given to reclamation/restoration of PHMA as a viable long term goal to improve Greater Sage-Grouse habitat.</p>
MD MR 15	<p>Nonenergy Leasable Minerals Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: All nonenergy leasable mineral activities will be considered in PHMA, provided that the activities can be completed in compliance with all occupancy, timing, density and disturbance restrictions (Map 2-5) (see also MD SSS 4 through MD SSS 10 and MD SSS 12). Exploration licenses and prospecting permits will be considered with appropriate mitigating measures. Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above: Portions of PHMA will be unavailable for leasing in accordance with existing RMP decisions for resource values other than Greater Sage-Grouse. <u>Kemmerer RMP:</u> Sodium: All public lands (outside of the Raymond Mountain WSA and exceptions identified below) within the planning area are available for sodium leasing consideration. Exploration for sodium will be considered on a case-by-case basis. Limited surface occupancy criteria contained in the Sodium Mineral Development Environmental Assessment will be applied on a case-by-case basis. No new sodium leases or exploration licenses may be issued on lands within the Raymond Mountain WSA. No new sodium exploration and leasing will be considered for Rock Creek/Tunp and Bear River Divide management areas. Phosphate: All public lands (outside of the Raymond Mountain WSA and exceptions identified below) within the planning area are available for phosphate leasing consideration. Exploration for phosphate will be considered on a case-by-case basis. No new phosphate exploration and leasing will be considered for Rock Creek/Tunp and Bear River Divide management areas.</p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD MR 15 (continued)	<p><u>Pinedale RMP:</u> Should interest in other leasable minerals materialize in the future, leasing will be considered on a case-by- case basis, and the RMP will be amended as appropriate and necessary. The same surface disturbance restrictions will be used in analyzing leasing proposals and determining the issuance of any leases (for example, geothermal steam, coal, sodium, oil shale, and phosphate).</p> <p><u>Green River RMP/JMH CAP:</u> The known sodium leasing area is open to exploration and consideration for leasing and developments, but is closed to prospecting permits. The remainder of the planning area is open to sodium prospecting except for areas that are closed to mineral leasing, surface mining, or mechanical prospecting type activities (areas closed to drilling, off road vehicle use, and explosive charges). Sodium (trona) leasing will be considered on a case-by-case basis, and is subject to the same conditional requirements as oil and gas and coal, and the general management direction applied in this RMP.</p>
MD MR 16	<p><b>Solid Leasable Minerals</b> Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: At the time an application for a new coal lease or lease modification is submitted to the BLM, the BLM will determine whether the lease application area is "unsuitable" for all or certain coal mining methods pursuant to 43 CFR 3461.5 (see also MD SSS 4 through MD SSS 10 and MD SSS 12). PHMA is essential habitat for maintaining Greater Sage-Grouse for purposes of the suitability criteria set forth at 43 CFR 3461.5(o)(1). The BLM will also consider that USFWS has found "the core area strategy...if implemented by all landowners via regulatory mechanisms, would provide adequate protection for Greater Sage-Grouse and their habitats in the state" when considering leasing coal in PHMA under the criteria set for at 43 CFR 3461.5(o)(1). Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u> If coal development potential is shown to exist, all BLM-administered lands outside the Coal Development Potential Area (CDPA) will be considered for coal leasing, unless specifically closed to mineral leasing. The coal-screening process will be completed on all newly identified lands having coal development potential. All BLM-administered lands within the CDPA identified in the 2001 Buffalo RMP maintenance action are acceptable for further consideration for coal leasing. The only exceptions are those lands determined unacceptable within the area or those lands that fall within PHMA. The coal unsuitability criteria are re- evaluated whenever new coal lease applications are received.</p> <p><u>Kemmerer RMP:</u> Process new coal lease applications by using the coal screening process. The coal screening process results will determine which lands may be available for further consideration for coal leasing and development. Appropriate NEPA analysis will be required prior to leasing. Federal land within the proposed Haystack project area outside of the PHMA is determined acceptable for further consideration for coal leasing and development. No coal LBAs will be considered for Rock Creek/Tunp and Bear River Divide management areas.</p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD MR 16 (continued)	<p><u>Pinedale RMP:</u> Decisions on lands acceptable for leasing consideration for coal development will be made after an application is received and the coal screening process is conducted.</p> <p><u>Rawlins RMP:</u> Federal coal lease applications will be accepted only on those federal coal lands with development potential identified as suitable for further leasing consideration after application of the coal unsuitability criteria (the above-mentioned approximately 51,250 acres and 2,318.7 million tons of surface minable federal coal).</p> <p><u>Green River RMP/JMH CAP:</u> Federal coal lands within the Coal Occurrence and Development Potential area (about 422,000 acres) are open to further consideration for coal leasing and development (i.e., new competitive leasing, emergency leasing, lease modifications, and exchange proposals, under the Federal Coal Management Program) with appropriate and necessary conditions and requirements for protection of other land and resource values and uses.</p>
MD MR 17	<p><b>Solid Leasable Minerals</b> Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: Upon receipt of a coal lease application proposing underground mining methods that include surface operations and impacts within PHMA, Criterion 15 will be applied and the area will be identified as suitable for further coal leasing consideration after consultation with the state and, where applicable, surface management agency to determine that all or certain stipulated methods of coal mining will not have a significant long-term impact on Greater Sage-Grouse. Stipulated methods may include, but not limited to, underground mining methods with no placement of surface facilities except for purposes of health and human safety. Unsuitability is not applied to underground operations without surface impacts (43 CFR 3461.1) This will be consistent with IM WY-2012-019 says that the BLM will assess potential impacts on Greater Sage-Grouse through the NEPA process, and that the state regulatory agency will apply this mitigation, as well as protective measures consistent with the state policy for solid leasable mining action at the permitting stage (see also MD SSS 4 through MD SSS 10 and MD SSS 12). Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u> If coal development potential is shown to exist, all BLM-administered lands outside the CDPA will be considered for coal leasing, unless specifically closed to mineral leasing. The coal-screening process will be completed on all newly identified lands having coal development potential. All BLM-administered lands within the CDPA identified in the 2001 Buffalo RMP maintenance action are acceptable for further consideration for coal leasing. The only exceptions are those lands determined unacceptable within the area. The coal unsuitability criteria are re-evaluated whenever new coal lease applications are received.</p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD MR 17 (continued)	<p><u>Kemmerer RMP:</u> Process new coal lease applications by using the coal screening process. The coal screening process results will determine which lands may be available for further consideration for coal leasing and development. Appropriate NEPA analysis will be required prior to leasing. Federal land within the proposed Haystack project area is determined acceptable for further consideration for coal leasing and development. No coal LBAs will be considered for Rock Creek/Tunp and Bear River Divide management areas.</p> <p><u>Pinedale RMP:</u> Decisions on lands acceptable for leasing consideration for coal development will be made after an application is received and the coal screening process is conducted.</p> <p><u>Rawlins RMP:</u> Federal coal lease applications will be accepted only on those federal coal lands with development potential identified as suitable for further leasing consideration after application of the coal unsuitability criteria (the above-mentioned approximately 51,250 acres and 2,318.7 million tons of surface minable federal coal).</p> <p><u>Green River RMP/JMH CAP:</u> Federal coal lands within the Coal Occurrence and Development Potential area (about 422,000 acres) are open to further consideration for coal leasing and development (i.e., new competitive leasing, emergency leasing, lease modifications, and exchange proposals, under the Federal Coal Management Program) with appropriate and necessary conditions and requirements for protection of other land and resource values and uses.</p>
MD MR 18	Coal exploration activities will be allowed in PHMA if they can be completed in compliance to surface occupancy and disturbance and density stipulations analyzed through the DDCT process (see also MD SSS 4 through MD SSS 10 and MD SSS 12).
MD MR 19	<p>Exceptions to lease stipulations, COA, and terms and conditions: Exceptions waivers, and modifications to lease stipulations, COAs, and terms and conditions, for Greater Sage-Grouse will continue to be considered on a case-by-case basis consistent with approved LUPs and other BLM policy and regulations as they relate to exceptions within PHMA and GHMA (see also MD SSS 4 through MD SSS 10 and MD SSS 12).</p>
MD Renewable Energy (RE) I	<p>Within PHMA, all RMPs are amended as follows: Wind energy development would be avoided in PHMA (Map 2-6), and not allowed unless it can be sufficiently demonstrated that the development activity would not result in declines of PHMA populations. Sufficient demonstration of “no declines” should be coordinated with the WGFD and USFWS.</p> <p>For values other than Greater Sage-Grouse, the following RMP decisions remain in effect: Areas that are currently unavailable due to the need to protect sensitive resources would remain unavailable to wind energy development.</p>



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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD RE 2	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>The use of guy wires for meteorological towers (MET) tower supports would be avoided within PHMA. All existing and any new unavoidable guy wires should be marked with recommended bird deterrent devices.</p> <p>The siting of new temporary MET towers within PHMA would be avoided within 2 miles of occupied Greater Sage-Grouse leks, unless they are out of the direct line of sight of the occupied lek.</p> <p>Outside of PHMA, the following RMP decisions remain in effect:</p> <p><u>Kemmerer RMP:</u></p> <p>New MET towers would be avoided within 1 mile of occupied sagebrush obligate habitats, unless anti-perch devices are installed. MET towers relying on guy wires for support would be prohibited in these habitats. Exceptions could be made if NEPA analysis shows little or no impact on sagebrush obligate species.</p> <p><u>Rawlins RMP:</u></p> <p>MET towers would be authorized on a case-by-case basis from 0.25 miles to 1 mile of an occupied Greater Sage-Grouse and sharp-tailed grouse lek.</p>
MD Lands and Realty (LR) 1	<p><i>Land Use Authorizations</i></p> <p>Specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>PHMA will be managed as ROW avoidance areas for new ROW or Special Use Authorization (SUA) permits (Map 2-7).</p> <p>Within PHMA where new ROWs/SUAs are necessary, new ROWs/SUAs will be located within designated RMP corridors or adjacent to existing ROWs/SUAs where technically feasible. Subject to valid existing rights including nonfederal land inholdings, required new ROWs/SUAs will be located adjacent to existing ROWs/SUAs or where it best minimizes Greater Sage-Grouse impacts. Consider the likelihood of development of not-yet-constructed surface-disturbing activities, as defined in Table 2 of the Monitoring Framework (2018 Proposed RMPA Appendix C ) under valid existing rights.</p> <p>For values other than Greater Sage-Grouse, the following RMP decisions remain in effect:</p> <p>Portions of PHMA will be managed as ROW exclusion areas in accordance with existing RMP decisions for resource values other than Greater Sage-Grouse.</p>
MD LR 2	<p>Specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Within GHMA where new ROWs/SUAs are necessary, new ROWs/SUAs will be collocated within existing ROWs/SUAs where technically feasible.</p> <p>Appropriate Greater Sage-Grouse seasonal timing constraints will be applied.</p> <p>For values other than Greater Sage-Grouse, the following RMP decisions remain in effect:</p> <p>Portions of GHMA will be managed as ROW avoidance areas in accordance with existing RMP decisions for resource values other than Greater Sage-Grouse.</p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD LR 3	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p><u>New Transmission Lines (greater than 115 kV):</u>  New transmission lines greater than 115 kV in PHMA (core only) will be allowed only (1) within the 2-mile wide transmission line route through PHMA (core only) population areas in south-central and southwestern Wyoming (Attachment I from EO 2015-4); (2) when located within 0.5 miles or less of an existing 115 kV or greater transmission line constructed prior to 2008; or (3) in designated RMP corridors authorized for aboveground transmission lines. Transmission lines routed using one or more of the three criteria listed above will not be counted against the DDCT 5 percent disturbance cap. New transmission lines greater than 115 kV proposed outside of these areas will be considered where it can be demonstrated that declines in Greater Sage-Grouse populations can be avoided through project design and/or mitigation. These projects will be subject to the density and disturbance restrictions for PHMA.  Construction of new transmission lines will adhere to the restrictions associated with conducting activities within PHMA.  Review of transmission line proposals will incorporate the Framework for Sage-grouse Impacts Analysis for Interstate Transmission Lines and other appropriate documents consistent with the three routing criteria described above.  New projects within PHMA that may require future utility lines, including distribution and transmission lines or pipelines, will include the proposed utility lines in their DDCT as part of the proposed disturbance. Lines permitted but not located in the above mentioned routes or a designated corridor will be counted toward the 5 percent disturbance calculation (line disturbance is equal to the anticipated construction footprint or construction ROW width multiplied by length and includes all access roads, staging areas, and other surface disturbance associated with construction outside of the construction ROW).</p> <p><u>New Electric Distribution Lines (less than 115 kV):</u>  New electric distribution lines will be buried where feasible and economically feasible. If not economically feasible, distribution lines may be authorized when effectively designed/mitigated to protect Greater Sage-Grouse and the AO determines that overhead installation is the action alternative with the fewest adverse impacts while still meeting the project need. Agricultural and residential lines will be considered to be adequately mitigated for Greater Sage-Grouse if constructed at least 0.6 miles from the lek perimeter with appropriate timing constraints and constructed to the latest APLIC guidance. These ROW authorizations will be subject to approval by the State Director.</p> <p><u>Priority Transmission Lines:</u>  PHMA are designated as avoidance areas for high voltage transmission line and pipeline ROWs, except for the transmission projects specifically identified below. All authorizations in these areas, other than the following identified projects, must comply with the conservation measures outlined in this proposed plan, including the RDF and avoidance criteria presented in 2018 Proposed RMPA <b>Appendix B</b>. The BLM is currently processing an application for Gateway South, Gateway West, and TransWest Express and the NEPA review for these projects is well underway. The BLM is analyzing Greater Sage-Grouse mitigation measures through the project's NEPA review process.</p> <p><u>Pipelines:</u>  New pipelines through PHMA will be allowed: (1) within an RMP corridor currently authorized for that use or designated through future RMP amendments; or (2) constructed in or adjacent to existing utilities (buried and aboveground) or roads. Pipelines constructed in RMP</p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD LR 3 (continued)	<p>corridors or adjacent to existing utilities or roads will require completion of a DDCT analysis for baseline data collection but the project is not required to meet the threshold of 5 percent. However, within 6 months of the completion of construction, the project proponent will provide the AO with as-built drawings so that total disturbance within core area can be calculated annually.</p> <p>The following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>No new corridor designations will be made in Bates Hole. When placement of a major ROW facility within a designated corridor is not possible, and for smaller ROW and other linear facilities, placement will be adjacent to existing facilities or disturbances. Cross-country placement of ROW and other linear facilities will be allowed only when placement in a designated corridor or adjacent to an existing facility is not practical or feasible. The extent of all surface disturbances will be minimized.</p> <p>No new corridors will be established in the Sand Hills Management Area; ROWs will be allowed when management objectives for the area can still be achieved.</p> <p>All currently designated corridors will be maintained. All special restrictions that apply to types of use/facilities on the corridors will be removed, except as noted for the Oregon Trail Road ROW Corridor, Segment A. The corridors include 351,020 acres, of which 94,580 acres are federal surface. The widths/size of designated corridors will not change. Special restrictions applying to types of use/facilities on the corridors will be removed on a case-by-case basis. Existing corridors include:</p> <ul style="list-style-type: none"> <li>Oregon Trail Road Corridor, Segment A</li> <li>Oregon Trail Road Corridor, Segment B</li> <li>Oregon Trail Road Corridor, Segment C</li> <li>Poison Spider/Gas Hills Road Corridor</li> <li>Highway 20-26 Corridor</li> <li>Wyoming Highway 259/U.S. 87 Corridor</li> <li>Wyoming Highway 387 Corridor</li> <li>Lost Cabin-Arminto Road Corridor</li> <li>RMP Change No. 2012-03, including the West-Wide Energy Corridor</li> <li>Cabin Creek Corridor</li> <li>Existing Oregon Trail Road ROW Corridor, Segment A.</li> </ul> <p>Oregon Trail Road ROW Corridor, Segment A allows additional ROW facilities provided they are subsurface, surface, or low profile developments. ROW facilities that introduce visual intrusions on the skyline along the corridor will not be allowed. Special restrictions applying to types of use/facilities on the corridors will be removed on a case-by-case basis, and a new corridor, to be called the Cabin Creek Corridor, will be designated.</p> <p><u>Future Corridor Adjustments and New Corridor Designations:</u></p> <p>Future corridor adjustments and new corridor designations will be made only when facility placement within an existing designated corridor is incompatible, unfeasible, or impractical and when the environmental consequences can be adequately mitigated. Problems of</p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD LR 3 (continued)	<p>technical compatibility between facilities and spacing of facilities in corridors will be solved on a case-by-case basis. Special restrictions applying to types of use/facilities on the corridors will be removed on a case-by-case basis.</p> <p>South Bighorns/Red Wall Management Area:</p> <p>No corridors will be designated; however, ROWs will be allowed on a case-by-case basis when management objectives for the area can still be achieved.</p> <p><u>Kemmerer RMP:</u></p> <p>Utility corridors will be designated, based on use (i.e., power lines, pipelines, and fiber optic lines).</p> <p>Preferred utility corridors will be 2 miles wide (width will be determined based on resource values) and designated as follows, but variances will be allowed based on application where conflicts with other resources were minimal or can be mitigated through resource-specific stipulations:</p> <p>High-voltage power line corridors will be established north of and parallel to I-80, and along Wyoming State Highway 89 from the junction of I-80 and the Wyoming state line.</p> <p>Fiber optic and low-voltage power line corridors will be located along currently established road systems (e.g., interstate or state highways and paved county roads).</p> <p><u>Newcastle RMP:</u></p> <p>Utility/transportation systems will be located adjacent to existing utility/transportation systems whenever practical. Areas to be avoided for new facility placement and routes will be identified on a case-by-case basis, rather than attempting to establish utility corridors.</p> <p><u>Pinedale RMP:</u></p> <p>Utility facilities will be restricted to existing routes and designated corridors where practicable, including environmental and socioeconomic considerations. Corridor routes include U.S. Highways 189 and 191 and State Highways 189, 191, 350, 351, 352, 353, and 354. New corridors may be established as oil and gas fields are developed.</p> <p><u>Rawlins RMP:</u></p> <p>All BLM-administered lands, except WSA and some SD/MAs (including ACEC/Special Interest Areas), will be open to consideration for placement of utility ROW systems. Each utility ROW will be located adjacent to existing facilities, when possible. Areas with important or sensitive resource values will be avoided.</p> <p>Existing major transportation and utility ROW routes will be designated corridors. However, major transportation routes within the planning area that are located east of the Carbon County-Albany County line will not be considered for ROW corridor designation because of the scattered public land ownership pattern in the area. All corridors will be designated for power lines (aboveground and buried), telephone lines, and fiber optic lines.</p> <p>Specific proposals will require site-specific environmental analysis and compliance with established permitting processes.</p> <p>Activities generally excluded from ROW corridors include mineral materials disposal, range and wildlife habitat improvements involving surface disturbance and facility construction, campgrounds, and public recreation facilities and other facilities that will attract public use. ROW facilities will not be placed adjacent to each other if issues with safety or incompatibility or resource conflicts were identified. The designated width, allowable uses, and excluded uses for each corridor may be modified during implementation of the Approved RMP.</p>

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MD LR 3 (continued)	<p><u>Green River RMP:</u> Areas designated as utility windows will be preferred locations for future grants. Five windows have been identified: 2 east-west, 3 north-south. Other areas will be considered for rights-of-way on a case-by-case basis. Windows 0.5 miles in width have been identified for the placement of utilities. The northern east-west window will be for underground facilities only, and the southern east-west window will be for both above and below ground facilities. A 0.5-mile wide north-south window on the west side of Flaming Gorge, a window south along Highway 430, and a north-south window along the east side of Flaming Gorge have been identified for above and below ground utilities.</p> <p><u>JMH CAP:</u> The planning area, with the exception of defined exclusion and avoidance areas, will be open to considering grants of rights-of-way if area objectives can be met. Exclusion areas are closed to rights-of-way. Avoidance and special management areas not identified as exclusion areas will be open to consideration only after site-specific analysis demonstrates area objectives can be met (see glossary) in Greater Sage-Grouse potential nesting habitat.</p>
MD LR 4	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: Maintenance/replacement of existing structures will be allowed subject to valid and existing rights. Upgrades will be considered, subject to mandatory RDFs (2018 Proposed RMPA <b>Appendix B</b>). Existing guy wires shall be removed or appropriately marked with bird flight diverters to make them more visible to Greater Sage-Grouse in flight. Power lines (distribution and transmission) will be designed to minimize wildlife-related impacts and constructed to the latest APLIC standards. Outside of PHMA the following RMP decisions remain in effect: <u>Kemmerer RMP:</u> New utility lines will be buried or BLM-approved anti-perch devices will be installed on all new utility lines within sagebrush and/or semiarid shrub-dominated habitats, unless NEPA analysis shows little or no impact without burial or modification.</p>
MD LR 5	<p>Within PHMA where existing authorizations, ROWs, or SUAs have had some level of development (e.g., road, fence, and well) and are expired and are no longer in use, the site will be reclaimed by removing these features and restoring the habitat. Power lines (distribution and transmission) will be designed to minimize wildlife-related impacts and constructed to the latest APLIC standards.</p>

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<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD LR 6	<p>Within PHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>The use of guy wires for MET tower supports will be avoided within PHMA. All existing and any new unavoidable guy wires shall be marked with recommended bird deterrent devices.</p> <p>The siting of new temporary MET towers within PHMA will be avoided within 2 miles of occupied Greater Sage-Grouse leks, unless they are out of the direct line of sight of the occupied lek.</p> <p>Outside of PHMA, the following RMP decisions remain in effect:</p> <p><u>Kemmerer RMP:</u></p> <p>New MET towers will be avoided within 1 mile of occupied sagebrush obligate habitats, unless anti-perch devices are installed. MET towers relying on guy wires for support will be prohibited in these habitats. Exceptions can be made if NEPA analysis shows little or no impact on sagebrush obligate species.</p> <p><u>Rawlins RMP:</u></p> <p>MET towers will be authorized on a case-by-case basis from 0.25 miles to 1 mile of an occupied Greater Sage-Grouse and sharp-tailed grouse lek.</p>
MD LR 7	<p>Within PHMA and GHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</p> <p>Lands classified as PHMA for Greater Sage-Grouse will be retained in federal management unless: (1) the agency can demonstrate that disposal of the lands, including land exchanges, that disposal of the parcel is in the public's best interest or (2) the agency can demonstrate that the disposal of the lands, including land exchanges, will have no direct or indirect adverse impact on conservation of the Greater Sage-Grouse.</p> <p>Exceptions will be considered where there is mixed ownership and land exchanges will allow for additional or more contiguous federal ownership patterns within PHMA.</p> <p>For PHMA with minority federal ownership, an additional, effective mitigation agreement will be included for any disposal of federal land.</p> <p>As a final preservation measure, consideration shall be given to pursuing a permanent conservation easement.</p> <p>For lands in GHMA that are identified for disposal, the BLM will only dispose of such lands consistent with the goals and objectives of this plan, including, but not limited to, the RMP goal to conserve, recover, and enhance Greater Sage-Grouse habitat on a landscape scale.</p> <p>For values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above:</p> <p><u>Casper RMP:</u></p> <p>224,830 acres of public lands are identified as potentially suitable for disposal. At the implementation stage, site-specific analysis with public participation will be conducted. Based on the analysis and public comments received, a determination will be made on whether disposal of the parcel is in the public's best interest. If it is not in the public's best interest, the parcel will be retained in public ownership.</p> <p>Restricted Disposal – dispose of 5,450 acres on a restricted basis.</p> <p>Allow land-use authorizations under FLPMA Section 302(b) leases and permits to meet public demand.</p> <p>Evaluate on a case-by-case basis as proposals are presented. Potential lease and permit areas may include, but are not limited to the following:</p> <p>Areas where there are documented or existing trespass facilities that can be resolved by an authorization under this section</p>

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MD LR 7 (continued)	Areas along major highways where developments may facilitate public needs Areas in or adjacent to residential, agricultural, commercial, or industrial developments. The BLM will pursue acquisition of lands and interest in lands in the South Bighorns/Red Wall area.
MD LR 8	Within PHMA and GHMA, specific to management for Greater Sage-Grouse, all RMPs are amended as follows: Areas where acquisitions (including subsurface mineral rights) or conservation easements will benefit Greater Sage-Grouse habitat will be identified. Outside of PHMA and GHMA, and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above: <u>Casper RMP:</u> The BLM will pursue acquisition of lands and interest in lands in the Bolton Creek Drainage and Bates Creek areas.
MD LR 9	Greater Sage-Grouse habitat requirements will be utilized to <del>prioritize parcels for exchange or acquisition</del> within PHMA.
MD LR 10	Within PHMA, non-mineral withdrawals will be evaluated to determine if the withdrawal action is consistent with Greater Sage-Grouse conservation.
MD Recreation and Visitor Services (REC) I	Specific to management for Greater Sage-Grouse or PHMA, all RMPs are amended as follows: BLM Special Recreation Permits will be allowed in PHMA, unless negative impacts on Greater Sage-Grouse cannot be adequately mitigated. Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above: <u>Casper RMP:</u> The entire planning area will remain open to dispersed recreation. The camping limit on public lands is set by BLM policy and is currently limited to 14 days. Emphasis will be placed on providing interpretive and information signs and materials for public land visitors, maintaining existing facilities to a high standard consistent with the recreational setting, and limiting development of additional facilities to those areas where public recreational use of surrounding public lands requires. Work with state, local groups, and adjacent landowners will be conducted to identify and develop recreational trails, both motorized and nonmotorized, when the opportunities presents themselves. Special Recreation Permits will be allowed for commercial, noncommercial, and competitive events on a case-by-case basis. Cooperation will be maintained with a variety of user groups, especially in the local area, to provide diverse recreational opportunities for enjoyment of public lands. BLM will pursue acquisition of lands and interest in lands in the Rattlesnake Range and Pine Ridge areas, as well as promote and support recreation-based tourism. <u>Kemmerer RMP:</u> Allow dispersed recreation and permit special recreational activities (e.g., outfitting and guiding permits and OHV events permitted on an annual basis after evaluation). <u>Green River RMP:</u> Special recreation permits will be considered on a case-by-case basis. Appropriate mitigation will be included in special recreation permits, commercial recreation uses, and major competitive recreation events to provide resource protection and public safety. <u>JMH CAP:</u>

**Table A-1****Proposed RMPA with All Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**Changes from the 2015 ARMPA are represented by ~~strikeout~~ (removed text) or **bold** (added text).

<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD Recreation and Visitor Services (REC) I (continued)	Special recreation use permits for managed activities that occur in the JMH CAP planning area will be reviewed and subject to recommendations made by the Rock Springs Field Office. This will allow the Rock Springs Field Office to track the amount, location, and timing of organized activity occurring within the planning area to monitor resource pressure. The permit evaluation process will consider the nature of the event, potential impacts on resources, conflicts with other events, and impacts on the quality of other visitors' experiences. Mitigation measures necessary to protect the resources will be included in any permit issued. A plan of operation will be required for all commercial recreational operators and outfitters. The plan will describe the type, extent, and location of the recreation use and the mechanisms by which the operator/outfitter will prevent impacts on environmental resources. Any requests in special recreation use permit applications to remove natural resources will be evaluated on a case-by-case basis after an environmental analysis process.
MD REC 2	Construction of recreation facilities within PHMA must conform with the avoidance and minimization measures of this plan. If it is determined that these conservation measures are inadequate for the conservation of Greater Sage-Grouse, the BLM will consider <del>and</del> <b>ensure</b> mitigation consistent with the applicable State management strategy (currently Governor of Wyoming's Executive Order 2015-4 (see also MD SSS 4) <del>that provides a net conservation gain to the species.</del>
MD Travel and Transportation (TTM) I	Specific to management for Greater Sage-Grouse, all RMPs are amended as follows: Within PHMA, designate the non-sand dune portions of the following OHV Open Areas as OHV Limited Area. The OHV limitation will ultimately be to "Designated Routes" as determined through a subsequent implementation/activity level Travel Management Plan. In the interim, motorized use on existing routes may occur; however, no new routes may be created without specific authorization: Rawlins Field Office: Dune Pond Cooperative Management Area. Rock Springs Field Office: Portion of the Greater Sand Dunes Recreation Area. The following RMP decisions remain in effect: The Casper Field Office Poison Spider OHV Park (290 acres) will remain as an "open" OHV area.
MD TTM 2	Within PHMA and GHMA, all motorized use (of which OHVs are a subset) will be limited to designated routes. Route designations will occur in subsequent implementation/activity level Travel Management Plans. In the interim motorized use on existing routes may occur; however, no new routes may be created without specific authorization. In PHMA and GHMA, temporary closures will be considered in accordance with 43 CFR subpart 8364 (Closures and Restrictions); 43 CFR subpart 8351 (Designated National Area); 43 CFR subpart 6302 (Use of Wilderness Areas, Prohibited Acts, and Penalties); 43 CFR subpart 8341 (Conditions of Use). Temporary closure or restriction orders under these authorities are enacted at the discretion of the AO to resolve management conflicts and protect persons, property, and public lands and resources. Where an AO determines that off-highway vehicles are causing or will cause considerable adverse effects upon soil, vegetation, wildlife, wildlife habitat, cultural resources, historical resources, threatened or endangered species, wilderness suitability, other authorized uses, or other resources, the affected areas shall be immediately closed to the type(s) of vehicle causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent recurrence. (43 CFR 8341.2) A closure or restriction order shall be considered only after other management strategies and alternatives have been explored. The duration of temporary closure or restriction orders shall be limited to 24 months or less; however, certain situations may require longer closures and/or iterative temporary closures. This may include closure of routes or areas.



**Table A-1****Proposed RMPA with All Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**Changes from the 2015 ARMPA are represented by ~~strikeout~~ (removed text) or **bold** (added text).

<b>Action #</b>	<b>2018 Proposed RMPA</b>
MD TTM 3	New local or collector roads (as defined in BLM Manual 9113) will be avoided within 1.9 miles of the perimeter of occupied Greater Sage-Grouse leks within PHMA. All new roads will be prohibited within 0.6 miles of the perimeter of occupied Greater Sage-Grouse leks within PHMA.
MD TTM 4	Within PHMA, no upgrading of existing routes that will change route category or capacity will be allowed unless the upgrading will have minimal impact on Greater Sage-Grouse in PHMA, was necessary for motorist safety, or eliminated the need to construct a new road.
MD TTM 5	In PHMA, existing roads or realignments will be used to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, any new road will be constructed to the absolute minimum standard necessary, and the surface disturbance will be added to the total disturbance in the PHMA.
MD TTM 6	Specific to management for Greater Sage-Grouse or PHMA, all RMPs are amended as follows: For roads, primitive roads and trails not designated in travel management plans within PHMA, natural reclamation of roads and trails will be allowed in appropriate situations where additional resource damage is not foreseeable. This will include primitive route/roads that were not designated in wilderness study areas and within lands with wilderness characteristics that have been selected to be managed to retain those characteristics for protection. In PHMA, locate new roads that will have relatively high levels of activity (accessing multiple wells, housing development) greater than 1.9 miles from the perimeter of occupied <u>Greater Sage-Grouse</u> leks. Locate new other roads used to provide facility site access and maintenance >0.6 miles from the perimeter of occupied <u>Greater Sage-Grouse</u> leks. Outside of PHMA and/or for values other than Greater Sage-Grouse, the following RMP decisions remain in effect with the modification described above: <u>Kemmerer RMP:</u> Roads and two-track routes determined to be unauthorized or redundant and unnecessary for resource management purposes will be reclaimed to achieve surrounding native conditions. <u>Rawlins RMP:</u> Roads or trails that are eroding beyond a reasonable level will be fixed or closed. <u>JMH CAP:</u> Transportation planning will provide for access to achieve multiple-use goals while providing maximum protection for crucial habitats and sensitive resources and will consider: Closing and rehabilitating unused roads and trails and those causing resource damage. This will be subject to county review of existing rights-of-way needs.
MD TTM 7	Within PHMA, when reseeding roads and trails, appropriate seed mixtures will be used and the use of transplanted sagebrush will be considered.
MD Special Designations and Other Management Areas I	New Greater Sage-Grouse conservation ACECs will not be designated.

**Table A-1**  
**Proposed RMPA with all Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**

Decision No.	Existing Language	Proposed RMP Amendment Language
<b>Decisions from the Buffalo RMP:</b>		
Modifying habitat management area designations	No existing decision.	The BLM would update its Greater Sage-Grouse habitat management areas, including BSUs, in conjunction with the State of Wyoming's core areas, upon issuance of any Wyoming Governor's EO revising or amending the core area boundaries and upon completion of appropriate NEPA analysis and process (i.e., plan maintenance, environmental assessment, etc.)
Livestock Grazing – Permit Renewals Grazing 6017	The NEPA analysis for renewals and modifications of livestock grazing permits/leases that includes lands within SFAs and PHMA would include specific management thresholds based on Greater Sage-Grouse habitat objectives ( <b>Table 2-6</b> ) and LHSs (43 CFR 4180.2), and one or more defined responses that would allow the Authorizing Officer to make adjustments to livestock grazing that have already been subjected to NEPA analysis.	<p><b>ARMPA, Buffalo RMP, Worland RMP, and Cody RMP:</b> Within PHMA, if monitoring data show the wildlife/special status species standard is neither being met nor progress being made toward meeting that standard, there would be an evaluation and a determination made as to the cause. If it is determined that the current authorized livestock use is a significant causal factor in failing to achieve the wildlife/special status species standard, the BLM would address achievement or progress toward achieving the LHSs (43 CFR 4180.2) and, if needed, Greater Sage-Grouse habitat maintenance or improvement.</p> <p>When NEPA analysis is required for a specific implementation action, one alternative would include mechanisms to make adjustments to meet or make progress toward meeting the wildlife/special status species standard. The analysis should also identify the BLM-approved data collection methodologies used for monitoring conditions and determining when adjustments are necessary. If current grazing management meets LHSs and provides for Greater Sage-Grouse habitat, there would be no need to analyze an alternative for Greater Sage-Grouse.</p> <p>Authorized uses in PHMA that incorporate habitat objectives for Greater Sage-Grouse must develop desired conditions based on Greater Sage-Grouse habitats present in the allotment and the ecological potential of sites which supports these habitats. Metrics used to monitor for objectives must be developed and inform the Wildlife/special status species portion of the Standards for Healthy Rangelands.</p> <p>Within PHMA, seasonal habitat objectives for Greater Sage-Grouse apply only to those habitats delineated within an allotment during the specific season (e.g., breeding season objectives during breeding season). Data needed to inform the relationship between the authorized use and habitat</p>

**Table A-1**  
**Proposed RMPA with all Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**

Decision No.	Existing Language	Proposed RMP Amendment Language
Livestock Grazing – Permit Renewals Grazing 6017 (continued)	(see above)	condition would come from sample locations that appropriately reflect the impact of the authorized use on habitat conditions. Data points should fall within Greater Sage-Grouse seasonal habitat areas and be collected on ecological sites that have the potential to produce Greater Sage-Grouse habitat.
Noise SS WL-4025	Inside Greater Sage-Grouse (priority habitat) core population areas and connectivity corridors...New project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of the lek from 6:00 pm to 8:00 am during the breeding season (March 1 – May 15). Specific noise protocols for measurement and implementation would be developed as additional research and information emerges.	<b>Within PHMA (Core):</b> New project noise levels, either individual or cumulative, should not exceed 10 dB(A) (as measured by the L50) above baseline noise at the perimeter of a lek from 6:00 p.m. to 8:00 a.m. during the breeding season (March 1–May 15). In coordination with the State of Wyoming, specific noise protocols for measurement and stipulations for implementation would be developed as additional research and information emerges.  These measures would be considered at the site-specific project level where and when appropriate.
Adaptive Management triggers  SS WL-4010	The Greater Sage-Grouse adaptive management plan provides a means of addressing and responding to unintended negative impacts on Greater Sage-Grouse and its habitat would be addressed before consequences become severe or irreversible...With respect to Greater Sage-Grouse, all regulatory entities in Wyoming, including the BLM, use soft and hard triggers.	The AMWG would define a process to review and reverse adaptive management actions once the identified causal factor is resolved (e.g., returning to previous management once objectives of interim management strategy have been met).
Compensatory Mitigation	In undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss and degradation in PHMA, the BLM would require and ensure mitigation that provides a net conservation gain to the species including any accounting for any uncertainty associated with the effectiveness of such mitigation. This would be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions...The BLM would implement actions to achieve the goal of net conservation gain consistent with the Wyoming Strategy (EO 2015-4) that includes	In all Greater Sage-Grouse habitat, when authorizing third-party actions in designated Greater Sage-Grouse habitat, the BLM will seek to achieve the planning-level Greater Sage-Grouse management goals and objectives through implementation of mitigation and management actions, consistent with valid existing rights and applicable law. Under this Proposed Plan Amendment, management would be consistent with the Greater Sage-Grouse goals and objectives, and in conformance with BLM Manual 6840, Special Status Species Management. In accordance with BLM Manual 6840, the BLM will undertake planning decisions, actions and authorizations “to minimize or eliminate threats affecting the status of [Greater Sage-Grouse] or to improve the condition of [Greater Sage-Grouse] habitat” across the planning area.

**Table A-1**  
**Proposed RMPA with all Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**

<b>Decision No.</b>	<b>Existing Language</b>	<b>Proposed RMP Amendment Language</b>
Compensatory Mitigation (continued)	“compensatory mitigation as a strategy that should be used when avoidance and minimization are inadequate to protect Core Population Area Greater Sage-Grouse.”	<p>Accordingly, before authorizing third-party actions that result in habitat loss and degradation, the BLM will complete the following steps, in alignment with the Governor of Wyoming’s Executive Order 2015-4 (July 29, 2015):</p> <ol style="list-style-type: none"> <li>1. Work jointly with the WGFD to evaluate projects and recommend mitigation in the form of avoidance and minimization.</li> <li>2. The WGFD will determine if the State requires or recommends any additional mitigation – including compensatory mitigation – under State regulations, policies, or programs related to the conservation of Greater Sage-Grouse.</li> <li>3. Incorporate state required or recommended mitigation into the BLM’s NEPA decision-making process, if the WGFD determines that compensatory mitigation is required to address impacts to GRSG habitat as a part of State policy or authorization, or if a proponent voluntarily offers mitigation.</li> <li>4. Analyze whether the compensatory mitigation: <ul style="list-style-type: none"> <li>• achieves measurable outcomes for Greater Sage-Grouse habitat function on a landscape scale as determined by WGFD that are at least equal to the lost or degraded values in accordance with the Governor of Wyoming’s Executive Order 2015-4.</li> <li>• provides benefits that are in place for at least the duration of the impacts</li> <li>• accounts for a level of risk that the mitigation action may fail or not persist for the full duration of the impact</li> </ul> </li> <li>5. Ensure mitigation outcomes are consistent with the State of Wyoming’s mitigation strategy and principles outlined in 2018 Proposed RMPA Appendix C, The Greater Sage-Grouse Habitat Management Strategy</li> </ol> <p>The BLM has determined that compensatory mitigation must be voluntary unless required by other applicable law and in recognition that State authorities may also require compensatory mitigation (IM 2019-0188-093, Compensatory Mitigation, July 24December 6, 2018). Therefore, consistent with valid existing rights and applicable law, when authorizing third-party actions that result in habitat loss and degradation, the BLM will consider voluntary compensatory mitigation actions only as a component of compliance with a State mitigation plan, program, or authority, or when offered voluntarily by a project proponent.</p>

Table A-1

**Proposed RMPA with all Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**

<b>Decision No.</b>	<b>Existing Language</b>	<b>Proposed RMP Amendment Language</b>
Compensatory Mitigation (continued)	(see above)	Project-specific analysis will be necessary to determine how a compensatory mitigation proposal addresses impacts from a proposed action. The BLM will cooperate with the State to determine appropriate project design and alignment with State policies and requirements, including those regarding compensatory mitigation. When the BLM is considering compensatory mitigation as a component of the project proponent's submission or based on a mitigation requirement from the State, the BLM's NEPA analysis would evaluate the need to avoid or minimize impacts of the proposed project and achieve the goals and objectives of this RMPA. The BLM will defer to the appropriate State authority to quantify habitat offsets, durability, and other aspects used to determine the recommended compensatory mitigation action. Remove the phrase "net conservation gain" from all management actions.
<b>Cody and Worland Decisions:</b>		
Modifying habitat management area designations	No existing decision.	The BLM would update its Greater Sage-Grouse habitat management areas, including BSUs, in conjunction with the State of Wyoming's core areas, upon issuance of any Wyoming Governor's EO revising or amending the core area boundaries and upon completion of appropriate NEPA analysis and process (i.e., plan maintenance, environmental assessment, etc.)

**Table A-1**  
**Proposed RMPA with all Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**

<b>Decision No.</b>	<b>Existing Language</b>	<b>Proposed RMP Amendment Language</b>
Cody: Record # 6130	All BLM use authorizations would contain terms and conditions regarding the actions needed to meet or progress toward meeting the habitat objectives. If monitoring data show the habitat objectives have not been met nor progress being made toward meeting then, there would be an evaluation and a determination made as to the cause. If it is determined that the authorized use is a cause, the use would be adjusted by the response specified in the instrument that authorized the use.	Within PHMA, if monitoring data show the wildlife/special status species standard is neither being met nor progress being made toward meeting that standard, there would be an evaluation and a determination made as to the cause. If it is determined that the current authorized livestock use is a significant causal factor in failing to achieve the wildlife/special status species standard, the BLM would address achievement or progress toward achieving the LHSs (43 CFR 4180.2) and, if needed, Greater Sage-Grouse habitat maintenance or improvement.
Worland: Record # 6202	The NEPA analysis for renewals and modifications of livestock grazing permits/leases that includes lands within SFAs and PHMA would include specific management thresholds based on Greater Sage-Grouse habitat objectives ( <b>Table 2-7</b> ) and LHSs (43 CFR 4180.2), and one or more defined responses that would allow the AO to make adjustments to livestock grazing that have already been subjected to NEPA analysis.	<p>When NEPA analysis is required for a specific implementation action, one alternative would include mechanisms to make adjustments to meet or make progress toward meeting the wildlife/special status species standard. The analysis should also identify the BLM-approved data collection methodologies used for monitoring conditions and determining when adjustments are necessary. If current grazing management meets land health standards and provides for Greater Sage-Grouse habitat, there would be no need to analyze an alternative for Greater Sage-Grouse.</p> <p>Authorized uses in PHMA that incorporate habitat objectives for Greater Sage-Grouse must develop desired conditions based on Greater Sage-Grouse habitats present in the allotment and the ecological potential of sites which supports these habitats. Metrics used to monitor for objectives must be developed and inform the Wildlife/special status species portion of the Standards for Healthy Rangelands.</p> <p>Within PHMA, seasonal habitat objectives for Greater Sage-Grouse apply only to those habitats delineated within an allotment during the specific season (e.g., breeding season objectives during breeding season). Data needed to inform the relationship between the authorized use and habitat condition would come from sample locations that appropriately reflect the impact of the authorized use on habitat conditions. Data points should fall within Greater Sage-Grouse seasonal habitat areas and be collected on ecological sites that have the potential to produce Greater Sage-Grouse habitat.</p>

**Table A-1**  
**Proposed RMPA with all Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**

<b>Decision No.</b>	<b>Existing Language</b>	<b>Proposed RMP Amendment Language</b>
Permit renewals Cody: Record # 6126  Worland: Record # 6198	The BLM would prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in PHMA. In setting workload priorities, precedence would be given to existing permits/leases in areas not meeting LHSs, with focus on allotments containing riparian areas or wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (e.g., wildfire) and legal obligations.	<b>No change.</b>
Noise Cody: Record # 4111  Worland: Record # 4110	Inside Greater Sage-Grouse (priority habitat) core population areas and connectivity corridors...New project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of the lek from 6:00 pm to 8:00 am during the breeding season (March 1 – May 15). Specific noise protocols for measurement and implementation would be developed as additional research and information emerges.	<b>Within PHMA (Core):</b> New project noise levels, either individual or cumulative, should not exceed 10 dB(A) (as measured by the L50) above baseline noise at the perimeter of a lek from 6:00 p.m. to 8:00 a.m. during the breeding season (March 1–May 15). In coordination with the State of Wyoming, specific noise protocols for measurement and stipulations for implementation would be developed as additional research and information emerges.  These measures would be considered at the site-specific project level where and when appropriate.
Adaptive Management triggers Cody: Record # 4116  Worland: Record # 4115	The Greater Sage-Grouse adaptive management plan provides a means of addressing and responding to unintended negative impacts on Greater Sage-Grouse and its habitat would be addressed before consequences become severe or irreversible...With respect to Greater Sage-Grouse, all regulatory entities in Wyoming, including the BLM, use soft and hard triggers.	The AMWG would define a process to review and reverse adaptive management actions once the identified causal factor is resolved (e.g., returning to previous management once objectives of interim management strategy have been met).
Compensatory mitigation	No existing decision	In all Greater Sage-Grouse habitat, when authorizing third-party actions in designated Greater Sage-Grouse habitat, the BLM will seek to achieve the planning-level Greater Sage-Grouse management goals and objectives through implementation of mitigation and management actions, consistent with valid existing rights and applicable law. Under this Proposed Plan Amendment, management would be consistent with the Greater Sage-Grouse goals and objectives, and in conformance with BLM Manual 6840, Special Status Species Management. In accordance with BLM Manual 6840,

**Table A-1**  
**Proposed RMPA with all Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**

Decision No.	Existing Language	Proposed RMP Amendment Language
Compensatory mitigation (continued)	(see above)	<p>the BLM will undertake planning decisions, actions and authorizations “to minimize or eliminate threats affecting the status of [Greater Sage-Grouse] or to improve the condition of [Greater Sage-Grouse] habitat” across the planning area.</p> <p>Accordingly, before authorizing third-party actions that result in habitat loss and degradation, the BLM will complete the following steps, in alignment with the Governor of Wyoming’s Executive Order 2015-4 (July 29, 2015):</p> <ol style="list-style-type: none"> <li>1. Work jointly with the WGFD to evaluate projects and recommend mitigation in the form of avoidance and minimization.</li> <li>2. The WGFD will determine if the State requires or recommends any additional mitigation – including compensatory mitigation – under State regulations, policies, or programs related to the conservation of Greater Sage-Grouse.</li> <li>3. Incorporate state required or recommended mitigation into the BLM’s NEPA decision-making process, if the WGFD determines that compensatory mitigation is required to address impacts to GRSG habitat as a part of State policy or authorization, or if a proponent voluntarily offers mitigation.</li> <li>4. Analyze whether the compensatory mitigation: <ul style="list-style-type: none"> <li>• achieves measurable outcomes for Greater Sage-Grouse habitat function on a landscape scale as determined by WGFD that are at least equal to the lost or degraded values in accordance with the Governor of Wyoming’s Executive Order 2015-4.</li> <li>• provides benefits that are in place for at least the duration of the impacts</li> <li>• accounts for a level of risk that the mitigation action may fail or not persist for the full duration of the impact</li> </ul> </li> <li>5. Ensure mitigation outcomes are consistent with the State of Wyoming’s mitigation strategy and principles outlined in 2018 Proposed RMPA Appendix C, The Greater Sage-Grouse Habitat Management Strategy</li> </ol> <p>The BLM has determined that compensatory mitigation must be voluntary unless required by other applicable law and in recognition that State authorities may also require compensatory mitigation (IM 2019-0188-093, Compensatory Mitigation, July 24December 6, 2018). Therefore, consistent</p>



**Table A-1**  
**Proposed RMPA with all Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**

Decision No.	Existing Language	Proposed RMP Amendment Language
Compensatory mitigation (continued)	(see above)	<p>with valid existing rights and applicable law, when authorizing third-party actions that result in habitat loss and degradation, the BLM will consider voluntary compensatory mitigation actions only as a component of compliance with a State mitigation plan, program, or authority, or when offered voluntarily by a project proponent.</p> <p>Project-specific analysis will be necessary to determine how a compensatory mitigation proposal addresses impacts from a proposed action. The BLM will cooperate with the State to determine appropriate project design and alignment with State policies and requirements, including those regarding compensatory mitigation. When the BLM is considering compensatory mitigation as a component of the project proponent's submission or based on a mitigation requirement from the State, the BLM's NEPA analysis would evaluate the need to avoid or minimize impacts of the proposed project and achieve the goals and objectives of this RMPA. The BLM will defer to the appropriate State authority to quantify habitat offsets, durability, and other aspects used to determine the recommended compensatory mitigation action.</p>
<b>Lander Decisions:</b>		
Modifying habitat management area designations	No existing decision	The BLM would update its Greater Sage-Grouse habitat management areas, including BSUs, in conjunction with the State of Wyoming's core areas, upon issuance of any Wyoming Governor's EO revising or amending the core area boundaries and upon completion of appropriate NEPA analysis and process (i.e., plan maintenance, environmental assessment, etc.)
Noise Record # 4117	Inside Greater Sage-Grouse (priority habitat) core population areas and connectivity corridors...New project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of the lek from 6:00 pm to 8:00 am during the breeding season (March 1 – May 15). Specific noise protocols for measurement and implementation would be developed as additional research and information emerges.	<p><b>Within PHMA (Core):</b> New project noise levels, either individual or cumulative, should not exceed 10 dB(A) (as measured by the L50) above baseline noise at the perimeter of a lek from 6:00 p.m. to 8:00 a.m. during the breeding season (March 1–May 15). In coordination with the State of Wyoming, specific noise protocols for measurement and stipulations for implementation would be developed as additional research and information emerges.</p> <p>These measures would be considered at the site-specific project level where and when appropriate.</p>

**Table A-1**  
**Proposed RMPA with all Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**

<b>Decision No.</b>	<b>Existing Language</b>	<b>Proposed RMP Amendment Language</b>
Compensatory mitigation	No existing decision	<p>In all Greater Sage-Grouse habitat, when authorizing third-party actions in designated Greater Sage-Grouse habitat, the BLM will seek to achieve the planning-level Greater Sage-Grouse management goals and objectives through implementation of mitigation and management actions, consistent with valid existing rights and applicable law. Under this Proposed Plan Amendment, management would be consistent with the Greater Sage-Grouse goals and objectives, and in conformance with BLM Manual 6840, Special Status Species Management. In accordance with BLM Manual 6840, the BLM will undertake planning decisions, actions and authorizations “to minimize or eliminate threats affecting the status of [Greater Sage-Grouse] or to improve the condition of [Greater Sage-Grouse] habitat” across the planning area.</p> <p>Accordingly, before authorizing third-party actions that result in habitat loss and degradation, the BLM will complete the following steps, in alignment with the Governor of Wyoming’s Executive Order 2015-4 (July 29, 2015):</p> <ol style="list-style-type: none"> <li>1. Work jointly with the WGFD to evaluate projects and recommend mitigation in the form of avoidance and minimization.</li> <li>2. The WGFD will determine if the State requires or recommends any additional mitigation – including compensatory mitigation – under State regulations, policies, or programs related to the conservation of Greater Sage-Grouse.</li> <li>3. Incorporate state required or recommended mitigation into the BLM’s NEPA decision-making process, if the WGFD determines that compensatory mitigation is required to address impacts to GRSG habitat as a part of State policy or authorization, or if a proponent voluntarily offers mitigation.</li> </ol> <p>RMPA Appendix C, The Greater Sage-Grouse Habitat Management Strategy</p>

**Table A-1**  
**Proposed RMPA with all Management Goals, Objectives, and Proposed Decisions from the 2015 ARMPA and RMPs**

Decision No.	Existing Language	Proposed RMP Amendment Language
		<p>4. Analyze whether the compensatory mitigation:</p> <ul style="list-style-type: none"> <li>• achieves measurable outcomes for Greater Sage-Grouse habitat function on a landscape scale as determined by WGFD that are at least equal to the lost or degraded values in accordance with the Governor of Wyoming's Executive Order 2015-4.</li> <li>• provides benefits that are in place for at least the duration of the impacts</li> <li>• accounts for a level of risk that the mitigation action may fail or not persist for the full duration of the impact</li> </ul> <p>5. Ensure mitigation outcomes are consistent with the State of Wyoming's mitigation strategy and principles outlined in 2018 Proposed</p> <p>The BLM has determined that compensatory mitigation must be voluntary unless required by other applicable law and in recognition that State authorities may also require compensatory mitigation (IM 2019-0188-093, Compensatory Mitigation, July 24December 6, 2018). Therefore, consistent with valid existing rights and applicable law, when authorizing third-party actions that result in habitat loss and degradation, the BLM will consider voluntary compensatory mitigation actions only as a component of compliance with a State mitigation plan, program, or authority, or when offered voluntarily by a project proponent.</p> <p>Project-specific analysis will be necessary to determine how a compensatory mitigation proposal addresses impacts from a proposed action. The BLM will cooperate with the State to determine appropriate project design and alignment with State policies and requirements, including those regarding compensatory mitigation. When the BLM is considering compensatory mitigation as a component of the project proponent's submission or based on a mitigation requirement from the State, the BLM's NEPA analysis would evaluate the need to avoid or minimize impacts of the proposed project and achieve the goals and objectives of this RMPA. The BLM will defer to the appropriate State authority to quantify habitat offsets, durability, and other aspects used to determine the recommended compensatory mitigation action.</p>

The purpose of the habitat objectives tables is to identify vegetation attributes important to Greater Sage-Grouse site selection as described in the Habitat Assessment Framework (HAF; Stiver 2015). Indicators should be measured during the appropriate season, within the seasonal habitat being assessed, and in the context of the ecological potential for the site.

The habitat objectives tables outline rangewide attributes and values for each. Some of the science-based information used to establish indicator values in the habitat objectives tables were developed in disparate geographic regions and will not reflect local conditions. The BLM is required to use the best available information, and specific values should be developed locally or at the project level. Collectively, the indicators for sagebrush (cover, height, and shape), perennial grass, and perennial forb (cover, height, and/or availability) represent the desired vegetation components for the seasonal habitats. Indicators are not standards to be achieved but a metric used to evaluate habitat conditions. Data collected at each location (during the appropriate season) in Greater Sage-Grouse habitat is compared with each seasonal habitat indicator value in the tables. These indicator values would then be examined using a preponderance of evidence approach (BLM Technical Reference 1734-6).

When completing site-scale assessments for Greater Sage-Grouse, it is not appropriate to use a single indicator to determine habitat suitability. Site-scale Greater Sage-Grouse habitat assessments inform the land health standard evaluation for the wildlife/special status species standard.

Not all areas within a given habitat type will be capable of achieving the indicator values, due to inherent variation in vegetation communities and ecological site potential. Further, local data supported by BLM-approved data collection protocols or most recent available science may indicate Greater Sage-Grouse select for vegetation structure and composition not characterized by values in the table.

The values in the tables should be considered as initial references and do not preclude development of local, desired conditions or utilizing other indicators/values, based on site selection preferences of the local population and ecological site capability of sagebrush communities.

**Table A-2**  
**Seasonal Habitat Objectives for the Greater Sage-Grouse Wyoming Basin Ecoregion**

Attribute	Indicators	Desired Condition <sup>6</sup>	Reference
<b>Breeding and Nesting (Seasonal Use Period March 1–June 15)</b> (Doherty 2008; Holloran and Anderson 2005)			
Lek Security	Proximity of trees	Trees absent or uncommon shrub/grassland ecological sites within 1.8 miles (approximately 3 kilometers) of occupied leks	Baruch-Mordo et al. 2013; Stiver et al. 2015
	Proximity of sagebrush to leks	Adjacent protective sagebrush cover within 330 feet (approximately 100 meters) of an occupied lek	Stiver et al. 2015
Cover	% of seasonal habitat meeting desired conditions	>80% of the nesting habitat meets the recommended vegetation characteristics, where appropriate (relative to ecological site potential, etc.).	Connelly et al. 2000
	Sagebrush cover <sup>2</sup>	5 to 25%	Connelly et al. 2000; Connelly et al. 2003; Hagen et al. 2007
	Sagebrush height Arid sites <sup>3</sup> Mesic sites <sup>4</sup>	4–31 inches (10–80 centimeters) 12–31 inches (30–80 centimeters)	Connelly et al. 2000
	Predominant sagebrush shape	Predominantly spreading shape <sup>5</sup>	Stiver et al. 2015
	Perennial grass cover (such as native bunchgrass) <sup>2</sup> Arid sites <sup>3</sup> Mesic sites <sup>4</sup>	>10% >15% Cool-season bunchgrasses preferred	Connelly et al. 2000; Stiver et al. 2015; Cagney et al. 2010
	Perennial grass and forb height (including residual grasses)	Adequate nesting cover would be as determined by ESD site potential or best available science in consideration of local variability.	Connelly et al. 2000; Connelly et al. 2003; Doherty et al. 2014; Hagen et al. 2007; Stiver et al. 2015
	Perennial forb cover <sup>2</sup> Arid sites <sup>3</sup> Mesic sites <sup>4</sup>	>5% >10%	Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun 2000.
<b>Brood-Rearing/Summer<sup>1</sup> (Seasonal Use Period June 16–October 31)</b>			
Cover	% of seasonal habitat meeting desired condition	>40% of the summer/brood habitat meets recommended brood habitat characteristics where appropriate (relative to ecological site potential, etc.)	Connelly et al. 2000
	Sagebrush cover <sup>2</sup>	5–25%	Connelly et al. 2000
	Sagebrush height	4–32 inches (20.3–80 centimeters)	Connelly et al. 2000
	Perennial grass cover and forbs <sup>2</sup>	>5% arid sites >10% mesic sites	Connelly et al. 2000

**Table A-2**  
**Seasonal Habitat Objectives for the Greater Sage-Grouse Wyoming Basin Ecoregion**

Attribute	Indicators	Desired Condition <sup>6</sup>	Reference
Cover (cont'd)	Riparian areas/mesic meadows <sup>2</sup>	Proper functioning condition	Preferred forbs are listed in Stiver et al. 2015
	Upland and riparian perennial forb availability	Preferred forbs are common with several preferred species present	Stiver et al. 2015
<b>Winter (Seasonal Use Period November 1–February 28)</b>			
Cover and Food	% of seasonal habitat meeting desired conditions	>80% of the wintering habitat meets winter habitat characteristics where appropriate (relative to ecological site, etc.).	Connelly et al. 2000
	Sagebrush cover above snow <sup>2</sup>	>5%	Connelly et al. 2000; Stiver et al. 2015
	Sagebrush height above snow	>10 inches (>25 centimeters)	Connelly et al. 2000

## Notes:

<sup>1</sup> Where credible data support different seasonal dates than those identified, dates may be shifted, but the amount of days cannot be shortened or lengthened by the local unit.

<sup>2</sup> Absolute cover is the actual recorded cover and can exceed 100% when recorded across all species and all layers. It is not relative cover, which is the proportions of each species, and equals 100%. Note that cover is reported for only those species (e.g., sagebrush and preferred forbs) that are sampled to determine suitability of habitat for Greater Sage-Grouse. Overall cover at the site will be greater than that sampled for Greater Sage-Grouse habitat, due to other species present.

<sup>3</sup> Arid corresponds to the 10-12-inch precipitation zone; *Artemisia tridentata wyomingensis* is a common big sagebrush subspecies for this type site (Stiver et al. 2015).

<sup>4</sup> Mesic corresponds to the ≥12-inch precipitation zone; *Artemisia tridentata vaseyana* is a common big sagebrush subspecies for this type site (Stiver et al. 2015).

<sup>5</sup> Collectively, the indicators for sagebrush (cover, height, and shape), perennial grass, and perennial forb (cover, height, and/or availability) represent the desired condition range for nesting/early brood-rearing habitat characteristics, consistent with the breeding habitat suitability matrix identified in Stiver et al. 2015. Sagebrush plants that are more tree or columnar shaped provide less protective cover near the ground than sagebrush plants with a spreading shape (Stiver et al. 2015). Some sagebrush plants are naturally columnar (e.g., Great Basin big sagebrush) and a natural part of the plant community; however, a predominance of columnar shape arising from animal impacts may warrant management investigation or adjustments at site-specific scales.

<sup>6</sup> All desired conditions will be dependent upon site capability and local variation (e.g., weather patterns, localized drought, and ESD state).

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# Appendix B

## Required Design Features





# Appendix B. Required Design Features

Proposed changes are indicated by either ~~strikeout~~ or **bold**.

## INTRODUCTION

The following conservation measures have typically been referred to as best management practices (BMP) or recommended management practices. These conservation measures are treated in the Resource Management Plan (RMP) as required design features (RDFs) to ensure regulatory certainty and the conservation of Greater Sage-Grouse. The source of these conservation measures came from Washington Office Instruction Memorandum No. 2012-044, (12/27/2011) Bureau of Land Management (BLM) National Greater Sage-Grouse Land Use Planning Strategy (IM No. WO-2012-044).

**RDFs are site-specific measures that can be applied, as necessary and when appropriate, to a site-specific project. Not all RDFs are recommended or advised for all projects. The list below should serve as a list of potential RDFs that may be applied to site-specific projects, based on the applicability and suitability of that particular project. It is not expected that all RDFs would be applied to all projects.**

~~RDFs are required for certain activities in GRSG habitat. RDFs establish the minimum specifications for certain activities to help mitigate adverse impacts.~~ However, the applicability and overall effectiveness of each RDF cannot be fully assessed until the project level when the project location and design are known. Because of site-specific circumstances, some RDFs may not apply to some projects (e.g., a resource is not present on a given site) and/or may require slight variations (e.g., a larger or smaller protective area). All variations in RDFs would require that at least one of the following be demonstrated in the National Environmental Policy Act of 1969 (NEPA) analysis associated with the project/activity:

- A specific RDF is documented to not be applicable to the site-specific conditions of the project/activity (e.g., due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable. **A checklist as part of the project record would suffice for determination of RDF applicability to a particular project.**
- An alternative RDF, a state-implemented conservation measure, or plan-level protection is determined to provide equal or better protection for Greater Sage-Grouse or its habitat. A specific RDF will provide no additional protection to Greater Sage-Grouse or its habitat.
- Through the coal planning process it will be determined if areas are suitable for further coal leasing consideration. Greater Sage-Grouse will be protected from leasing using the coal screening process (unsuitability criteria #15 or multiple use conflict analysis (screen 3)). The coal planning process (see 43 CFR 3420.1- 4 and 43 CFR 3461) will identify areas where coal leasing is not suitable or acceptable and those areas will be removed from further coal consideration for coal leasing and development (i.e., they will not be leased, so no development and no further protection needed).

Mines (particularly large surface coal mines) do not have the flexibility to move operations, so it is assumed that if a lease is ultimately offered, sold, and issued, the federal coal lessee can use the entire

coal lease for mining operations once they receive their federal permit. The following measures would be applied as RDFs for all solid minerals. The measures would also apply to locatable minerals subject to valid existing rights and consistent with applicable law.

**Required Design Features for Lands and Realty, Range Management, Fluid Minerals, Coal Exploration, Wild Horses, Travel Management, Vegetation Management, Wildfire and Fuels Management, Noise, and West Nile Virus**

Priority Habitats—RDFs/BMPs are continuously improving as new science and technology become available and therefore are subject to change. Include from the following RDFs/BMPs those that are appropriate to mitigate effects from the approved action.

Evaluate and take advantage of opportunities to remove or modify existing power lines within priority Greater Sage-Grouse habitat areas. When possible, require perch deterrents on existing or new overhead facilities. Encourage installation of perch deterrents on existing facilities.

Where existing leases or rights-of-way (ROW) have had some level of development (road, fence, well, etc.) and are no longer in use, reclaim the site by removing these features and restoring the habitat.

Locate man camps outside priority Greater Sage-Grouse habitats.

Work cooperatively with permittees, lessees, and other landowners to develop grazing management strategies that integrate both public and private lands into single management units.

Coordinate RDFs/BMPs and vegetative objectives with the Natural Resources Conservation Service (NRCS) for consistent application across jurisdictions where the BLM and NRCS have the greatest opportunities to benefit Greater Sage-Grouse, particularly as it applies to the NRCS's National Sage-Grouse Initiative (<http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/farmbill/initiatives/andcid=steldevb1027671>).

Evaluate the role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to priority Greater Sage-Grouse habitats to determine if they should be restored to sagebrush or habitat of higher quality for Greater Sage-Grouse. If these seedings are part of an Allotment Management Plan/Conservation Plan, or if they provide value in conserving or enhancing the rest of the priority habitats, then no restoration would be necessary. Assess the compatibility of these seedings for Greater Sage-Grouse habitat or as a component of a grazing system during land health assessments (Davies et al. 2011). For example, some introduced grass seedings are an integral part of a livestock management plan and reduce grazing pressure in important sagebrush habitats, or serve as a strategic fuels management area.

Where the federal government owns the surface, and the mineral estate is in nonfederal ownership, apply appropriate BMPs to surface development.

**ROADS**

Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose. Locate roads to avoid important areas and habitats.

Coordinate road construction and use among federal fluid mineral lessees and ROW or special use authorization (SUA) holders.

Construct road crossings of ephemeral, intermittent, and perennial streams to minimize impacts on the riparian habitat, such as by crossing at right angles to ephemeral drainages and stream crossings.

Establish slow speed limits on BLM-administered roads or design roads for slower vehicle speeds to reduce Greater Sage-Grouse mortality.

Establish trip restrictions (Lyon and Anderson 2003) or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition).

Do not issue ROWs or SUAs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions including this document.

Designate all newly constructed routes for authorized use only (using signage, gates, etc.). Apply dust abatement on roads, well pads, and other surface disturbances.

Close and rehabilitate duplicate roads by restoring original landform and establishing desirable habitat conditions.

## **OPERATIONS**

Conduct reclamation on unused roads as soon as possible using appropriate Greater Sage-Grouse seed mixes. Reclaim the permitted ROWs used in the construction of the running surface immediately.

Site and/or minimize linear ROWs or SUAs to reduce disturbance and fragmentation of sagebrush habitats.

Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.

Bury distribution power lines to the extent technically feasible.

Cover all fluid-containing pits and open tanks with netting (maximum 1.5-inch mesh size) regardless of size to reduce Greater Sage-Grouse mortality.

Equip tanks and other aboveground facilities with structures or devices that discourage nesting and perching of raptors and corvids.

Control the spread and effects of invasive nonnative plant species (Evangelista et al. 2011), including treating weeds prior to surface disturbance and washing vehicles and equipment at designated wash stations when constructing in areas with weed infestations.

Require Greater Sage-Grouse-safe fences (Christiansen 2009; Stevens 2011). Clean up refuse (Bui et al. 2010).

Eliminate sumps; if the sump is absolutely necessary, then construct Greater Sage-Grouse-safe fences around the sump (Christiansen 2009; Stevens 2011).

Cluster disturbances, operations (hydraulic fracture stimulation, liquids gathering, etc.), and facilities. If the geology is exploratory and there is the potential that subsequent wells may not be drilled, do not disturb additional habitat until geology has proven additional wells can go on the pad and it is necessary to do so.

Use directional and horizontal drilling to the extent feasible as a means to reduce surface disturbance in relation to the number of wells.

Place infrastructure in already disturbed locations where the habitat has not been fully restored. Apply a phased development approach with concurrent reclamation.

Place liquid gathering facilities outside priority areas. To reduce truck traffic and perching and nesting sites for ravens and raptors, do not place tanks at well locations within priority habitat areas.

Pipelines must be under or immediately adjacent to the road (Bui et al. 2010).

Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use (Lyon and Anderson 2003).

Restrict the construction of tall facilities, distribution power lines, and fences to the minimum number and amount needed.

Design or site permanent structures to minimize impacts on Greater Sage-Grouse, with emphasis on locating and operating facilities that create movement (e.g., pump jacks) or attract frequent human use and vehicular traffic (e.g., fluid storage tanks) in a manner that will minimize disturbance of Greater Sage-Grouse or interference with habitat use.

Use only closed-loop systems for drilling operations, with no reserve pits.

Consider using oak (or other material) mats for drilling activities where topography permits to reduce vegetation disturbance and for temporary roads between closely spaced wells to reduce soil compaction and maintain soil structure to increase likelihood of vegetation reestablishment following drilling.

## **WEST NILE VIRUS**

Artificial water impoundments will be managed for the prevention and/or spread of West Nile virus where the virus poses a threat to Greater Sage-Grouse. This may include but is not limited to: (a) the use of larvicides and adulticides to treat waterbodies; (b) overbuilding ponds to create non-vegetated, muddy shorelines; (c) building steep shorelines to reduce shallow water and emergent aquatic vegetation; (d) maintaining the water level below rooted vegetation; (e) avoiding flooding terrestrial vegetation in flat terrain or low-lying areas; (f) constructing dams or impoundments that restrict seepage or overflow; (g) lining the channel where discharge water flows into the pond with crushed rock, or use a horizontal pipe to discharge inflow directly into existing open water; (h) lining the overflow spillway with crushed rock and construct the spillway with steep sides to preclude the accumulation of shallow water and vegetation; and (i) restricting access of ponds to livestock and wildlife (Doherty 2007). This does not apply to naturally occurring waters.

Field offices should consider alternative means to manage produced waters that could present additional vectors for West Nile virus. Such remedies may include re-injection under an approved Underground Injection Control permit, transfer to single/centralized facility, etc.

Water impoundments will be managed to prevent the spread of West Nile virus where analysis shows the virus poses a threat to Greater Sage-Grouse and in consideration of potential negative impact on other species of concern.

Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007).

## **NOISE**

Within PHMA (core only), new project noise levels, either individual or cumulative, should not exceed 10 dBA (as measured by L50) above baseline noise at the perimeter of the lek from 6:00 pm to 8:00 am during the breeding season (March 1–May 15).

Require noise shields when drilling during the lek / breeding season.

Locate new compressor stations outside priority habitats and design them to reduce noise that may be directed toward priority habitat.

## **RECLAMATION**

Include objectives for ensuring habitat restoration to meet Greater Sage-Grouse habitat needs in reclamation practices/sites (Pyke 2011). Address post-reclamation management in reclamation plan such that goals and objectives are to protect and improve Greater Sage-Grouse habitat needs.

Maximize the area of interim reclamation on long-term access roads and well pads, including reshaping, topsoiling, and revegetating cut-and-fill slopes where practicable; material used for irrigation must be removed thereafter.

Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community.

Implement irrigation during interim or final reclamation for sites where establishment of seedlings has been shown or is expected to be difficult due to dry conditions.

Use mulching, soil amendments, and/or erosion blankets to expedite reclamation and to protect soils.

Identify and work with partners to increase native seed availability and work with plant material centers to develop new plant materials, especially the forbs needed to restore Greater Sage-Grouse habitat.

Consider potential changes in climate (Miller et al. 2011) when proposing seedlings using native plants. Consider seed collections from the warmer component within a species' current range for selection of native seed (Kramer and Havens 2009).

Use Ecological Site Descriptions (ESD) or other protocols (e.g., Terrestrial Ecological Unit Inventory or Lands System Inventory) to identify the understory species and sagebrush subspecies needed to restore desirable habitat conditions.

### **VEGETATION TREATMENTS/FIRE AND FUELS MANAGEMENT**

During vegetation management project design, consider the utility of using livestock to strategically reduce fine fuels (Diamond et al. 2009), and implement grazing management that will accomplish this objective (Davies et al. 2011; Launchbaugh et al. 2007). Consult with ecologists to minimize impacts on native perennial grasses.

Provide planning vegetation treatments information to personnel on Greater Sage-Grouse biology, habitat requirements, and identification of areas utilized locally.

Use vegetation treatment prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable plant species and reduce risk of hydrophobicity).

Ensure that treatments are configured in a manner (e.g., strips) that promotes use by Greater Sage-Grouse (see Connelly et al. 2000).

Design vegetation treatments in areas of high fire frequency which facilitate firefighter safety, reduce the potential acres burned, and the fire risk to Greater Sage-Grouse habitat. Additionally, develop maps for Greater Sage-Grouse habitat which spatially display existing fuels treatments that can be used to assist suppression activities.

Restore prior perennial grass/shrub plant communities infested with invasive species to a species composition characterized by perennial grasses, forbs, and shrubs as outlined in ESDs.

Emphasize the use of native plant species, recognizing that nonnative species may be necessary depending on the availability of native seed and prevailing site conditions.

Reduce the risk of vehicle- or human-caused wildfires and the spread of invasive species into Greater Sage-Grouse habitats. This could be minimized by planting perennial vegetation (e.g., green-strips) paralleling road ROWs. (This RDF could be applied to BLM linear ROW authorizations.)

Strategically place and maintain pre-treated strips/areas (e.g., mowing, herbicide application, and strictly managed grazed strips) to aid in controlling wildfire, should wildfire occur near key habitats or important restoration areas (such as where investments in restoration have already been made).

As appropriate, utilize existing fuel breaks, such as roads or discrete changes in fuel type, as control lines to minimize fire spread.

Design vegetation treatments in Greater Sage-Grouse habitats to strategically reduce wildfire threats in the greatest area. This may involve spatially arranging new vegetation treatments with past treatments, vegetation with fire-resistant serial stages, natural barriers, and roads in order to constrain fire spread and growth. This may require vegetation treatments to be implemented in a more linear versus block design (Launchbaugh et al. 2007).

Design post-Emergency Stabilization and Rehabilitation (ES&R) and Burn Area Emergency Rehabilitation (BAER) management to ensure long-term persistence of seeded or pre-burn native plants. This may require temporary or long-term changes in livestock grazing, wild horses, travel management, etc., to achieve and maintain the desired condition of ES&R and BAER projects to benefit Greater Sage-Grouse (Eiswerth and Shonkwiler 2006). Include Greater Sage-Grouse habitat parameters as defined by Connelly et al. (2000), Hagen et al. (2007) or if available, state Greater Sage-Grouse conservation plans and appropriate local information in habitat restoration objectives. Maintain these objectives, within priority Greater Sage-Grouse habitat areas, as a high restoration priority.

Make reestablishment of sagebrush and desirable understory plant cover (relative to ecological site potential) a high priority for restoration efforts. Write specific vegetation objectives to reestablish sagebrush cover and desirable understory cover.

Where applicable, design fuels treatment objective to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patterns which most benefit Greater Sage-Grouse habitat.

Provide training to fuels treatment personnel on Greater Sage-Grouse biology, habitat requirements, and identification of areas utilized locally.

Use burning prescriptions which minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of annual grass invasion).

Ensure proposed sagebrush treatments are planned with full interdisciplinary input from the BLM (pursuant to NEPA) and coordination with state fish and wildlife agencies, and that treatment acreage is conservative in the context of surrounding Greater Sage-Grouse seasonal habitats and landscape.

Power-wash all vehicles and equipment involved in vegetation treatment and fuels management activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species.

Give priority for implementing specific Greater Sage-Grouse habitat restoration projects in annual grasslands, first to sites which are adjacent to or surrounded by priority/core habitat or that reestablish continuity between priority habitats. Annual grasslands are a second priority for restoration when the sites are not adjacent to priority/core habitat but within 2 miles of priority/core habitat. The third priority for annual grassland habitat restoration projects is sites beyond 2 miles of priority/core habitat. The intent is to focus restoration outward from existing, intact habitat.

As funding and logistics permit, restore annual grasslands to a species composition characterized by perennial grasses, forbs, and shrubs or one of those referenced in land use planning documentation.

Emphasize the use of native plant species, recognizing that nonnative species may be necessary depending on the availability of native seed and prevailing site conditions.

Remove standing and encroaching trees within at least 110 yards of occupied Greater Sage-Grouse leks and other habitats (e.g., nesting, wintering, and brood rearing) to reduce the availability of perch sites for avian predators, as resources permit.

Design fuel treatments that would increase fire suppression efficiencies to protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas. Where applicable, incorporate roads and natural fuel breaks into fuel break design.

Develop state-specific Greater Sage-Grouse reference information and resource materials containing maps, a list of resource advisors, contact information, local guidance, and other information relevant to agency administrators and fire suppression resources.

During periods of multiple fires, ensure line officers are involved in setting priorities.

Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.

Assign a resource advisor with Greater Sage-Grouse expertise or who has access to Greater Sage-Grouse expertise to all extended attack fires in or near Greater Sage-Grouse habitat. Prior to the fire season, provide training to Greater Sage-Grouse resource advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals. Involve state wildlife agency expertise in fire operations through the following:

- Instructing resource advisors during preseason trainings
- Qualification as resource advisors
- Coordination with resource advisors during fire incidents
- Contributing to incident planning with information such as habitat features or other key data useful in fire decision-making

On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in Greater Sage-Grouse habitat areas.

Locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas and heli-bases) in areas where physical disturbance to Greater Sage-Grouse habitat can be minimized. These include disturbed areas, grasslands, near roads/trails, or other areas where there is existing disturbance or minimal sagebrush cover.

Minimize unnecessary cross-country vehicle travel during fire operations in Greater Sage-Grouse habitat.

Minimize burnout operations in key Greater Sage-Grouse habitat areas by constructing a direct fire line whenever safe and practical to do so.

Utilize retardant, mechanized equipment, and other available resources to minimize burned acreage during initial attack.

As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.

Adequately document the fire operation activities in Greater Sage-Grouse habitat for potential follow-up coordination activities.



Compile the District-level information into state-wide Greater Sage-Grouse tool boxes. Tool boxes will contain maps, listing of resource advisors, contact information, local guidance, and other relevant information for each District, which will be aggregated into a state-wide document.

## **GENERAL GREATER SAGE-GROUSE HABITAT**

### **Best Management Practices**

Make applicable BMPs mandatory as Conditions of Approval within general Greater Sage-Grouse habitat. BMPs are continuously improving as new science and technology become available and therefore are subject to change. At a minimum include the following BMPs:

### **ROADS**

- Design roads to an appropriate standard, no higher than necessary, to accommodate their intended purpose.
- Do not issue ROWs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Establish speed limits to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Coordinate road construction and use among ROW holders.
- Construct road crossing at right angles to ephemeral drainages and stream crossings.
- Use dust abatement practices on roads and pads.
- Close and reclaim duplicate roads by restoring original landform and establishing desired vegetation.

### **OPERATIONS**

- Cluster disturbances, operations (fracture stimulation, liquids gathering, etc.), and facilities.
- Use directional and horizontal drilling to reduce surface disturbance.
- Clean up refuse (Bui et al. 2010).
- Restrict the construction of tall facilities and fences to the minimum number needed.
- Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce Greater Sage-Grouse mortality.
- Equip tanks and other aboveground facilities with structures or devices that discourage nesting of raptors and corvids.
- Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use.
- Control the spread and effects from nonnative plant species. (e.g., by washing vehicles and equipment).
- Restrict pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus (Dougherty 2007).

### **RECLAMATION**

Include restoration objectives to meet Greater Sage-Grouse habitat needs in reclamation practices/sites (Pyke 2011). Address post-reclamation management in reclamation plan such that goals and objectives are to enhance or restore Greater Sage-Grouse habitat.

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# Appendix C

The Greater Sage-Grouse  
Habitat Management Strategy



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## TABLE OF CONTENTS

Chapter	Page
---------	------

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<b>APPENDIX C. THE GREATER SAGE-GROUSE HABITAT MANAGEMENT STRATEGY.....</b>	<b>C-I</b>
Introduction .....	C-1
COT Objective 1: Stop Population Declines and Habitat Loss.....	C-2
COT Objective 2: Implement Targeted Habitat Management and Restoration .....	C-11
COT Objective 3: Develop and Implement State and Federal Conservation Strategies and Associated Incentive-based Conservation Actions and Regulatory Mechanisms .....	C-12
COT Objective 4: Proactive Conservation Actions .....	C-13
COT Objective 5: Development of Monitoring Plans .....	C-14
Literature Cited .....	C-43
COT Objective 6: Prioritize, fund and implement research to address existing uncertainties.....	C-50

---

## TABLES

---

Page

1	Indicators for Monitoring Implementation of the Strategy, Decisions, Sage-grouse Habitat, and Sage-grouse Populations at the Broad and Mid-scales.....	C-17
2	Relationship between the 18 Threats and the Three Habitat Disturbance Measures for Monitoring.....	C-19
3	Datasets for Establishing and Monitoring Changes in Sagebrush Availability .....	C-22
4	Ecological Systems in BpS and EVT Capable of Supporting Sagebrush Vegetation and Could Provide Suitable Seasonal Habitat for Greater Sage-Grouse.....	C-23
5	Ecological Systems with Conifers Most Likely to Encroach into Sagebrush Vegetation .....	C-27
6	Geospatial Data Sources for Habitat Degradation (Measure 2) .....	C-34

---

## FIGURES

---

Page

I	Map of Greater Sage-Grouse Range, Populations, Subpopulations and Priority Areas for Conservation as of 2013 .....	C-16
---	--	------

---

## ATTACHMENTS

---

A	An Overview of Monitoring Commitments
B	List of All Sagebrush Species and Subspecies Included in the Selection Criteria for Building the EVT and BPS Layers
C	User and Producer Accuracies for Aggregated Ecological Systems within LANDFIRE Map Zones

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# **Appendix C. The Greater Sage-Grouse Habitat Management Strategy**

## **INTRODUCTION**

The Wyoming Greater Sage-Grouse Approved Resource Management Plan Amendments (ARMPA) provides specific goals, objectives, management actions, and required design features for the conservation of Greater Sage-Grouse in Wyoming. These are the commitments made to meet the federal agencies' national policy and direction for the conservation of Greater Sage-Grouse in light of the 2010 US Fish and Wildlife Service listing decision as warranted but precluded from listing under the Endangered Species Act. The Bureau of Land Management (BLM), in coordination with the State of Wyoming has identified conservation measures, consistent with the Wyoming Executive Order 2015-4, to be included in the Wyoming land use plans as the principal regulatory mechanisms to assure adequate conservation of the Greater Sage-Grouse and its habitat throughout the state.

The measures identified in the ARMPA have been developed in coordination with not just the USFWS, but also the State of Wyoming, including the Wyoming Game and Fish Department (WGFD), and local cooperating agencies including conservation districts and counties.

Wyoming has established core population areas to help delineate landscape planning units by distinguishing areas of high biological value. These areas are based on the locations of breeding areas and are intended to help balance Greater Sage-Grouse habitat requirements with demand for energy development (Doherty et al. 2011). The ARMPA is consistent with the Core Area Strategy which results in protections to Greater Sage-Grouse habitat and achieving conservation objectives identified in the Conservation Objectives Team (COT) report on BLM-managed public lands. The COT report indicates that the Core Area Strategy is a substantial regulatory mechanism that contributes to the conservation of Greater Sage-Grouse and balances the priorities of retaining a healthy Greater Sage-Grouse population on the landscape and energy development.

This appendix will introduce the framework for implementation of Greater Sage-Grouse conservation measures within BLM Field Offices. Implementation is a combination of permitting activities under the auspices of management direction provided in the ARMPA, undertaking specific activities in pursuit of the goals and objectives identified in the plan and monitoring of sagebrush habitat and populations.

The implementation framework outlined here replaces Appendix D in the 2015 Approved RMP Amendments and 2015 Bighorn Basin and Buffalo Field Office Revisions and Appendix H in the 2014 Lander Field Office RMP Revision. This Appendix C is intended to conform to the objectives of the Proposed RMP Amendment Alternative, is focused specifically towards Greater Sage-Grouse and is reflective of how the national strategy will be assimilated into the existing statewide implementation efforts currently in place in Wyoming. This framework has been developed mindful of the varying scales at which implementation will be evaluated at the local level to define successful conservation measures, at the state level to assess success of the statewide strategy, and across the species' range.

In 2013, the Director of the USFWS tasked staff with the development of range-wide conservation objectives for the sage-grouse to define the degree to which threats need to be reduced or ameliorated to conserve sage-grouse so that it is no longer in danger of extinction or likely to become in danger of extinction in the foreseeable future. Recognizing that state wildlife agencies have management expertise and management authority for sage-grouse, the USFWS created a COT of state and USFWS representatives to accomplish this task.

The COT conservation framework consisted of (1) identifying sage-grouse population and habitat status and threats, (2) defining a broad conservation goal, (3) identifying priority areas for conservation, and (4) developing specific conservation objectives and measures. The COT used three parameters—population and habitat representation, redundancy, and resilience (Shaffer and Stein 2010, Redford *et al.* 2011)—as guiding concepts in developing the conservation goal, priority areas for conservation, conservation objectives, and measures.

The COT report identified priority areas for Greater Sage-Grouse population habitats as Priority Areas for Conservation (PACs). PACs are recognized as key areas across the landscape that are necessary to maintain redundant, representative, and resilient populations of the species. The COT Report describes maintaining the integrity of PACs as “the essential foundation for sage-grouse conservation.” PACs cover nearly 73 million acres across the West; within Wyoming, more than 15 million acres are considered priority habitat. Fifty-two percent of the priority habitat is BLM administered surface and 71 percent is BLM-administered minerals.

Due to the variability in ecological conditions and the nature of the threats across the range of the sage-grouse, developing detailed, prescriptive species or habitat actions was not attainable at the range-wide scale. Specific strategies and actions necessary to achieve the conservation objectives have been developed by the BLM in cooperation with state and local governments to ensure implementation of activities to meet the objectives identified in the COT report.

### **COT OBJECTIVE I: STOP POPULATION DECLINES AND HABITAT LOSS**

*“There is an urgent need to ‘stop the bleeding’ of continued population declines and habitat losses by acting immediately to eliminate or reduce the impacts contributing to population declines and range erosion. There are no populations within the range of sage-grouse that are immune to the threat of habitat loss and fragmentation (COT report 2013).”*

The COT report identified a series of threats to Greater Sage-Grouse habitat and the extent of those threats at the population scale. The management actions identified in the ARMPA were specifically designed to reduce the threats, as they were identified. The Wyoming RMPs encompass lands within WAFWA Management Zones 1 and 2. To ensure that the threats are adequately addressed by the ARMPA, a strategy for reviewing activities and projects on public lands to determine the extent of their impact on Greater Sage-Grouse habitat has also been developed. The BLM will ensure that any activities or projects in Greater Sage-Grouse habitats would only occur in compliance with the Wyoming BLM’s Greater Sage-Grouse goals and objectives for priority management areas.

To ensure that impacts from activities proposed in sage-grouse Core Areas are appropriately approved and mitigated as necessary, the BLM will apply avoidance and minimization measures and conservation actions. . The avoidance and minimization measures and conservation actions (Appendix B) for proposed projects or activities in these areas will be identified as part of the National Environmental Policy Act



(NEPA) environmental review process, through interdisciplinary analysis involving resource specialists, project proponents, government entities, landowners or other surface management agencies.

The BLM has determined that compensatory mitigation is not compulsory unless required by other applicable law and in recognition that State authorities may also require compensatory mitigation (IM 2019-018, *Compensatory Mitigation*, December 6, 2018). Therefore, consistent with valid existing rights and applicable law, when authorizing third-party actions that result in habitat loss and degradation, the BLM will consider compensatory mitigation actions only as a component of compliance with a State mitigation plan, program, or authority, or when offered voluntarily by a project proponent.

Those measures selected for implementation will be identified in the record of decision (ROD) or decision record (DR) for those authorizations and will inform a potential lessee, permittee, or operator of the requirements that must be met when using BLM-administered public lands and minerals to mitigate impacts from the activity or project such that sage-grouse goals and objectives are met.

To achieve the goals and objectives for core areas in the ARMPA, the BLM will assess all proposed land uses or activities such as road, pipeline, communication tower, or power line construction, fluid and solid mineral development, range improvements, and recreational activities proposed for location in core areas in a step- wise manner. The following steps identify a screening process for review of proposed activities or projects in these areas. This process will provide a consistent approach and ensure that authorization of these projects, if granted, will appropriately mitigate impacts and be consistent with ARMPA goals and objectives for sage- grouse. The following steps provide for a sequential screening of proposals.

### ***Step 1 – Determine Proposal Adequacy***

This screening process is initiated upon formal submittal of a proposal for authorization for use of BLM lands. The actual documentation of the proposal would include at a minimum a description of the location, scale of the project and timing of the disturbance. The acceptance of the proposal(s) for review would be consistent with existing protocol and procedures for each type of use. Evaluating consistency with (at a minimum) state sage-grouse regulations.

### ***Step 2 – Evaluate Proposal Consistency with ARMPA***

Step 2.1 –The proposal will be reviewed to determine whether it would be allowed as prescribed in the ARMPA. For example, some activities or types of development are prohibited in sage-grouse habitat, such as wind developments in priority habitat. Evaluation of projects will also include an assessment of the current state of the adaptive management hard and soft triggers. If the proposal is for an activity that is specifically prohibited, the applicant should be informed that the application is being rejected since it would not be allowed, regardless of the design of the project.

Step 2.2 –The proposal will be reviewed to determine whether it conforms with the Density and Disturbance Limitations. If the proposed activity occurs within a priority habitat management area (PHMA), evaluate whether the disturbance from the activity exceeds the limit on the amount of disturbance allowed within the activity or project area (Density/Disturbance Calculation Tool [DDCT] process). The maximum density of disruptive activities and surface disturbance allowed will be analyzed via the DDCT, and may be conducted by the Federal Land Management Agency on federal land or the project proponent on non-federal (private, state) land and must be reviewed by the Wyoming Game and

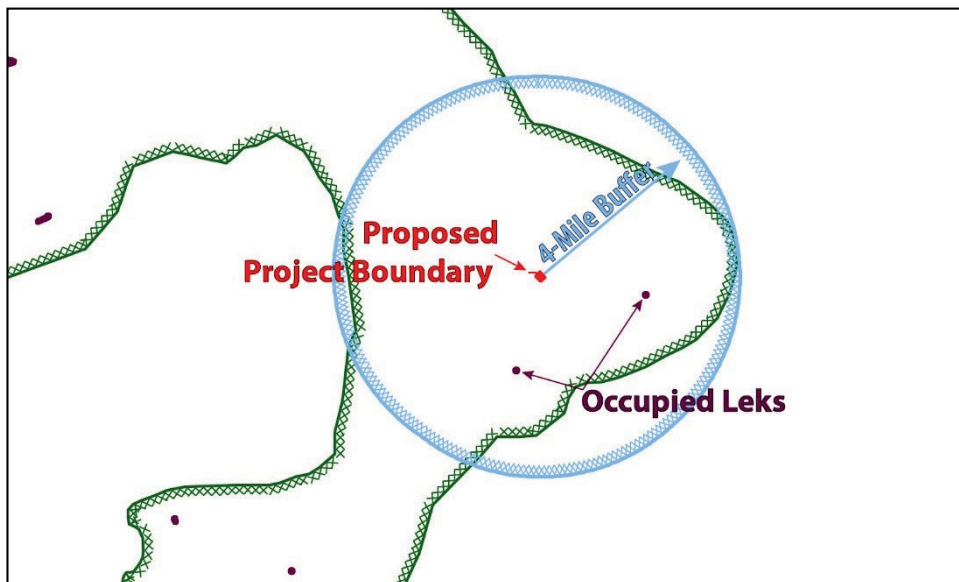
Fish Department for compliance with Wyoming EO 2015-4 and accepted by the BLM as consistent with this RMP Amendment.

### **Maximum Density and Disturbance Process**

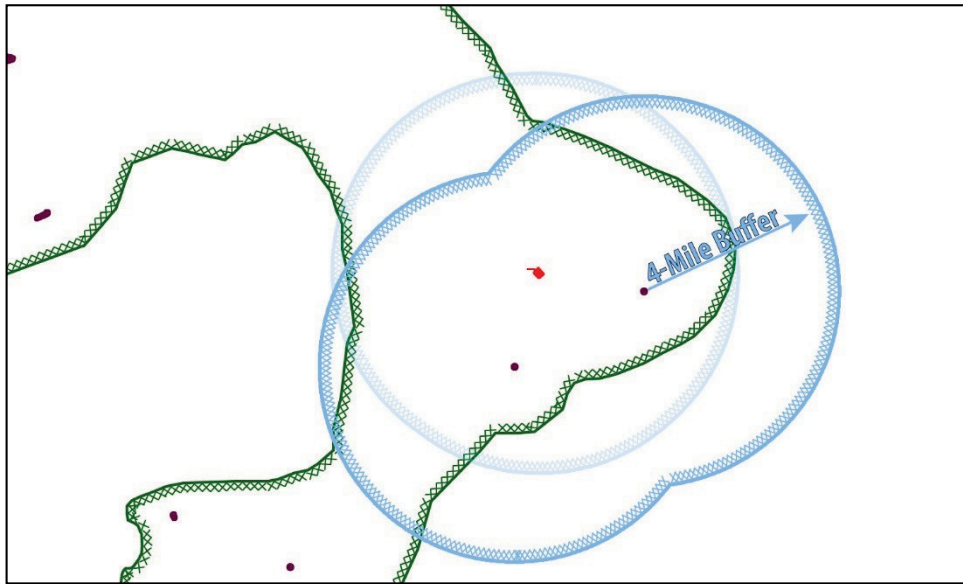
**Density and Disturbance Calculation:** The Density and Disturbance Calculation Tool, or DDCT (shown within this appendix as an example of the process but may be modified based on best available science and technology), is a spatially-based tool that calculates both the average density of disruptive activities and total surface disturbance within the area affected by the project, or DDCT assessment area. The DDCT assessment area is created based on buffers around proposed projects (first buffer) in protected sage-grouse core areas, and subsequent buffers around any occupied, core area leks within the first buffer. A four mile buffer is used to identify 75% of the sage-grouse use around a lek. All activities will be evaluated within the context of maximum allowable disturbance (disturbance percentages, location and number of disturbances) of suitable sage-grouse habitat within the DDCT assessment area. This tool allows for better siting of projects rather than averaging the density/disturbance calculation per section.

All lands within core area boundaries are considered suitable habitat unless documented. Mapped unsuitable habitat is treated neither as suitable habitat, nor disturbance, which results in the area being removed from the DDCT assessment area altogether.

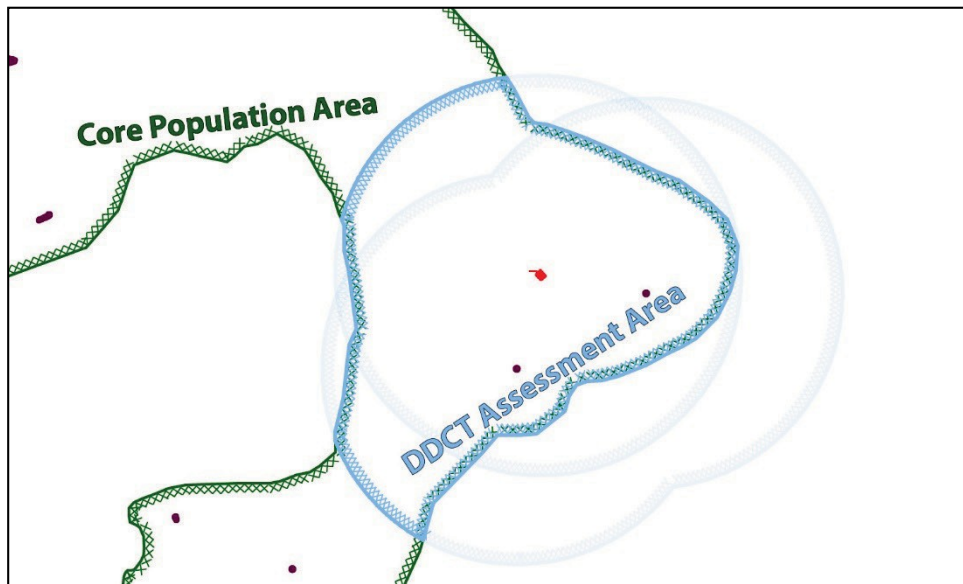
- I. Density/Disturbance Calculation Tool (DDCT): Determine all occupied leks within a core population area that may be affected by the project by placing a 4 mile boundary around the project boundary (as defined by the proposed area of disturbance related to the project). All occupied leks located within the 4 mile boundary and within a core population area will be considered in this assessment.



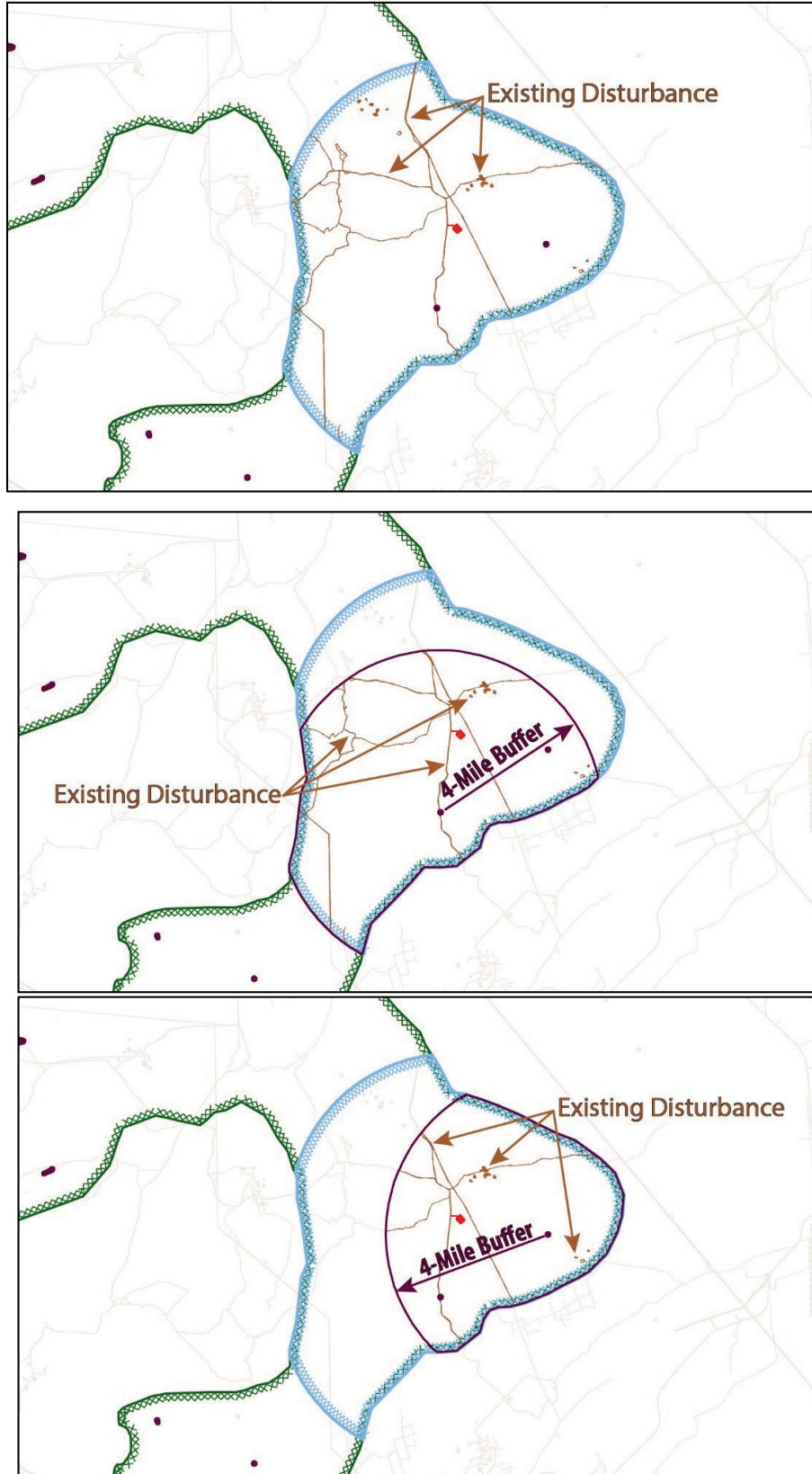
A four-mile boundary will then be placed around the perimeter of each of these lek(s).



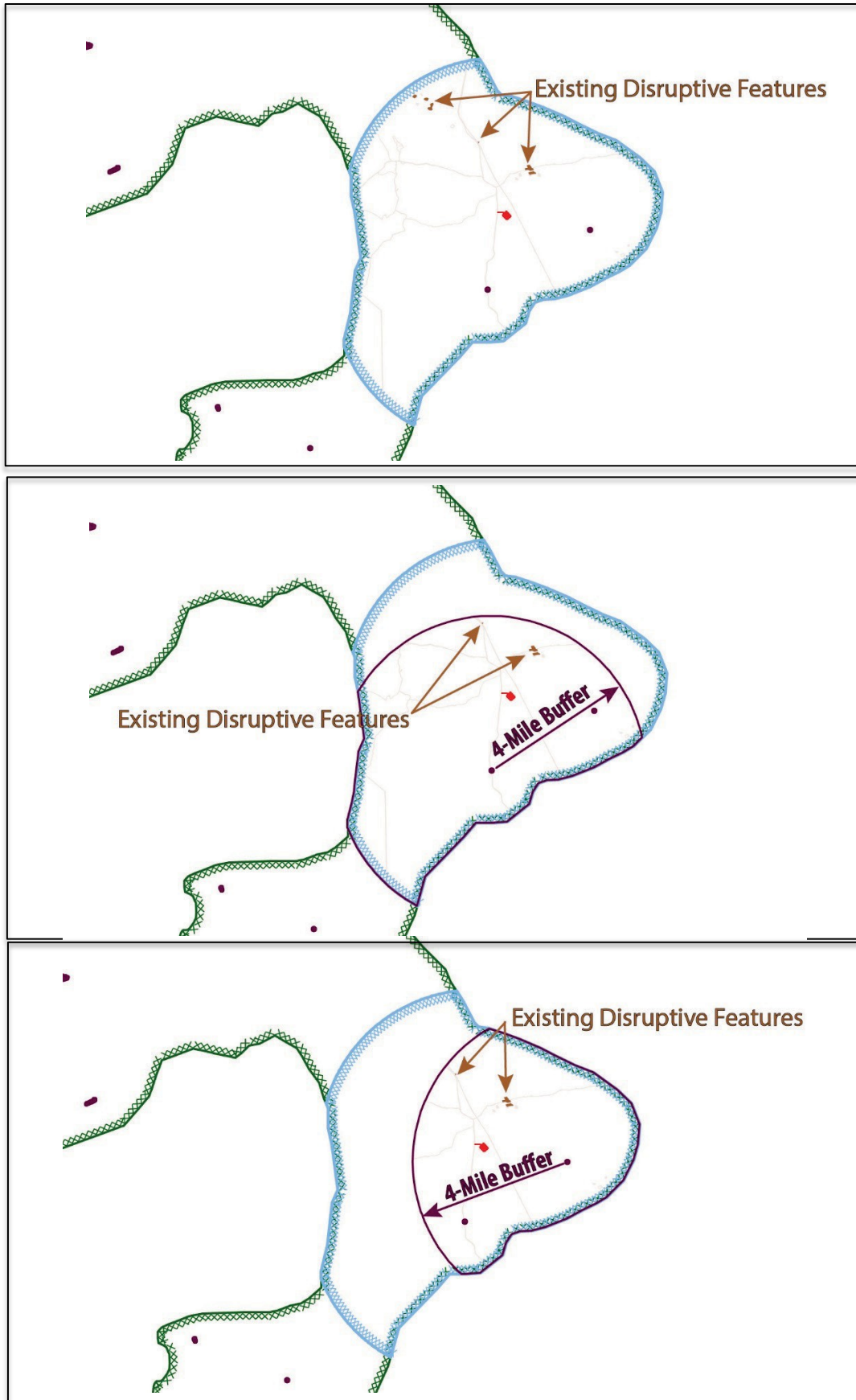
The core population area within the combined 4 mile buffer around both the leks and the project boundary creates the DDCT assessment area for each individual project.



Disturbance will be analyzed for the DDCT assessment area as a whole and for each individual lek within the DDCT assessment area.



Density of disruptive features will be analyzed for the DDCT assessment area as a whole and for each individual lek within the DDCT assessment area.



If there are no leks identified for this assessment within the 4 mile boundary around the project boundary, the DDCT assessment area will be that portion of the 4 mile project boundary within the core population area.

2. Density and Disturbance analysis: The total number of discrete disruptive activity features, as well as the total disturbance acres within the DDCT assessment area will be determined through an evaluation of:
  - a. Existing disturbance (sage-grouse habitat that is disturbed due to existing anthropogenic activity and wildfire).
  - b. Approved permits (that have approval for on the ground activity) not yet implemented.
  - c. Validating digitized disturbance through on the ground evaluation.

The complete analysis package (DDCT results, mapbook, and Worksheet), and recommendations developed by consultation and review outlined herein will be forwarded to the appropriate permitting agency(s). WGFD recommendations will be included, as will other recommendations from project proponents and other appropriate agencies. Project proponent shall have access to all information used in developing recommendations. Where possible and when requested by the project proponent, state agencies shall provide the project proponent with potential development alternatives other than those contained in the project proposal.

If the permit for which a proponent has applied expires, another DDCT analysis is required before issuing a new permit. An additional DDCT is not required for permit extensions or renewals when no changes are being authorized. Any project will need to comply with the current Executive Order.

Step 2.3 – The BLM’s goal for any new activity or development proposal within core areas is to provide consistent implementation of project proposals which meet the BLM’s ARMPA goals and the population management objectives of the state. Activities would be consistent with the strategy where it can be sufficiently demonstrated that no undue harm to core populations would be expected as a result of the proposed action and would not impact the statewide viability of the species. Published research suggests that impacts to sage-grouse leks associated primarily with infrastructure and energy development are discernible at a distance of at least 4 miles and that many leks within this radius have been extirpated as a direct result of development (Walker et al. 2007, Walker 2008). Research also suggests that an evaluation of habitats and sage-grouse populations that attend leks within an 11-mile radius from the project boundary in the context of “large” projects may be appropriate in order to consider all seasonal habitats that may be affected for birds that use the habitats associated with the proposal during some portion of the life-cycle of seasonally migratory sage-grouse (Connelly et al. 2000).

To determine the manner in which Greater Sage-Grouse may be impacted by proposed undertakings, the following will be reviewed in the site specific NEPA analysis to quantify the effects:

- Greater Sage-Grouse habitat delineation maps.
- Current science recommendations.
- The ‘Base Line Environment Report’ (USGS) which identifies areas of direct and indirect effect for various anthropogenic activities.
- Consultation with agency or state wildlife agency biologist.

- Other methods needed to provide an accurate assessment of impacts.

If the proposal will not have a direct or indirect impact on either the habitat or population, document the findings in the NEPA and proceed with the appropriate process for review, decision and implementation of the project.

### ***Step 3—Apply Avoidance and Minimization Measures to Comply with Sage-Grouse Goals and Objectives***

The BLM will work jointly with the WGFD to evaluate projects and recommend avoidance and minimization measures. If the project can be relocated so as to not have an impact on sage-grouse and still achieve objectives of the proposal and the disturbance limitations, relocate the proposed activity and proceed with the appropriate process for review, decision and implementation (NEPA and Decision Record). This Step does not consider redesign of the project to reduce or eliminate direct and indirect impacts, but rather authorization of the project in a physical location that will not impact Greater Sage-Grouse.

If the preliminary review of the proposal concludes that there may be adverse impacts to sage-grouse habitat or populations in Step 2 and the project cannot be effectively relocated to avoid these impacts, proceed with the appropriate process for review, decision and implementation (NEPA and Decision Record) with the inclusion of appropriate avoidance and minimization requirements to further reduce or eliminate impacts to sage-grouse habitat and populations and achieve compliance with sage-grouse objectives. Avoidance and minimization measures could include design modifications of the proposal, site disturbance restoration, post project reclamation, etc. (see Appendix B). The BLM will continue to require avoidance, minimization, and other onsite measures to adequately conserve Greater Sage-Grouse and its habitat, while remaining committed to implementing beneficial habitat management actions to reduce the threats of fire and invasive species.

### ***Step 4 – Apply State-required Compensatory Mitigation or Reject / Defer Proposal***

If screening of the proposal has determined that direct and indirect impacts cannot be eliminated through avoidance or minimization, the BLM will cooperate with the State to determine appropriate project design and alignment with State policies and requirements, including those regarding compensatory mitigation. The WGFD will determine if the State requires or recommends any additional mitigation – including compensatory mitigation – under State regulations, policies, or programs related to the conservation of Greater Sage-Grouse.

The BLM will consider compensatory mitigation only as a component of compliance with a state mitigation plan, program, or authority, or when offered voluntarily by a project proponent. When the BLM is considering compensatory mitigation as a component of the project proponent's submission or based on a mitigation requirement from the State, the BLM's NEPA analysis will evaluate the need to avoid or minimize impacts of the proposed project and achieve the goals and objectives of this RMPA. The BLM will defer to the appropriate State authority to quantify habitat offsets, durability, and other aspects used to determine the State-recommended compensatory mitigation action.

The BLM will incorporate state required or recommended mitigation into the BLM's NEPA decision-making process, if the WGFD determines that compensatory mitigation is required to address impacts to GRSG habitat as a part of State policy or authorization, or if a proponent voluntarily offers mitigation.



Project-specific analysis will be necessary to determine how a compensatory mitigation proposal addresses impacts from a proposed action. The BLM will analyze whether the compensatory mitigation:

- achieves measurable outcomes for Greater Sage-Grouse habitat function on a landscape scale as determined by WGFD that are at least equal to the lost or degraded values in accordance with the Governor of Wyoming's Executive Order 2015-4.
- provides benefits that are in place for at least the duration of the impacts.
- accounts for a level of risk that the mitigation action may fail or not persist for the full duration of the impact.

The BLM will ensure mitigation outcomes are consistent with the State of Wyoming's mitigation strategy and principles outlined in this appendix.

### **Mitigation**

#### *General*

In all Greater Sage-Grouse habitat, when authorizing third-party actions, the BLM will seek to achieve the planning-level Greater Sage-Grouse management goals and objectives through implementation of mitigation and management actions, consistent with valid existing rights and applicable law. Under this Proposed Plan Amendment, management would be consistent with the Greater Sage-Grouse goals and objectives, and in conformance with BLM Manual 6840, Special Status Species Management. In accordance with BLM Manual 6840, the BLM will undertake planning decisions, actions and authorizations "to minimize or eliminate threats affecting the status of [Greater Sage-Grouse] or to improve the condition of [Greater Sage-Grouse] habitat" across the planning area.

In Wyoming, the USFWS has found that "the core area strategy, if implemented by all landowners via regulatory mechanism, would provide adequate protection for sage-grouse and their habitats in the state." The BLM will implement actions consistent with the Wyoming Strategy (EO 2015-4). The BLM will continue to apply the mitigation hierarchy as described in the CEQ regulations at 40 CFR 1508.20; however, the BLM would focus on avoiding, minimizing, rectifying, and reducing impacts over time. Compensation, which involves replacing or providing substitute resources for the impacts, would be considered only when voluntarily offered by a proponent or when imposed by the State. The BLM commits to cooperating with the State to analyze applicant-proposed or state-imposed compensatory mitigation to offset residual impacts.

The BLM remains committed to achieving the planning-level management goals and objectives identified in this RMPA and the 2015 ARMPA by ensuring Greater Sage-Grouse habitat impacts are addressed through implementing mitigating actions consistent with the governing RMP. Accordingly, the BLM has coordinated with the State to develop a memorandum of agreement (MOA) to guide the application of the mitigation hierarchy and State required or voluntary compensatory mitigation actions for future project authorizations in Greater Sage-Grouse habitat on public lands. The BLM would not deny a proposed authorization in Greater Sage-Grouse habitat solely on the grounds that the proponent has not proposed or agreed to undertake voluntary compensatory mitigation. The MOA describes the State's policies, authorities, and programs for Greater Sage-Grouse conservation and the process regarding how the BLM would incorporate avoidance, minimization, and other recommendations from the State necessary to improve the condition of Greater Sage-Grouse habitat consistent with RMPA goals and objectives, in one or more of the NEPA analysis alternatives. The MOA would be



implemented to provide an improvement to Greater Sage-Grouse habitat at a State level (as opposed to a WAFWA Management Zone or a Field Office), in collaboration with applicable partners (e.g., federal, tribal, and state agencies). Generally, and as described in the MOA, when the BLM receives applications for projects in Greater Sage-Grouse habitat, the BLM would ensure project design is aligned with State requirements and would ensure the proponent coordinates with the State to develop any additional mitigation—including compensatory mitigation—that the State may require in order to comply with State policies and programs for the conservation of Greater Sage-Grouse.

The BLM is relying on the State of Wyoming's mitigation framework, which, due to its provisions for durability and additionality, would still provide conservation gains and benefits consistent with the goals of this RMPA and the 2015 Plans. The implementation of compensatory mitigation actions would be directed by MOAs that describe how the BLM would align with State authorities and incorporated in the appropriate NEPA analysis subsequent to the Proposed RMP Amendment. While the conservation benefit of compensatory mitigation may be limited when weighed against the threats to Greater Sage-Grouse, particularly in the Great Basin region where wildland fire remains a key threat, the BLM is committed to implementing state-imposed mitigation requirements to help minimize the impacts of anthropogenic disturbance and habitat fragmentation throughout the range of Greater Sage-Grouse. The BLM is not proposing any action that would preclude proponents from offering compensatory mitigation; it is clarifying the BLM's reliance on voluntary compensatory mitigation consistent with federal law.

## **COT OBJECTIVE 2: IMPLEMENT TARGETED HABITAT MANAGEMENT AND RESTORATION**

*“Some sage-grouse populations warrant more than the amelioration of the impacts from stressors to maintain sage-grouse on the landscape. In these instances, and particularly with impacts resulting from wildfire, it may be critical to not only remove or reduce anthropogenic threats to these populations but additionally to improve population health through active habitat management (e.g. habitat restoration). This is particularly important for those populations that are essential to maintaining range-wide redundancy and representation.” (COT report 2013)*

In many areas of Wyoming, amelioration of threats isn't enough. Activities must be taken to enhance the habitat for continued success of Greater Sage-Grouse. This objective identifies the areas where ARMPA will put forth the commitments for habitat restoration and enhancement.

The WGFD established local Greater Sage-Grouse working groups over 15 years ago. Each of these local working groups developed conservation plans which have served to guide conservation of Greater Sage-Grouse habitat at a local level. The management objectives for this federal land use plan were developed in coordination with the State of Wyoming, recognizing the ongoing work which has been done over the last 10 years in Wyoming as a result of the conservation efforts identified by each of the local working groups.

Upon completion of the planning process, with issuance of this Approved Plan and Record of Decision, subsequent implementation decisions will be put into effect by developing implementation (activity-level or project-specific) plans. These implementation decisions will be based upon the objectives identified in this Approved Plan and Record of Decision, and will be coordinated with local working groups.

**COT OBJECTIVE 3: DEVELOP AND IMPLEMENT STATE AND FEDERAL CONSERVATION STRATEGIES AND ASSOCIATED INCENTIVE-BASED CONSERVATION ACTIONS AND REGULATORY MECHANISMS.**

*“To conserve sage-grouse and habitat redundancy, representation, and resilience, state and federal agencies, along with interested stakeholders within range of the sage-grouse should work together to develop a plan, including any necessary regulatory or legal tools (or use an existing plan, if appropriate) that includes clear mechanisms for addressing the threats to sage-grouse within PACs. Where consistent with state conservation plans, sage-grouse habitats outside of PACs should also be addressed. We recognize that threats can be ameliorated through a variety of tools within the purview of states and federal agencies, including incentive-based conservation actions or regulatory mechanisms. Federal land management agencies should work with states in developing adequate regulatory mechanisms. Federal land management agencies should also contribute to the incentive-based conservation and habitat restoration and rehabilitation efforts. In the development of conservation plans, entities (states, federal land management agencies, etc.) should coordinate with USFWS. This will ensure that the plans address the threats contributing to the 2010 warranted but precluded determination, and that conservation strategies will meaningfully contribute to future listing analyses.” (COT report 2013)*

**Implementation Working Groups**

Implementation strategies for a landscape scale species requires coordination across multiple scales, as the work that is conducted at the local scale must be tracked and evaluated for overall success within core areas, across the state of Wyoming. As the Greater Sage-Grouse is formally managed by the State of Wyoming, and has a statewide strategy through Governor’s Executive Order 2015-4, implementation must be evaluated at that scale. For this reason, Wyoming Plans will utilize both local and state-wide working groups, representing each of the scales at which implementation will be tracked.

*State Level*

The Sage-grouse Implementation Team (SGIT) has been established through Wyoming Legislature (Wyoming Statute 9-19-101(a)) to review data and make recommendations to the Governor of Wyoming regarding actions and funding to enhance and restore Greater Sage-Grouse habitats in Wyoming. Additionally, the SGIT is responsible for making recommendations to the Governor regarding regulatory actions necessary to maintain Greater Sage-Grouse populations and Greater Sage-Grouse habitats.

Adaptive Management Working Group (AMWG) has been established in consultation with the SGIT to provide appropriate guidance for agencies with the ability to affect sage-grouse populations and/or habitat through their permitting authority. The AMWG includes BLM, USFWS, and State of Wyoming.

*Local Level*

In 2000, a Statewide Working Group was established by the WGFD to develop and facilitate implementation of local conservation plans for the benefit of sage-grouse, their habitats, and whenever feasible, other species that use sagebrush habitats. This group prepared the Wyoming Greater Sage-Grouse Conservation Plan (Wyoming Sage-Grouse Working Group 2003) to provide coordinated management and direction across the state. In 2004, local Greater Sage-Grouse working groups were formed to develop and implement local conservation plans. Eight local working groups around Wyoming have completed conservation plans, many of which prioritize addressing past, present, and reasonably

foreseeable threats at the state and local levels, and prescribe management actions for private landowners to improve Greater Sage-Grouse conservation at the local scale, consistent with Wyoming's Core Population Area Strategy.

### **Implementation Tracking**

Because the State of Wyoming continues to retain management of the species, and through implementation of the Executive Order, BLM Wyoming will continue to coordinate tracking of populations, disturbance and conservation actions.

DDCT GIS for tracking disturbance

Population counts

Lek counts

Conservation actions

The BLM will provide data that can be integrated with other conservation efforts conducted by state and federal partners.

### **Public Involvement**

All Activity Plan Working Group meetings where recommendations are made to the BLM will be open to the public, and will provide for specific and helpful public involvement.

The state sponsored LWG and SGIT meetings are advertised and open to the public.

### **COT OBJECTIVE 4: PROACTIVE CONSERVATION ACTIONS**

*“Proactive, incentive based, voluntary conservation actions (e.g. Candidate Conservation Agreements with Assurances, Natural Resources Conservation Service programs) should be developed and/or implemented by interested stakeholders and closely coordinated across the range of the species to ensure they are complimentary and address sage-grouse conservation needs and threats. These efforts need to receive full funding, including funding for necessary personnel.” (COT report 2013)*

In addition to the conservation activities identified through implementation of the Resource Management Plan in coordination with the Local Working Group Conservation Plans, BLM will continue to partner with other agencies and stakeholders to identify conservation actions to benefit Greater Sage-Grouse habitat. Actions which may occur could include, but is not limited to Candidate Conservation Agreements (CCA) with accompanying Candidate Conservation Agreements with Assurances (CCAA), designation of conservation easements, habitat improvement projects, cooperative agreements, or several other options. For a more detailed list of Wyoming-based conservation activities and initiatives, consult the Wyoming Wildlife and Natural Resources Trust.

The BLM will work with partners and stakeholders to develop species-specific or ecosystem-based conservation strategies and will work cooperatively with other agencies, organizations, governments, and interested parties for the conservation of sensitive species and their habitats to meet agreed on species and habitat management goals. Cooperative efforts are important for conservation based on an ecosystem management approach and will improve efficiency by combining efforts and fostering collaborative working relationships.

## **COT OBJECTIVE 5: DEVELOPMENT OF MONITORING PLANS**

*“A robust range-wide monitoring program must be developed and implemented for sage-grouse conservation plans, which recognizes and incorporates individual state approaches. A monitoring program is necessary to track the success of conservation plans and proactive conservation activities. Without this information, the actual benefit of conservation activities cannot be measured and there is no capacity to adapt if current management actions are determined to be ineffective.” (COT report 2013)*

### **The Greater Sage-Grouse Monitoring Framework**

#### *Introduction*

The purpose of this Greater Sage-Grouse Monitoring Framework (hereafter, monitoring framework) is to describe the methods to monitor habitats and evaluate the implementation and effectiveness of the BLM planning strategy (BLM IM 2012-044) to conserve the species and its habitat. The regulations for the BLM (43 CFR 1610.4-9) require that land use plans establish intervals and standards, as appropriate, for monitoring and evaluations, based on the sensitivity of the resource to the decisions involved. Therefore, the BLM will use the methods described herein to collect monitoring data to evaluate implementation and effectiveness of the Greater Sage-Grouse (hereafter, sage-grouse) planning strategy and the conservation measures contained in land use plans. The type of monitoring data to be collected at the land use plan scale will be described in the monitoring plan, which will be developed after the signing of the ROD. For a summary of the frequency of reporting see Attachment A. Adaptive management will be informed by data collected at any and all scales.

To ensure the BLM has the ability to make consistent assessments about sage-grouse habitats across the range of the species, this framework lays out the methodology for monitoring the implementation and evaluating the effectiveness of BLM actions to conserve the species and its habitat through monitoring that informs effectiveness at multiple scales. Monitoring efforts will include data for measurable quantitative indicators of sagebrush availability, anthropogenic disturbance levels, and sagebrush conditions. Implementation monitoring results will provide information to allow the BLM to evaluate the extent that decisions from the BLM RMP to conserve sage-grouse and its habitat have been implemented. Population monitoring information will be collected by state fish and wildlife agencies and will be incorporated into effectiveness monitoring as it is made available.

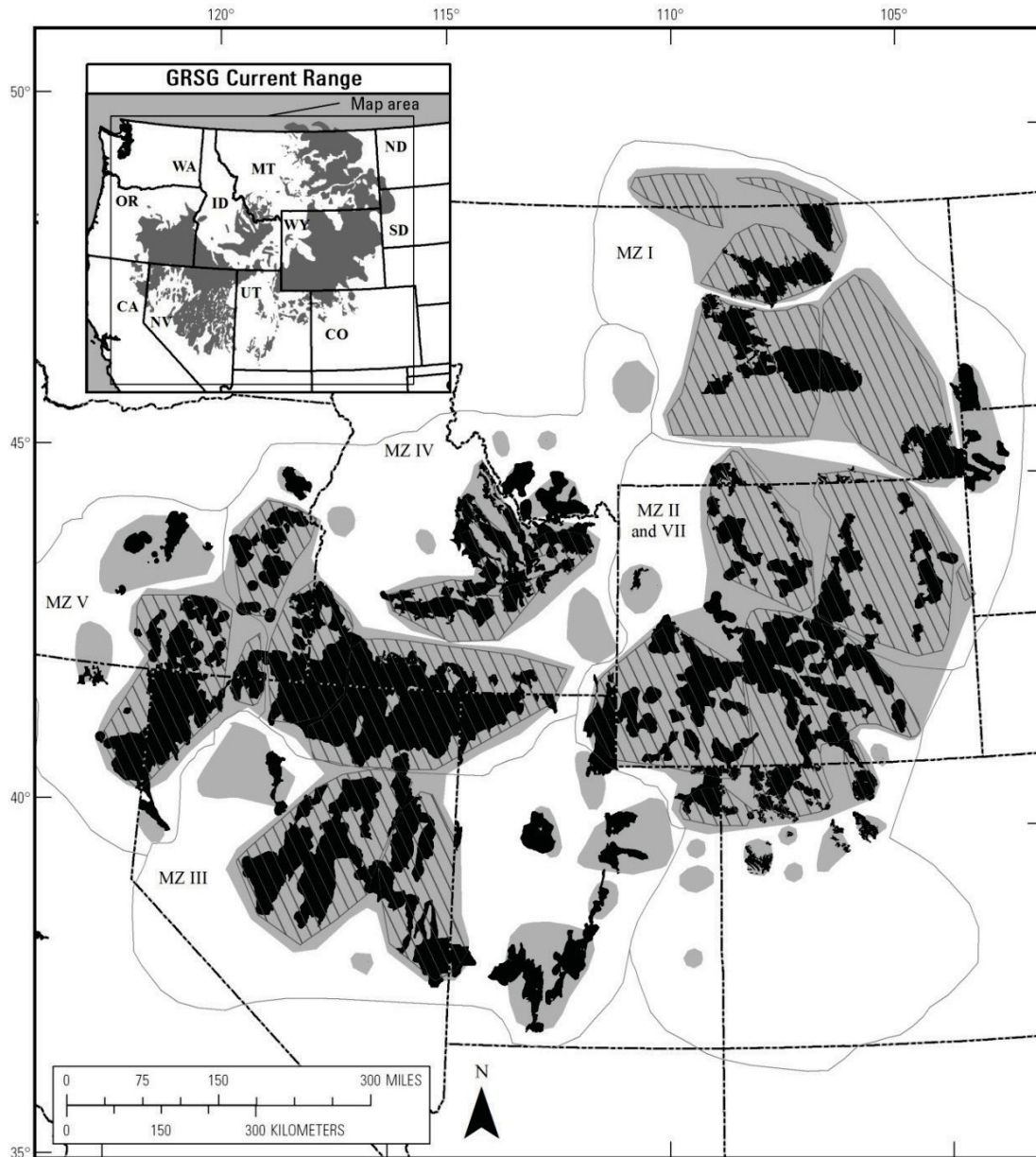
This multi-scale monitoring approach is necessary as sage-grouse are a landscape species and conservation is scale-dependent whereby conservation actions are implemented within seasonal habitats to benefit populations. The four orders of habitat selection (Johnson 1980) used in this monitoring framework are described by Connelly et al. (2003) and Stiver et al. (2014) as first order (broad scale), second order (mid- scale), third order (fine scale), and fourth order (site scale) to apply them to sage-grouse habitat selection. The various scales may show differences because of the methods used. The broad and mid-scale may provide a generalize direction, however the suitability baseline (pre-euro) is not considered an accurate baseline. The current baseline will provide better information on trends provided the data used in the analysis is sound. Based upon the management actions related to the BLM and Wyoming Sage-grouse Executive Order, the broad and mid-scale may greatly underestimate the impacts of the threats outlined in the COT report. Habitat selection and habitat use by sage-grouse occurs at multiple scales and is driven by multiple environmental and behavioral factors. Managing and monitoring sage-grouse habitats are complicated by the differences in habitat selection across the range and habitat utilization by individual birds within a given season. Therefore, the tendency to look at a

single indicator of habitat suitability or only one scale limits the ability for managers to identify the threats to sage-grouse and to respond at the appropriate scale. For descriptions of these habitat suitability indicators for each scale, see the Sage-grouse Habitat Assessment Framework (HAF) (Stiver et al. *in press*).


Monitoring methods and indicators in this monitoring framework are derived from the current peer-reviewed science. Range wide best-available datasets for broad and mid-scale monitoring will be acquired. If these existing datasets are not readily available or are inadequate, but are necessary to effectively inform the three measurable quantitative indicators (sagebrush availability, anthropogenic disturbance levels, and sagebrush conditions), the BLM will strive to develop datasets or obtain information to fill these data gaps. Datasets that are not readily available to inform the fine and site scale indicators will be developed. These data will be used to generate monitoring reports at the appropriate and applicable geographic scales, boundaries and analysis units: across the range of sage-grouse as defined by Schroeder et al. (2004), and clipped by Western Association of Fish and Wildlife Agencies (WAFWA) Management Zone (MZ) (Stiver et al. 2006) boundaries and other areas as appropriate for size (e.g., populations based on Connelly et al. 2004; **Figure 1**). This broad and mid-scale monitoring data and analysis will provide context for ARMPA areas; states; Greater Sage- Grouse priority habitat, general habitat and other sage-grouse designated management areas; and PACs as defined in the Greater Sage-Grouse Conservation Objectives: Final Report (COT, U.S. Fish and Wildlife Service 2013). Throughout the remainder of the document, all of these areas will be referred to as “sage-grouse areas.”

This monitoring framework is divided into two sections. The broad- and mid-scale methods, described in the following section, provide a consistent approach across the range of the species to monitor implementation decisions and actions, mid-scale habitat attributes (e.g., sagebrush availability and habitat degradation), and population changes to determine the effectiveness of the planning strategy and management decisions. (See **Table 1**, Indicators for monitoring implementation of the national planning strategy, ARMPA decisions, sage- grouse habitat, and sage-grouse populations at the broad and mid scales.) For sage-grouse habitat at the fine and site scales, this monitoring framework describes a consistent approach (e.g., indicators and methods) for monitoring sage-grouse seasonal habitats. Funding, support, and dedicated personnel for broad- and mid-scale monitoring will be renewed annually through the normal budget process. For an overview of BLM multiscale monitoring commitments, see Attachment A.

**Figure I. Map of Greater Sage-Grouse Range, Populations, Subpopulations and Priority Areas for Conservation as of 2013**



**GRSG PACs, Subpopulations and Populations  
LEGEND**

-  Subpopulations
-  COT PACs
-  Populations

**Sources:**

Current Range: Schroeder et al., 2004  
 Populations: Connelly et al., 2004  
 Subpopulations: Connelly et al., 2004  
 PACs: USFWS COT Report, 2013

**Table 1**  
**Indicators for Monitoring Implementation of the Strategy, Decisions, Sage-grouse Habitat, and Sage-grouse Populations at the Broad and Mid-scales.**

Implementation		Habitat		Population (State Wildlife Agencies)
Geographic Scales		Availability	Degradation	Demographics
Broad Scale: From the range of sage-grouse to WAFWA Management Zones	BLM Planning Strategy goal and objectives	Distribution and amount of sagebrush within the range	Distribution and amount of energy, mining and infrastructure facilities	WAFWA Management Zone population trend
Mid-scale: From WAFWA Management Zone to populations.	An analysis of ARMPA decisions across the designated scale	Mid-scale habitat indicators (HAF 2014; <b>Table 2</b> e.g., percent of sagebrush per unit area)	Distribution and amount of energy, mining and infrastructure facilities ( <b>Table 2</b> )	Individual population trend
Fine Scale: Pacs	A summary of DDCT actions related to BLM mineral and surface resources in conjunction with other ownerships	Areas that have greater than 5% sagebrush cover and non-habitat (unsuitable) that is less than 0.6miles from the suitable habitat.	Distribution and amount of anthropogenic disturbances and wildfire occurrences impacting specific PACs.	PAC Trends
Site Scale DDCT level	A summary of DDCT actions related to BLM mineral and surface resources.	The available occupied habitat using the DDCT process.	Distribution and amount of anthropogenic disturbances and wildfire occurrences impacting specific PACs.	Individual lek Trends
Broad Scale: From the range of sage-grouse to WAFWA Management Zones	BLM Planning Strategy goal and objectives	Distribution and amount of sagebrush within the range	Distribution and amount of energy, mining and infrastructure facilities	WAFWA Management Zone population trend
Mid-scale: From WAFWA Management Zone to populations. PACs	RMP decisions	Mid-scale habitat indicators (HAF 2014; <b>Table 2</b> e.g., percent of sagebrush per unit area)	Distribution and amount of energy, mining and infrastructure facilities ( <b>Table 2</b> )	Individual population trend

### **Broad and Mid-Scales**

First-order habitat selection, the broad scale, describes the physical or geographical range of a species. The first-order habitat of the sage-grouse is defined by populations of sage-grouse associated with sagebrush landscapes, based on Schroeder et al. 2004, and Connelly et al. 2004, and on population or habitat surveys since 2004. An intermediate scale between the broad and mid scales was delineated by WAFWA from floristic provinces within which similar environmental factors influence vegetation

communities. This scale is referred to as the WAFWA Sage-Grouse Management Zones (MZs). Although no indicators are specific to this scale, these MZs are biologically meaningful as reporting units.

Second-order habitat selection, the mid-scale, includes sage-grouse populations and PACs. The second order includes at least 40 discrete populations and subpopulations (Connelly et al. 2004). Populations range in area from 150 to 60,000 mi<sup>2</sup> and are nested within MZs. PACs range from 20 to 20,400 mi<sup>2</sup> and are nested within population areas.

Other mid-scale landscape indicators, such as patch size and number, patch connectivity, linkage areas, and landscape matrix and edge effects (Stiver et al. *in press*) will also be assessed. The methods used to calculate these metrics will be derived from existing literature (Knick et al. 2011, Leu and Hanser 2011, Knick and Hanser 2011).

Midscale indicators using the HAF can grossly underestimate the occupation of anthropogenic activities because of the use of 30m pixels. The HAF removes 'non-'habitat from the suitability availability. There are no parameters that are provided to protect adjacent suitable habitat from development on these non-habitat parcels, thus making the adjacent non-habitat a potential threat by indirect impacts.

The Wyoming BLM field offices will be actively participating in a fine and site scale monitoring that will more accurately reflect the impacts associated with direct and indirect effects of anthropogenic and wildfire impacts.

### ***Implementation (Decision) Monitoring***

Implementation monitoring is the process of tracking and documenting the implementation (or the progress toward implementation) of ARMPA decisions. The BLM will monitor implementation of project-level and/or site-specific actions and authorizations, with their associated conditions of approval/stipulations for sage- grouse, spatially (as appropriate) within Priority Habitat, General Habitat, and other sage-grouse designated management areas, at a minimum, for the Wyoming Greater Sage-Grouse ARMPA planning area. These actions and authorizations, as well as progress toward completing and implementing activity-level plans, will be monitored consistently across all planning units and will be reported to BLM headquarters annually, as well as reported to the State of Wyoming with numerical and spatial data twice a year, and a HQ summary report every 5 years, for the respective planning area. A national-level Greater Sage-Grouse Land Use Plan Decision Monitoring and Reporting Tool is being developed to describe how the BLM will consistently and systematically monitor and report implementation-level activity plans and implementation actions for all plans within the range of sage-grouse. A description of this tool for collection and reporting of tabular and spatially explicit data will be included in the Record of Decision or approved plan. The BLM will provide data that can be integrated with other conservation efforts conducted by state and federal partners.

### ***Habitat (Vegetation) Monitoring***

The U.S. Fish and Wildlife Service (USFWS), in its 2010 listing decision for the sage-grouse, identified 18 threats contributing to the destruction, modification, or curtailment of sage-grouse habitat or range (75 FR 13910 2010). The BLM will, therefore, monitor the relative extent of these threats that remove sagebrush, both spatially and temporally, on all lands within an analysis area, and will report on amount, pattern, and condition at the appropriate and applicable geographic scales and boundaries. These 18 threats have been aggregated into three broad- and mid-scale measures to account for whether the threat



predominantly removes sagebrush or degrades habitat. (See **Table 2**, Relationship between the 18 threats and the three habitat disturbance measures for monitoring.) The three measures are:

1. Sagebrush Availability (percent of sagebrush per suitable unit area)
2. Habitat Degradation (percent of human activity per unit area)
3. Energy and Mining Density (facilities and locations per suitable unit area)

These three habitat disturbance measures will evaluate disturbance on all lands within priority habitat, regardless of land ownership. The direct area of influence will be assessed with the goal of accounting for actual removal of sagebrush on which sage-grouse depend (Connelly et al. 2000) and for habitat degradation as a surrogate for human activity. Measure 1 (sagebrush availability) examines where disturbances have removed plant communities that support sagebrush (or have broadly removed sagebrush from the landscape). Measure 1, therefore, monitors the change in sagebrush availability—or, specifically, where and how much of the sagebrush community is available on lands that can support sagebrush within the range of sage-grouse. The sagebrush community is defined as the ecological systems that have the capability of supporting sagebrush vegetation and seasonal sage-grouse habitats within the range of sage-grouse (see Section B.1., Sagebrush Availability). Measure 2 (see Section B.2., Habitat Degradation Monitoring) and Measure 3 (see Section B.3., Energy and Mining Density) focus on where habitat degradation is occurring within suitable sagebrush soils by using the footprint/area of direct disturbance and the number of facilities at the mid-scale to identify the relative amount of degradation per geographic area of interest and in areas that have the capability of supporting sagebrush and seasonal sage-grouse use. Measure 2 (habitat degradation) not only quantifies footprint/area of direct disturbance but also establishes a surrogate for those threats most likely to have ongoing activity. Because energy development and mining activities are typically the most intensive activities in sagebrush habitat, Measure 3 (the density of active energy development, production, and mining sites) will help identify areas of particular concern for such factors as noise, dust, traffic, etc. that degrade sage-grouse habitat.

**Table 2**  
**Relationship between the 18 Threats and the Three Habitat Disturbance Measures for Monitoring.**

<b>USFWS Listing Decision Threat</b>	<b>Sagebrush Availability</b>	<b>Habitat Degradation</b>	<b>Density of Energy and Mining</b>
Agriculture	X		
Urbanization	X		
Wildfire	X		
Conifer encroachment	X		
Treatments	X		
Invasive Species	X		
Energy (oil and gas wells and development facilities)		X	X
Energy (coal mines)		X	X
Energy (wind towers)		X	X
Energy (solar fields)		X	X
Energy (geothermal)		X	X

USFWS Listing Decision Threat	Sagebrush Availability	Habitat Degradation	Density of Energy and Mining
Mining (active locatable, leasable, and salable developments)		X	X
Infrastructure (roads)		X	
Infrastructure (railroads)		X	
Infrastructure (power lines)		X	
Infrastructure (communication towers)		X	
Infrastructure (other vertical structures)		X	
Other developed rights of ways		X	

Data availability may preclude specific analysis of individual layers. See the detailed methodology for more information.

The methods to monitor disturbance found herein differ slightly from methods used in the Sage-Grouse Baseline Environmental Report (BER; Manier et al. 2013) that provided a baseline of datasets of disturbance across jurisdictions. One difference is that, for some threats, the data in the BER were for federal lands only. In addition, threats were assessed individually in that report, using different assumptions from those in this monitoring framework about how to quantify the location and magnitude of threats. The methodology herein builds on the BER methodology and identifies datasets and procedures to utilize the best available data across the range of the sage-grouse and to formulate a consistent approach to quantify impact of the threats through time. This methodology also describes an approach to combine the threats and calculate the three measures.

### ***B.1 Sagebrush Availability (Measure 1)***

Sage-grouse populations have been found to be more resilient where a percentage of the landscape is maintained in sagebrush (Knick and Connelly 2011), which will be determined by sagebrush availability. Measure 1 has been divided into two sub-measures to describe sagebrush availability on the landscape:

Measure 1a: the current amount of sagebrush on the geographic area of interest, and

Measure 1b: the amount of sagebrush on the geographic area of interest compared with the amount of sagebrush the landscape of interest could ecologically support.

**Measure 1a** (the current amount of sagebrush on the landscape) will be calculated using this formula: [the existing updated sagebrush layer] divided by [the geographic area of interest]. The appropriate geographic areas of interest for sagebrush availability include the species' range, WAFWA MZs, populations, and PACs. In some cases these sage-grouse areas will need to be aggregated to provide an estimate of sagebrush availability with an acceptable level of accuracy.

**Measure 1b** (the amount of sagebrush for context within the geographic area of interest) will be calculated using this formula: [existing sagebrush divided by [pre-EuroAmerican settlement geographic extent of lands that could have supported sagebrush]]. This measure will provide information to set the context for a given geographic area of interest during evaluations of monitoring data. The information could also be used to inform management options for restoration or mitigation and to inform effectiveness monitoring.

The sagebrush base layer for Measure 1 will be based on geospatial vegetation data adjusted for the threats listed in **Table 2**. The following subsections of this monitoring framework describe the methodology for determining both the current availability of sagebrush on the landscape and the context of the amount of sagebrush on the landscape at the broad and mid scales.

**a. Establishing the Sagebrush Base Layer:** The current geographic extent of sagebrush vegetation within the rangewide distribution of sage-grouse populations will be ascertained using the most recent version of the Existing Vegetation Type (EVT) layer in LANDFIRE (2013). LANDFIRE EVT was selected to serve as the sagebrush base layer for five reasons: 1) it is the only nationally consistent vegetation layer that has been updated multiple times since 2001; 2) the ecological systems classification within LANDFIRE EVT includes multiple sagebrush type classes that, when aggregated, provide a more accurate (compared with individual classes) and seamless sagebrush base layer across jurisdictional boundaries; 3) LANDFIRE performed a rigorous accuracy assessment from which to derive the rangewide uncertainty of the sagebrush base layer; 4) LANDFIRE is consistently used in several recent analyses of sagebrush habitats (Knick et al. 2011, Leu and Hanser 2011, Knick and Hanser 2011); and 5) LANDFIRE EVT can be compared against the geographic extent of lands that are believed to have had the capability of supporting sagebrush vegetation pre- EuroAmerican settlement [LANDFIRE Biophysical Setting (BpS)]. This fifth reason provides a reference point for understanding how much sagebrush currently remains in a defined geographic area of interest compared with how much sagebrush existed historically (Measure 1b). Therefore, the BLM has determined that LANDFIRE provides the best available data at broad and mid scales to serve as a sagebrush base layer for monitoring changes in the geographic extent of sagebrush. The BLM, in addition to aggregating the sagebrush types into the sagebrush base layer, will aggregate the accuracy assessment reports from LANDFIRE to document the cumulative accuracy for the sagebrush base layer. The BLM-through its Assessment, Inventory, and Monitoring (AIM) program and, specifically, the BLM's landscape monitoring framework (Taylor et al. 2014)-will provide field data to the LANDFIRE program to support continuous quality improvements of the LANDFIRE EVT layer. The sagebrush layer based on LANDFIRE EVT will allow for the mid-scale estimation of the existing percent of sagebrush across a variety of reporting units. This sagebrush base layer will be adjusted by changes in land cover and successful restoration for future calculations of sagebrush availability (Measures 1a and 1b).

This layer will also be used to determine the trend in other landscape indicators, such as patch size and number, patch connectivity, linkage areas, and landscape matrix and edge effects (Stiver et al. *in press*). In the future, changes in sagebrush availability, generated annually, will be included in the sagebrush base layer. The landscape metrics will be recalculated to examine changes in pattern and abundance of sagebrush at the various geographic boundaries. This information will be included in effectiveness monitoring (See Section D., Effectiveness Monitoring).

Within the BLM, field office-wide existing vegetation classification mapping and inventories are available that provide a much finer level of data than what is provided through LANDFIRE. Where available, these finer-scale products will be useful for additional and complementary mid-scale indicators and local-scale analyses (Fine and Site Scales). The fact that these products are not available everywhere limits their utility for monitoring at the broad and mid-scale, where consistency of data products is necessary across broader geographies.

The sagebrush layer based on LANDFIRE EVT will allow for the mid-scale estimation of existing percent sagebrush across a variety of reporting units. This sagebrush base layer will be adjusted by changes in land cover and successful restoration for future calculations of sagebrush availability (Measures 1a and 1b).

This layer will be used to determine the trend in other landscape indicators, e.g. patch size and number, patch connectivity, linkage areas, and landscape matrix and edge effects (Stiver et al. in press). In the future, changes in sagebrush availability, generated bi-annually, will be included in the sagebrush base layer. The landscape metrics will be recalculated to examine changes in pattern and abundance of sagebrush at the various geographic boundaries. This information will be included in effectiveness monitoring (See Section D).

### ***Data Sources for Establishing and Monitoring Sagebrush Availability***

In much the same manner as how the LANDFIRE data was selected as the data source, described above, the criteria for selecting the datasets (**Table 3**) for establishing and monitoring the change in sagebrush availability, Measure 1, were threefold:

- Nationally consistent dataset available across the range
- Known level of confidence or accuracy in the dataset
- Continual maintenance of dataset and known update interval

**Table 3**  
**Datasets for Establishing and Monitoring Changes in Sagebrush Availability**

<b>Dataset</b>	<b>Source</b>	<b>Update Interval</b>	<b>Most Recent Version Year</b>	<b>Use</b>
BioPhysical Setting (BpS) v1.1	LANDFIRE	Static	2008	Denominator for Sagebrush Availability (1.b.)
Existing Vegetation Type (EVT) v1.2	LANDFIRE	Static	2010	Numerator for Sagebrush Availability
Cropland Data Layer (CDL)	National Agricultural Statistics Service (NASS)	Annual	2012	Agricultural Updates; removes existing sagebrush from numerator of sagebrush availability
National Land Cover Dataset (NLCD) Percent Imperviousness	Multi-Resolution Land Characteristics Consortium (MRLC)	5 Year	2011 available in March 2014	Urban Area Updates; removes existing sagebrush from numerator of sagebrush availability

Dataset	Source	Update Interval	Most Recent Version Year	Use
Fire Perimeters	GeoMac	Annual	2013	< 1,000 acres Fire updates; removes existing sagebrush from numerator of sagebrush availability
Burn Severity	Monitoring Trends in Burn Severity (MTBS)	Annual	2012 available in April 2014	> 1,000 acres Fire Updates; removes existing sagebrush from numerator of sagebrush availability except for unburned sagebrush islands

#### **LANDFIRE Existing Vegetation Type (EVT) Version 1.2:**

LANDFIRE EVT represents existing vegetation types on the landscape derived from remote sensing data. Initial mapping was conducted using imagery collected in approximately 2001. Since the initial mapping there have been two update efforts: version 1.1 represents changes before 2008, and version 1.2 reflects changes on the landscape before 2010. Version 1.2 will be used as the starting point to develop the sagebrush base layer.

Ecological systems from the LANDFIRE EVT to be used in the sagebrush base layer were determined by sage-grouse subject matter experts through the identification of the ecological systems that have the capability of supporting sagebrush vegetation and could provide suitable seasonal habitat for the sage-grouse (**Table 4**). Two additional vegetation types that are not ecological systems were added to the EVT and are *Artemisia tridentata* ssp. *vaseyana* Shrubland Alliance and *Quercus gambelii* Shrubland Alliance. These alliances have species composition directly related to the Rocky Mountain Lower Montane - Foothill Shrubland ecological system and the Rocky Mountain Gambel Oak-Mixed Montane Shrubland ecological system, both of which are ecological systems in LANDFIRE BpS. In LANDFIRE EVT however, in some map zones, the Rocky Mountain Lower Montane - Foothill Shrubland ecological system and the Rocky Mountain Gambel Oak- Mixed Montane Shrubland ecological system were named *Artemisia tridentata* ssp. *vaseyana* Shrubland Alliance and *Quercus gambelii* Shrubland Alliance respectively.

**Table 4**  
**Ecological Systems in BpS and EVT Capable of Supporting Sagebrush Vegetation and Could Provide Suitable Seasonal Habitat for Greater Sage-Grouse.**

Ecological System	Sagebrush Vegetation that the Ecological System has the Capability to Produce
Colorado Plateau Mixed Low Sagebrush Shrubland	<i>Artemisia arbuscula</i> ssp. <i>longiloba</i> <i>Artemisia bigelovii</i> <i>Artemisia nova</i> <i>Artemisia frigida</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Columbia Plateau Scabland Shrubland	<i>Artemisia rigida</i>
Great Basin Xeric Mixed Sagebrush Shrubland	<i>Artemisia arbuscula</i> ssp. <i>longicaulis</i> <i>Artemisia arbuscula</i> ssp. <i>longiloba</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>

Ecological System	Sagebrush Vegetation that the Ecological System has the Capability to Produce
Inter-Mountain Basins Big Sagebrush Shrubland	<i>Artemisia tridentata</i> ssp. <i>tridentata</i> <i>Artemisia tridentata</i> ssp. <i>xericensis</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Inter-Mountain Basins Mixed Salt Desert Scrub	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia spinescens</i>
Wyoming Basins Dwarf Sagebrush Shrubland and Steppe	<i>Artemisia arbuscula</i> ssp. <i>longiloba</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia tripartita</i> ssp. <i>rupicola</i>
Columbia Plateau Low Sagebrush Steppe	<i>Artemisia arbuscula</i> <i>Artemisia arbuscula</i> ssp. <i>longiloba</i> <i>Artemisia nova</i>
Inter-Mountain Basins Big Sagebrush Steppe	<i>Artemisia cana</i> ssp. <i>cana</i> <i>Artemisia tridentata</i> ssp. <i>tridentata</i> <i>Artemisia tridentata</i> ssp. <i>xericensis</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia tripartita</i> ssp. <i>tripartita</i> <i>Artemisia frigida</i>
Inter-Mountain Basins Montane Sagebrush Steppe	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia nova</i> <i>Artemisia arbuscula</i> <i>Artemisia tridentata</i> ssp. <i>spiciformis</i>
Northwestern Great Plains Mixed grass Prairie	<i>Artemisia cana</i> ssp. <i>cana</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia frigida</i>
Northwestern Great Plains Shrubland	<i>Artemisia cana</i> ssp. <i>cana</i> <i>Artemisia tridentata</i> ssp. <i>tridentata</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Western Great Plains Sand Prairie	<i>Artemisia cana</i> ssp. <i>cana</i>
Western Great Plains Floodplain Systems	<i>Artemisia cana</i> ssp. <i>cana</i>
Columbia Plateau Steppe and Grassland	<i>Artemisia</i> spp.
Inter-Mountain Basins Semi-Desert Shrub-Steppe	<i>Artemisia tridentata</i> <i>Artemisia bigelovii</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Rocky Mountain Lower Montane-Foothill Shrubland	<i>Artemisia nova</i> <i>Artemisia tridentata</i> <i>Artemisia frigida</i>
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	<i>Artemisia tridentata</i>
Inter-Mountain Basins Curl-Leaf Mountain Mahogany Woodland and Shrubland	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia arbuscula</i> <i>Artemisia tridentata</i>
<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> Shrubland Alliance (EVT only)	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
<i>Quercus gambelii</i> Shrubland Alliance (EVT only)	<i>Artemisia tridentata</i>

### Accuracy and Appropriate Use of LANDFIRE Datasets:

Because of concerns over the thematic accuracy of individual classes mapped by LANDFIRE, all ecological systems listed in **Table 3** will be merged into one value that represents the sagebrush base layer. With all ecological systems aggregated, the combined accuracy of the sagebrush base layer (EVT) will be much greater than if all categories were treated separately.

LANDFIRE performed the original accuracy assessment of their EVT product on a map zone basis. There are 20 LANDFIRE map zones that cover the historic range of sage-grouse as defined by Schroeder (2004). Attachment C lists the user and producer accuracies for the aggregated ecological systems that

make up the sagebrush base layer and also defines user and producer accuracies. The aggregated sagebrush base layer for monitoring had producer accuracies ranging from 56.7% to 100% and user accuracies ranging from 57.1% to 85.7%.

*LANDFIRE EVT data are not designed to be used at a local level.* In reports of the percent sagebrush statistic for the various reporting units (Measure 1a), the uncertainty of the percent sagebrush will increase as the size of the reporting unit gets smaller. LANDFIRE data should never be used at the 30m pixel level (900m<sup>2</sup> resolution of raster data) for any reporting. The smallest geographic extent for using the data to determine percent sagebrush is at the PAC level; for the smallest PACs, the initial percent sagebrush estimate will have greater uncertainties compared with the much larger PACs.

**Agricultural Adjustments for the Sagebrush Base Layer:** The dataset for the geographic extent of agricultural lands will come from the National Agricultural Statistics Service (NASS) Cropland Data Layer (CDL) (<http://www.nass.usda.gov/research/Cropland/Release/index.htm>). CDL data are generated annually, with estimated producer accuracies for “large area row crops ranging from the mid 80% to mid-90%,” depending on the state ([http://www.nass.usda.gov/research/Cropland/sarsfaq2.htm#Section3\\_18.0](http://www.nass.usda.gov/research/Cropland/sarsfaq2.htm#Section3_18.0)). Specific information on accuracy may be found on the NASS metadata website (<http://www.nass.usda.gov/research/Cropland/metadata/meta.htm>). CDL provided the only dataset that matches the three criteria (nationally consistent, known level of accuracy, and periodically updated) for use in this monitoring framework and represents the best available agricultural lands mapping product.

The CDL data contain both agricultural classes and nonagricultural classes. For this effort, and in the baseline environmental report (Manier et al. 2013), nonagricultural classes were removed from the original dataset. The excluded classes are: Barren (65 & 131), Deciduous Forest (141), Developed/High Intensity (124), Developed/Low Intensity (122), Developed/Med Intensity (123), Developed/Open Space (121), Evergreen Forest (142), Grassland Herbaceous (171), Herbaceous Wetlands (195), Mixed Forest (143), Open Water (83 & 111), Other Hay/Non Alfalfa (37), Pasture/Hay (181), Pasture/Grass (62), Perennial Ice/Snow (112), Shrubland (64 & 152), Woody Wetlands (190).

The rule set for adjusting the sagebrush base layer for agricultural lands (and for updating the base layer for agricultural lands in the future) is that once an area is classified as agriculture in any year of the CDL, those pixels will remain out of the sagebrush base layer even if a new version of the CDL classifies that pixel as one of the nonagricultural classes listed above. The assumption is that even though individual pixels may be classified as a nonagricultural class in any given year, the pixel has not necessarily been restored to a natural sagebrush community that would be included in **Table 4**. A further assumption is that once an area has moved into agricultural use, it is unlikely that the area would be restored to sagebrush. Should that occur, however, the method and criteria for adding pixels back into the sagebrush base layer would follow those found in the sagebrush restoration monitoring section of this monitoring framework

#### **Urban Adjustments for the Sagebrush Base Layer**

The National Land Cover Dataset (NLCD) Percent Imperviousness was selected as the best available dataset to be used for urban updates. These data are generated on a five-year cycle and specifically designed to support monitoring efforts. Other datasets were evaluated and lacked the spatial specificity that was captured in the NLCD product. Any new impervious pixel will be removed from the sagebrush

base layer during the update process. Although the impervious surface layer includes a number of impervious pixels outside of urban areas, there are two reasons why this is acceptable for this process. First, an evaluation of national urban area datasets did not reveal a layer that could be confidently used in conjunction with the NLCD product to screen impervious pixels outside of urban zones because unincorporated urban areas were not being included thus leaving large chunks of urban pixels unaccounted for in this rule set. Secondly, experimentation with setting a threshold on the percent imperviousness layer that would isolate rural features proved to be unsuccessful. No combination of values could be identified that would result in the consistent ability to limit impervious pixels outside urban areas. Therefore, to ensure consistency in the monitoring estimates, it was determined to include all impervious pixels.

#### **Fire Adjustments for the Sagebrush Base Layer:**

Two datasets were selected for performing fire adjustments and updates: GeoMac fire perimeters and Monitoring Trends in Burn Severity (MTBS). An existing data standard in the BLM requires that all fires of more than 10 acres are to be reported to GeoMac; therefore, there will be many small fires of less than 10 acres that will not be accounted for in the adjustment and monitoring attributable to fire. Using fire perimeters from GeoMac, all sagebrush pixels falling within the perimeter of fires less than 1,000 acres will be used to adjust and monitor the sagebrush base layer.

For fires greater than 1,000 acres, MTBS was selected as a means to account for unburned sagebrush islands during the update process of the sagebrush base layer. The MTBS program (<http://www.mtbs.gov>) is an ongoing, multiyear project to map fire severity and fire perimeters consistently across the United States. One of the burn severity classes within MTBS is an unburned to low-severity class. This burn severity class will be used to represent unburned islands of sagebrush within the fire perimeter for the sagebrush base layer. Areas within the other severity classes within the fire perimeter will be removed from the base sagebrush layer during the update process. Not all wildfires, however, have the same impacts on the recovery of sagebrush habitat, depending largely on soil moisture and temperature regimes. For example, cooler, moister sagebrush habitat has a higher potential for recovery or, if needed, restoration than does the warmer, dryer sagebrush habitat. These cooler, moister areas will likely be detected as sagebrush in future updates to LANDFIRE.

#### **Conifer Encroachment Adjustment for the Sagebrush Base Layer:**

Conifer encroachment into sagebrush vegetation reduces the spatial extent of sage-grouse habitat (Davies et al. 2011, Baruch-Mordo et al. 2013). Conifer species that show propensity for encroaching into sagebrush vegetation resulting in sage-grouse habitat loss include various juniper species, such as Utah juniper (*Juniperus osteosperma*), western juniper (*Juniperus occidentalis*), Rocky Mountain juniper (*Juniperus scopulorum*), pinyon species, including singleleaf pinyon (*Pinus monophylla*) and pinyon pine (*Pinus edulis*), ponderosa pine (*Pinus ponderosa*), lodgepole pine (*Pinus contorta*), and Douglas fir (*Pseudotsuga menziesii*) (Gruell et al. 1986, Grove et al. 2005, Davies et al. 2011).

A rule set for conifer encroachment was developed to be used for determination of the existing sagebrush base layer. To capture the geographic extent of sagebrush that is likely to experience conifer encroachment, ecological systems within LANDFIRE EVT version 1.2 (NatureServe 2011) were identified if they have the capability of supporting the conifer species (listed above) and have the capability of supporting sagebrush vegetation. Those ecological systems (**Table 5**) were deemed to be the plant communities with conifers most likely to encroach into sagebrush vegetation. Sagebrush



vegetation was defined as including sagebrush species (Attachment B) that provide habitat for the Greater Sage-Grouse and are included in the Sage-Grouse Habitat Assessment Framework. An adjacency analysis was conducted to identify all sagebrush pixels that were directly adjacent to these conifer ecological systems and these immediately adjacent sagebrush pixels were removed from the sagebrush base layer.

**Table 5**  
**Ecological Systems with Conifers Most Likely to Encroach into Sagebrush Vegetation**

<b>EVT Ecological Systems</b>	<b>Coniferous Species and Sagebrush Vegetation that the Ecological System has the Capability to Produce</b>
Colorado Plateau Pinyon-Juniper Woodland	<i>Pinus edulis</i> <i>Juniperus osteosperma</i> <i>Artemisia tridentata</i> <i>Artemisia arbuscula</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i> ssp. <i>tridentata</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia bigelovii</i> <i>Artemisia pygmaea</i>
Columbia Plateau Western Juniper Woodland and Savanna	<i>Juniperus occidentalis</i> <i>Pinus ponderosa</i> <i>Artemisia tridentata</i> <i>Artemisia arbuscula</i> <i>Artemisia rigida</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
East Cascades Oak-Ponderosa Pine Forest and Woodland	<i>Pinus ponderosa</i> <i>Pseudotsuga menziesii</i> <i>Artemisia tridentata</i> <i>Artemisia nova</i>
Great Basin Pinyon-Juniper Woodland	<i>Pinus monophylla</i> <i>Juniperus osteosperma</i> <i>Artemisia arbuscula</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
Northern Rocky Mountain Ponderosa Pine Woodland and Savanna	<i>Pinus ponderosa</i> <i>Artemisia tridentata</i> <i>Artemisia arbuscula</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
Rocky Mountain Foothill Limber Pine-Juniper Woodland	<i>Juniperus osteosperma</i> <i>Juniperus scopulorum</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i>
Rocky Mountain Poor-Site Lodgepole Pine Forest	<i>Pinus contorta</i> <i>Pseudotsuga menziesii</i> <i>Pinus ponderosa</i> <i>Artemisia tridentata</i>
Southern Rocky Mountain Pinyon-Juniper Woodland	<i>Pinus edulis</i> <i>Juniperus monosperma</i> <i>Artemisia bigelovii</i> <i>Artemisia tridentata</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
Southern Rocky Mountain Ponderosa Pine Woodland	<i>Pinus ponderosa</i> <i>Pseudotsuga menziesii</i> <i>Pinus edulis</i> <i>Pinus contorta</i> <i>Juniperus</i> spp. <i>Artemisia nova</i> <i>Artemisia tridentata</i> <i>Artemisia arbuscula</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i>

**Invasive Annual Grasses Adjustments for the Sagebrush Base Layer:** There are no invasive species datasets from 2010 to the present (beyond the LANDFIRE data) that meet the three criteria (nationally consistent, known level of accuracy, and periodically updated) for use in the determination of the

sagebrush base layer. For a description of how invasive species land cover will be incorporated in the sagebrush base layer in the future, see Monitoring Sagebrush Availability.

**Sagebrush Restoration Adjustments for the Sagebrush Base Layer:** There are no datasets from 2010 to the present that could provide additions to the sagebrush base layer from restoration treatments that meet the three criteria (nationally consistent, known level of accuracy, and periodically updated); therefore, no adjustments were made to the sagebrush base layer calculated from the LANDFIRE EVT (version 1.2) attributable to restoration activities since 2010. Successful restoration treatments before 2010 are assumed to have been captured in the LANDFIRE refresh.

#### **a. Monitoring Sagebrush Availability**

##### **Updating the Sagebrush Availability Sagebrush Base Layer**

Sagebrush availability will be updated annually by incorporating changes to the sagebrush base layer attributable to agriculture, urbanization, and wildfire. The monitoring schedule for the existing sagebrush base layer updates is as follows:

**2010 Existing Sagebrush Base Layer** = [Sagebrush EVT] minus [2006 Imperviousness Layer] minus [2009 and 2010 CDL] minus [2009/10 GeoMac Fires < 1,000 acres] minus [2009/10 MTBS Fires excluding unburned sagebrush islands] minus [Conifer Encroachment Layer]

**2012 Existing Sagebrush Update** = [Base 2010 Existing Sagebrush Layer] minus [2011 Imperviousness Layer] minus [2011 and 2012 CDL] minus [2011/12 GeoMac Fires < 1,000 acres] minus [2011/12 MTBS Fires that are greater than 1,000 acres, excluding unburned sagebrush islands within the perimeter]

**2013 and beyond Existing Sagebrush Updates** = [Previous Existing Sagebrush Update Layer] minus [Imperviousness Layer (if new data are available)] minus [Next 2 years of CDL] minus [Next 2 years of GeoMac Fires < 1,000 acres] minus [Next 2 years MTBS Fires that are greater than 1,000 acres, excluding unburned sagebrush islands within the perimeter] plus [restoration/monitoring data provided by the field]

#### **Sagebrush Restoration Updates**

Restoration after fire, after agricultural conversion, after seedings of introduced grasses, or after treatments of pinyon pine and/or juniper, are examples of updates to the sagebrush base layer that can add sagebrush vegetation back in. When restoration has been determined to be successful through range wide, consistent, interagency fine and site-scale monitoring, the polygonal data will be used to add sagebrush pixels back into the broad and mid-scale sagebrush base layer.

#### **Measure 1b – Context for the change in the amount of sagebrush in a landscape of interest**

Measure 1b describes the amount of sagebrush on the landscape of interest compared with the amount of sagebrush the landscape of interest could ecologically support. Areas with the potential to support sagebrush were derived from the BpS data layer that describes sagebrush pre Euro-American settlement (biophysical setting (BpS) v1.2 of LANDFIRE). This measure (1b) will provide information during evaluations of monitoring data to set the context for a given geographic area of interest. The information could also be used to inform management options for restoration, mitigation and inform effectiveness monitoring.

The identification and spatial locations of natural plant communities (vegetation) that are believed to have existed on the landscape (BpS) were constructed based on an approximation of the historical (pre Euro- American settlement) disturbance regime and how the historical disturbance regime operated on the current biophysical environment. BpS is composed of map units which are based on NatureServe's (2011) terrestrial ecological systems classification.

The ecological systems within BpS used for this monitoring framework are those ecological systems that have the capability of supporting sagebrush vegetation and could provide seasonal habitat for the sage-grouse. These ecological systems are listed in **Table 4** with the exception of the *Artemisia tridentata* ssp. *vaseyana* Shrubland Alliance and the *Quercus gambelii* Shrubland Alliance. Ecological systems selected included sagebrush species or subspecies that are included in the Sage-Grouse Habitat Assessment Framework and are found in Attachment B.

Attributable to the lack of any reference data, the BpS layer does not have an associated accuracy assessment. Visual inspection, however, of the BpS data reveals inconsistencies in the labeling of pixels among LANDFIRE map zones. The reason for these inconsistencies between map zones are the decision rules used to map a given ecological system will vary between map zones based on different physical, biological, disturbance and atmospheric regimes of the region. This can result in artificial edges in the map that are an artifact of the mapping process. However, metrics will be calculated at broad spatial scales using BpS potential vegetation type, not small groupings or individual pixels, therefore, the magnitude of these observable errors in the BpS layer is minor compared with the size of the reporting units. Therefore, since BpS will be used to identify broad landscape patterns of dominant vegetation, these inconsistencies will only have a minor impact on the percent sagebrush availability calculation.

LANDFIRE BpS data are not designed to be used at a local level. In reporting the percent sagebrush statistic for the various reporting units, the uncertainty of the percent sagebrush will increase as the size of the reporting unit gets smaller. LANDFIRE data should never be used at the pixel level (30m<sup>2</sup>) for any reporting. The smallest geographic extent use of the data for this purpose is at the PAC level and for the smallest PACs the initial percent sagebrush remaining estimate will have greater uncertainties compared with the much larger PACs.

### **Tracking**

BLM will analyze and monitor sagebrush availability (Measure 1) on a bi-annual basis and it will be used to inform effectiveness monitoring and initiate adaptive management actions as necessary. The 2010 estimate of sagebrush availability will serve as the base year and an updated estimate for 2012 will be reported in 2014 after all datasets become available. The 2012 estimate will capture changes attributable to fire, agriculture, and urban development. Subsequent updates will always include new fire and agricultural data and new urban data when available. Restoration data that meets criteria of adding sagebrush areas back into the sagebrush base layer will begin to be factored in as data allows. Attributable to data availability, there will be a two year lag (approximately) between when the estimate is generated and when the data used for the estimate becomes available (e.g., the 2014 sagebrush availability will be included in the 2016 estimate).

### **Future Plans**

Geospatial data used to generate the sagebrush base layer will be available through BLM's EGIS Web Portal and Geospatial Gateway or through the authoritative data source. Legacy datasets will be

preserved, so that trends may be calculated. Additionally, accuracy assessment data for all source datasets will be provided on the portal either spatially, where applicable, or through the metadata. Accuracy assessment information was deemed vital to share to help users understand the limitation of the sagebrush estimates and will be summarized spatially by map zone and included in the Portal.

LANDFIRE plans to begin a remapping effort in 2015. This remapping has the potential to greatly improve overall quality of the data products primarily through the use of higher quality remote sensing datasets. Additionally, BLM and the Multi-Resolution Land Characteristics Consortium (MRLC) are working to improve the accuracy of vegetation map products for broad and mid-scale analyses through the Grass/Shrub mapping effort in partnership with the MRLC. The Grass/Shrub mapping effort applies the Wyoming multi-scale sagebrush habitat methodology (Homer et al. 2009) to spatially depict fractional percent cover estimates for five components range and west-wide. These five components are percent cover of sagebrush vegetation, percent bare ground, percent herbaceous vegetation (grass and forbs combined), annual vegetation, and percent shrubs. One of the benefits of the design of these fractional cover maps is that they facilitate monitoring “with-in” class variation (e.g., examination of declining trend in sagebrush cover for individual pixels). This “with-in” class variation can serve as one indicator of sagebrush quality that cannot be derived from LANDFIRE’s EVT information. The Grass/Shrub effort is not a substitute for fine scale monitoring, but will leverage fine scale data to support the validation of the mapping products. An evaluation will be conducted to determine if either dataset is of great enough quality to warrant replacing the existing sagebrush layers. The earliest possible date for this evaluation will not occur until 2018 or 2019 depending on data availability.

## ***B.2. Habitat Degradation Monitoring (Measure 2)***

The measure of habitat degradation will be calculated by combining the footprints of threats identified in **Table 2**. The footprint is defined as the direct area of influence of “active” energy and infrastructure; it is used as a surrogate for human activity. Although these analyses will try to summarize results at the aforementioned meaningful geographic areas of interest, some may be too small to report the metrics appropriately and may be combined (smaller populations, PACs within a population, etc.). Data sources for each threat are found in **Table 6**, Geospatial Data Sources for Habitat Degradation. Specific assumptions (inclusion criteria for data, width/area assumptions for point and line features, etc.) and methodology for each threat, and the combined measure, are detailed below. All datasets will be updated annually to monitor broad- and mid-scale year-to-year changes and to calculate trends in habitat degradation to inform adaptive management. A 5-year summary report will be provided to the USFWS.

### ***a. Habitat Degradation Datasets and Assumptions***

**Energy (oil and gas wells and development facilities)** – This dataset will compile information from three oil and gas databases: the proprietary IHS Enerdeq database, the BLM Automated Fluid Minerals Support System (AFMSS) database, and the proprietary Platts (a McGraw-Hill Financial Company) GIS Custom Data (hereafter, Platts) database of power plants. Point data from wells active within the last 10 years from IHS and producing wells from AFMSS will be considered as a 5-acre (2.0ha) direct area of influence centered on the well point, as recommended by the BLM WO-300 (Minerals and Realty Management). Plugged and abandoned wells will be removed if the date of well abandonment was before the first day of the reporting year (i.e., for the 2015 reporting year, a well must have been plugged and abandoned by 12/31/2014 to be removed). Platts oil and gas power plants data (subset to operational power plants) will also be included as a 5-acre (2.0ha) direct area of influence.

**Additional Measure: Reclaimed Energy-related Degradation.** This dataset will include those wells that have been plugged and abandoned. This measure thereby attempts to measure energy-related degradation that has been reclaimed but not necessarily fully restored to sage-grouse habitat. This measure will establish a baseline by using wells that have been plugged and abandoned within the last 10 years from the IHS and AFMSS datasets. Time lags for lek attendance in response to infrastructure have been documented to be delayed 2–10 years from energy development activities (Harju et al. 2010). Reclamation actions may require 2 or more years from the Final Abandonment Notice. Sagebrush seedling establishment may take 6 or more years from the point of seeding, depending on such variables as annual precipitation, annual temperature, and soil type and depth (Pyke 2011). This 10-year period is conservative and assumes some level of habitat improvement 10 years after plugging. Research by Hemstrom et al. (2002), however, proposes an even longer period—more than 100 years—for recovery of sagebrush habitats, even with active restoration approaches. Direct area of influence will be considered 3 acres (1.2ha) (J. Perry, personal communication, February 12, 2014). This additional layer/measure could be used at the broad and mid-scale to identify areas where sagebrush habitat and/or potential sagebrush habitat is likely still degraded. This layer/measure could also be used where further investigation at the fine or site scale would be warranted to: 1) quantify the level of reclamation already conducted, and 2) evaluate the amount of restoration still required for sagebrush habitat recovery. At a particular level (e.g., population, PACs), these areas and the reclamation efforts/success could be used to inform reclamation standards associated with future developments. Once these areas have transitioned from reclamation standards to meeting restoration standards, they can be added back into the sagebrush availability layer using the same methodology as described for adding restoration treatment areas lost to wildfire and agriculture conversion (see Monitoring Sagebrush Restoration in Monitoring Sagebrush Availability). This dataset will be updated annually from the IHS dataset.

**Energy (coal mines)** – Currently, there is no comprehensive dataset available that identifies the footprint of active coal mining across all jurisdictions. Therefore, point and polygon datasets will be used each year to identify coal mining locations. Data sources will be identified and evaluated annually and will include at a minimum: BLM coal lease polygons, U.S. Energy Information Administration mine occurrence points, U.S. Office of Surface Mining Reclamation and Enforcement coal mining permit polygons (as available), and U.S. Geological Survey (USGS) Mineral Resources Data System mine occurrence points. These data will inform where active coal mining may be occurring. Additionally, coal power plant data from Platts power plants database (subset to operational power plants) will be included. Aerial imagery will then be used to digitize manually the active coal mining and coal power plants surface disturbance in or near these known occurrence areas. While the date of aerial imagery varies by scale, the most current data available from Esri and/or Google will be used to locate (generally at 1:50,000 and below) and digitize (generally at 1:10,000 and below) active coal mine and power plant direct area of influence. Coal mine location data source and imagery date will be documented for each digitized coal polygon at the time of creation. Subsurface facility locations (polygon or point location as available) will also be collected if available, included in density calculations, and added to the active surface activity layer as appropriate (if an actual direct area of influence can be located).

**Energy (wind energy facilities)** – This dataset will be a subset of the Federal Aviation Administration (FAA) Digital Obstacles point file. Points where “Type\_” = “WINDMILL” will be included. Direct area of influence of these point features will be measured by converting to a polygon dataset as a direct area of influence of 3 acres (1.2ha) centered on each tower point. See the BLM’s “Wind Energy Development Programmatic Environmental Impact Statement” (BLM 2005). Additionally, Platts power plants database

will be used for transformer stations associated with wind energy sites (subset to operational power plants), also with a 3-acre (1.2ha) direct area of influence.

**Energy (solar energy facilities)** – This dataset will include solar plants as compiled with the Platts power plants database (subset to operational power plants). This database includes an attribute that indicates the operational capacity of each solar power plant. Total capacity at the power plant was based on ratings of the in-service unit(s), in megawatts. Direct area of influence polygons will be centered over each point feature representing 7.3ac (3.0ha) per megawatt of the stated operational capacity, per the report of the National Renewable Energy Laboratory (NREL), “Land-Use Requirements for Solar Power Plants in the United States” (Ong et al. 2013).

**Energy (geothermal energy facilities)** – This dataset will include geothermal wells in existence or under construction as compiled with the IHS wells database and power plants as compiled with the Platts database (subset to operational power plants). Direct area of influence of these point features will be measured by converting to a polygon dataset of 3 acres (1.2ha) centered on each well or power plant point.

**Mining (active developments; locatable, leasable, salable)** – This dataset will include active locatable mining locations as compiled with the proprietary InfoMine database. Aerial imagery will then be used to digitize manually the active mining surface disturbance in or near these known occurrence areas. While the date of aerial imagery varies by scale, the most current data available from Esri and/or Google will be used to locate (generally at 1:50,000 and below) and digitize (generally at 1:10,000 and below) active mine direct area of influence. Mine location data source and imagery date will be documented for each digitized polygon at the time of creation. Currently, there are no known compressive databases available for leasable or salable mining sites beyond coal mines. Other data sources will be evaluated and used as they are identified or as they become available. Point data may be converted to polygons to represent direct area of influence unless actual surface disturbance is available.

**Infrastructure (roads)** – This dataset will be compiled from the proprietary Esri StreetMap Premium for ArcGIS. Dataset features that will be used are: Interstate Highways, Major Roads, and Surface Streets to capture most paved and “crowned and ditched” roads while not including “two-track” and 4-wheel-drive routes. These minor roads, while not included in the broad- and mid-scale monitoring, may support a volume of traffic that can have deleterious effects on sage-grouse leks. It may be appropriate to consider the frequency and type of use of roads in a NEPA analysis for a proposed project. This fine- and site-scale analysis will require more site-specific data than is identified in this monitoring framework. The direct area of influence for roads will be represented by 240.2ft, 84.0ft, and 40.7ft (73.2m, 25.6m, and 12.4m) total widths centered on the line feature for Interstate Highways, Major Roads, and Surface Streets, respectively (Knick et al. 2011). The most current dataset will be used for each monitoring update. Note: This is a related but different dataset than what was used in BER (Manier et al. 2013). Individual BLM planning units may use different road layers for fine- and site-scale monitoring.

**Infrastructure (railroads)** – This dataset will be a compilation from the Federal Railroad Administration Rail Lines of the USA dataset. Non-abandoned rail lines will be used; abandoned rail lines will not be used. The direct are of influence for railroads will be represented by a 30.8ft (9.4m) total width (Knick et al. 2011) centered on the non-abandoned railroad line feature.

**Infrastructure (power lines)** – This line dataset will be derived from the proprietary Platts transmission lines database. Linear features in the dataset attributed as “buried” will be removed from the disturbance calculation. Only “In Service” lines will be used; “Proposed” lines will not be used. Direct area of influence will be determined by the kV designation: 1–199 kV (100ft/30.5m), 200–399 kV (150ft/45.7m), 400–699 kV (200ft/61.0m), and 700-or greater kV (250ft/76.2m) based on average right-of-way and structure widths, according to BLM WO-300 (Minerals and Realty Management).

**Infrastructure (communication towers)** – This point dataset will be compiled from the Federal Communications Commission (FCC) communication towers point file; all duplicate points will be removed. It will be converted to a polygon dataset by using a direct area of influence of 2.5 acres (1.0ha) centered on each communication tower point (Knick et al. 2011).

**Infrastructure (other vertical structures)** – This point dataset will be compiled from the FAA’s Digital Obstacles point file. Points where “Type\_” = “WINDMILL” will be removed. Duplicate points from the FCC communication towers point file will be removed. Remaining features will be converted to a polygon dataset using a direct area of influence of 2.5 acres (1.0ha) centered on each vertical structure point (Knick et al. 2011).

**Other Developed Rights-of-Way** – Currently, no additional data sources for other rights-of-way have been identified; roads, power lines, railroads, pipelines, and other known linear features are represented in the categories described above. The newly purchased IHS data do contain pipeline information; however, this database does not currently distinguish between above-ground and underground pipelines. If additional features representing human activities are identified, they will be added to monitoring reports using similar assumptions to those used with the threats described above.

### **Habitat Degradation Threat Combination and Calculation**

The threats targeted for measuring human activity (**Table 2**) will be converted to direct area of influence polygons as described for each threat above. These threat polygon layers will be combined and features dissolved to create one overall polygon layer representing footprints of active human activity in the range of sage-grouse. Individual datasets, however, will be preserved to indicate which types of threats may be contributing to overall habitat degradation. This measure has been divided into three submeasures to describe habitat degradation on the landscape. Percentages will be calculated as follows:

**Measure 2a.** Footprint by geographic area of interest: Divide area of the active/direct footprint by the total area of the geographic area of interest (% disturbance in geographic area of interest).

**Measure 2b.** Active/direct footprint by historical sagebrush potential: Divide area of the active footprint that coincides with areas with historical sagebrush potential (BpS calculation from habitat availability) within a given geographic area of interest by the total area with sagebrush potential within the geographic area of interest (% disturbance on potential historical sagebrush in geographic area of interest).

**Measure 2c.** Active/direct footprint by current sagebrush: Divide area of the active footprint that coincides with areas of existing sagebrush (EVT calculation from habitat availability) within a given geographic area of interest by the total area that is current sagebrush within the geographic area of interest (% disturbance on current sagebrush in geographic area of interest).

**Table 6**  
**Geospatial Data Sources for Habitat Degradation (Measure 2)**

Degradation Type	Subcategory	Data Source	Direct Area of Influence	Area Source
Energy (oil & gas)	Wells	IHS; BLM (AFMSS)	5.0ac (2.0ha)	BLM WO-300
	Power Plants	Platts (power plants)	5.0ac (2.0ha)	BLM WO-300
Energy (coal)	Mines	BLM; Forest Service; Office of Surface Mining Reclamation and Environment; USGS Mineral Resources Data System	Polygon area (digitized)	Esri/ Google Imagery
	Power Plants	Platts (power plants)	Polygon area (digitized)	Esri Imagery
Energy (wind)	Wind Turbines	Federal Aviation Administration	3.0ac (1.2ha)	BLM WO-300
	Power Plants	Platts (power plants)	3.0ac (1.2ha)	BLM WO-300
Energy (solar)	Fields/Power Plants	Platts (power plants)	7.3ac (3.0 ha)/MW	NREL
Energy (geothermal)	Wells	IHS	3.0ac (1.2ha)	BLM WO-300
	Power Plants	Platts (power plants)	Polygon area (digitized)	Esri Imagery
Mining	Locatable Developments	InfoMine	Polygon area (digitized)	Esri Imagery
Infrastructure (roads)	Surface Streets (Minor Roads)	Esri StreetMap Premium	40.7 ft. (12.4m)	USGS
	Major Roads	Esri StreetMap Premium	84.0 ft. (25.6m)	USGS
	Interstate Highways	Esri StreetMap Premium	240.2 ft. (73.2m)	USGS
Infrastructure (railroads)	ActiveLines	Federal Railroad Administration	30.8 ft. (9.4m)	USGS
Infrastructure (powerlines)	1-199 kV Lines	Platts (transmission lines)	100 ft. (30.5 m)	BLM WO-300
	200-399 kV Lines	Platts (transmission lines)	150 ft. (45.7m)	BLM WO-300
	400-699 kV Lines	Platts (transmission lines)	200 ft. (61.0m)	BLM WO-300
	700+ kV Lines	Platts (transmission lines)	250 ft. (76.2m)	BLM WO-300
Infrastructure (communication)	Towers	Federal Communications Commission	2.5 ac (1.0 ha)	BLM WO-300

### **Energy and Mining Density (Measure 3)**

The measure of density of energy and mining will be calculated by combining the locations of energy and mining threats identified in **Table 2**. This measure will provide an estimate of the intensity of human activity or the intensity of habitat degradation. The number of energy facilities and mining locations will be summed and divided by the area of meaningful geographic areas of interest to calculate density of these activities. Data sources for each threat are found in **Table 6**. Specific assumptions (inclusion criteria for data, width/area assumptions for point and line features, etc.) and methodology for each threat, and the



combined measure, are detailed below. All datasets will be updated annually to monitor broad- and mid-scale year-to-year changes and 5-year (or longer) trends in habitat degradation.

**a. Energy and Mining Density Datasets and Assumptions**

**Energy (oil and gas wells and development facilities)** (See Section B.2., Habitat Degradation Monitoring.)

**Energy (coal mines)** (See Section B.2., Habitat Degradation Monitoring.)

**Energy (wind energy facilities)** (See Section B.2., Habitat Degradation Monitoring.) **Energy (solar energy facilities)** (See Section B.2., Habitat Degradation Monitoring.) **Energy (geothermal energy facilities)** (See Section B.2., Habitat Degradation Monitoring.) **Mining (active developments; locatable, leasable, salable)** (See Section B.2., Habitat Degradation Monitoring.)

**Energy and Mining Density Threat Combination and Calculation**

Datasets for energy and mining will be collected in two primary forms: point locations (e.g., wells) and polygon areas (e.g., surface coal mining). The following rule set will be used to calculate density for meaningful geographic areas of interest including standard grids and per polygon:

1. Point locations will be preserved; no additional points will be removed beyond the methodology described above. Energy facilities in close proximity (an oil well close to a wind tower) will be retained.
2. Polygons will not be merged, or features further dissolved. Thus, overlapping facilities will be retained, such that each individual threat will be a separate polygon data input for the density calculation.
3. The analysis unit (polygon or 640-acre section in a grid) will be the basis for counting the number of mining or energy facilities per unit area. Within the analysis unit, all point features will be summed, and any individual polygons will be counted as one (e.g., a coal mine will be counted as one facility within population). Where polygon features overlap multiple units (polygons or pixels), the facility will be counted as one in each unit where the polygon occurs (e.g., a polygon crossing multiple 640-acre sections would be counted as one in each 640-acre section for a density per 640-acre-section calculation).
4. In methodologies with different-sized units (e.g., MZs, populations, etc.) raw facility counts will be converted to densities by dividing the raw facility counts by the total area of the unit. Typically this will be measured as facilities per 640 acres.
5. For uniform grids, raw facility counts will be reported. Typically this number will also be converted to facilities per 640 acres.
6. Reporting may include summaries beyond the simple ones above. Zonal statistics may be used to smooth smaller grids to help display and convey information about areas within meaningful geographic areas of interest that have high levels of energy and/or mining activity.
7. Additional statistics for each defined unit may also include adjusting the area to include only the area with the historical potential for sagebrush (BpS) or areas currently sagebrush (EVT).

Individual datasets and threat combination datasets for habitat degradation will be available through the BLM's EGIS web portal and geospatial gateway. Legacy datasets will be preserved so that trends may be calculated.

### **C. Population (Demographics) Monitoring**

State wildlife management agencies are responsible for monitoring sage-grouse populations within their respective states. WAFWA will coordinate this collection of annual population data by state agencies. These data will be made available to the BLM according to the terms of the forthcoming Greater Sage-Grouse Population Monitoring Memorandum of Understanding (MOU) (2014) between WAFWA and the BLM. The MOU outlines a process, timeline, and responsibilities for regular data sharing of sage-grouse population and/or habitat information for the purposes of implementing sage-grouse ARMPA and subsequent effectiveness monitoring. Population areas were refined from the "Greater Sage-Grouse (*Centrocercus urophasianus*) Conservation Objectives: Final Report" (COT 2013) by individual state wildlife agencies to create a consistent naming nomenclature for future data analyses. These population data will be used for analysis at the applicable scale to supplement habitat effectiveness monitoring of management actions and to inform the adaptive management responses.

### **D. Effectiveness Monitoring**

Effectiveness monitoring will provide the data needed to evaluate BLM actions toward reaching the objective of the national planning strategy (BLM IM 2012-044) – to conserve sage-grouse populations and their habitat– and the objectives for the land use planning area. Effectiveness monitoring methods described here will encompass multiple larger scales, from areas as large as the WAFWA MZ to the scale of the ARMPA. Effectiveness data used for these larger-scale evaluations will include all lands in the area of interest, regardless of surface ownership/management, and will help inform where finer-scale evaluations are needed, such as population areas smaller than an RMP or PACs within an RMP (described in Fine and Site Scales). Data will also include the trend of disturbance within these areas of interest to inform the need to initiate adaptive management responses as described in the ARMPA.

The BLM will coordinate with the State of Wyoming in evaluating the compliance of all actions within a sage- grouse core area. Evaluation of current disturbance, disruptions and conservation actions within a SG core area will be conducted to determine if all entities are in compliance with their specific standards and whether or not it indeed has not caused declines of sage-grouse populations. This approach also helps focus scarce resources to areas experiencing habitat loss, degradation, or population declines, without excluding the possibility of concurrent, finer-scale evaluations as needed where habitat or population anomalies have been identified through some other means.

To determine the effectiveness of the sage-grouse national planning strategy, the BLM will evaluate the answers to the following questions and prepare a broad- and mid-scale effectiveness report:

- I. Sagebrush Availability and Condition:
  - a. What is the amount of sagebrush availability and the change in the amount and condition of sagebrush?
  - b. What is the existing amount of sagebrush on the landscape and the change in the amount relative to the pre-EuroAmerican historical distribution of sagebrush (BpS)?

- c. What is the trend and condition of the indicators describing sagebrush characteristics important to sage-grouse?
2. Habitat Degradation and Intensity of Activities:
  - a. What is the amount of habitat degradation and the change in that amount?
  - b. What is the intensity of activities and the change in the intensity?
  - c. What is the amount of reclaimed energy-related degradation and the change in the amount?
  - d. What is the population estimation of sage-grouse and the change in the population estimation?
3. How is the BLM contributing to changes in the amount of sagebrush?
4. How is the BLM contributing to disturbance?

The compilation of broad- and mid-scale data (and population trends as available) into an effectiveness monitoring report will occur on a 5-year reporting schedule (see Attachment A), which may be accelerated to respond to critical emerging issues (in consultation with the USFWS and state wildlife agencies). In addition, effectiveness monitoring results will be used to identify emerging issues and research needs and inform the BLM adaptive management strategy (Section 6 of this appendix).

To determine the effectiveness of the sage-grouse objectives of the land use plan, the BLM will evaluate the answers to the following questions and prepare a plan effectiveness report:

1. Is this plan meeting the sage-grouse habitat objectives?
2. Are sage-grouse areas within the ARMPA meeting, or making progress toward meeting, land health standards, including the Special Status Species/wildlife habitat standard?
3. Is the plan meeting the disturbance objective(s) within sage-grouse areas?
4. Are the sage-grouse populations within this plan boundary and within the sage-grouse areas increasing, stable, or declining?

The effectiveness monitoring report for this ARMPA will occur on a 5-year reporting schedule (see Attachment A) or more often if habitat or population anomalies indicate the need for an evaluation to facilitate adaptive management or respond to critical emerging issues. Data will be made available through the BLM's EGIS web portal and the geospatial gateway.

### **Methods**

At the broad and mid scales (PACs and above) the BLM will summarize the vegetation, disturbance, and (when available) population data. Although the analysis will try to summarize results for PACs within each sage-grouse population, some populations may be too small to report the metrics appropriately and may need to be combined to provide an estimate with an acceptable level of accuracy. Otherwise,

they will be flagged for more intensive monitoring by the appropriate landowner or agency. The BLM will then analyze monitoring data to detect the trend in the amount of sagebrush; the condition of the vegetation in the sage-grouse areas (MacKinnon et al. 2011); the trend in the amount of disturbance; the change in disturbed areas owing to successful restoration; and the amount of new disturbance the BLM has permitted. These data could be supplemented with population data (when available) to inform an understanding of the correlation between habitat and PACs within a population. This overall effectiveness evaluation must consider the lag effect response of populations to habitat changes (Garton et al. 2011).

Calculating Question 1, National Planning Strategy Effectiveness: The amount of sagebrush available in the large area of interest will use the information from Measure 1a (I.B.I., Sagebrush Availability) and calculate the change from the 2012 baseline to the end date of the reporting period. To calculate the change in the amount of sagebrush on the landscape to compare with the historical areas with potential to support sagebrush, the information from Measure 1b (I.B.I., Sagebrush Availability) will be used. To calculate the trend in the condition of sagebrush at the mid-scale, three sources of data will be used: the BLM's Grass/Shrub mapping effort (Future Plans in Section B.I., Sagebrush Availability); the results from the calculation of the landscape indicators, such as patch size (described below); and the BLM's Landscape Monitoring Framework (LMF) and sage-grouse intensification effort (also described below). The LMF and sage-grouse intensification effort data are collected in a statistical sampling framework that allows calculation of indicator values at multiple scales.

Beyond the importance of sagebrush availability to sage-grouse, the mix of sagebrush patches on the landscape at the broad and mid-scale provides the life requisite of space for sage-grouse dispersal needs (see the HAF). The configuration of sagebrush habitat patches and the land cover or land use between the habitat patches at the broad and mid scales also defines suitability. There are three significant habitat indicators that influence habitat use, dispersal, and movement across populations: the size and number of habitat patches, the connectivity of habitat patches (linkage areas), and habitat fragmentation (scope of unsuitable and non-habitats between habitat patches). The most appropriate commercial software to measure patch dynamics, connectivity, and fragmentation at the broad and mid scales will be used, along with the same data layers derived for sagebrush availability.

The BLM initiated the LMF in 2011 in cooperation with the NRCS. The objective of the LMF effort is to provide unbiased estimates of vegetation and soil condition and trend using a statistically balanced sample design across BLM lands. Recognizing that sage-grouse populations are more resilient where the sagebrush plant community has certain characteristics unique to a particular life stage of sage-grouse (Knick and Connelly 2011, Stiver et al. in press), a group of sage-grouse habitat and sagebrush plant community subject matter experts identified those vegetation indicators collected at LMF sampling points that inform sage-grouse habitat needs. The experts represented the Agricultural Research Service, BLM, NRCS, USFWS, WAFWA, state wildlife agencies, and academia. The common indicators identified include: species composition, foliar cover, height of the tallest sagebrush and herbaceous plant, intercanopy gap, percent of invasive species, sagebrush shape, and bare ground. To increase the precision of estimates of sagebrush conditions within the range of sage-grouse, additional plot locations in occupied sage-grouse habitat (Sage-Grouse Intensification) were added in 2013. The common indicators are also collected on sampling locations in the NRCS National Resources Inventory Rangeland Resource Assessment (<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/nri/?cid=stelprdb1041620>).

The sage-grouse intensification baseline data will be collected over a 5-year period, and an annual sage-grouse intensification report will be prepared describing the status of the indicators. Beginning in year 6, the annual status report will be accompanied with a trend report, which will be available on an annual basis thereafter, contingent on continuation of the current monitoring budget. This information, in combination with the Grass/Shrub mapping information, the mid-scale habitat suitability indicator measures, and the sagebrush availability information will be used to answer Question 1 of the National Planning Strategy Effectiveness Report.

Calculating Question 2, National Planning Strategy Effectiveness: Evaluations of the amount of habitat degradation and the intensity of the activities in the area of interest will use the information from Measure 2 (Section B.2., Habitat Degradation Monitoring) and Measure 3 (Section B.3., Energy and Mining Density). The field office will collect data on the amount of reclaimed energy-related degradation on plugged and abandoned and oil/gas well sites. The data are expected to demonstrate that the reclaimed sites have yet to meet the habitat restoration objectives for sage-grouse habitat. This information, in combination with the amount of habitat degradation, will be used to answer Question 2 of the National Planning Strategy Effectiveness Report.

Calculating Question 3, National Planning Strategy Effectiveness: The change in sage-grouse estimated populations will be calculated from data provided by the state wildlife agencies, when available. This population data (Section C., Population [Demographics] Monitoring) will be used to answer Question 3 of the National Planning Strategy Effectiveness Report.

Calculating Question 4, National Planning Strategy Effectiveness: The estimated contribution by the BLM to the change in the amount of sagebrush in the area of interest will use the information from Measure 1a (Section B.1., Sagebrush Availability). This measure is derived from the national datasets that remove sagebrush (**Table 3**). To determine the relative contribution of BLM management, the current Surface Management Agency geospatial data layer will be used to differentiate the amount of change for each management agency for this measure in the geographic areas of interest. This information will be used to answer Question 4 of the National Planning Strategy Effectiveness Report.

Calculating Question 5, National Planning Strategy Effectiveness: The estimated contribution by the BLM to the change in the amount of disturbance in the area of interest will use the information from Measure 2a (Section B.2., Monitoring Habitat Degradation) and Measure 3 (Section B.3., Energy and Mining Density). These measures are all derived from the national disturbance datasets that degrade habitat (**Table 6**). To determine the relative contribution of BLM management, the current Surface Management Agency geospatial data layer will be used to differentiate the amount of change for each management agency for these two measures in the geographic areas of interest. This information will be used to answer Question 5 of the National Planning Strategy Effectiveness Report.

Answers to the five questions for determining the effectiveness of the national planning strategy will identify areas that appear to be meeting the objectives of the strategy and will facilitate identification of population areas for more detailed analysis. Conceptually, if the broad-scale monitoring identifies increasing sagebrush availability and improving vegetation conditions, decreasing disturbance, and a stable or increasing population for the area of interest, there is evidence that the objectives of the national planning strategy to maintain populations and their habitats have been met. Conversely, where information indicates that sagebrush is decreasing and vegetation conditions are degrading, disturbance in sage-grouse areas is increasing, and/or populations are declining relative to the baseline, there is

evidence that the objectives of the national planning strategy are not being achieved. Such a determination would likely result in a more detailed analysis and could be the basis for implementing more restrictive adaptive management measures.

With respect to the land use plan area, the BLM will summarize the vegetation, disturbance, and population data to determine if the ARMPA is meeting the plan objectives. Effectiveness information used for these evaluations includes BLM surface management areas and will help inform where finer-scale evaluations are needed, such as seasonal habitats, corridors, or linkage areas. Data will also include the trend of disturbance within the sage-grouse areas, which will inform the need to initiate adaptive management responses as described in the ARMPA.

Calculating Question 1, Land Use Plan Effectiveness: The condition of vegetation and the allotments meeting land health standards (as articulated in “BLM Handbook 4180-1, Rangeland Health Standards”) in sage-grouse areas will be used to determine the ARMPA’s effectiveness in meeting the vegetation objectives for sage-grouse habitat set forth in the plan. The field office/ranger district will be responsible for collecting this data. In order for this data to be consistent and comparable, common indicators, consistent methods, and an unbiased sampling framework will be implemented following the principles in the BLM’s AIM strategy (Taylor et al. 2014; Toevs et al. 2011; MacKinnon et al. 2011), in the BLM’s Technical Reference “Interpreting Indicators of Rangeland Health” (Pellant et al. 2005), and in the HAF (Stiver et al. in press) or other approved WAFWA MZ—consistent guidance to measure and monitor sage-grouse habitats. This information will be used to answer Question 1 of the Land Use Plan Effectiveness Report.

Calculating Question 2, Land Use Plan Effectiveness: Sage-grouse areas within the ARMPA that are achieving land health stands (or, if trend data are available, that are making progress toward achieving them)—particularly the Special Status Species/wildlife habitat land health standard—will be used to determine the ARMPA’s effectiveness in achieving the habitat objectives set forth in the plan. Field offices will follow directions in “BLM Handbook 4180-1, Rangeland Health Standards,” to ascertain if sage-grouse areas are achieving or making progress toward achieving land health standards. One of the recommended criteria for evaluating this land health standard is the HAF indicators.

Calculating Question 3, Land Use Plan Effectiveness: The amount of habitat disturbance in sage-grouse areas identified in the ARMPA will be used to determine the ARMPA’s effectiveness in meeting the plan’s disturbance objectives. National datasets can be used to calculate the amount of disturbance, but field office data will likely increase the accuracy of this estimate. This information will be used to answer Question 3 of the Land Use Plan Effectiveness Report.

Calculating Question 4, Land Use Plan Effectiveness: The change in estimated sage-grouse populations will be calculated from data provided by the state wildlife agencies, when available, and will be used to determine ARMPA effectiveness. This population data (Section C., Population [Demographics] Monitoring) will be used to answer Question 4 of the Land Use Plan Effectiveness Report.

Results of the effectiveness monitoring process for the ARMPA will be used to inform the need for finer-scale investigations, initiate adaptive management actions as described in the ARMPA, initiate causation determination, and/or determine if changes to management decisions are warranted. The measures used at the broad and mid scales will provide a suite of characteristics for evaluating the effectiveness of the adaptive management strategy.

***Fine and Site Scales***

Fine-scale (third-order) habitat selected by sage-grouse is described as the physical and geographic area within home ranges during breeding, summer, and winter periods. At this level, habitat suitability monitoring should address factors that affect sage-grouse use of, and movements between, seasonal use areas. The habitat monitoring at the fine and site scale (fourth order) should focus on indicators to describe seasonal home ranges for sage-grouse associated with a lek or lek group within a population or subpopulation area. Fine- and site- scale monitoring will inform the ARMPA effectiveness monitoring (see Section D., Effectiveness Monitoring) and the hard and soft triggers identified in the ARMPA's adaptive management section.

The BLM will coordinate with the State of Wyoming to share conservation, disturbance and vegetation analysis data to provide a core by core evaluation to make necessary adjustments in activity, priorities and other actions.

Site-scale habitat selected by sage-grouse is described as the more detailed vegetation characteristics of seasonal habitats. Habitat suitability characteristics include canopy cover and height of sagebrush and the associated understory vegetation. They also include vegetation associated with riparian areas, wet meadows, and other mesic habitats adjacent to sagebrush that may support sage-grouse habitat needs during different stages in their annual cycle.

As described in the Conclusion, details and application of monitoring at the fine and site scales will be described in the implementation-level monitoring plan for the ARMPA. The need for fine- and site-scale-specific habitat monitoring will vary by area, depending on proposed projects, existing conditions, habitat variability, threats, and land health. Examples of fine- and site-scale monitoring include: habitat vegetation monitoring to assess current habitat conditions; monitoring and evaluation of the success of projects targeting sage-grouse habitat enhancement and/or restoration; and habitat disturbance monitoring to provide localized disturbance measures to inform proposed project review and potential mitigation for project impacts. Monitoring plans should incorporate the principles outlined in the BLM's AIM strategy (Toevs et al. 2011) and in "AIM-Monitoring: A Component of the Assessment, Inventory, and Monitoring Strategy" (Taylor et al. 2014). Approved monitoring methods are: "BLM Core Terrestrial Indicators and Methods" (MacKinnon et al. 2011); The BLM's Technical Reference "Interpreting Indicators of Rangeland Health" (Pellant et al. 2005); and, "Sage-Grouse Habitat Assessment Framework: Multiscale Assessment Tool" (Stiver et al. in press).

Other state-specific disturbance tracking models include: the BLM's Wyoming DDCT (<http://ddct.wygisc.org/>) and the BLM's White River Data Management System in development with the USGS. Population monitoring data (in cooperation with state wildlife agencies) should be included during evaluation of the effectiveness of actions taken at the fine and site scales.

Fine- and site-scale sage-grouse habitat suitability indicators for seasonal habitats are identified in the HAF. The HAF has incorporated the Connelly et al. (2000) sage-grouse guidelines as well as many of the core indicators in the AIM strategy (Toevs et al. 2011). There may be a need to develop adjustments to height and cover or other site suitability values described in the HAF; any such adjustments should be ecologically defensible. To foster consistency, however, adjustments to site suitability values at the local scale should be avoided unless there is strong, scientific justification for making those adjustments. That justification should be provided. WAFWA MZ adjustments must be supported by regional plant

productivity and habitat data for the floristic province. If adjustments are made to the site-scale indicators, they must be made using data from the appropriate seasonal habitat designation (breeding/nesting, brood-rearing, winter) collected from sage- grouse studies found in the relevant area and peer-reviewed by the appropriate wildlife management agency(ies) and researchers.

When conducting land health assessments, the BLM should follow, at a minimum, “Interpreting Indicators of Rangeland Health” (Pellant et. al. 2005) and the “BLM Core Terrestrial Indicators and Methods” (MacKinnon et al. 2011). For assessments being conducted in sage-grouse designated management areas, the BLM should collect additional data to inform the HAF indicators that have not been collected using the above methods. Implementation of the principles outlined in the AIM strategy will allow the data to be used to generate unbiased estimates of condition across the area of interest; facilitate consistent data collection and rollup analysis among management units; help provide consistent data to inform the classification and interpretation of imagery; and provide condition and trend of the indicators describing sagebrush characteristics important to sage-grouse habitat (see Section D., Effectiveness Monitoring).

### **Conclusion**

This Greater Sage-Grouse Monitoring Framework was developed for all of the RMPs involved in the sage- grouse planning effort. As such, it describes the monitoring activities at the broad and mid scales and provides a guide for the BLM to collaborate with partners/other agencies to develop the ARMPA’s specific monitoring plan.

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**Attachment A: An Overview of Monitoring Commitments**

	<b>Broad and Mid scales</b>					<b>Fine and Site Scales</b>
	<b>Implement- ation</b>	<b>Sagebrush Availability</b>	<b>Habitat Degradation</b>	<b>Population</b>	<b>Effectiveness</b>	
<b>How will the data be used?</b>	Tracking and documenting implementation of land use plan decisions and inform adaptive management	Tracking changes in land cover (sagebrush) and inform adaptive management	Tracking changes in disturbance (threats) to sage-grouse habitat and inform adaptive management	Tracking trends in sage- grouse populations (and/or leks; as determined by state wildlife agencies) and inform adaptive management	Characterizing the relationship among disturbance, implementation actions, and sagebrush metrics and inform adaptive management	Measuring seasonal habitat, connectivity at the fine scale, and habitat conditions at the site scale, calculating disturbance and inform adaptive management
<b>Who is collecting the data?</b>	BLM FO	NOC and NIFC	National data sets (NOC), BLM FOs	State wildlife agencies through WAFWA	Comes from other broad and mid-scale monitoring types, analyzed by the NOC	BLM FO and SO, (with partners) including disturbance
<b>How often are the data collected, reported and made available to USFWS?</b>	Collected and reported annually; summary every 5 years	Updated and changes reported annually; summary reports every 5 years	Collected and changes reported annually; summary reports every 5 years	State data reported annually per WAFWA MOU; summary reports every 5 years	Collected and reported every 5 years (coincident with ARMPA evaluations)	Collection and trend analysis ongoing, reported every 5 years or as needed to inform adaptive management
<b>What is the spatial scale?</b>	Summarized by ARMPA with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by MZ, and ARMPA with flexibility for reporting by other units (e.g., PAC)	Variable (e.g., projects and seasonal habitats)
<b>What are the potential personnel and budget impacts?</b>	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment	At a minimum, current skills and capacity must be maintained; data mgmt. cost are TBD	At a minimum, current skills and capacity must be maintained; data mgmt. and data layer purchase cost are TBD	No additional personnel or budget impacts for BLM	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment
<b>Who has primary and secondary responsibilities for reporting?</b>	BLM FO & SO BLM Planning	NOC WO	NOC BLM SO & appropriate programs	WAFWA & state wildlife agencies BLM SO, NOC	Broad and mid-scale at the NOC, RMP at BLM SO	BLM FO, BLM SO
<b>What new processes/tools are needed?</b>	National implementation data sets and analysis tools	Updates to national land cover data	Data standards and roll-up methods for these data	Standards in population monitoring (WAFWA)	Reporting methodologies	Data standards data storage; and reporting

**Attachment B - List of All Sagebrush Species and Subspecies Included in the Selection Criteria for Building the EVT and BPS Layers**

*Artemisia arbuscula subspecies longicaulis*  
*Artemisia arbuscula subspecies longiloba*  
*Artemisia bigelovii*  
*Artemisia nova*  
*Artemisia papposa*  
*Artemisia pygmaea*  
*Artemisia rigida*  
*Artemisia*  
*spinescens*  
*Artemisia tripartita subspecies rupicola*  
*Artemisia tripartita subspecies tripartita*  
*Tanacetum nuttallii*  
*Artemisia cana subspecies bolanderi*  
*Artemisia cana subspecies cana*  
*Artemisia cana subspecies viscidula*  
*Artemisia tridentata subspecies wyomingensis*  
*Artemisia tridentata subspecies tridentata*  
*Artemisia tridentata subspecies vaseyana*  
*Artemisia tridentata subspecies spiciformis*  
*Artemisia tridentata subspecies xericensis*  
*Artemisia tridentata variety pauciflora*  
*Artemisia frigida*  
*Artemisia pedatifida*

### Attachment C – User and Producer Accuracies for Aggregated Ecological Systems within LANDFIRE Map Zones

LANDFIRE Map Zone Name	User Accuracy	Producer Accuracy	% of Map Zone within Historic Schroeder
Wyoming Basin	76.9%	90.9%	98.5%
Snake River Plain	68.8%	85.2%	98.4%
Missouri River Plateau	57.7%	100.0%	91.3%
Grand Coulee Basin of the Columbia Plateau	80.0%	80.0%	89.3%
Wyoming Highlands	75.3%	85.9%	88.1%
Western Great Basin	69.3%	75.4%	72.9%
Blue Mountain Region of the Columbia Plateau	85.7%	88.7%	72.7%
Eastern Great Basin	62.7%	80.0%	62.8%
Northwestern Great Plains	76.5%	92.9%	46.3%
Northern Rocky Mountains	72.5%	89.2%	42.5%
Utah High Plateaus	81.8%	78.3%	41.5%
Colorado Plateau	65.3%	76.2%	28.8%
Middle Rocky Mountains	78.6%	73.3%	26.4%
Cascade Mountain Range	57.1%	88.9%	17.3%
Sierra Nevada Mountain Range	0.0%	0.0%	12.3%
Northwestern Rocky Mountains	66.7%	60.0%	7.3%
Southern Rocky Mountains	58.6%	56.7%	7.0%
Northern Cascades	75.0%	75.0%	2.6%
Mogollon Rim	66.7%	100.0%	1.7%
Death Valley Basin	0.0%	0.0%	1.2%

There are two anomalous map zones with 0% user and producer accuracies, attributable to no available reference data for the ecological systems of interest.

User accuracy is a map-based accuracy that is computed by looking at the reference data for a class and determining the percentage of correct predictions for these samples. For example, if I select any sagebrush pixel on the classified map, what is the probability that I'll be standing in a sagebrush stand when I visit that pixel location in the field? Commission Error equates to including a pixel in a class when it should have been excluded (i.e., commission error = 1 – user's accuracy).

Producer accuracy is a reference-based accuracy that is computed by looking at the predictions produced for a class and determining the percentage of correct predictions. In other words, if I know that a particular area is sagebrush (I've been out on the ground to check), what is the probability that the digital map will correctly identify that pixel as sagebrush? Omission Error equates to excluding a pixel that should have been included in the class (i.e., omission error = 1 – producer's accuracy).

**COT OBJECTIVE 6: PRIORITIZE, FUND AND IMPLEMENT RESEARCH TO ADDRESS EXISTING UNCERTAINTIES**

*“Increased funding and support for key research projects that will address uncertainties associated with sage-grouse and sagebrush habitat management is essential. Effective amelioration of threats can only be accomplished if the mechanisms by which those threats are imposed on the redundancy, representation, and resilience of the species and its habitats are understood.” (COT report 2013)*

In accordance with BLM policy, the Record of Decision and Approved Plan will establish intervals and standards for evaluations as part of the implementation strategy. Priorities will be established based on the identified threats in the planning area, the conservation objectives included as part of the Approved Plan, and any potential uncertainties associated with sage-grouse and associated habitat management. A part of this strategy will include development of a budget to accomplish each of the identified tasks and fund potential research topics to address any uncertainties.

As new science pertaining to sage-grouse and habitat is continuously evolving, refined management strategies may be necessary to ensure that BLM is utilizing the most current science, information, and data regarding sage-grouse. It is for this reason that BLM has collaborated with the State of Wyoming and USFWS to develop an adaptive management strategy as a part of the planning process.

**Wyoming Greater Sage-Grouse Adaptive Management Plan**

The Greater Sage-Grouse adaptive management plan provides a means of addressing and responding to unintended negative impacts to Greater Sage-Grouse and its habitat will be addressed before consequences become severe or irreversible. This adaptive management plan:

- Utilizes science based soft and hard adaptive management triggers,
- Addresses multiple scales of data, and
- Utilizes an adaptive management working group.

**Adaptive Management Triggers**

Adaptive management triggers are essential for identifying when potential management changes are needed in order to continue meeting greater Sage-Grouse Conservation objectives. With respect to sage-grouse, all regulatory entities in Wyoming, including the BLM, use soft and hard triggers. Soft and hard triggers are focused on three metrics: 1) number of active leks, 2) acres of available habitat, and 3) population trends based on annual lek counts. The hard and soft trigger data will be analyzed as soon as it becomes available after the signing of the ROD and then at a minimum, analyzed annually thereafter.

**Soft Triggers:**

Soft triggers are indicators that management or specific activities may not be achieving the intended results of conservation action or that unanticipated changes to populations or habitats have occurred that have the potential to place habitats or populations at risk. The soft trigger is any deviation from normal trends in habitat or population in any given year. Metrics include, but are not limited to, annual lek counts, wing counts, aerial surveys, habitat monitoring, and DDCT evaluations. BLM field offices, with the assistance of their respective land and resource management plan implementation groups, local WGFD offices, and local sage-grouse working groups will evaluate the metrics with the Adaptive Management Working Group (AMWG) on an annual basis. For population metrics, normal population



trends are calculated as the five- year running mean of annual population counts. The purpose of these strategies is to address localized greater sage-grouse population and habitat changes by providing the framework in which management will change if monitoring identifies negative population and habitat anomalies in order to avoid crossing a hard trigger threshold.

***Hard Triggers:***

Hard triggers are indicators that management is not achieving desired conservation results. Hard triggers would be considered a catastrophic indicator that the species is not responding to conservation actions, or that a larger-scale impact or set of impacts is having a negative effect.

Within the range of normal population variables (five-year running mean of annual population counts), hard triggers shall be determined to take effect when two of the three metrics exceeds 60% of normal variability for the area under management in a single year, or when any of the three metrics exceeds 40% of normal variability for a three year time period within a five-year range of analysis. A minimum of three consecutive years in a five-year period is used to determine trends (i.e., Y1-2-3, Y2-3-4, Y3-4-5).

***Adaptive Management Response******Soft Triggers Response:***

Soft triggers require immediate monitoring and surveillance to determine causal factors and may require curtailment of activities in the short- or long-term, as allowed by law. The project level adaptive management strategies will identify appropriate responses where the project's activities are identified as the causal factor. The management agency (BLM) and the AMWG will implement an appropriate response strategy to address causal factors not attributable to a specific project or to make adjustments at a larger regional or state-wide level.

***Hard Trigger Response:***

Upon determination that a hard trigger has been tripped, the BLM will immediately defer issuance of discretionary authorizations for new actions within the Biologically Significant Unit for a period of 90 days. In addition, within 14 days of a determination that a hard trigger has been tripped, the AMWG will convene to develop an interim response strategy and initiate an assessment to determine the causal factor or factors (hereafter called the causal factor assessment).

An interim response strategy will be developed, and implemented to the extent permitted by law, within 90 days of determination that a hard trigger has been tripped. The technical team will be consulted to identify the scope and scale of the interim strategy. Based on the recommendation of the AMWG, the BLM will implement an interim response strategy through an Instruction Memorandum or other management mechanisms to direct management until the causal factor(s) and appropriate response(s) can be determined. The interim response strategy will consist of appropriate management measures undertaken at the project stage, supported by the best available science, to address the specific metric which has been tripped and may include deferral of some activities as appropriate. Measures that were analyzed in this EIS and the COT, NTT reports, and NPT guidance will be reviewed in addition to current science to identify the most appropriate measures to be implemented as part of the interim response strategy. The BLM will comply with all applicable law in implementing such response(s), and, if applicable, will undertake a plan amendment or revision under BLM's planning regulations and policies.

Baseline sage-grouse population levels are established by pre-disturbance surveys, reference surveys and accounting for regional and statewide trends in population levels. Population counts in Wyoming are maintained by the WGFD. Estimates of population are determined based upon survey protocols determined by the WGFD, and are implemented consistently throughout the state. Population counts are tracked for individual leks and then calculated for each core area (PHMA).

### ***Interim Strategy***

An interim response strategy will be developed, and implemented to the extent permitted by law, within 90 days of determination that a hard trigger has been tripped. The technical team (see Implementation Groups below) will be consulted to identify the scope and scale of the interim strategy. Based on the recommendation of the AMWG, the BLM will implement an interim response strategy through an Instruction Memorandum or other management mechanisms to direct management until the causal factor(s) and appropriate response(s) can be determined. The interim response strategy will consist of appropriate management measures undertaken at the project stage, supported by the best available science, to address the specific metric which has been tripped and may include deferral of some activities as appropriate. Measures that were analyzed in this EIS and the COT, NTT reports, and NPT guidance will be reviewed in addition to current science to identify the most appropriate measures to be implemented as part of the interim response strategy. The BLM will comply with all applicable law in implementing such response(s), and, if applicable, will undertake a plan amendment or revision under BLM's planning regulations and policies.

The interim strategy will be implemented for the biologically significant unit (BSU), which, in Wyoming, is the core area, regardless of whether the core area crosses multiple planning boundaries. If it has been identified that more than one core area has the same hard triggers being tripped, or is trending towards triggers being tripped, the interim strategy will be implemented at the appropriate scale.

### ***Causal Factor Assessment***

The causal factor assessment will be completed within 180 days of determination that a hard trigger threshold has been crossed. Once the causal factor assessment is completed by the AMWG, the interim response strategy will be modified to adequately address the causal factors in consultation with the technical team. The AMWG would define a process to review and reverse adaptive management actions once the identified causal factor is resolved (e.g., returning to previous management once objectives of interim management strategy have been met). If a causal factor or factors cannot be identified, the interim response strategy shall stay in place until the cause can be determined and any new planning decision can be implemented.

### ***EIS Level Projects***

Each major project (EIS level) will include adaptive management strategies in support of the population management objectives for Greater Sage-Grouse set by the State of Wyoming, and will be consistent with the Wyoming Greater Sage-Grouse Adaptive Management Plan. These adaptive management strategies will be developed in partnership with the AMWG, WGFD, project proponents, partners, and stakeholders, incorporating the best available science.

### ***Implementation Groups***

#### ***Sage-Grouse Implementation Team***

The State of Wyoming's strategy is implemented by the Sage-Grouse Implementation Team (SGIT), established by Executive Order in 2008 and codified in 2014 by the Wyoming Legislature (W.S. § 9-19-101). The SGIT is a Governor appointed body with representation by federal agencies (BLM, Forest Service, USFWS, and NRCS), state agencies (WGFD, Department of Agriculture, Department of Environmental Quality, Wildlife and Natural Resource Trust Fund, Oil and Gas Conservation Commission, and Office of State Lands and Investments), the Wyoming Legislature, county governments, energy developers, mining companies, landowners, and non-governmental organizations. The BLM, USFWS, NRCS and the Forest Service all have an equal role in the SGIT.

### ***Land and Resource Management Plan – Implementation Teams***

Land and Resource Management Plans are implemented through implementation teams. These implementation teams include cooperating agencies who participated in the development of this land use plan representing local, state, and federal agencies. These implementation teams will coordinate with the AMWG and others to evaluate metrics and management responses necessary to meet Greater Sage-Grouse conservation objectives within their planning area.

### ***Adaptive Management Working Group and Technical Team***

An Adaptive Management Working Group (AMWG) will be established in consultation with the SGIT to provide appropriate guidance for agencies with the ability to affect sage-grouse populations and/or habitat through their permitting authority. The AMWG will include BLM, Forest Service, USFWS, and State of Wyoming. The purpose of this group will be to initiate a response strategy should it be determined that a hard trigger has been tripped or if soft triggers are showing a trend across a region. A hard trigger may be tripped at any time, thus, upon identification of such event, current available population and habitat data will be reviewed by the AMWG with the assistance of a technical team comprised of agency biologists, scientists familiar with the Management Zone in question, and other individuals as appropriate (e.g., habitat managers, respective landowners, other appropriate representatives) to confirm that a hard trigger has been tripped. Upon verification of data showing that a hard trigger has been tripped, the AMWG will convene within 14 days.

The AMWG will review monitoring data which has been collected by the appropriate local sage-grouse working groups in conformance with data collection standards. This group will meet annually to review all data collected in the prior year regarding Greater Sage-Grouse populations and habitats. Monitoring data will have been analyzed (by WGFD for population based metrics (leks, wing counts, etc. and by land managers [BLM, Forest Service, State of Wyoming] for habitat based metrics [DDCT, etc.]) Should the monitoring data suggest a trend toward a soft or hard trigger being tripped, they will 1. Identify what metric is indicating that trend (population or habitat); and 2. Identify a technical team to review the data and compile a range of activities which may be causing the trend. Should review of the monitoring data identify that multiple soft triggers have been tripped in one core area, or the same triggers have been tripped across multiple core areas, the technical team will be tasked with verifying the scope and intensity of the trends.

Once the analysis of the trends has been completed by the technical team and reported back to the AMWG, the AMWG will make recommendations to the appropriate land managing agency regarding an interim adaptive management strategy to be implemented. Implementation will occur via the appropriate

regulations and policy applicable for that agency. At that time, the State of Wyoming will conduct a review of the regulatory authority implementing the Sage-Grouse Core Area Strategy to determine if a State of Wyoming adaptive management strategy is warranted.

Upon review of the annual data by the AMWG and technical team, the State of Wyoming, as part of the AMWG, will contact neighboring states within the respective Management Zone to inform them of any findings. Should a hard trigger be tripped, the trigger which has been tripped and any recommended adaptive management strategy being implemented will be shared with the appropriate neighboring state(s). Should the need arise for implementation of a multi-state adaptive management strategy; the AMWG will coordinate to develop an effective response.

### ***Small Leks***

Small leks will be given separate consideration. Due to geographic variations a definition of “small” is not provided, rather determination of “small” will be made by the AMWG based upon recommendations of the scientific community. Generally, “small” is considered 10 or fewer males for a three year time period within a five-year range of analysis. If a trigger is hit based upon such a lek, then the adaptive management working group will evaluate the site-specific circumstances and determine appropriate remedial action.

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# Appendix D

Cumulative Effects Supporting Information



# Appendix D. Cumulative Effects Supporting Information

## D.I RANGEWIDE IMPACTS FROM PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS

**Table I** represents the past, present, and reasonably foreseeable actions across the entire range for Greater Sage-Grouse, which are separated by state. When assessing the cumulative impact of the RMPA/EIS on Greater Sage-Grouse and its habitat, there are multiple geographic scales that the BLM has considered, including the appropriate WAFWA MZ. WAFWA MZs have biological significance to Greater Sage-Grouse. Established and delineated in 2004 in the *Conservation Assessment of Greater Sage-Grouse and Sagebrush Habitats* (Connelly et al. 2004), the WAFWA MZs are based on floristic provinces that reflect ecological and biological issues and similarities, not political boundaries.

**Table I**  
**Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions**

Action	Type	Effects
<b>Great Basin</b>		
Habitat Restoration Programmatic EIS	Great Basin-wide programmatic habitat restoration project	Programmatic document effects will be realized when the field implements projects. This action will provide opportunities to improve and enhance habitat through vegetation treatments.
Fuel Breaks Programmatic EIS	Great Basin-wide programmatic habitat fuel break project	Programmatic document effects will be realized when the field implements projects. This action will help to reduce the loss of habitat due to catastrophic fires.
Forest Service Greater Sage-Grouse Plan Amendments	Programmatic LUP amendments for Greater Sage-Grouse on Forest Service Lands in ID, UT, NV, CO, and WY	Programmatic document effects will be realized when the field undertakes projects to implement the LUP amendment. The FS is resolving protests. They have not made a decision.
<b>Northwest Colorado</b>		
Integrated program of work	Habitat restoration and improvement projects	Potential localized, short-term, adverse impacts on Greater Sage-Grouse habitat, with beneficial long-term impacts. Actions are consistent with those foreseen in the 2015 Final EIS and are therefore within the range of cumulative effects analyzed in the 2015 Final EIS.
Travel management	White River Field Office: Area-wide travel designations being considered through an ongoing plan amendment Little Snake Field Office: Travel Management plan, identifying route designations consistent with criteria in the 2015 LUPA	These actions represent implementation of objectives from 2015 ARMPA to prioritize travel management in Greater Sage-Grouse habitat. Impacts are covered in the cumulative impacts of the 2015 Final EIS as reasonably foreseeable.

D. Cumulative Effects Supporting Information (Table I: Rangeland Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
Continued oil and gas development (60 parcels sold, but under review September 2019; Deferral of 6 parcels December 2019 lease sale; Deferral of 39 parcels in March 2020 lease sale; Potential lease of 1 parcel September 2020; Potential lease of 18 parcels December 2020).	Disturbance and fragmentation	Development is consistent with the reasonably foreseeable development scenarios analyzed as part of the 2015 Final EIS and the associated field office RMPs. Additional impacts are expected to be within the range analyzed in 2015 Final EIS cumulative impacts analysis.
<i>Plans</i>		
Northwest Colorado Programmatic Vegetation Treatment Environmental Assessment (DOI-BLM-CO-N000-2017-0001-EA) decision	Programmatic NEPA document for streamlining habitat treatments in sagebrush	-
<b>Idaho</b>		
Wildland fires 2015–2017	BLM: Past acres burned on BLM-administered land	534,744 acres of HMA burned since the ROD was signed in 2015. Post-fire rehabilitation was implemented. Too soon to determine the effectiveness of rehabilitation.
Habitat treatments 2015–2017	BLM: Past habitat improvement projects	431,295 acres treated to restore or improve potential Greater Sage-Grouse habitat. Too soon to determine the effectiveness of treatment.
ROWs issued 2015–2017	BLM: Past ROWs issued on BLM-administered land	97 ROWs were issued in the planning area but fewer than 10 were in Greater Sage-Grouse habitat and resulted in new habitat loss. The effects were mitigated, using the mitigation hierarchy.
Soda Fire restoration	BLM: Present habitat restoration and fuel break construction	Restoration of previously burned Greater Sage-Grouse habitat. Results in a net benefit to Greater Sage-Grouse habitat.
Twin Falls Vegetation Project	BLM: Present habitat treatment project that improves Greater Sage-Grouse habitat district-wide	Restoration of Greater Sage-Grouse habitat and improved rangeland conditions. Results in a net benefit to Greater Sage-Grouse habitat.
Idaho Falls Vegetation Project	BLM: Present habitat treatment project that improves Greater Sage-Grouse habitat district-wide	Restoration of Greater Sage-Grouse habitat and improved rangeland conditions. Results in a net benefit to Greater Sage-Grouse habitat.
Natural gas-producing well near Weiser, Idaho	Private: Present active gas well on private land	Well is not in Greater Sage-Grouse habitat.
Conifer removal	NRCS: Present (2018) 1,862 acres of conifer removal on private land to improve Greater Sage-Grouse habitat	Conifer removal would improve Greater Sage-Grouse habitat and open areas to Greater Sage-Grouse that were previously unavailable because of juniper encroachment.



D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
Weed treatments	NRCS: Present (2018) 95 acres of weed treatments on private land to reduce noxious weeds in Greater Sage-Grouse habitat	Weed treatments allow the native vegetation to outcompete weeds on treated acres.
Water development	NRCS: Present (2018) 21,308 feet of pipeline and 40 watering tanks installed on private land	Water development to move livestock out of natural springs and wet meadows.
Pending ROWs 2015–2017	BLM: Future ROW under analysis on BLM-administered land. For example, ROWs include existing distribution lines, gravel pits, roads, canal diversions, etc.	123 ROW applications have been submitted and are pending review and analysis.
Boise District Vegetation Project	BLM: Future habitat treatment project that improves Greater Sage-Grouse habitat district-wide	Restoration of Greater Sage-Grouse habitat and improved rangeland conditions result in a net benefit to Greater Sage-Grouse habitat.
Tristate Fuel Breaks Project	BLM: Future Greater Sage-Grouse habitat protection	Fuel breaks would protect habitat from wildfires. Some sagebrush may be lost during fuel break construction. Results in a net benefit to Greater Sage-Grouse habitat.
Bruneau-Owyhee Sage-Grouse Habitat Project	BLM: Ongoing removal of juniper encroaching into Greater Sage-Grouse habitat	Bruneau-Owyhee Sage-Grouse Habitat Project would remove encroaching juniper from Greater Sage-Grouse habitat and render the habitat usable for Greater Sage-Grouse. Results in a net benefit to Greater Sage-Grouse habitat.
Conifer removal	NRCS: Future (2019–2023) 5,541 acres of conifer removal on private land to improve Greater Sage-Grouse habitat	Conifer removal would improve Greater Sage-Grouse habitat and open areas to Greater Sage-Grouse that were previously unavailable because of juniper encroachment.
Weed treatments	NRCS: Future (2019–2023) 357 acres of weed treatments on private land to reduce noxious weeds in Greater Sage-Grouse habitat	Weed treatments allow the native vegetation to outcompete weeds on treated acres.
Water development	NRCS: Present (2019–2023) 82,502 feet of pipeline and 46 watering tanks installed on private land	Water development to move livestock out of natural springs and wet meadows.
<b>Nevada and Northeast California</b>		
Wildland Fires 2015-2017	BLM: Past – Acres burned on BLM administered land	Approximately 1.3 million acres of HMA burned between 2015-2017. Post-fire restoration is being implemented as described below.
Fire Restoration (Emergency Stabilization and Rehabilitation)	BLM: Past and Present – Habitat restoration following wildland fires	1.8 million acres of habitat are either currently being treated or scheduled to be treated according to specific prescriptions outlined in Emergency Stabilization and Burned Area Rehabilitation plans following wildfire.

D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
Habitat Treatments	BLM: Past – Habitat improvement projects	Over 176,000 acres of Greater Sage-Grouse habitat was treated between 2015-2017 to maintain or improve conditions for Greater Sage-Grouse. Treatments included conifer removal, fuel breaks, invasive species removal and habitat protection/restoration.
Land Use and Realty (issued and pending) 2015-2018	BLM: Past ROWs issued on BLM land	227 ROWs were issued in the planning area between 2015-2017. This includes amendments and reauthorizations, which may not have resulted in new disturbance. For ROWs occurring in Greater Sage-Grouse habitat, effects were offset using the mitigation hierarchy.
	BLM: Future pending	90 ROW applications are pending review and analysis. New ROWs would be held to the compensatory mitigation process described in this Proposed RMPA/Final EIS. However, no additional impacts from those described in the Draft EIS and 2015 Final EIS are expected. In addition, BLM Nevada is also currently evaluating a proposed withdrawal for expansion of the Fallon Naval Air Station, Fallon Range Training Complex for defense purposes.
Oil and Gas	BLM: Past	BLM has offered for lease 425,711 acres in HMAs; 407,478 of that total was leased. Lease stipulations apply as described in the leases according to HMA category.
	BLM: Past and Future	BLM's scheduled lease sale on June 12, 2018 included offering a total 110,556 acres of HMAs for lease. After the sale, 30,591 acres in HMA were sold. On September 11, 2018, BLM held another lease sale, where 13,163 acres in HMA were sold. The final lease sale of 2018 for BLM Nevada is scheduled for December 11, 2018 and this sale will not include any parcels within HMA for lease.  165 parcels have been moved from the November 12, 2019 O&G lease sale, New sale date TBD. These parcels are all located in the Ely District. 220 parcels within Greater Sage-Grouse habitat have been moved to April 2020 lease sale.

D. Cumulative Effects Supporting Information (Table I: Rangeland Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
Geothermal	BLM: Past and Present	<p>Between 2015 and 2017, the BLM has offered for lease 24,468 acres within HMAs. Lease stipulations apply as described in the leases as analyzed in the 2015 Final EIS.</p> <p>Six geothermal development permits have been approved and drilled on existing pads on existing leases. McGinness Hills Phase 3 Environmental Assessment authorized up to 42 acres of disturbance on existing leases, which will be offset according to the mitigation hierarchy.</p> <p>Juniper Geothermal Project: Proposed activity – still waiting for baseline data to begin the EA. Analysis has not yet started but EA will analyze the 2015 and 2019 habitat types under separate alternatives.</p> <p>North Valley (San Emidio II) Geothermal Development Project. Analysis has not yet started but EA will analyze the 2015 and 2019 habitat types under separate alternatives.</p> <p>Baltazor Geothermal Project Pre NEPA. Analysis has not yet started but EA will analyze the 2015 and 2019 habitat types under separate alternatives.</p> <p>North Valley (San Emidio II) Geothermal Development Project</p>
Geothermal	Forest Service: Future Pending	6,901 acres of HMA pending Forest Service concurrence to lease, no pending geothermal development permits. If in HMAs, stipulations would be as described in 2015.
Locatable Mineral Projects	BLM: Past and Present	Between 2015 and 2017, the BLM has approved 18 new mines and/or expansions in the planning area, which is within the reasonably foreseeable development scenario outlined in the 2015 Final EIS (Section 5.1.16).
	BLM: Future Pending	The BLM is currently reviewing 20 plans of development for new mines or expansions, which is within the reasonably foreseeable development scenario outlined in the 2015 Final EIS (Section 5.1.16).
Fuel Breaks Programmatic EIS	BLM: Future – Great Basin-wide programmatic habitat fuel break project	Programmatic document effects will be realized when the field implements projects.

D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
Greater Sage-Grouse Conservation	Forest Service- Future	Forest Service has indicated they will also be amending their land use plans. Specific details of their proposed changes are not yet known, but it is anticipated they propose alignment with state management plans and strategies.
Tri-State-Calico Complex Wild Horse and Burro Gather	BLM: Future	Removing wild horses will protect the rangelands from overgrazing and provide better habitat conditions for sage-grouse.
Thomas Creek Range Improvement Project (CA)	BLM: Future	Vegetation improvement project to improve the range for sage-grouse and other sage obligate species.
Juniper and Fuel Break Maintenance (CA)	BLM: Future	Juniper removal and fuelbreak project to remove encroaching juniper and protect the treatments with from wildfire.
Twin Peaks Horse Gather (CA)	BLM: Future	Removing wild horses will protect the rangelands from overgrazing and provide better habitat conditions for sage-grouse.
<b>Oregon</b>		
Emergency Stabilization and Rehabilitation in South Bull Ridge RNA	Aerial herbicide application	Preliminary results indicate success in treating annual grasses (2017).
Emergency Stabilization and Rehabilitation in South Ridge Bully Creek RNA	Aerial herbicide application	Preliminary results indicate success in treating annual grasses (2015).
Emergency Stabilization and Rehabilitation in North Ridge Bully Creek RNA	Aerial herbicide application	Preliminary results indicate success in treating annual grasses (2015).
Trout Creek Mountain	Grazing permit renewal	Grazing permit renewal allotment includes the East Fork Trout Creek Research Natural Area (2016).
Louse Creek Canyon Grazing Permit EIS	Grazing permit on 550,000 acres	Notice of Intent to prepare an EIS on grazing permit for 550,000 acres in Vale District (NOI September 2019)
Southeastern OR RMP Amendment	Wilderness, Wilderness characteristics	Draft EIS released for public review May 2019.
Lakeview RMP Amendment	Wilderness, Wilderness characteristics	Draft EIS anticipated August 2020.
Tristate Fuel Breaks Project	See Idaho description.	OR ROD to be completed/signed after Southeastern OR RMP amendment is completed.
Lakeview Resource Area Vegetation Management EA	Comprehensive vegetation management plan for the Lakeview Resource Area.	In development.

D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
<b>Utah</b>		
<b>Fire and Fuels</b>		
Wildland Fires 2015-2017	Acres burned on BLM administered land	<p>Approximately 181,159 acres of PHMA/GHMA burned between 2015-2019. Post-fire restoration is being implemented across all population areas that are affected.</p> <p>Effects: Potential loss of habitat value due to the removal of vegetation by fire.</p>
Fire Restoration (Emergency Stabilization and Rehabilitation)	Acres of habitat restoration following wildland fires	<p>Approximately 380,704 acres of HMA were treated/restored between 2015-2019. All of these acres are being restored in according to specific prescriptions outlined in Emergency Stabilization and Burned Area Rehabilitation plans following wildfire across all population areas that are affected.</p> <p>Effect: Potentially improve or increase habitat due to vegetative restoration activities.</p>
<b>Vegetation</b>		
Habitat Treatments	Acres of habitat improvement projects	<p>Past: Over 270,000 acres of Greater Sage-Grouse habitat was treated between 2015-2019 to maintain or improve conditions for Greater Sage-Grouse across all populations. Treatments included conifer removal, fuel breaks, invasive species removal and habitat protection/restoration.</p> <p>Effect: Potentially improve or increase habitat due to vegetative restoration activities.</p> <p>Future: Over 524,702 acres of Greater Sage-Grouse habitat is being proposed for treatment over the next 5 years. Treatments will include conifer removal, fuel breaks, invasive species removal and habitat protection/restoration across all populations.</p> <p>Effect: Potentially improve or increase habitat due to vegetative restoration activities.</p>

D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
<b>Lands and Realty</b>		
Land Use and Realty (issued and pending) 2015-2019	ROWs issued or pending on BLM land	<p>Past: Throughout the planning area (all BLM field offices in Utah except Saint George and Monticello) regardless of Greater Sage-Grouse habitat, 1,092 ROWs were issued between 2015 and 2019. However, only 109 of these were within PHMA.</p> <p>Effect: These numbers include amendments and reauthorizations, which would likely not have resulted in any new disturbance. For ROWs occurring in Greater Sage-Grouse habitat, effects were offset using the mitigation hierarchy.</p> <p>Future: Throughout the entire planning area, 225 ROW applications are pending review and analysis. Of these, only 30 are within PHMA.</p> <p>Effect: New ROWs would be held to the compensatory mitigation process described in this Proposed RMPA/Final EIS. However, no additional impacts from those described in the Draft EIS and 2015 Final EIS are expected.</p>
Zephyr Transmission Line	500 kV transmission line	<p>Application received – could impact the Bald Hills, Uintah, Carbon, Strawberry, Emery, and Sheeprocks populations.</p> <p>Effects: May remove vegetation due to construction activities. Towers may provide perching opportunities for avian predators. However, most of these impacts should be removed by management standards identified in the selected alternative.</p>
Enefit Utility Project	Five rights-of-way across public lands for infrastructure (a road, 3 pipelines, and 2 powerlines) to support development of a mine on private lands. Estimated 1,037 acres of disturbance for the rights-of-way (7,000-9,000 acre mine and 320-acre processing plant).	<p>ROD issued in September 2018. Issuance and constructions of ROWs still pending – could impact a portion of the Uintah population (Dead Man Bench GHMA).</p> <p>Effects: May remove vegetation due to construction activities. Increased maintenance activities could lead to an increase in collision mortalities. Any associated tall structures may provide perching opportunities for avian predators. However, most of these impacts should be removed by management standards identified in the selected alternative.</p>

D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
Congressionally Directed Land Tenure Adjustments	Land Tenure Adjustments from the BLM to the State of Utah	<p>Table I-2 in Chapter I shows the acres of public land with mapped PHMA and GHMA, establishing the summary of all past lands actions.</p> <p>In the National Defense Authorization Act for Fiscal Year 2017 Congress directed a land exchange between the BLM and State Institution and Trust Lands Administration (SITLA). This includes, approximately 2,400 acres of GHMA in the Sheeprocks area being studied for transfer to the State of Utah.</p> <p>In March 2019 Congress provided for land transfers in the John D. Dingell, Jr. Conservation, Management, and Recreation Act. This could include the BLM acquiring 2,065 acres of PHMA and 1,360 acres of GHMA in the Uinta population. It could also include the transfer of SITLA land in Congressional designations outside of Greater Sage-Grouse habitat for BLM lands throughout the state. While the list of involved lands has not been finalized, preliminary potential parcels include approximately 51,400 acres of PHMA and 1,870 acres of GHMA in the Rich, Carbon, Emery, Uinta, and Sheeprocks populations.</p> <p>Effects: Since compliance with the state's 2019 sage-grouse plan and the Governor's Executive Order on sage-grouse is voluntary for SITLA, transfers of PHMA from BLM would decrease the level of certainty for sage-grouse protection. However, since the lands involved in these Congressionally directed transfers has not been finalized at this time, the specific lands involved and, if transferred, their potential future uses are not known. It would be speculative to analyze beyond the above statement.</p>

D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
<b>Leasable Minerals (Oil and Gas, Non-energy Leasable Minerals, Coal, and Oil Shale and Tar Sands)</b>		
Oil and Gas Leases	Acres of BLM land leased for Oil and Gas development	<p>Past: There are approximately 411,000 acres of PHMA and GHMA currently leased for fluid minerals. Approximately 195,000 acres of those leases are held by production.</p> <p>Effects: The act of leasing would have no direct effect, as no specific disturbance is taken as a result of purchasing a lease.</p> <p>Future: The BLM is required to conduct quarterly lease sales which could include parcels in HMA.</p> <p>Effect: The act of leasing would have no direct effect, as no specific disturbance is taken as a result of purchasing a lease.</p> <p>Leasing could occur in any of the populations, but would be most likely to impact the Uintah, Carbon, Emery, and Rich populations due to mineral potential.</p>
Oil and Gas Wells	Oil and Gas exploration and development	<p>Based upon the reasonable and foreseeable development assumptions in <b>Chapter 4</b>, it is anticipated that 2,968 oil and gas wells will be drilled within occupied Greater Sage-Grouse habitat within the population areas, of which 2,289 wells are anticipated to be producing wells. Exploration wells expected in all populations. Development wells anticipated in Uintah, Carbon, Emery, and Rich populations. This estimate would be inclusive of all related mineral development activities, including leasing, full-field development analyses, and APD analyses. Development associated with such actions is the actualization of the reasonably foreseeable development scenario estimate.</p> <p>Effect: The development of wells within these areas could lead to fragmentation and loss of habitat due to construction activities. Increased noise levels associated with traffic and compressors may impact lek attendance. Increased traffic associated with day-to-day operations may also increase the potential for collision mortality. However, most of these impacts should be removed by management standards identified in the selected alternative.</p>



D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
Asphalt Ridge Tar Sands Development	Lease approximately 6,000 acres of Tar Sands Lands described in the Asphalt Ridge Tract, which is directly adjacent to existing approximately 16,000 acres of State leases	<p>Still in planning and NEPA stages – could impact the Uintah population.</p> <p>Effect: As a largely underground operation on BLM-administered lands, this would disturb a small amount of land associated with ancillary features. On the portions of the mine that would be mined through surface means, habitat would be lost and noise, dust, and light would affect adjacent areas.</p>
Flat Canyon Coal Lease by application	The Flat Canyon Coal Lease Tract is approximately 2, 692 acres of federal coal reserves	<p>Forest Service completed the consent to BLM. Approximately 23 acres out of the 2,692 acres are within the Emery Population Area.</p> <p>Effect: The act of leasing would have no direct effect. However, the activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative.</p>
Alton Coal Tract Lease-by-Application	Add 3,576 acres of federal surface or mineral estate to existing 300-acre mine on private land.	<p>ROD issued in August 2018. The lease sale and issuance was completed in February 2019, and as such was developed to be in conformance with the 2015 Utah Greater Sage-Grouse ARMPA. As described in the July 2018 Alton Final EIS, development of the mine could impact a part of the southern habitat in the Panguitch population.</p> <p>Effect: Activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative, or offset by habitat improvements.</p>
Williams Draw Coal Lease by Application	The proposed action includes 4,200 acres of federal surface and mineral estate; the proposal may have several vents, drilling exploration holes on the surface and underground, and load-out facilities	<p>Still in planning and NEPA stages; could impact the Carbon population.</p> <p>Effect: The act of leasing would have no direct effect. However, the activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative.</p>

D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
Greens Hollow Coal Lease by Application	Proposal includes 6,700 acres; a vent is proposed off site; minimal surface disturbances with the exception for exploration drilling	<p>The area has been leased, but development is on hold due to litigation. Would affect the Emery population.</p> <p>Effect: This is an expansion of an existing underground mine. Activities associated with development of the lease could result in the loss of a small amount of habitat from development of ancillary features (vent fan). Most mining activity (portal, truck traffic, etc.) occurs down the cliff face, far removed from the habitat. Most of these impacts would be removed by management standards identified in the selected alternative.</p>
Flat Canyon Coal Lease by Application	Lease by Application 3,792 acres; and Exploration License, 595 acres	<p>Leased and under production in the Carbon population.</p> <p>Effect: The act of leasing would have no direct effect. However, the activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative.</p>
Gilsonite Leasing	16,810 acres that are currently under prospecting permit application; the permits would either be issued or a Known Gilsonite Leasing Area would be established, thus allowing competitive leasing	<p>The prospecting permit applications have been in place since the late 1980s; Known Gilsonite Leasing Area report ongoing, after which NEPA will begin to address backlogs for these areas in the Uintah population.</p> <p>Effect: Activities associated with development or prospecting of the permit / lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative.</p>
Phosphate Fringe Acreage Lease	1,627 acres of fringe acreage lease on BLM-administered lands	<p>NEPA has started and awaiting a Development Scenario to complete the NEPA for this expansion of an existing phosphate mine in the Diamond Mountain portion of PHMA in the Uintah population.</p> <p>Effect: The act of leasing would have no direct effect. However, the activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative.</p>

D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
Phosphate Competitive Lease Application	1,186 acres on National Forest System lands	<p>NEPA has started and awaiting a Development Scenario to complete the NEPA for this area in the Uintah population.</p> <p>Effect: Activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative.</p>
<b>Other Items</b>		
Hard Rock Prospecting Permits being considered on Bankhead Jones	Hard rock exploration permits	<p>Pending Consideration for this area in the Sheeprocks population.</p> <p>Effect: Activities associated with development of the lease could result in loss of habitat, vehicle mortality due to increased traffic and disruption of seasonal use areas. Most of these impacts should be removed by management standards identified in the selected alternative.</p>
Gooseberry Narrows Reservoir	Bureau of Reclamation project on Forest Service and private land; project is approximately 1,200 acres	<p>EIS is complete, pending EPA review and approval for this portion of the Carbon population.</p> <p>Effect: Activities associated with construction and operation of the reservoir would result in loss of habitat within the project area and a potential increase for vehicle mortality due to increased traffic. However, the habitat lost within the project area may be supplemented by improving the quality and seasonal functionality of the adjacent habitat. Most of the impacts should be removed by management standards identified in the selected alternative.</p>

D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
Uinta Basin Railway	Development of a railway that begins in the Uinta Basin, and terminates at a location that connects to the national rail system.	<p>The project is in the early stages of consideration. Scoping was conducted by the Surface Transportation Board in June-August, 2019. The EIS is currently being developed. There is not a preferred alternative, but based on the early alternatives, one alternative alignment could affect GHMA in the Uinta Population, and others could affect PHMA in the Emma Park portion of the Carbon Population.</p> <p>Effect: Construction of the railway could result in a direct loss of habitat. Use of the railway could result in noise that would displace birds from preferred habitats. The occurrence and magnitude of these impacts would vary based on alternative alignment and mitigation measures applied.</p>
Motorized Travel Plan Implementation	Implementation of motorized route designation plans across the planning region	<p>Implementation actions underway statewide, with travel planning reasonably foreseeable in the Sheeprocks, Uintah, Carbon and Panguitch populations.</p> <p>Effect: The development of a motorized travel plan would potential help to reduce fragmentation of habitat and centralizing disturbance into areas of lesser importance.</p>
Forest Service Greater Sage-Grouse Planning	Forest Service and Utah Division of Wildlife Resources	<p>Forest Service is in the process of amending their land use plans. Their proposed changes are similar with those considered in this EIS, and would increase alignment with state management plans and strategies. Applicable to all Greater Sage-Grouse populations with National Forest System Lands.</p> <p>Effect: This effort will help to align the Forest Service's plan to be more consistent with the State of Utah's plan and provide the adequate management actions necessary to protect and conserve the Greater Sage-Grouse.</p>

D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
State of Utah Greater Sage-Grouse Management	Update of the State's Conservation Plan for Greater Sage-Grouse in Utah, as well as implementation of the State's compensatory mitigation rule	<p>Past: The State updated their Greater Sage-Grouse plan in January 2019, incorporating the compensatory mitigation rule that provides a process to develop a banking system to apply the state's 4:1 mitigation ratio that is designed to improve habitat for Greater Sage-Grouse.</p> <p>Effect: This new plan refines and identifies areas to improve management actions and allow for the incorporation of new and local science to better balance Greater Sage-Grouse management across the state. It provides management to maintain and improve Greater Sage-Grouse populations, as well as a framework for managing habitat on state and private land. It also provides an opportunity for economic development to occur while offsetting the impacts to habitat quality.</p>
<b>Wyoming</b>		
Wildland Fires 2015-2020	BLM: Past – Acres burned on BLM administered land	Approximately 301,000 acres of HMA burned between 2015 and 2020. Post-fire restoration and habitat treatments are being implemented, as described below, to diminish impacts of habitat lost to wildland fire.
Fire Restoration (Emergency Stabilization and Rehabilitation)	BLM: Past and Present – Habitat restoration following wildland fires	Approximately 5,443 acres of BLM-administered habitat are either currently being treated or scheduled to be treated according to specific prescriptions outlined in Emergency Stabilization and Burned Area Rehabilitation plans following wildfire.
Habitat Treatments	BLM: Past – Habitat improvement projects	More than 96,000 acres of Greater Sage-Grouse habitat were treated between 2015 and 2020 to maintain or improve conditions for Greater Sage-Grouse. Treatments included conifer removal, fuel breaks, invasive species removal and habitat protection/ restoration.

D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
Land Use and Realty (issued and pending) 2015-2018	BLM: Past ROWs issued on BLM land	BLM Wyoming issued approximately 3,720 ROWs in the planning area between 2015-2020. This includes amendments and reauthorizations, which may not have resulted in new disturbance. For ROWs occurring in Greater Sage-Grouse habitat, effects were offset by the management prescriptions in the RMPs and ARMPA.
	BLM: Future pending	There are approximately 653 ROW applications pending review and analysis. New ROWs under the 2018 Proposed Plan would align with the management prescriptions of the Core Area Strategy and State of Wyoming Mitigation Framework. No additional cumulative impacts are anticipated, beyond those described.
		Miller Mountain Land Exchange would resolve public access issues and improve landscape scale management of resources by consolidating BLM lands in the area.
Oil and Gas		Chokecherry and Sierra Madre Wind Energy Development Project, Phase II Turbine Development (EA3)
	BLM: Past	BLM Wyoming has offered for lease 5,052,795.01 acres; 2,621,838.82 acres of that total was leased. Leases followed management prescriptions in the RMPs and ARMPA and stipulations apply as described in the leases according to HMA category.
	BLM: Future pending	BLM Wyoming has a scheduled lease sale in September 2020 that will offer 351,680.945 acres for lease.
		The actions in the 2018 Proposed Plan do not propose to change stipulations analyzed in the 2014 and 2015 plans.

D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
Locatable Mineral Projects	BLM: Past and Present	Between 2015-2020 <sup>[1]</sup> , the BLM has approved 24 new mines and/or expansions within the planning area (including non-habitat). The 2018 Proposed Plan does not propose changes to any decisions associated with locatable minerals, which were sufficiently analyzed on the existing plans.  <sup>[1]</sup> This covers all authorized operations through first quarter 2020, it does not include the pending operations that are currently under review.
	BLM: Future pending	The BLM is currently reviewing 4 plans of operation for new mines, mine expansions and 5 notice-level activities. This number does not include the 10 pending mine patents, which are in the process of being patented into private ownership. The 2018 Proposed Plan does not propose changes to any decisions associated with locatable minerals, and future impacts would be analyzed in future EISs, adhering to existing requirements of the RMPs and ARMPA.
Leasable Mineral Projects (Coal)	BLM: Past and Present	Two coal lease modifications were issued in 2018, totaling 1,306.61 acres. For lease modifications occurring in Greater Sage-Grouse habitat, effects were offset by the management prescriptions in the RMPs and ARMPA.
	BLM: Future pending	BLM Wyoming is currently reviewing 3 coal lease applications/modifications totaling 10,344.21 acres, however these applications are currently on hold. No management decisions for leasable minerals are proposed for change under the 2018 Proposed Plan.

D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
<b>Other items</b>		
Buffalo RMP Coal Supplemental EIS and Amendment	BLM: Past - Planning	<p>Final EIS published November 4, 2019. Record of Decision signed November 22, 2019</p> <p>The Buffalo Field Office addressed deficiencies through the preparation of a Draft Supplemental EIS that considered climate change and downstream combustion, and analyzed alternatives that reduce the amount of coal available for leasing.</p> <p>Effect: Since no alternative proposed different management for Greater Sage-Grouse from the sage-grouse planning process, there are no cumulative effects not already address in the impact analysis above.</p>
Alkali Creek Reservoir Project EIS	BLM: Past - The Wyoming Water Development Commission (WWDC) proposed to construct a 294-acre reservoir on Alkali Creek and ancillary facilities across public and private land near Hyattville, Wyoming. The reservoir will impound approximately 7,994 acre-feet of water under normal conditions, and 9,872 acre-feet when under flood conditions.	<p>Final EIS published May 2019. Record of Decision issued on November 18, 2019.</p> <p>The reservoir will provide late-season irrigation water for portions of the Nowood River Watershed. The irrigation pool (currently modeled at 5,996 acre-feet) will be available either directly or through exchange for irrigation water.</p> <p>Effect: Since no alternative proposed different management for Greater Sage-Grouse from the sage-grouse planning process, there will be no cumulative effects not already address in the impact analysis above.</p>
Leavitt Reservoir Expansion Project EIS	BLM: Past - The WWDC proposed to expand the existing Leavitt Reservoir near Shell, Wyoming, from a pool of 643 acre-feet to 6,404 acre-feet.	<p>The purpose of the project is to provide late season irrigation for agriculture in the Shell Valley.</p> <p>Effect: Since no alternative proposed different management for Greater Sage-Grouse from the sage-grouse planning process, there will be no cumulative effects not already address in the impact analysis above.</p>



D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions)

Action	Type	Effects
Rock Springs RMP Revision EIS	BLM: Future pending - Development of a resource management plan revision	<p>The planning area includes lands within the Rock Springs Field Office administrative boundary in Sweetwater, Lincoln, Uinta, Sublette, and Fremont counties in southwestern Wyoming. The decision area consists of 3.6 million acres of BLM-administered surface and 3.7 million acres of federal mineral estate. The revised RMP will replace the 1997 Green River RMP. A Comprehensive Travel and Transportation Plan for the entire field office, as well as an additional socioeconomic modeling effort coordinated with cooperating agencies are being incorporated into the RMP Revision.</p> <p>Effect: Since no alternative proposes different management for Greater Sage-Grouse from the sage-grouse planning process, there will be no cumulative effects not already address in the impact analysis above.</p>
Wild Horse Management for the BLM Rock Springs and Rawlins Field Offices Plan Amendment EIS	BLM: Future pending - Development of a resource management plan amendment	<p>In April 2013, the Department of the Interior, the BLM and the Rock Springs Grazing Association signed a consent decree requiring the BLM to initiate NEPA analysis to consider the environmental effects of modifying management levels of wild horses in specified herd management areas. An NOI was issued, initiating public scoping to amend the 2008 Rawlins RMP in conjunction with the Rock Springs RMP revision. Prior to Spring 2019, the wild horse management decisions were being evaluated through the ongoing Rock Springs Resource Management Plan revision, with included amendment to the Rawlins RMP for the Adobe Town HMA. However, due to delays in the ongoing RMP revision related to expansion of energy development opportunities, the decision was made to expedite a separate EIS document specific to wild horse management actions.</p> <p>Effect: Since no alternative proposes different management for Greater Sage-Grouse from the sage-grouse planning process, there will be no cumulative effects not already address in the impact analysis above.</p>

D. Cumulative Effects Supporting Information (Table I: Rangewide Impacts from Past, Present,  
and Reasonably Foreseeable Actions)

Action	Type	Effects
Converse County Oil and Gas Project EIS	BLM: Future pending – Proposed action includes development of 5,000 new oil and gas wells on 1,500 well pads.	<p>The project area encompasses roughly 1.5 million acres of split estate mixed surface ownership lands. The operators propose to develop the wells over 10 years, with the life of the project anticipated to be 20 to 30 years.</p> <p>Effect: Since no alternative proposes different management for Greater Sage-Grouse from the sage-grouse planning process, there will be no cumulative effects not already address in the impact analysis above.</p>
Moneta Divide Natural Gas and Oil Development Project EIS	BLM: Future pending – Proposed action includes development of 4,250 natural gas wells and associated infrastructure.	<p>The project area is located in Fremont and Natrona counties and encompasses approximately 265,000 acres of land. The life of the proposed project is estimated to be 40 years. Additional potential development, which would require additional NEPA analysis, include pipelines to transport treated, produced water from the production areas west to Boysen Reservoir and a pipeline transporting natural gas from the production areas to Wamsutter, Wyoming, in the Rawlins Field Office.</p> <p>Effect: Since no alternative proposes different management for Greater Sage-Grouse from the sage-grouse planning process, there will be no cumulative effects not already address in the impact analysis above.</p>

Action	Type	Effects
Wyoming Pipeline Corridor Initiative (WPCI)	BLM: Future pending - The Wyoming Pipeline Corridor Initiative is a proposal from the State of Wyoming to designate almost 2,000 miles of pipeline corridors across private, state and BLM-managed lands in Wyoming. Approximately 1,150 miles of the proposed corridors are located on BLM managed lands.	<p>The project would designate a statewide pipeline corridor network for future development of pipelines associated with carbon capture, utilization and storage, as well as pipelines and facilities associated with enhanced oil recovery. The project will not authorize any new pipelines or construction but will amend several BLM Resource Management Plans across the state to make future analysis of project specific proposals more efficient.</p> <p>One of the primary purposes of the pipeline corridor network is to connect existing oil fields suitable for enhanced oil recovery (EOR) with anthropogenic and natural carbon dioxide (CO<sub>2</sub>) sources. The CO<sub>2</sub> will be injected into existing, often “played-out” oil fields, thereby increasing oil production beyond conventional recovery methods with little additional surface disturbance.</p> <p>Effect: Since no alternative proposes different management for Greater Sage-Grouse from the sage-grouse planning process, there will be no cumulative effects not already address in the impact analysis above.</p>
Greater Sage-Grouse Conservation	Forest Service: Future	Forest Service has indicated they will also be amending their land use plans. Specific details of their proposed changes are not yet known, but it is anticipated they will propose alignment with state management plans and strategies.

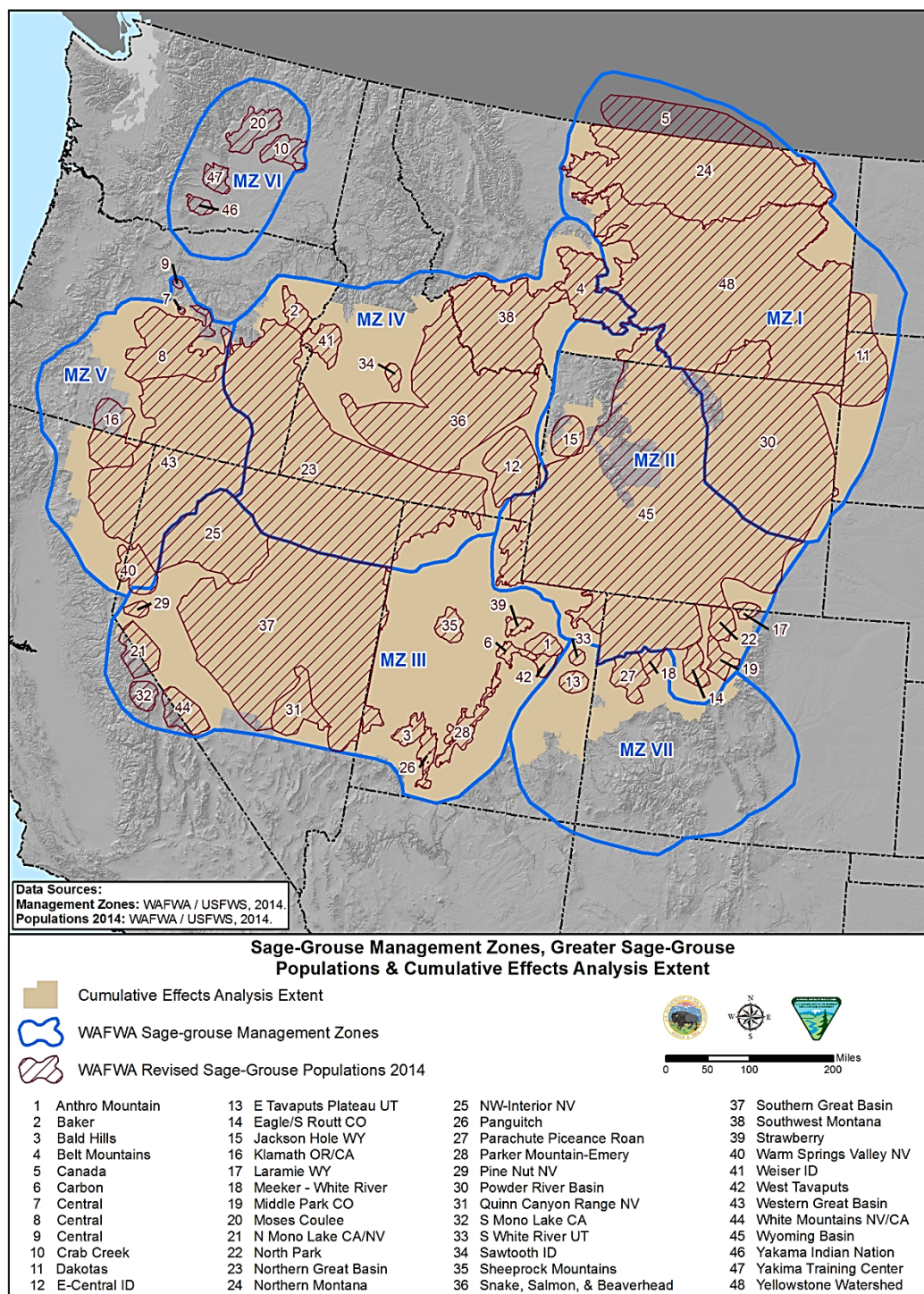
## D.2 CUMULATIVE EFFECTS ANALYSIS – HABITAT AND ALLOCATION DECISION SUMMARIES FOR THE NO-ACTION AND PROPOSED PLAN AMENDMENT ALTERNATIVES BY MANAGEMENT ZONE

Data representing the final plan allocation decisions and habitat delineations collected by the BLM upon the completion of the 2015 planning process have been updated or corrected relative to the final allocation decisions from the 2015 plans to reflect maintenance-related changes, adaptive management responses, or refined source data. The BLM used these data to represent the No-Action Alternative for the current plan analysis. The BLM then identified 2015 data which are not subject to change in any alternatives associated with the 2018 planning process. These data were carried forward as the alternative allocation decision data. The BLM was also able to provide allocation decision data representing changes included in the 2018 Proposed RMPAs/Final EISs, which were then used in the comparative analysis. Decision data are summarized by habitat type within each Management Zone (MZ) (see **Figure I**) and are presented in this appendix in both approximate acreage of BLM-administered lands within each habitat designation as well as percent of BLM-administered lands within a habitat

designation to which an allocation decision applies. For programs where allocation decisions change, information is presented separately. In cases where no change has occurred, both alternatives are presented together. The BLM Montana is currently not undergoing a plan amendment process; however, data were included in this cumulative effects summary. A summary of data submitted for this analysis can be found in Table I, detailing which areas did not provide data for analysis. In these cases, summaries reflect submitted data only. All figures and tables are intended for MZ summary purposes only. They represent data available at the time of consolidation and may be revised as plans are finalized. Consult each individual EIS for final/official acreages.

**Table 2**  
**Data Submission Summary for Cumulative Effects Analysis. Y = Data submitted, N = No data submitted, followed by which area within the State that did not provide data.**

Program Area	Colorado	Idaho	Montana & The Dakotas	Nevada/NE California	Oregon	Utah	Wyoming
Geothermal Energy	Y	Y	N – Miles City, Lewistown, Billings, UMRBNM	Y	N	Y	N – Bighorn Basin
Land Tenure	Y	Y	Y	Y	N	Y	Y
Livestock Grazing	Y	Y	Y	Y	Y	Y	Y
Locatable Minerals	Y	Y	Y	Y	Y	Y	Y
Non-Energy Leasable Minerals	Y	Y	N – Miles City, Billings	Y	N	Y	N – Bighorn Basin, Buffalo, Wyoming (9-Plan)
Fluid Mineral Leasing (Oil & Gas)	Y	Y	N - Lewistown	Y	N	Y	Y
Rights-of-Ways	Y	Y	Y	Y	N	Y	Y
Salable-Mineral Materials Disposals	Y	Y	Y	Y	N	Y	Y
Solar Energy	Y	Y	Y	Y	N	Y	N – Bighorn Basin, Buffalo, Lander, Wyoming (9-Plan)
Trails and Travel Management	Y	Y	Y	Y	N	Y	Y
Wind Energy	Y	Y	Y	Y	N	Y	Y



**Figure I – Cumulative Effects Analysis Extent, Sage-Grouse Management Zones and Populations**

## D.2.1 Management Zone I – Wyoming, Montana, North Dakota, South Dakota

### I. Habitat Management

**Table 3 – Habitat Management Areas within MZ I**

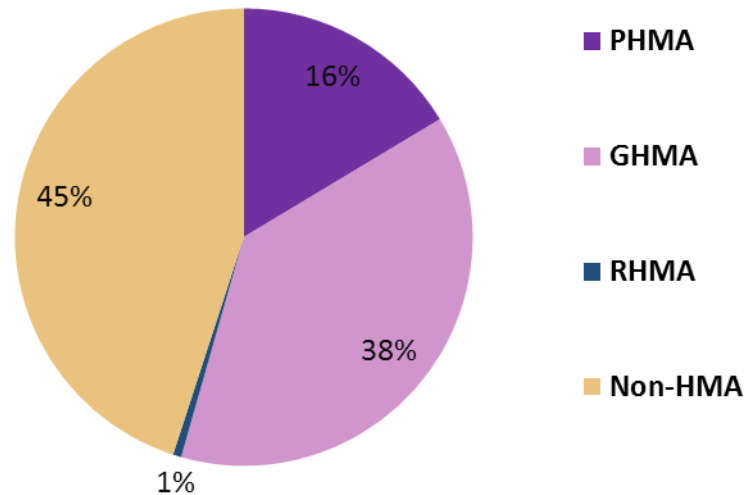
Acres and percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of HMA in MZ I							
No Action				Management Alignment			
PHMA	GHMA	RHMA <sup>1</sup>	Non-HMA	PHMA	GHMA	RHMA	Non-HMA
12,122,000	28,339,000	437,000	33,467,000	12,122,000	28,339,000	437,000	33,467,000

Approximate Percent of MZ I that is HMA							
No Action				Management Alignment			
PHMA	GHMA	RHMA	Non-HMA	PHMA	GHMA	RHMA	Non-HMA
16%	38%	1%	45%	16%	38%	1%	45%

**No Action & Management Alignment- MZ I -  
Habitat Management Areas within the Planning  
Area**



**Figure 2 - Habitat Management Areas within MZ I**

Percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<sup>1</sup> Restoration Habitat Management Area (RHMA)

## II. Geothermal Energy

**Table 4 – Geothermal Energy Decisions within MZ I**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding.

<sup>1</sup> Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only.

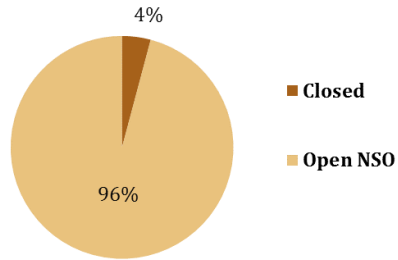
They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Geothermal Decisions<sup>1</sup> in MZ I by Habitat Management Area Type</b>					
<b>Geothermal Energy</b>	<b>No Action &amp; Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	86,000	0	NA	86,000	<b>172,000</b>
Open NSO	1,988,000	130,000	NA	230,000	<b>2,349,000</b>
Open CSU/TL	0	443,000	NA	1,071,000	<b>1,514,000</b>
Open Standard Stipulations	0	141,000	NA	372,000	<b>514,000</b>
<b>Total</b>	<b>2,074,000</b>	<b>714,000</b>	<b>NA</b>	<b>1,760,000</b>	<b>4,548,000</b>

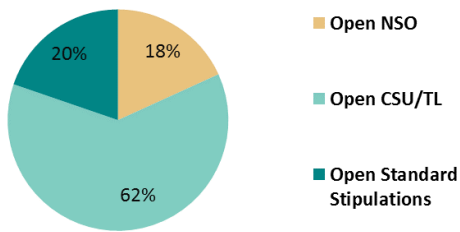
<b>Approximate % of Habitat Management Area by Geothermal Decision<sup>1</sup> within Habitat in MZ I</b>					
<b>Geothermal Energy</b>	<b>No Action &amp; Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	4%	0%	NA	5%	<b>4%</b>
Open NSO	96%	18%	NA	13%	<b>52%</b>
Open CSU/TL	0%	62%	NA	61%	<b>33%</b>
Open Standard Stipulations	0%	20%	NA	21%	<b>11%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>



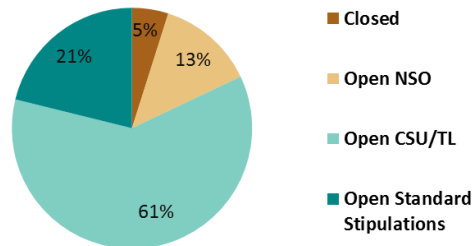
**No Action & Management Alignment -  
PHMA - Geothermal Energy**



**No Action & Management Alignment - GHMA -  
Geothermal Energy**



**No Action & Management Alignment - Non-  
HMA - Geothermal Energy**



**Figure 3 – Geothermal Energy Decisions within MZ I**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. <sup>1</sup> Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

### III. Land Tenure

**Table 5 – Land Tenure Decisions within MZ I**

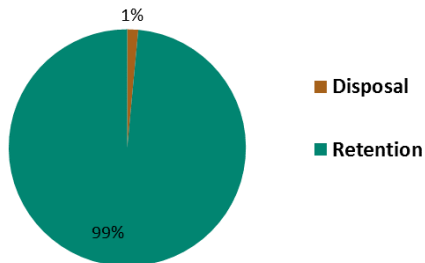
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Land Tenure Decisions in MZ I by Habitat Management Area Type					
Land Tenure	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Disposal	49,000	167,000	0	143,000	359,000
Retention	3,259,000	2,997,000	159,000	1,538,000	7,953,000
<b>Total</b>	<b>3,308,000</b>	<b>3,164,000</b>	<b>159,000</b>	<b>1,681,000</b>	<b>8,312,000</b>

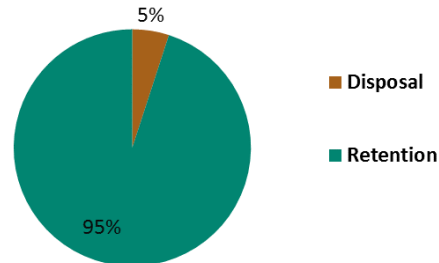
  

Approximate % of Habitat Management Area by Land Tenure Decision within Habitat in MZ I					
Land Tenure	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Disposal	1%	5%	0%	9%	4%
Retention	99%	95%	100%	91%	96%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

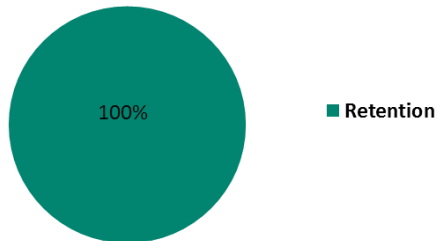
No Action & Management Alignment - PHMA  
- Land Tenure



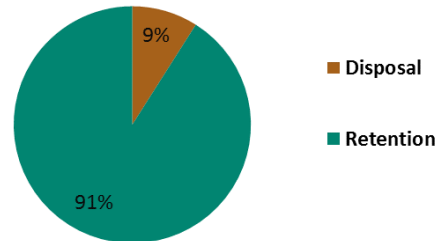
No Action & Management Alignment - GHMA - Land Tenure



No Action & Management Alignment - RHMA - Land Tenure



No Action & Management Alignment - Non-HMA - Land Tenure



**Figure 4 – Land Tenure Decisions within MZ I**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

#### IV. Livestock Grazing

**Table 6 – Livestock Grazing Decisions within MZ I**

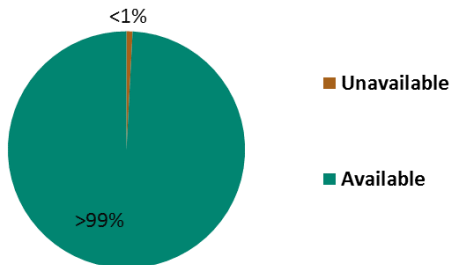
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Livestock Grazing Decisions in MZ I by Habitat Management Area Type					
Livestock Grazing	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Unavailable	3,000	8,000	0	12,000	23,000
Available	3,303,000	3,186,000	158,000	1,632,000	8,279,000
<b>Total</b>	<b>3,306,000</b>	<b>3,194,000</b>	<b>158,000</b>	<b>1,644,000</b>	<b>8,302,000</b>

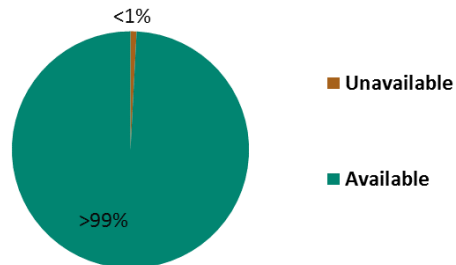
  

Approximate % of Habitat Management Area by Livestock Grazing Decision within Habitat in MZ I					
Livestock Grazing	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Unavailable	<1%	<1%	0%	<1%	<1%
Available	100%	100%	100%	100%	100%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

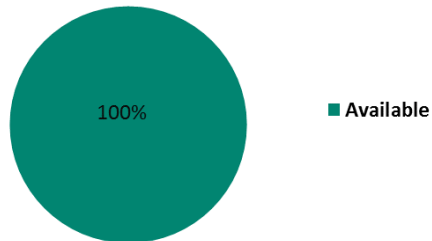
No Action & Management Alignment -  
PHMA - Livestock Grazing



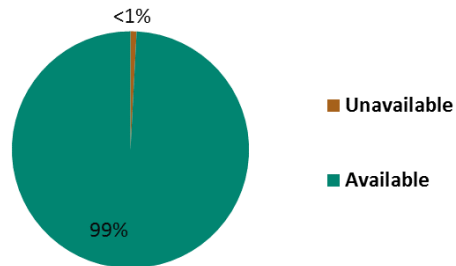
No Action & Management Alignment -  
GHMA - Livestock Grazing



No Action & Management - RHMA -  
Livestock Grazing



No Action & Management - Non-HMA -  
Livestock Grazing



**Figure 5 – Livestock Grazing Decisions within MZ I**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

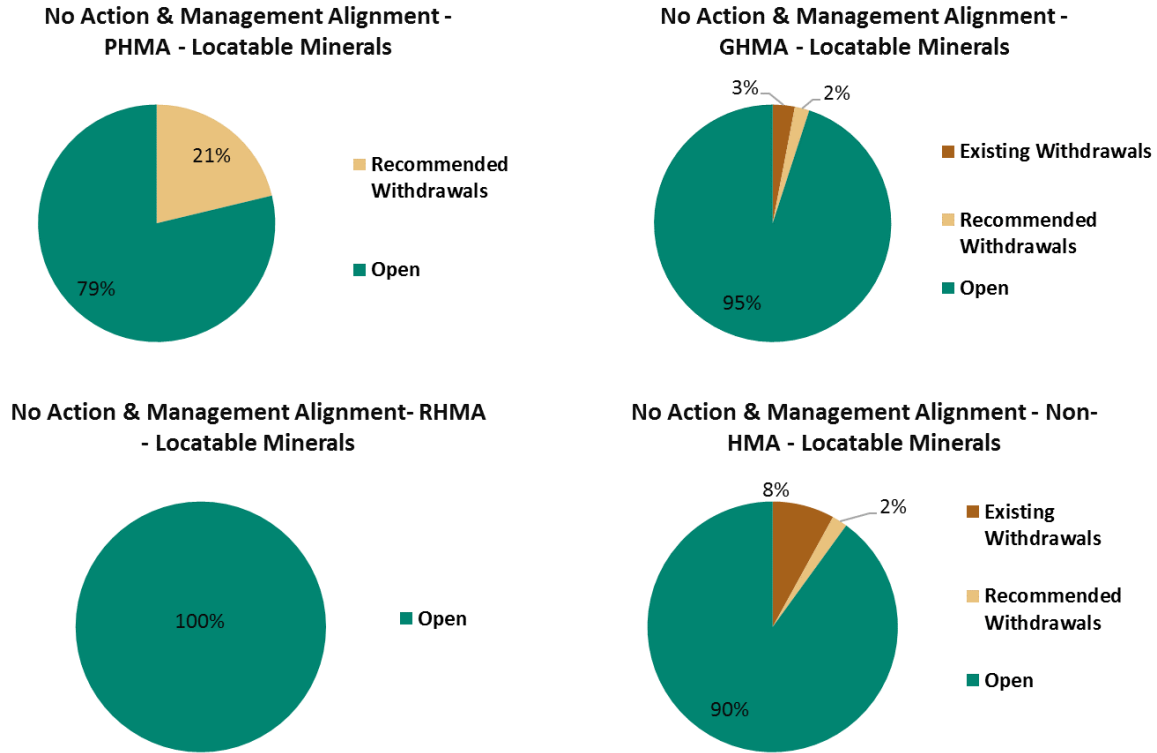
## V. Locatable Minerals

**Table 7 – Locatable Minerals Decisions within MZ I**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages. <sup>2</sup> MT Recommended Withdrawals Decisions in PHMA will be removed via plan maintenance.

<b>Approximate Acres of Locatable Minerals Decisions<sup>2</sup> in MZ I by Habitat Management Area Type</b>					
<b>Locatable Minerals</b>	<b>No Action &amp; Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	22,000	203,000	0	240,000	<b>465,000</b>
Recommended Withdrawals	1,094,000	166,000	0	46,000	<b>1,306,000</b>
Open	4,053,000	7,132,000	164,000	2,688,000	<b>14,037,000</b>
<b>Total</b>	<b>5,169,000</b>	<b>7,501,000</b>	<b>165,000</b>	<b>2,974,000</b>	<b>15,808,000</b>

<b>Approximate % of Habitat Management Area by Locatable Minerals Decisions<sup>2</sup> within Habitat in MZ I</b>					
<b>Locatable Minerals</b>	<b>No Action &amp; Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	<1%	3%	<1%	8%	<b>3%</b>
Recommended Withdrawals	21%	2%	0%	2%	<b>8%</b>
Open	79%	95%	100%	90%	<b>89%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



**Figure 6 – Locatable Mineral Decisions within MZ I**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages. <sup>2</sup> MT Recommended Withdrawals Decisions in PHMA will be removed via plan maintenance.

**VI. Non-Energy Leasable Minerals****Table 8 – Non-Energy Leasable Minerals Decisions within MZ I**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding.

<sup>3</sup> Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only.

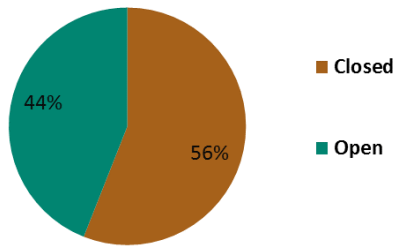
They represent data available at the time of consolidation and may be revised as Plans are finalized.

Consult each individual EIS for final/official acreages.

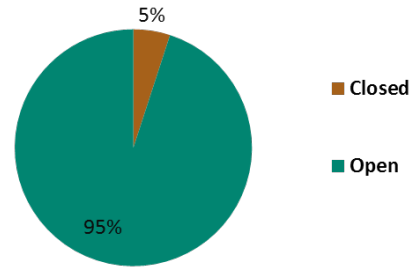
<b>Approximate Acres of Non-Energy Leasable Minerals<sup>3</sup> Decisions in MZ I by Habitat Management Area Type</b>					
<b>Non-Energy Leasable Minerals</b>	<b>No Action &amp; Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	2,432,000	296,000	NA	355,000	<b>3,083,000</b>
Open	1,900,000	6,205,000	NA	2,463,000	<b>10,568,000</b>
<b>Total</b>	<b>4,332,000</b>	<b>6,501,000</b>	<b>NA</b>	<b>2,818,000</b>	<b>13,651,000</b>

<b>Approximate % of Habitat Management Area by Non-Energy Leasable Minerals<sup>3</sup> Decision within Habitat in MZ I</b>					
<b>Non-Energy Leasable Minerals</b>	<b>No Action &amp; Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	56%	5%	NA	13%	<b>23%</b>
Open	44%	95%	NA	87%	<b>77%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>

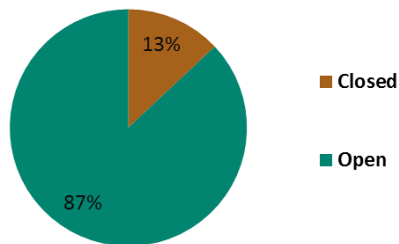
No Action & Management Alignment- PHMA  
- Non-Energy Leasable Minerals



No Action & Management Alignment -  
GHMA - Non-Energy Leasable Minerals



No Action & Management Alignment - Non-  
HMA - Non-Energy Leasable Minerals



**Figure 7 – Non-Energy Leasable Minerals Decisions within MZ I**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. <sup>3</sup> Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

**VII. Fluid Minerals (Oil & Gas)****Table 9 – Fluid Minerals (Oil & Gas) Decisions within MZ I**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. <sup>4</sup>Data not available for portions of MT. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

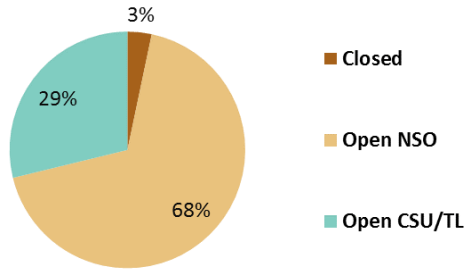
<b>Approximate Acres of Fluid Minerals (Oil a&amp; Gas) Decisions<sup>4</sup> in MZ I by Habitat Management Area Type</b>					
<b>Fluid Minerals (Oil and Gas)</b>	<b>No Action &amp; Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	196,000	328,000	0	346,000	<b>870,000</b>
Open NSO	3,730,000	1,485,000	228,000	406,000	<b>5,849,000</b>
Open CSU/TL	1,582,000	5,280,000	64,000	2,155,000	<b>9,082,000</b>
Open Standard Stipulations	0	2,223,000	0	744,000	<b>2,967,000</b>
<b>Total</b>	<b>5,508,000</b>	<b>9,316,000</b>	<b>292,000</b>	<b>3,651,000</b>	<b>18,768,000</b>

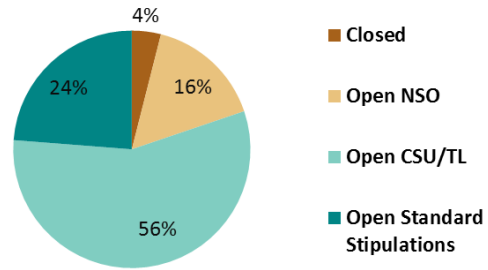
<b>Approximate % of Habitat Management Area by Fluid Minerals (Oil a&amp; Gas) Decision<sup>4</sup> within Habitat in MZ I</b>					
<b>Fluid Minerals (Oil and Gas)</b>	<b>No Action &amp; Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	3%	4%	0%	9%	<b>5%</b>
Open NSO	68%	16%	78%	11%	<b>31%</b>
Open CSU/TL	29%	57%	22%	59%	<b>48%</b>
Open Standard Stipulations	0%	24%	0%	20%	<b>16%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



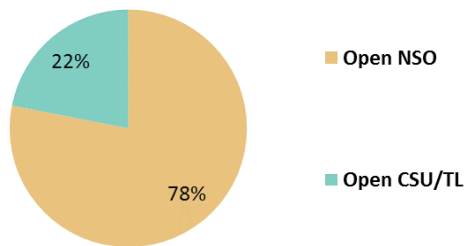
No Action & Management Alignment -  
PHMA - Fluid Mineral Leasing (Oil & Gas)



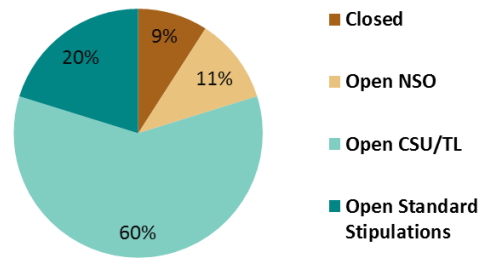
No Action & Management Alignment -  
GHMA - Fluid Mineral Leasing (Oil & Gas)



No Action & Management Alignment -  
RHMA - Fluid Mineral Leasing (Oil & Gas)



No Action & Management Alignment - Non-  
HMA - Fluid Mineral Leasing (Oil & Gas)



**Figure 8 – Fluid Minerals (Oil & Gas) Decisions within MZ I**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. <sup>4</sup>Data not available for a portion of MT. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## VIII. Rights-of-Ways

**Table 10 – Rights-of-Ways Decisions within MZ I**

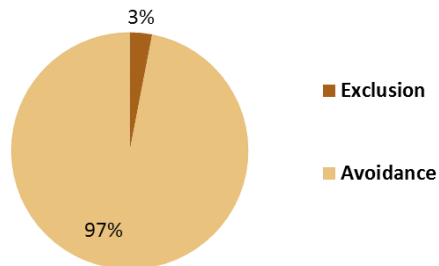
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Rights-of-Ways Decisions in MZ I by Habitat Management Area Type					
Rights-of-Ways	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Exclusion	110,000	240,000	0	86,000	436,000
Avoidance	3,163,000	1,819,000	72,000	282,478	5,336,478
Open	5,000	1,067,000	87,000	1,206,000	2,364,000
<b>Total</b>	<b>3,278,000</b>	<b>3,126,000</b>	<b>159,000</b>	<b>1,574,478</b>	<b>8,136,478</b>

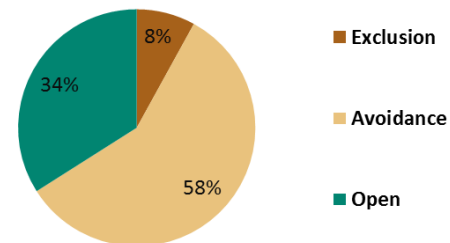
  

Approximate % of Habitat Management Area by Rights-of-Ways Decision within Habitat in MZ I					
Rights-of-Ways	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Exclusion	3%	8%	0%	5%	5%
Avoidance	97%	58%	45%	18%	66%
Open	0%	34%	55%	77%	29%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

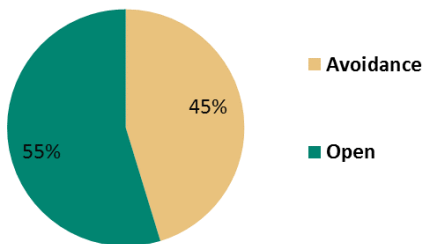
No Action & Management Alignment -  
PHMA - Rights of Ways



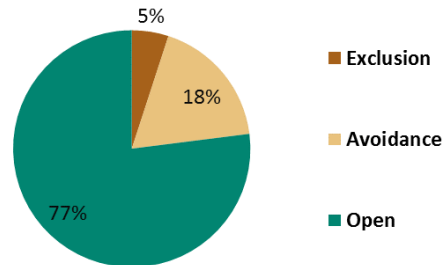
No Action & Management Alignment -  
GHMA - Rights of Ways



No Action & Management Alignment -  
RHMA - Rights of Ways



No Action & Management Alignment - Non-  
HMA - Rights of Ways



**Figure 9 – Rights-of-Ways Decisions within MZ I**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## IX. Salable Minerals Materials

**Table 11 – Salable Minerals Decisions within MZ I**

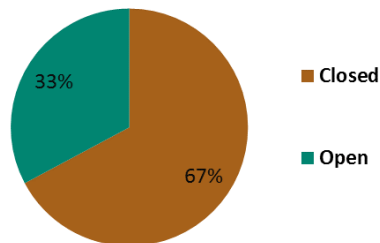
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Salable Minerals Materials Decisions in MZ I by Habitat Management Area Type					
Salable Minerals	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	3,870,000	402,000	9,000	424,000	4,705,000
Open	1,882,000	8,787,000	267,000	2,990,000	13,926,000
<b>Total</b>	<b>5,752,000</b>	<b>9,189,000</b>	<b>276,000</b>	<b>3,414,000</b>	<b>18,631,000</b>

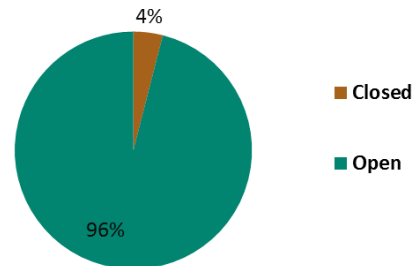
  

Approximate % of Habitat Management Area by Salable Minerals Materials Decision within Habitat in MZ I					
Salable Minerals	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	67%	4%	3%	12%	25%
Open	33%	96%	97%	88%	75%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

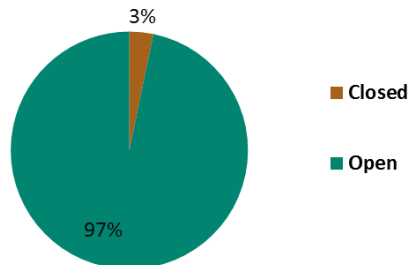
No Action & Management Alignment -  
PHMA - Salable Minerals Materials



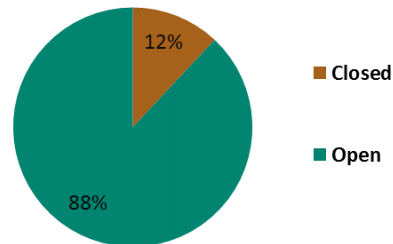
No Action & Management Alignment -  
GHMA - Salable Minerals Materials



No Action & Management Alignment -  
RHMA - Salable Minerals Materials



No Action & Management Alignment -  
Non-HMA - Salable Minerals Materials



**Figure 10 – Salable Minerals Materials Decisions within MZ I**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

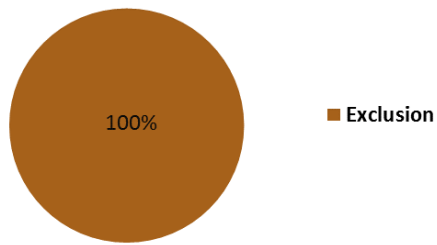
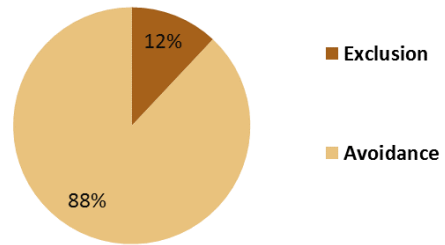
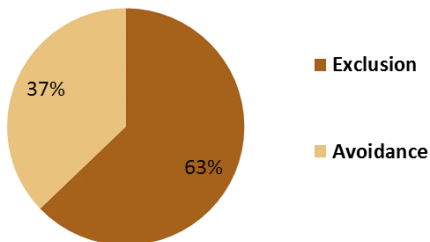
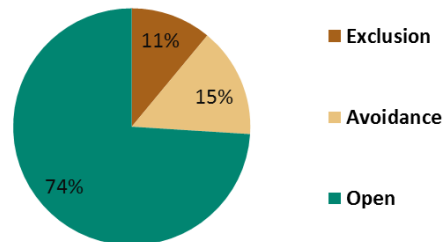
**X. Solar Energy****Table 12 – Solar Energy Decisions within MZ I**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding.

<sup>5</sup> Data not available for Wyoming. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Solar Energy Decisions<sup>5</sup> in MZ I by Habitat Management Area Type</b>					
<b>Solar Energy</b>	<b>No Action &amp; Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	2,709,000	249,000	93,000	239,000	<b>3,290,000</b>
Avoidance	0	1,844,000	55,000	172,000	<b>2,071,000</b>
Open	0	0	0	1,144,000	<b>1,145,000</b>
<b>Total</b>	<b>2,709,000</b>	<b>2,093,000</b>	<b>148,000</b>	<b>1,555,000</b>	<b>6,506,000</b>

<b>Approximate % of Habitat Management Area by Solar Energy Decision<sup>5</sup> within Habitat in MZ I</b>					
<b>Solar Energy</b>	<b>No Action &amp; Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	100%	12%	63%	11%	<b>51%</b>
Avoidance	0%	88%	37%	15%	<b>32%</b>
Open	0%	0%	0%	74%	<b>18%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

No Action & Management Alignment -  
PHMA - Solar EnergyNo Action & Management Alignment -  
GHMA - Solar EnergyNo Action & Management Alignment -  
RHMA - Solar EnergyNo Action & Management Alignment - Non-  
HMA - Solar Energy**Figure 11 - Solar Energy Decisions within MZ I**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding.

<sup>5</sup> Data not available for Wyoming. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

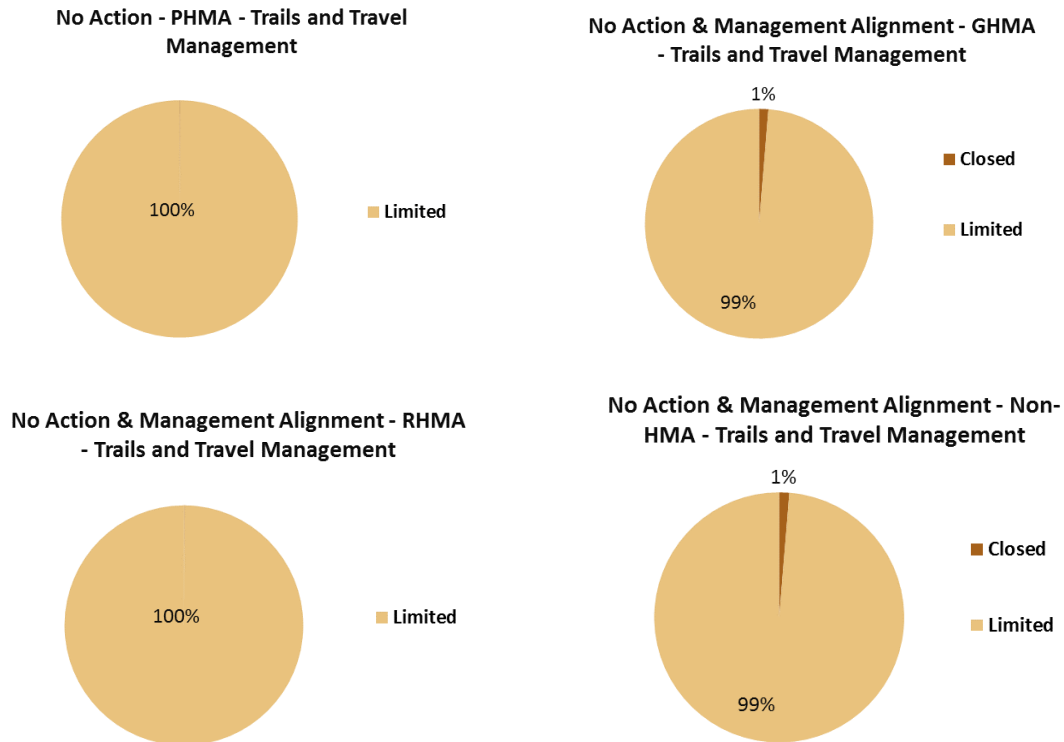
***XI. Trails and Travel Management*****Table 13 – Trails and Travel Management Decisions within MZ I**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Trails and Travel Management Decisions in MZ I by Habitat Management Area Type</b>					
<b>Trails and Travel Management</b>	<b>No Action &amp; Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	2,000	39,000	0	11,000	<b>52,000</b>
Limited	3,306,000	3,125,000	159,000	1,655,000	<b>8,245,000</b>
Open	0	0	0	0	<b>0</b>
<b>Total</b>	<b>3,308,000</b>	<b>3,164,000</b>	<b>159,000</b>	<b>1,666,000</b>	<b>8,297,000</b>

<b>Approximate % of Habitat Management Area by Trails and Travel Management Decision within Habitat in MZ I</b>					
<b>Trails and Travel Management</b>	<b>No Action &amp; Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	0%	1%	0%	1%	<b>1%</b>
Limited	100%	99%	100%	99%	<b>99%</b>
Open	0%	0%	0%	0%	<b>0%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



**Figure 12 – Trails and Travel Management Decisions within MZ I**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## XII. Wind Energy

**Table 14 – Wind Energy Decisions within MZ I**

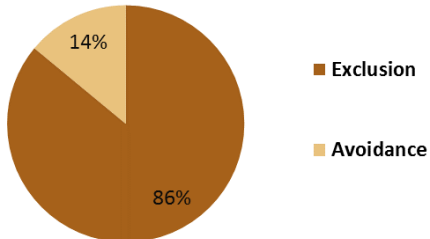
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Wind Energy Decisions in MZ I by Habitat Management Area Type					
Wind Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Exclusion	2,966,000	384,000	93,000	419,000	3,862,000
Avoidance	493,000	2,090,000	55,000	594,000	3,232,000
Open	0	513,000	0	655,000	1,168,000
<b>Total</b>	<b>3,459,000</b>	<b>2,987,000</b>	<b>148,000</b>	<b>1,668,000</b>	<b>8,262,000</b>

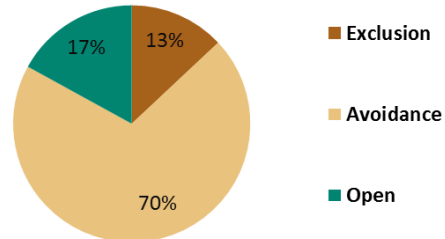
  

Approximate % of Habitat Management Area by Wind Energy Decision within Habitat in MZ I					
Wind Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Exclusion	86%	13%	63%	25%	47%
Avoidance	14%	70%	37%	36%	39%
Open	0%	17%	0%	39%	14%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

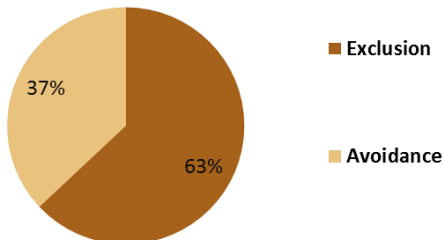
No Action & Management Alignment -  
PHMA - Wind Energy



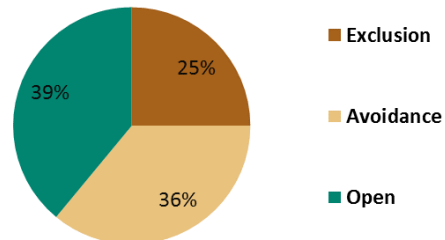
No Action & Management Alignment -  
GHMA - Wind Energy



No Action & Management Alignment -  
RHMA - Wind Energy



No Action & Management Alignment - Non-  
HMA - Wind Energy



**Figure 13 – Wind Energy Decisions within MZ I**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



## D.2.2 Management Zones II/VII – Wyoming, Colorado, Utah, Idaho

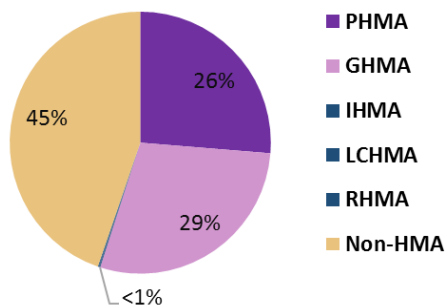
### I. Habitat Management

**Table 15 – Habitat Management Areas within MZs II/VII**

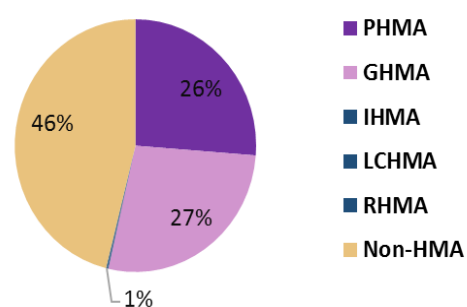
Acres and percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of HMA in MZs II/VII					
No Action					
PHMA	IHMA	GHMA	LCHMA <sup>2</sup>	RHMA	Non-HMA
16,699,000	69,000	18,220,000	295,000	8,000	28,409,000
Management Alignment					
PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA
16,664,000	69,000	17,394,000	295,000	8,000	29,270,000
Approximate Percent of MZs II/VII that is HMA					
No Action					
PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA
26%	<1%	29%	<1%	<1%	45%
Management Alignment					
PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA
26%	<1%	27%	<1%	<1%	46%

No Action - MZ II & VII - Habitat within the Planning Area



Management Alignment - MZ II & VII - Habitat within the Planning Area



**Figure 14 – Habitat Management Areas within MZs II/VII**

Percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<sup>2</sup> Linkage Connectivity Habitat Management Area (LCHMA)

## II. Geothermal Energy

**Table 16 – Geothermal Energy Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding.

<sup>6</sup> Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only.

They represent data available at the time of consolidation and may be revised as Plans are finalized.

Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Geothermal Energy Decisions<sup>6</sup> in MZ II/VII by Habitat Management Area Type</b>							
<b>Geothermal Energy</b>	<b>No Action</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	781,000	1,000	285,000	1,000	NA	2,342,000	<b>3,409,000</b>
Open NSO	2,271,000	29,000	342,000	54,000	NA	1,917,000	<b>4,615,000</b>
Open CSU/TL	983,000	0	1,316,000	81,000	NA	3,511,000	<b>5,891,000</b>
Open Standard Stipulations	0	0	245,000	8,000	NA	2,407,000	<b>2,660,000</b>
<b>Total</b>	<b>4,037,000</b>	<b>29,000</b>	<b>2,187,000</b>	<b>144,000</b>	<b>NA</b>	<b>10,179,000</b>	<b>16,575,000</b>

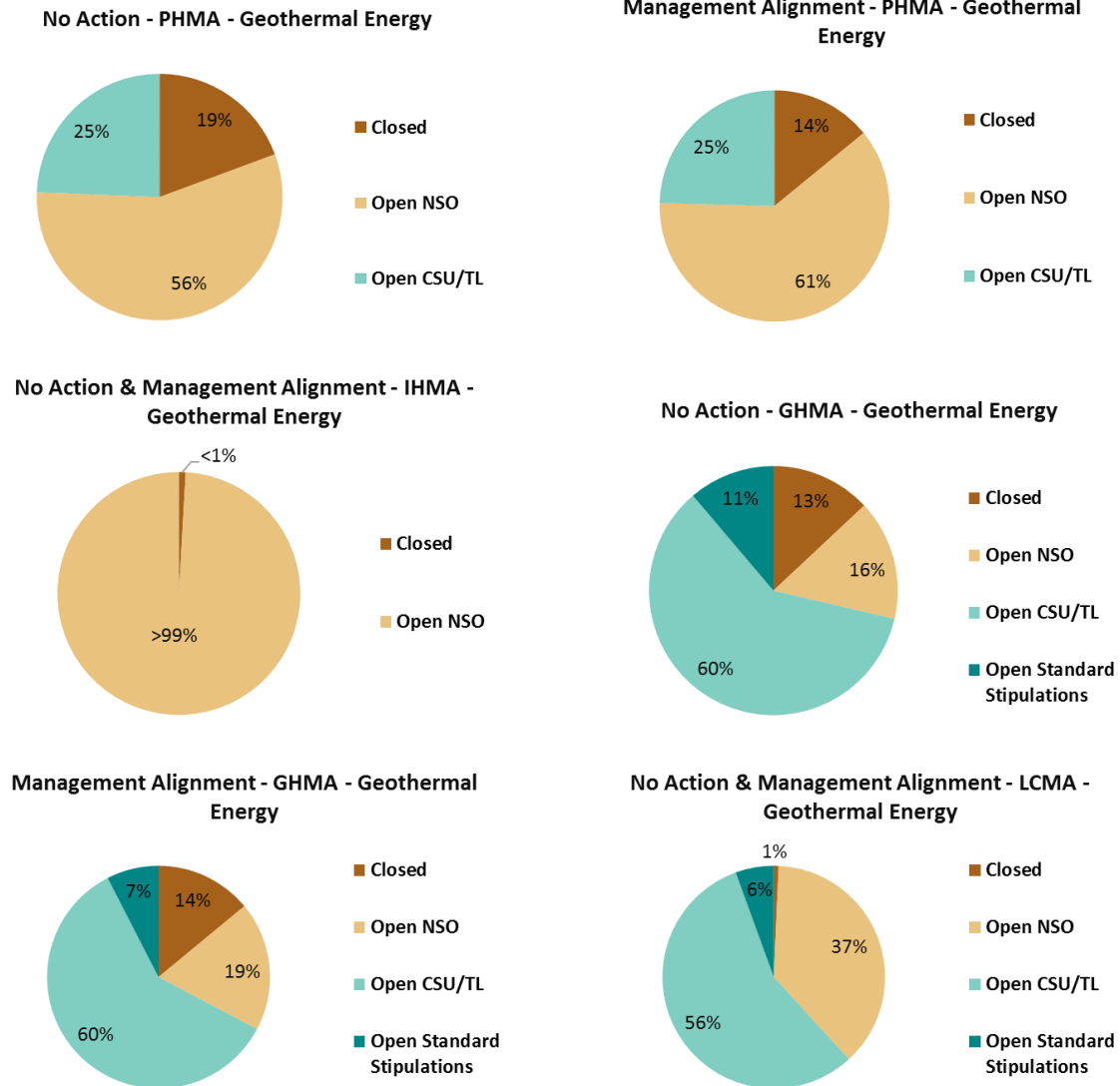
<b>Geothermal Energy</b>	<b>Management Alignment</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	565,000	1,000	260,000	1,000	NA	2,355,000	<b>3,181,000</b>
Open NSO	2,451,000	29,000	348,000	54,000	NA	1,923,000	<b>4,804,000</b>
Open CSU/TL	983,000	0	1,109,000	81,000	NA	3,719,000	<b>5,891,000</b>
Open Standard Stipulations	0	0	140,000	8,000	NA	2,512,000	<b>2,660,000</b>
<b>Total</b>	<b>4,000,000</b>	<b>29,000</b>	<b>1,857,000</b>	<b>144,000</b>	<b>NA</b>	<b>10,509,000</b>	<b>16,538,000</b>

<b>Approximate % of Habitat Management Area by Geothermal Energy Decision<sup>6</sup> in MZ II/VII</b>							
<b>Geothermal Energy</b>	<b>No Action</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	19%	<1%	13%	1%	NA	23%	<b>21%</b>
Open NSO	56%	100%	16%	38%	NA	19%	<b>28%</b>
Open CSU/TL	24%	0%	60%	56%	NA	34%	<b>36%</b>
Open Standard Stipulations	0%	0%	11%	6%	NA	24%	<b>16%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>

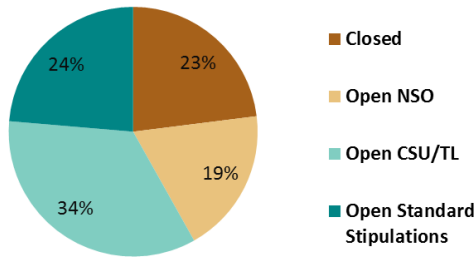
<b>Geothermal Energy</b>	<b>Management Alignment</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	14%	<1%	14%	1%	NA	22%	<b>19%</b>
Open NSO	61%	100%	19%	38%	NA	18%	<b>29%</b>
Open CSU/TL	25%	0%	60%	56%	NA	35%	<b>36%</b>
Open Standard Stipulations	0%	0%	8%	6%	NA	24%	<b>16%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>



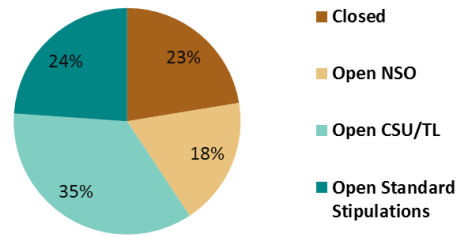
**Figure 15 – Geothermal Energy Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. <sup>6</sup> Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

No Action - Non-HMA - Geothermal Energy



Management Alignment - Non-HMA - Geothermal Energy

**Figure 15 (cont'd) - Geothermal Energy Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. <sup>6</sup> Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

### III. Land Tenure

**Table 17 – Land Tenure Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

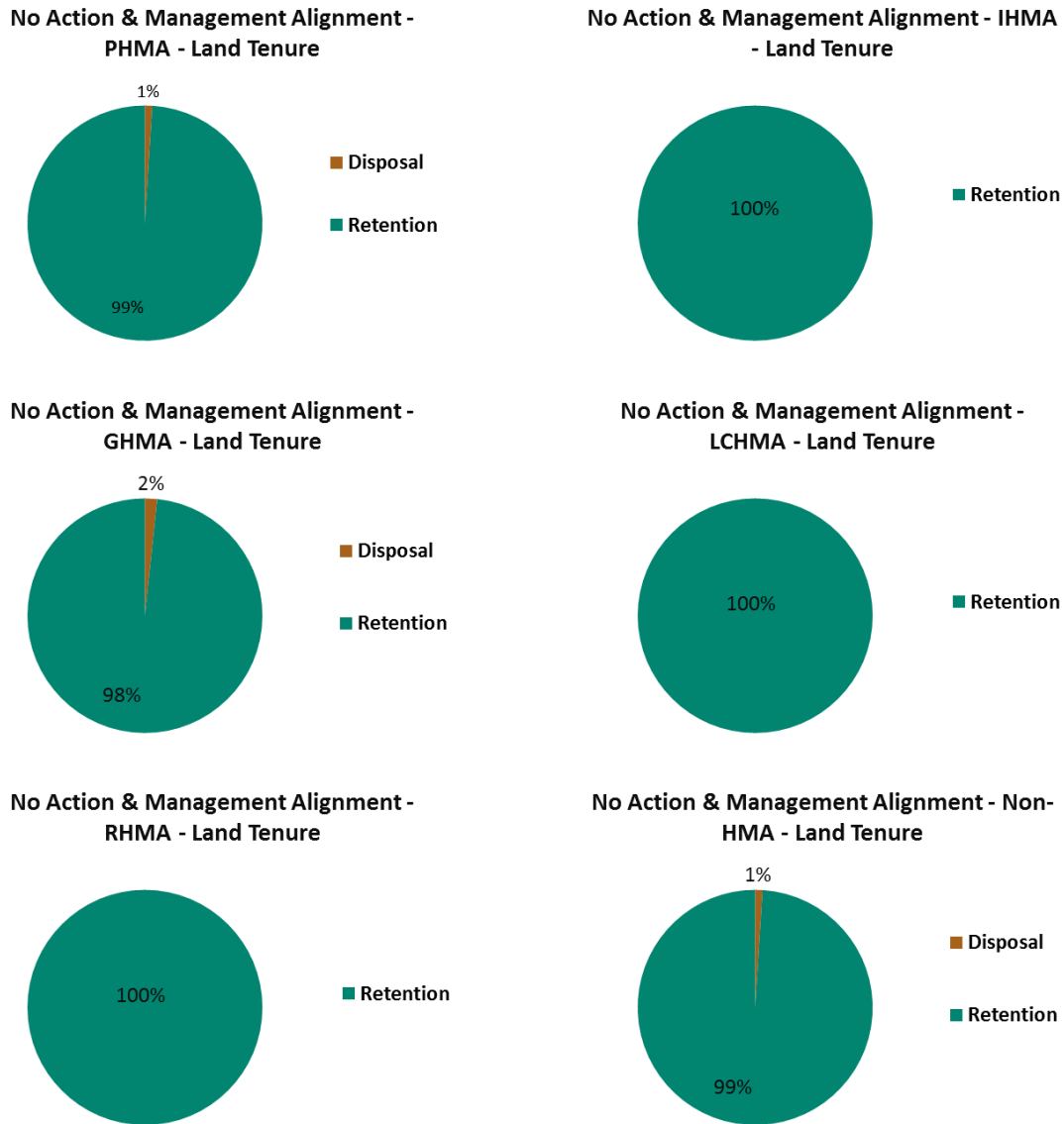
Approximate Acres of Land Tenure Decisions in MZ II/VII by Habitat Management Area Type							
Land Tenure	No Action						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Disposal	57,000	0	154,000	0	0	115,000	325,000
Retention	8,894,000	18,000	8,972,000	82,000	7,000	11,837,000	29,811,000
<b>Total</b>	<b>8,951,000</b>	<b>18,000</b>	<b>9,126,000</b>	<b>82,000</b>	<b>7,000</b>	<b>11,952,000</b>	<b>30,136,000</b>

Land Tenure	Management Alignment						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Disposal	57,000	0	154,000	0	0	115,000	325,000
Retention	8,894,000	18,000	8,685,000	82,000	7,000	12,125,000	29,811,000
<b>Total</b>	<b>8,951,000</b>	<b>18,000</b>	<b>8,839,000</b>	<b>82,000</b>	<b>7,000</b>	<b>12,239,000</b>	<b>30,136,000</b>

Approximate % of Habitat Management Area by Land Tenure Decision in MZ II/VII							
Land Tenure	No Action & Management Alignment						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Disposal	1%	0%	2%	0%	0%	1%	1%
Retention	99%	100%	98%	100%	100%	99%	99%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



**Figure 16 – Land Tenure Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

#### IV. Livestock Grazing

**Table 18 – Livestock Grazing Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Livestock Grazing Decisions in MZ II/VII by Habitat Management Area Type</b>							
<b>Livestock Grazing</b>	<b>No Action</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Unavailable	40,000	0	40,000	0	0	316,000	<b>395,000</b>
Available	8,872,000	18,000	9,069,000	81,000	7,000	8,193,000	<b>26,241,000</b>
<b>Total</b>	<b>8,912,000</b>	<b>18,000</b>	<b>9,109,000</b>	<b>81,000</b>	<b>7,000</b>	<b>8,508,000</b>	<b>26,635,000</b>

<b>Livestock Grazing</b>	<b>Management Alignment</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Unavailable	40,000	0	40,000	0	0	316,000	<b>395,000</b>
Available	8,872,000	18,000	8,784,000	81,000	7,000	8,479,000	<b>26,241,000</b>
<b>Total</b>	<b>8,912,000</b>	<b>18,000</b>	<b>8,824,000</b>	<b>81,000</b>	<b>7,000</b>	<b>8,794,000</b>	<b>26,635,000</b>

<b>Approximate % of Habitat Management Area by Livestock Grazing Decision in MZ II/VII</b>							
<b>Livestock Grazing</b>	<b>No Action &amp; Management Alignment</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Unavailable	<1%	0%	<1%	0%	0%	4%	<b>1%</b>
Available	100%	100%	100%	100%	100%	96%	<b>99%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



**Figure 17 – Livestock Grazing Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## V. Locatable Minerals

**Table 19 – Locatable Minerals Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Locatable Minerals Decisions in MZ II/VII by Habitat Management Area Type</b>							
<b>Locatable Minerals</b>	<b>No Action</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	1,863,000	7,000	2,394,000	1,000	0	4,804,000	<b>9,068,000</b>
Recommended Withdrawals	998,000	0	320,000	0	0	302,000	<b>1,620,000</b>
Open	8,323,000	27,000	8,529,000	137,000	7,000	10,250,000	<b>27,273,000</b>
<b>Total</b>	<b>11,185,000</b>	<b>33,000</b>	<b>11,243,000</b>	<b>137,000</b>	<b>7,000</b>	<b>15,357,000</b>	<b>37,962,000</b>

<b>Locatable Minerals</b>	<b>Management Alignment</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	1,863,000	7,000	2,125,000	1,000	0	5,072,000	<b>9,068,000</b>
Recommended Withdrawals	618,000	0	318,000	0	0	302,000	<b>1,238,000</b>
Open	8,703,000	27,000	8,420,000	137,000	7,000	10,361,000	<b>27,656,000</b>
<b>Total</b>	<b>11,185,000</b>	<b>33,000</b>	<b>10,863,000</b>	<b>137,000</b>	<b>7,000</b>	<b>15,736,000</b>	<b>37,962,000</b>

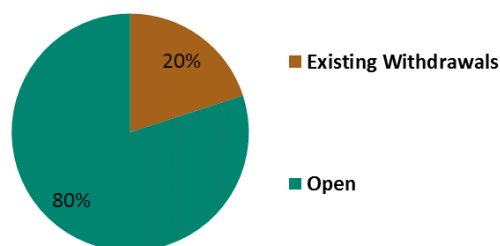
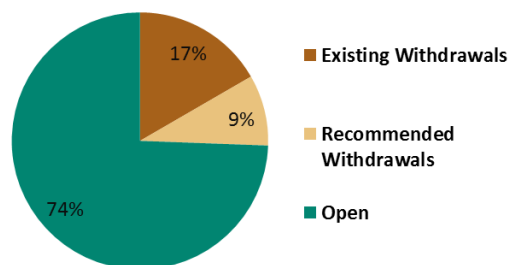
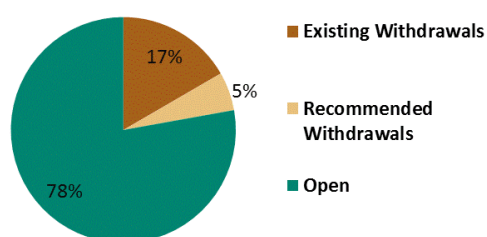
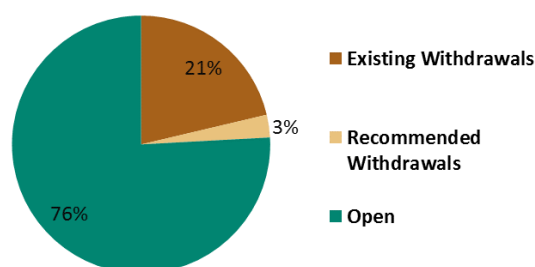
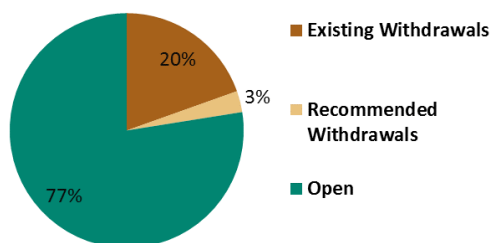
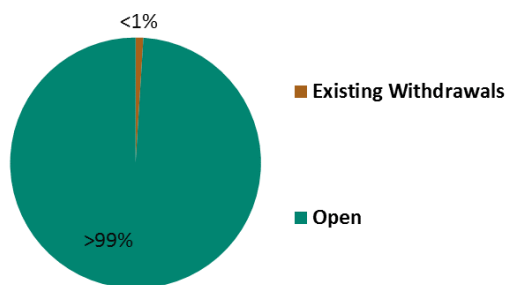
  

<b>Approximate % of Habitat Management Area by Locatable Minerals Decision in MZ II/VII</b>							
<b>Locatable Minerals</b>	<b>No Action</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	17%	20%	21%	<1%	0%	31%	<b>24%</b>
Recommended Withdrawals	9%	0%	3%	0%	0%	2%	<b>4%</b>
Open	74%	80%	76%	100%	100%	67%	<b>72%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

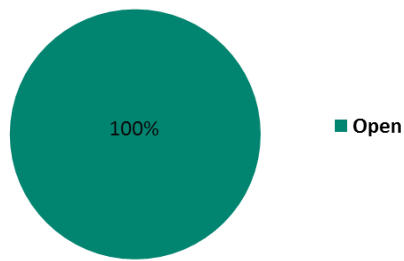
  

<b>Locatable Minerals</b>	<b>Management Alignment</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	17%	20%	20%	<1%	0%	32%	<b>24%</b>
Recommended Withdrawals	6%	0%	3%	0%	0%	2%	<b>3%</b>
Open	78%	80%	78%	100%	100%	66%	<b>73%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

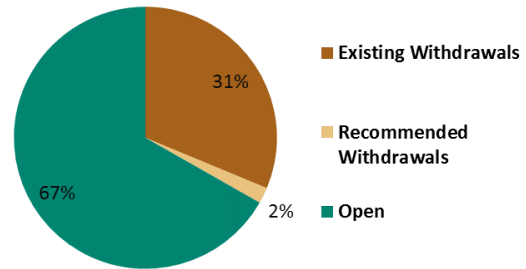
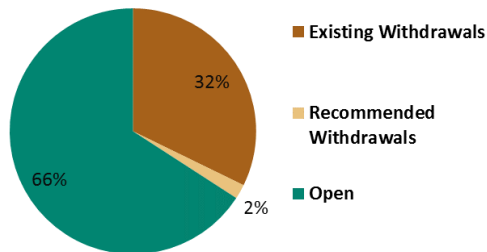


**No Action & Management Alignment - IHMA  
- Locatable Minerals****No Action - PHMA - Locatable Minerals****Management Alignment - PHMA - Locatable  
Minerals****No Action - GHMA - Locatable Minerals****Management Alignment - GHMA - Locatable  
Minerals****No Action & Management Alignment -  
LCHMA - Locatable Minerals****Figure I8 – Locatable Minerals Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

No Action & Management Alignment -  
RHMA - Locatable Minerals

No Action - Non-HMA - Locatable Minerals

Management Alignment - Non-HMA -  
Locatable Minerals**Figure 18 (cont'd) – Locatable Minerals Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## VI. Non-Energy Leasable Minerals

**Table 20 – Non-Energy Leasable Minerals Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. <sup>7</sup>Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Non-Energy Leasable Minerals Decisions<sup>7</sup> in MZ II/VII by Habitat Management Area Type</b>							
<b>Non-Energy Leasable Minerals</b>	<b>No Action</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	3,617,000	7,000	1,256,000	1,000	NA	4,591,000	<b>9,471,000</b>
Open	6,052,000	23,000	7,330,000	137,000	NA	10,221,000	<b>23,763,000</b>
<b>Total</b>	<b>9,669,000</b>	<b>30,000</b>	<b>8,586,000</b>	<b>137,000</b>	<b>NA</b>	<b>14,812,000</b>	<b>33,233,000</b>

<b>Non-Energy Leasable Minerals</b>	<b>Management Alignment</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	3,581,000	7,000	1,244,000	1,000	NA	4,603,000	<b>9,436,000</b>
Open	6,052,000	23,000	6,972,000	137,000	NA	10,614,000	<b>23,799,000</b>
<b>Total</b>	<b>9,633,000</b>	<b>30,000</b>	<b>8,216,000</b>	<b>137,000</b>	<b>NA</b>	<b>15,217,000</b>	<b>33,233,000</b>

<b>Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision<sup>7</sup> in MZ II/VII</b>							
<b>Non-Energy Leasable Minerals</b>	<b>No Action</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	37%	23%	15%	<1%	NA	31%	<b>28%</b>
Open	63%	77%	85%	100%	NA	69%	<b>72%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>

<b>Non-Energy Leasable Minerals</b>	<b>Management Alignment</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	37%	23%	15%	<1%	NA	30%	<b>28%</b>
Open	63%	77%	85%	100%	NA	70%	<b>72%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>



**Figure 19 - Non-Energy Leasable Minerals Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. <sup>7</sup>Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

**VII. Fluid Minerals (Oil & Gas)****Table 21 – Fluid Minerals (Oil & Gas) Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages

<b>Approximate Acres of Fluid Minerals (Oil &amp; Gas) Decisions in MZ II/VII by Habitat Management Area Type</b>							
<b>Fluid Minerals (Oil &amp; Gas)</b>	<b>No Action</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	1,294,000	7,000	1,178,000	1,000	0	4,773,000	<b>7,252,000</b>
Open NSO	4,399,000	23,000	1,425,000	54,000	5,000	2,628,000	<b>8,535,000</b>
Open CSU/TL	5,689,000	0	6,517,000	81,000	2,000	4,748,000	<b>17,036,000</b>
Open Standard Stipulations	0	0	2,297,000	8,000	0	2,895,000	<b>5,200,000</b>
<b>Total</b>	<b>11,382,000</b>	<b>29,000</b>	<b>11,416,000</b>	<b>144,000</b>	<b>8,000</b>	<b>15,046,000</b>	<b>38,024,000</b>

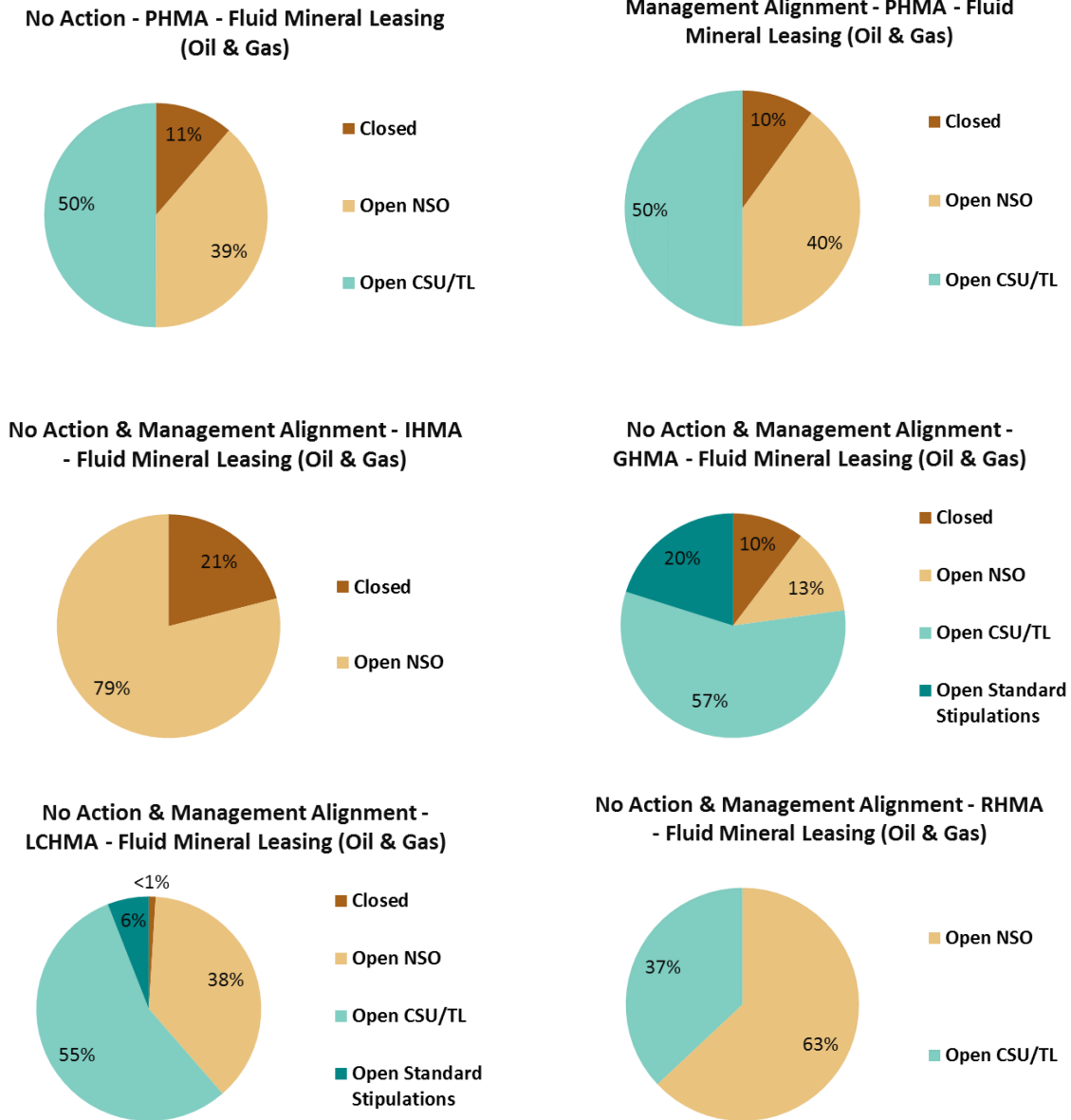
<b>Fluid Minerals (Oil &amp; Gas)</b>	<b>Management Alignment</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	1,078,000	7,000	1,153,000	1,000	0	4,787,000	<b>7,024,000</b>
Open NSO	4,578,000	23,000	1,430,000	54,000	5,000	2,634,000	<b>8,725,000</b>
Open CSU/TL	5,689,000	0	6,310,000	81,000	2,000	4,956,000	<b>17,036,000</b>
Open Standard Stipulations	0	0	2,193,000	8,000	0	3,000,000	<b>5,200,000</b>
<b>Total</b>	<b>11,345,000</b>	<b>29,000</b>	<b>11,086,000</b>	<b>144,000</b>	<b>8,000</b>	<b>15,376,000</b>	<b>37,988,000</b>

<b>Approximate % of Habitat Management Area by Fluid Minerals (Oil &amp; Gas) Decision in MZ II/VII</b>							
<b>Fluid Minerals (Oil &amp; Gas)</b>	<b>No Action</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	11%	21%	10%	<1%	0%	32%	<b>19%</b>
Open NSO	39%	79%	12%	38%	63%	17%	<b>22%</b>
Open CSU/TL	50%	0%	57%	56%	37%	32%	<b>45%</b>
Open Standard Stipulations	0%	0%	20%	6%	0%	19%	<b>14%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

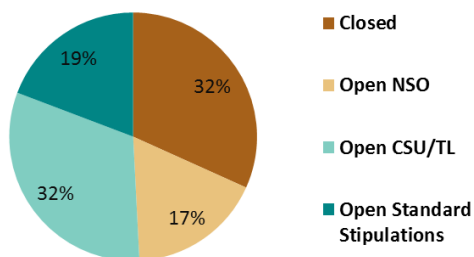
  

<b>Fluid Minerals (Oil &amp; Gas)</b>	<b>Management Alignment</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	10%	21%	10%	<1%	0%	31%	<b>18%</b>
Open NSO	40%	79%	13%	38%	63%	17%	<b>23%</b>
Open CSU/TL	50%	0%	57%	56%	37%	32%	<b>45%</b>
Open Standard Stipulations	0%	0%	20%	6%	0%	20%	<b>14%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

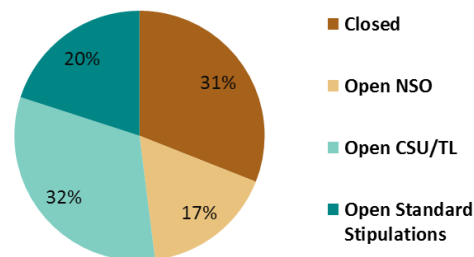


**Figure 20 – Fluid Minerals (Oil & Gas) Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

No Action - Non-HMA - Fluid Mineral Leasing  
(Oil & Gas)

Management Alignment - Non-HMA - Fluid Mineral Leasing (Oil &amp; Gas)

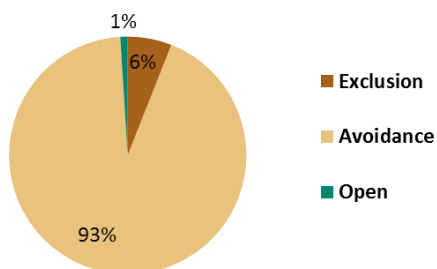
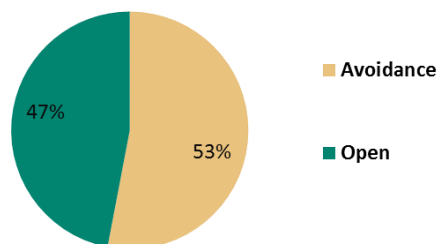
**Figure 20 (cont'd) – Fluid Minerals (Oil & Gas) Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

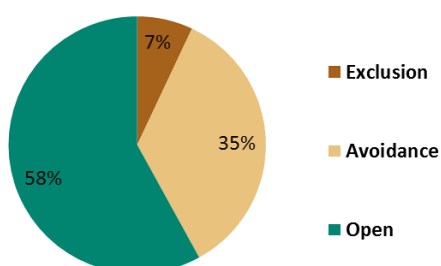
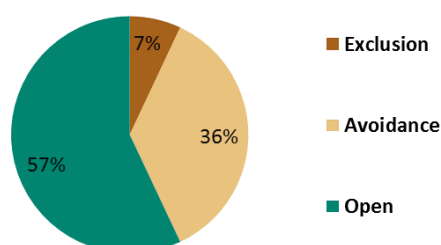
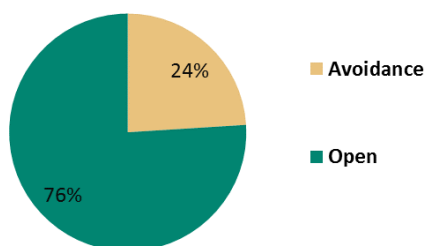
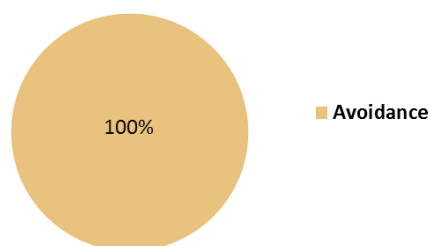
**VIII. Rights-of-Ways****Table 22 – Rights-of-Ways Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Rights-of-Ways Decisions in MZ II/VII by Habitat Management Area Type							
Rights-of-Ways	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	561,000	0	654,000	0	0	1,255,000	2,471,000
Avoidance	8,119,000	18,000	3,132,000	16,000	7,000	1,172,000	12,465,000
Open	71,000	16,000	5,256,000	51,000	0	5,067,000	10,460,000
<b>Total</b>	<b>8,752,000</b>	<b>34,000</b>	<b>9,041,000</b>	<b>67,000</b>	<b>7,000</b>	<b>7,494,000</b>	<b>25,395,000</b>
Rights-of-Ways	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	561,000	0	651,000	0	0	1,258,000	2,471,000
Avoidance	8,119,000	18,000	3,132,000	16,000	7,000	1,172,000	12,465,000
Open	71,000	16,000	4,971,000	51,000	0	5,351,000	10,460,000
<b>Total</b>	<b>8,752,000</b>	<b>34,000</b>	<b>8,754,000</b>	<b>67,000</b>	<b>7,000</b>	<b>7,781,000</b>	<b>25,395,000</b>
Approximate % of Habitat Management Area by Rights-of-Ways Decision in MZ II/VII							
Rights-of-Ways	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	6%	0%	7%	0%	0%	17%	10%
Avoidance	93%	53%	35%	24%	100%	16%	49%
Open	1%	47%	58%	76%	0%	68%	41%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
Rights-of-Ways	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	6%	0%	7%	0%	0%	16%	10%
Avoidance	93%	53%	36%	24%	100%	15%	49%
Open	1%	47%	57%	76%	0%	69%	41%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

No Action & Management Alignment -  
PHMA - Rights of WaysNo Action & Management Alignment - IHMA  
- Rights of Ways

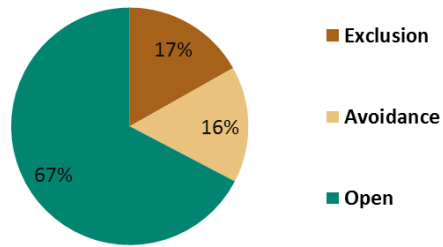
No Action - GHMA - Rights of Ways

Management Alignment - GHMA - Rights of  
WaysNo Action & Management Alignment -  
LCHMA - Rights of WaysNo Action & Management Alignment -  
RHMA - Rights of Ways**Figure 21 – Rights-of-Ways Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



**No Action & Management Alignment - Non-HMA - Rights of Ways**



**Figure 21 (cont'd) – Rights-of-Ways Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

**IX. Salable Minerals Materials****Table 23 – Salable Minerals Materials Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Salable Minerals Materials Decisions in MZ II/VII by Habitat Management Area Type</b>							
<b>Salable Minerals Materials</b>	<b>No Action</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	3,241,000	0	1,401,000	27,000	0	3,592,000	<b>8,263,000</b>
Open	7,671,000	28,000	9,745,000	115,000	7,000	9,675,000	<b>27,239,000</b>
<b>Total</b>	<b>10,912,000</b>	<b>28,000</b>	<b>11,145,000</b>	<b>142,000</b>	<b>7,000</b>	<b>13,268,000</b>	<b>35,502,000</b>

<b>Salable Minerals Materials</b>	<b>Management Alignment</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	3,241,000	0	1,399,000	27,000	0	3,594,000	<b>8,263,000</b>
Open	7,671,000	28,000	9,413,000	115,000	7,000	10,006,000	<b>27,239,000</b>
<b>Total</b>	<b>10,912,000</b>	<b>28,000</b>	<b>10,813,000</b>	<b>142,000</b>	<b>7,000</b>	<b>13,600,000</b>	<b>35,502,000</b>

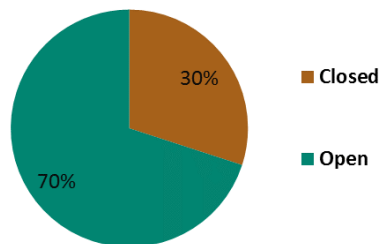
  

<b>Approximate % of Habitat Management Area by Salable Minerals Materials Decision in MZ II/VII</b>							
<b>Salable Minerals Materials</b>	<b>No Action</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	30%	0%	13%	19%	0%	26%	<b>23%</b>
Open	70%	100%	87%	81%	100%	74%	<b>77%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

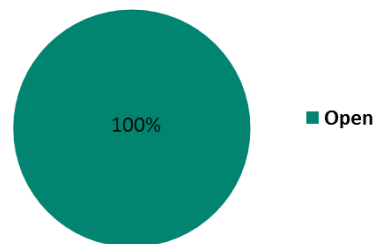
  

<b>Salable Minerals Materials</b>	<b>Management Alignment</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	30%	0%	13%	19%	0%	27%	<b>23%</b>
Open	70%	100%	87%	81%	100%	73%	<b>77%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

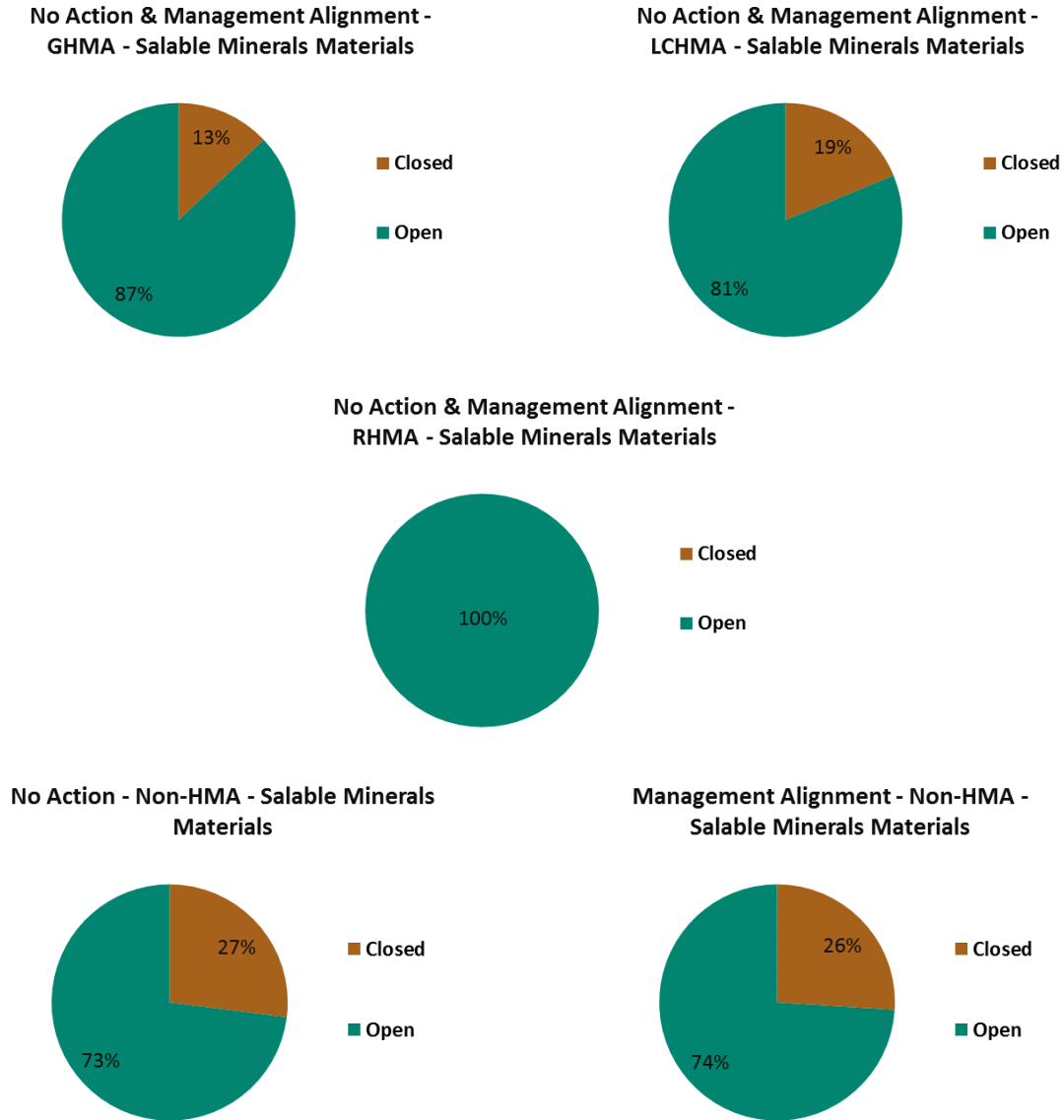
No Action & Management Alignment -  
PHMA - Salable Minerals Materials



No Action & Management Alignment - IHMA  
- Salable Minerals Materials

**Figure 22 – Salable Minerals Materials Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



**Figure 22 (cont'd) – Salable Minerals Materials Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## X. Solar Energy

**Table 24 – Solar Energy Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. <sup>8</sup> Data not available for WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Solar Energy Decisions <sup>8</sup> in MZ II/VII by Habitat Management Area Type							
Solar Energy	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	1,494,000	0	317,000	0	7,000	4,352,000	6,169,000
Avoidance	2,000	18,000	764,000	83,000	0	742,000	1,610,000
Open	0	0	1,000	0	0	2,170,000	2,171,000
<b>Total</b>	<b>1,496,000</b>	<b>18,000</b>	<b>1,082,000</b>	<b>83,000</b>	<b>7,000</b>	<b>7,265,000</b>	<b>9,950,000</b>

Solar Energy	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	1,494,000	0	30,000	0	7,000	4,639,000	6,169,000
Avoidance	2,000	18,000	764,000	83,000	0	742,000	1,610,000
Open	0	0	1,000	0	0	2,170,000	2,171,000
<b>Total</b>	<b>1,496,000</b>	<b>18,000</b>	<b>795,000</b>	<b>83,000</b>	<b>7,000</b>	<b>7,551,000</b>	<b>9,950,000</b>

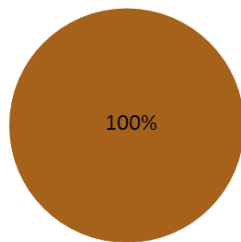
  

Approximate % of Habitat Management Area by Solar Energy Decision <sup>8</sup> in MZ II/VII							
Solar Energy	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	100%	0%	29%	0%	100%	60%	62%
Avoidance	0%	100%	71%	100%	0%	10%	16%
Open	0%	0%	<1%	0%	0%	30%	22%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

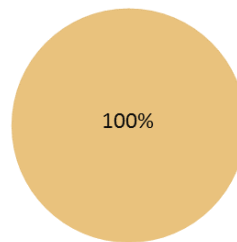
Solar Energy	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	100%	0%	4%	0%	100%	61%	62%
Avoidance	0%	100%	96%	100%	0%	10%	16%
Open	0%	0%	<1%	0%	0%	29%	22%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

No Action & Management Alignment -  
PHMA - Solar Energy



■ Exclusion

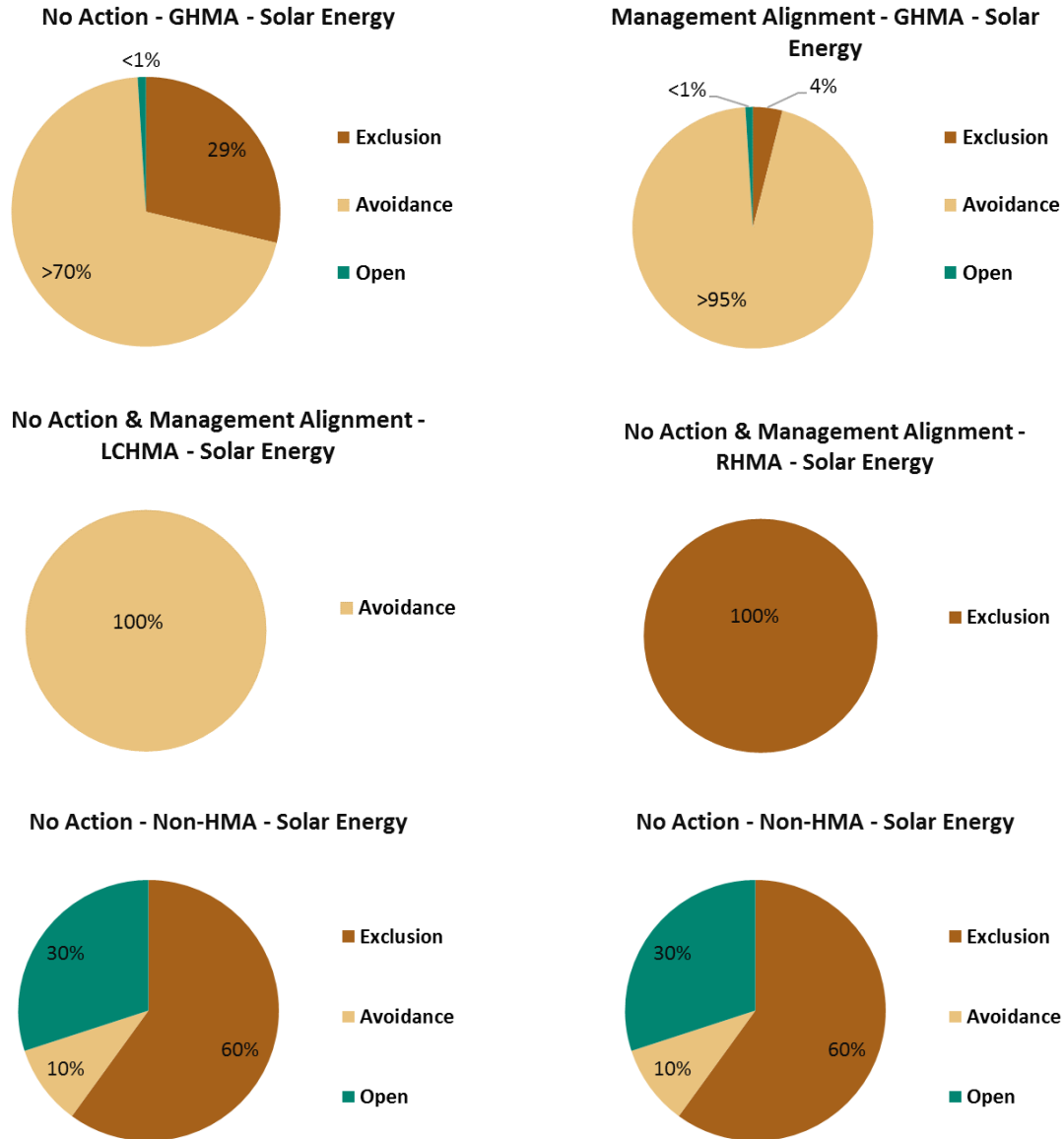
No Action & Management Alignment -  
IHMA - Solar Energy



■ Avoidance

**Figure 23 – Solar Energy Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. <sup>8</sup> Data not available for WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



**Figure 23 (cont'd) – Solar Energy Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. <sup>8</sup> Data not available for WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

**XI. Trails and Travel Management****Table 25 – Trails and Travel Management Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

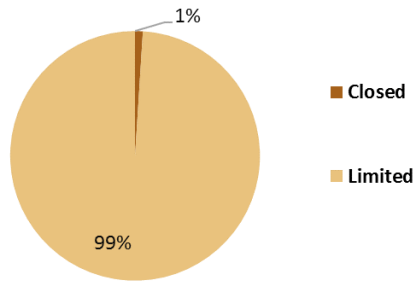
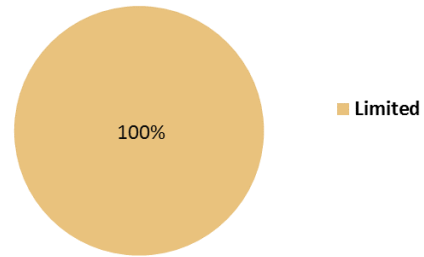
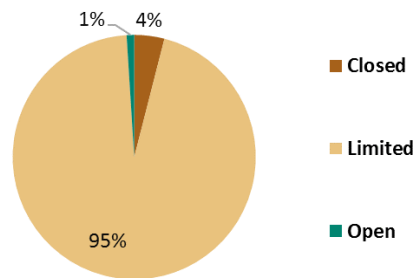
<b>Approximate Acres of Trails and Travel Management Decisions in MZ II/VII by Habitat Management Area Type</b>							
<b>Trails and Travel Management</b>	<b>No Action</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	103,000	0	369,000	11,000	0	1,304,000	<b>1,787,000</b>
Limited	8,840,000	18,000	8,696,000	69,000	7,000	6,337,000	<b>23,966,000</b>
Open	4,000	0	54,000	3,000	0	891,000	<b>953,000</b>
<b>Total</b>	<b>8,947,000</b>	<b>18,000</b>	<b>9,121,000</b>	<b>82,000</b>	<b>7,000</b>	<b>8,531,000</b>	<b>26,706,000</b>

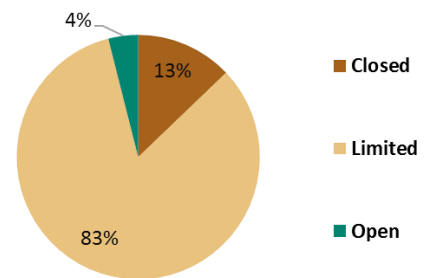
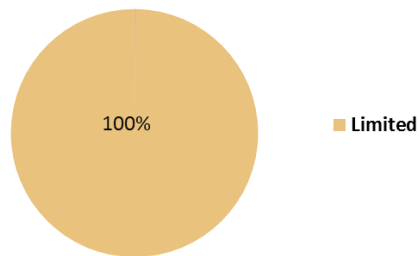
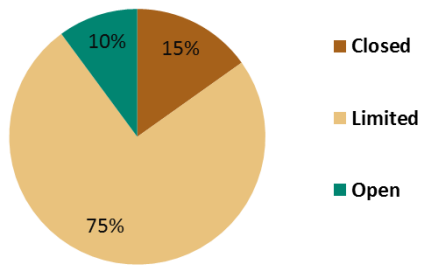
<b>Trails and Travel Management</b>	<b>Management Alignment</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	103,000	0	366,000	11,000	0	1,307,000	<b>1,787,000</b>
Limited	8,840,000	18,000	8,413,000	69,000	7,000	6,620,000	<b>23,966,000</b>
Open	4,000	0	54,000	3,000	0	891,000	<b>953,000</b>
<b>Total</b>	<b>8,947,000</b>	<b>18,000</b>	<b>8,834,000</b>	<b>82,000</b>	<b>7,000</b>	<b>8,819,000</b>	<b>26,706,000</b>

<b>Approximate % of Habitat Management Area by Trails and Travel Management Decision in MZ II/VII</b>							
<b>Trails and Travel Management</b>	<b>No Action &amp; Management Alignment</b>						
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>LCHMA</b>	<b>RHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	1%	0%	4%	13%	0%	15%	<b>7%</b>
Limited	99%	100%	95%	84%	100%	74%	<b>90%</b>
Open	0%	0%	1%	4%	0%	10%	<b>4%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

No Action & Management Alignment - PHMA -  
Trails and Travel ManagementNo Action & Management Alignment - IHMA -  
Trails and Travel ManagementNo Action & Management Alignment - GHMA  
- Trails and Travel Management

No Action &amp; Management Alignment - LCHMA - Trails and Travel Management

No Action & Management Alignment - RHMA  
- Trails and Travel ManagementNo Action & Management Alignment - Non-  
HMA - Trails and Travel Management**Figure 24 – Trails and Travel Management Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## XII. Wind Energy

**Table 26 – Wind Energy Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Wind Energy Decisions in MZ II/VII by Habitat Management Area Type							
Wind Energy	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	3,660,000	0	1,041,000	0	7,000	1,327,000	6,035,000
Avoidance	5,294,000	18,000	2,805,000	83,000	0	1,103,000	9,304,000
Open	0	0	5,272,000	0	0	5,045,000	10,317,000
<b>Total</b>	<b>8,953,000</b>	<b>18,000</b>	<b>9,119,000</b>	<b>83,000</b>	<b>7,000</b>	<b>7,476,000</b>	<b>25,656,000</b>

Wind Energy	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	3,660,000	0	1,038,000	0	7,000	1,330,000	6,035,000
Avoidance	5,294,000	18,000	2,805,000	83,000	0	1,103,000	9,304,000
Open	0	0	4,988,000	0	0	5,329,000	10,317,000
<b>Total</b>	<b>8,953,000</b>	<b>18,000</b>	<b>8,831,000</b>	<b>83,000</b>	<b>7,000</b>	<b>7,763,000</b>	<b>25,656,000</b>

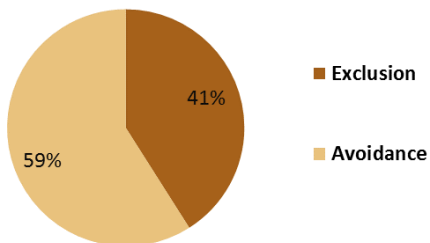
  

Approximate % of Habitat Management Area by Wind Energy Decision in MZ II/VII							
Wind Energy	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	41%	0%	11%	0%	100%	18%	24%
Avoidance	59%	100%	31%	100%	0%	15%	36%
Open	0%	0%	58%	0%	0%	67%	40%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

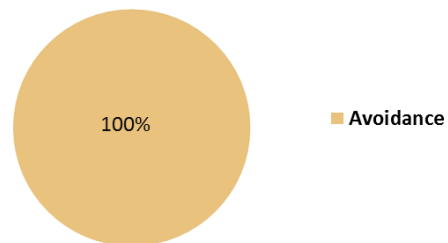
  

Wind Energy	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	41%	0%	12%	0%	100%	17%	24%
Avoidance	59%	100%	32%	100%	0%	14%	36%
Open	0%	0%	56%	0%	0%	69%	40%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

No Action & Management Alignment -  
PHMA - Wind Energy



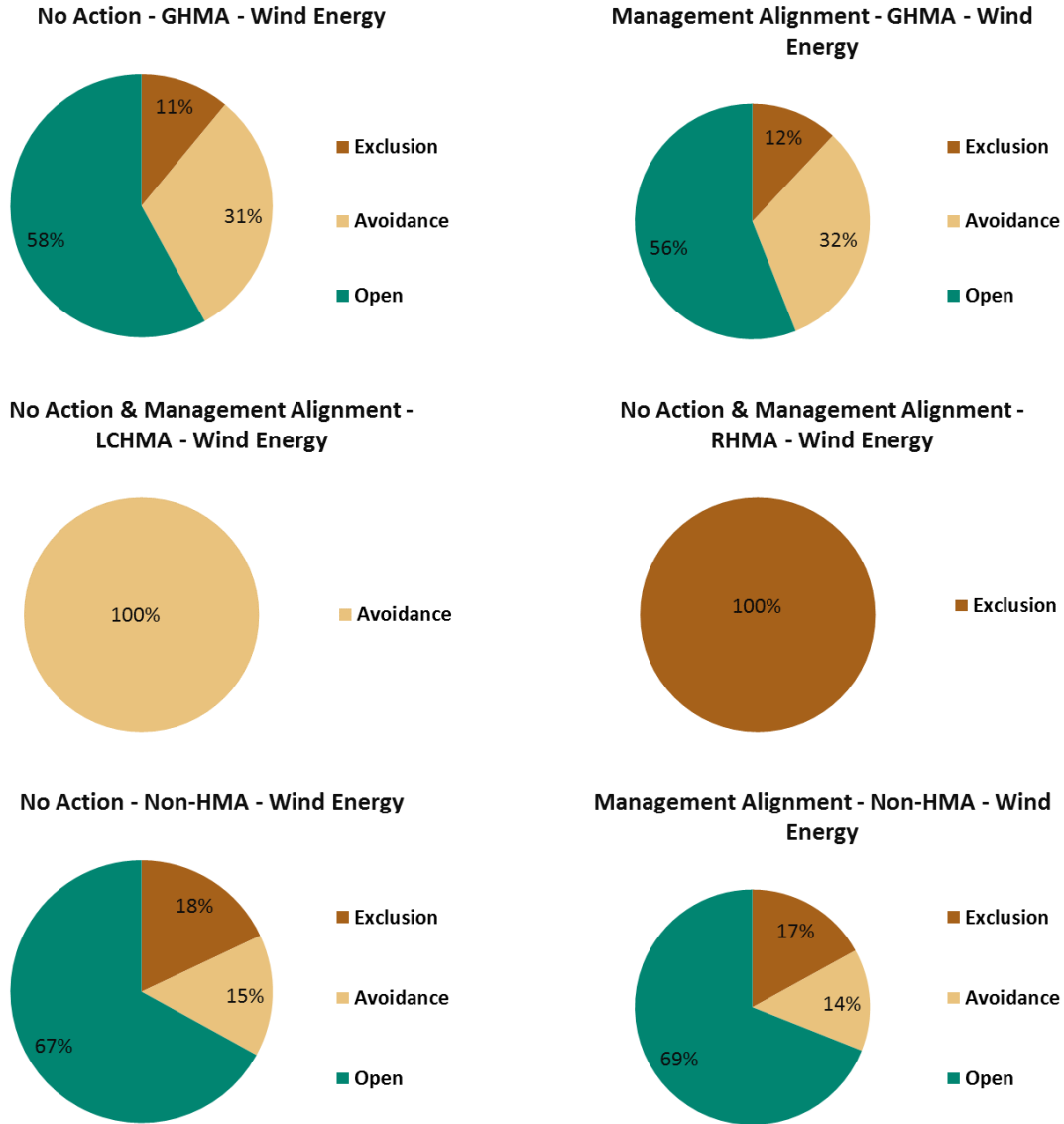
No Action & Management Alignment - IHMA  
- Wind Energy



**Figure 25 – Wind Energy Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.





**Figure 25 (cont'd) – Wind Energy Decisions within MZ II/VII**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

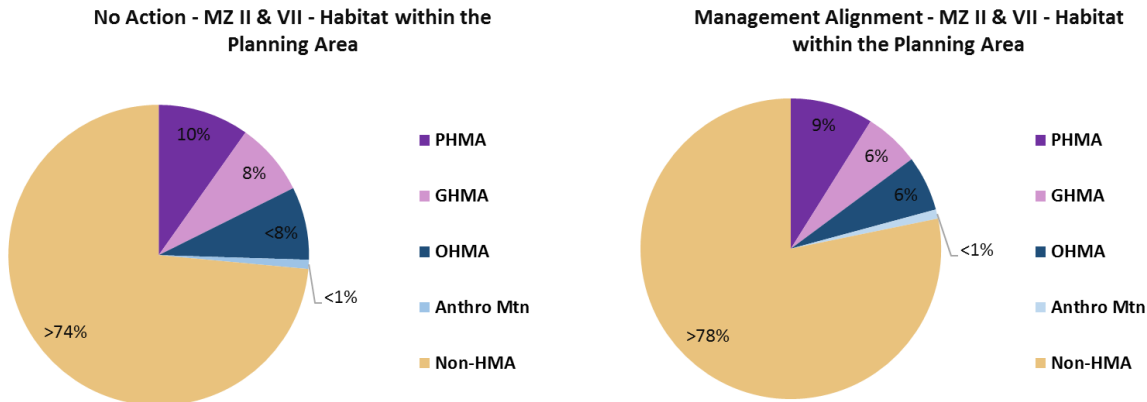
### D.2.3 Management Zone III – Utah, Nevada

#### I. Habitat Management

**Table 27 – Habitat Management Areas within MZ III**

Acres and percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of HMA in MZ III									
No Action					Management Alignment				
PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA
7,093,000	5,953,000	5,651,000	42,000	54,928,000	6,974,000	4,474,000	4,253,000	42,000	57,925,000
Approximate Percent of MZ III that is HMA									
No Action					Management Alignment				
PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA
10%	8%	8%	<1%	75%	9%	6%	6%	<1%	79%



**Figure 26 – Habitat Management Areas within MZ III**

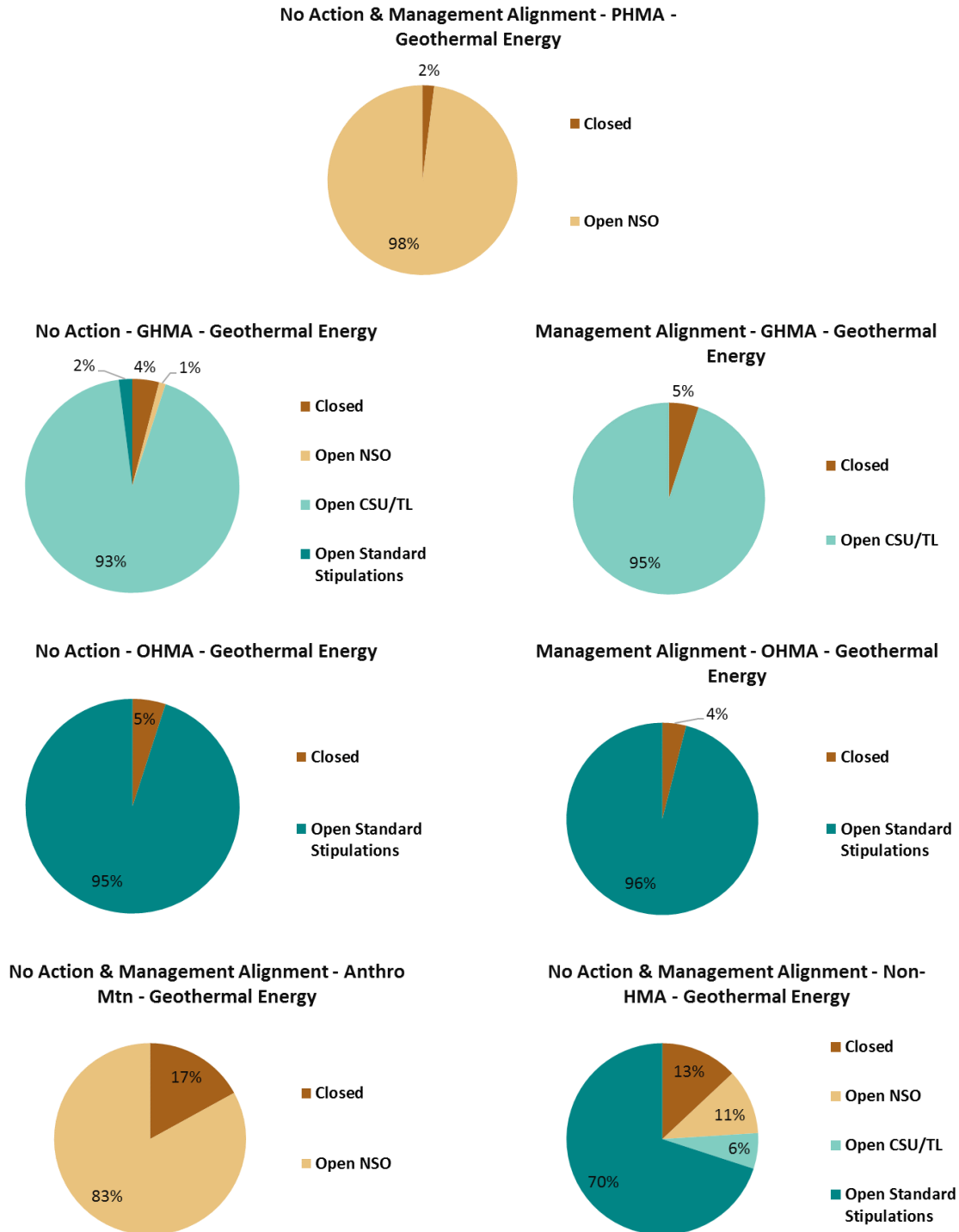
Percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## II. Geothermal Energy

**Table 28 – Geothermal Energy Decisions within MZ III**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Geothermal Energy Decisions in MZ III by Habitat Management Area Type</b>						
<b>Geothermal Energy</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	126,000	165,000	230,000	7,000	4,948,000	<b>5,476,000</b>
Open NSO	5,358,000	23,000	0	35,000	3,939,000	<b>9,354,000</b>
Open CSU/TL	0	3,628,000	0	0	2,135,000	<b>5,763,000</b>
Open Standard Stipulations	0	86,000	4,042,000	0	26,065,000	<b>30,193,000</b>
<b>Total</b>	<b>5,484,000</b>	<b>3,902,000</b>	<b>4,272,000</b>	<b>42,000</b>	<b>37,087,000</b>	<b>50,787,000</b>
<b>Geothermal Energy</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	124,000	176,000	159,000	7,000	4,990,000	<b>5,457,000</b>
Open NSO	5,483,000	0	0	35,000	3,961,000	<b>9,479,000</b>
Open CSU/TL	0	3,565,000	0	0	2,191,000	<b>5,756,000</b>
Open Standard Stipulations	0	0	3,534,000	0	26,554,000	<b>30,088,000</b>
<b>Total</b>	<b>5,607,000</b>	<b>3,741,000</b>	<b>3,693,000</b>	<b>42,000</b>	<b>37,696,000</b>	<b>50,780,000</b>
<b>Approximate % of Habitat Management Area by Geothermal Energy Decision in MZ III</b>						
<b>Geothermal Energy</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	2%	4%	5%	17%	13%	<b>11%</b>
Open NSO	98%	1%	0%	83%	11%	<b>18%</b>
Open CSU/TL	0%	93%	0%	0%	6%	<b>11%</b>
Open Standard Stipulations	0%	2%	95%	0%	70%	<b>59%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Geothermal Energy</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	2%	5%	4%	17%	13%	<b>11%</b>
Open NSO	98%	0%	0%	83%	11%	<b>19%</b>
Open CSU/TL	0%	95%	0%	0%	6%	<b>11%</b>
Open Standard Stipulations	0%	0%	96%	0%	70%	<b>59%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



**Figure 27 – Geothermal Energy Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

### III. Land Tenure

**Table 29 – Land Tenure Decisions within MZ III**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Land Tenure Decisions in MZ III by Habitat Management Area Type</b>						
<b>Land Tenure</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Disposal	0	0	280,000	NA	2,178,000	<b>2,458,000</b>
Retention	4,722,000	3,875,000	3,992,000	NA	30,234,000	<b>42,824,000</b>
<b>Total</b>	<b>4,722,000</b>	<b>3,875,000</b>	<b>4,272,000</b>	<b>NA</b>	<b>32,413,000</b>	<b>45,283,000</b>

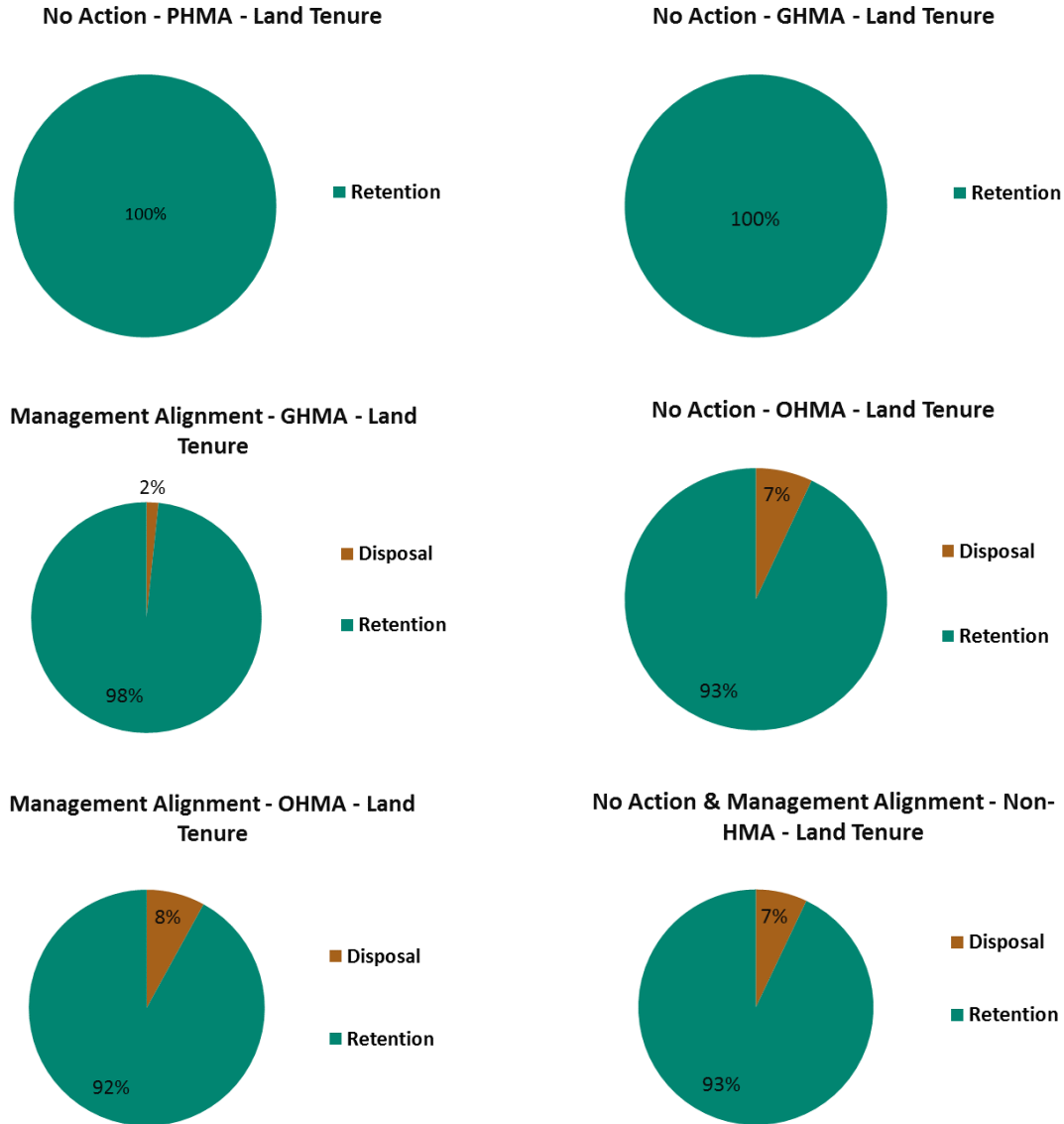
<b>Land Tenure</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Disposal	3,000	62,000	304,000	NA	2,214,000	<b>2,583,000</b>
Retention	4,844,000	3,679,000	3,389,000	NA	30,782,000	<b>42,694,000</b>
<b>Total</b>	<b>4,847,000</b>	<b>3,741,000</b>	<b>3,693,000</b>	<b>NA</b>	<b>32,996,000</b>	<b>45,277,000</b>

<b>Approximate % of Habitat Management Area by Land Tenure Decision in MZ III</b>						
<b>Land Tenure</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Disposal	0%	0%	7%	NA	7%	<b>5%</b>
Retention	100%	100%	93%	NA	93%	<b>95%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>

<b>Land Tenure</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Disposal	0%	2%	8%	NA	7%	<b>6%</b>
Retention	100%	98%	92%	NA	93%	<b>94%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>



**Figure 28 – Land Tenure Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

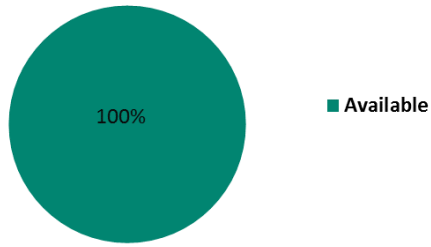
#### IV. Livestock Grazing

**Table 30 – Livestock Grazing Decisions within MZ III**

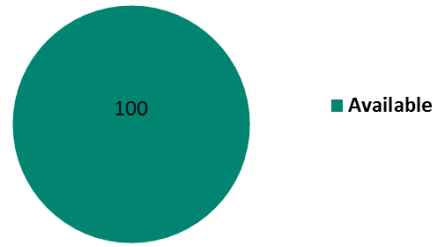
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Livestock Grazing Decisions in MZ III by Habitat Management Area Type</b>						
<b>Livestock Grazing</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Unavailable	0	0	0	NA	129,000	129,000
Available	4,722,000	3,868,000	4,265,000	NA	31,559,000	44,415,000
<b>Total</b>	<b>4,722,000</b>	<b>3,868,000</b>	<b>4,265,000</b>	<b>NA</b>	<b>31,688,000</b>	<b>44,544,000</b>
<b>Livestock Grazing</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Unavailable	0	0	0	NA	129,000	129,000
Available	4,845,000	3,741,000	3,690,000	NA	32,135,000	44,410,000
<b>Total</b>	<b>4,845,000</b>	<b>3,741,000</b>	<b>3,690,000</b>	<b>NA</b>	<b>32,264,000</b>	<b>44,539,000</b>
<b>Approximate % of Habitat Management Area by Livestock Grazing Decision in MZ III</b>						
<b>Livestock Grazing</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Unavailable	0%	0%	0%	NA	<1%	<1%
Available	100%	100%	100%	NA	100%	100%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>
<b>Livestock Grazing</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Unavailable	0%	0%	0%	NA	<1%	<1%
Available	100%	100%	100%	NA	100%	100%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>

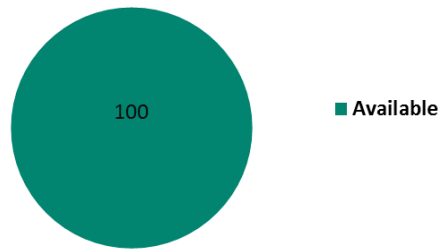
No Action & Management Alignment -  
PHMA - Livestock Grazing



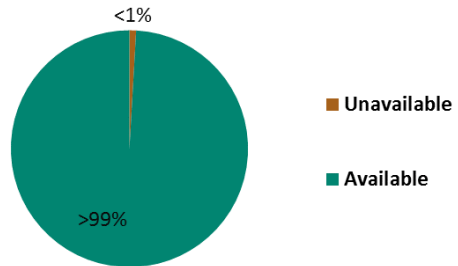
No Action & Management Alignment -  
GHMA - Livestock Grazing



No Action & Management Alignment -  
OHMA - Livestock Grazing



No Action & Management Alignment - Non-  
HMA - Livestock Grazing



**Figure 29 – Livestock Grazing Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



## V. Locatable Minerals

**Table 31 – Locatable Minerals Decisions within MZ III**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Locatable Minerals Decisions in MZ III by Habitat Management Area Type</b>						
<b>Locatable Minerals</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	56,000	143,000	52,000	0	3,350,000	<b>3,602,000</b>
Recommended Withdrawals	4,000	0	0	0	49,000	<b>53,000</b>
Open	5,429,000	3,788,000	4,219,000	42,000	34,853,000	<b>48,332,000</b>
<b>Total</b>	<b>5,489,000</b>	<b>3,931,000</b>	<b>4,272,000</b>	<b>42,000</b>	<b>38,253,000</b>	<b>51,987,000</b>

<b>Locatable Minerals</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	61,000	100,000	42,000	0	3,398,000	<b>3,601,000</b>
Recommended Withdrawals	4,000	0	0	0	50,000	<b>53,000</b>
Open	5,552,000	3,641,000	3,650,000	42,000	35,444,000	<b>48,330,000</b>
<b>Total</b>	<b>5,617,000</b>	<b>3,741,000</b>	<b>3,693,000</b>	<b>42,000</b>	<b>38,892,000</b>	<b>51,985,000</b>

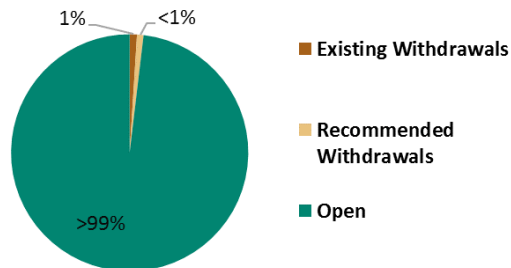
  

<b>Approximate % of Habitat Management Area by Locatable Minerals Decision in MZ III</b>						
<b>Locatable Minerals</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	1%	4%	1%	0	9%	<b>7%</b>
Recommended Withdrawals	<1%	0%	0%	0%	<1%	<b>&lt;1%</b>
Open	99%	96%	99%	100%	91%	<b>93%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<b>Locatable Minerals</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	1%	3%	1%	0%	9%	<b>7%</b>
Recommended Withdrawals	<1%	0%	0%	0%	0%	<b>&lt;1%</b>
Open	99%	97%	99%	100%	91%	<b>93%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**No Action & Management Alignment -  
PHMA - Locatable Minerals**



**Figure 30 – Locatable Minerals Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



**Figure 30 (cont'd) – Locatable Minerals Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

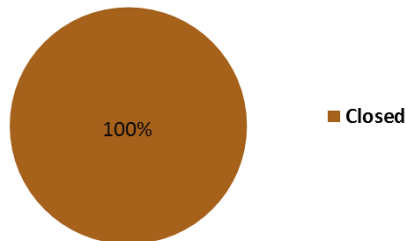
## VI. Non-Energy Leasable Minerals

**Table 32 – Non-Energy Leasable Minerals Decisions within MZ III**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

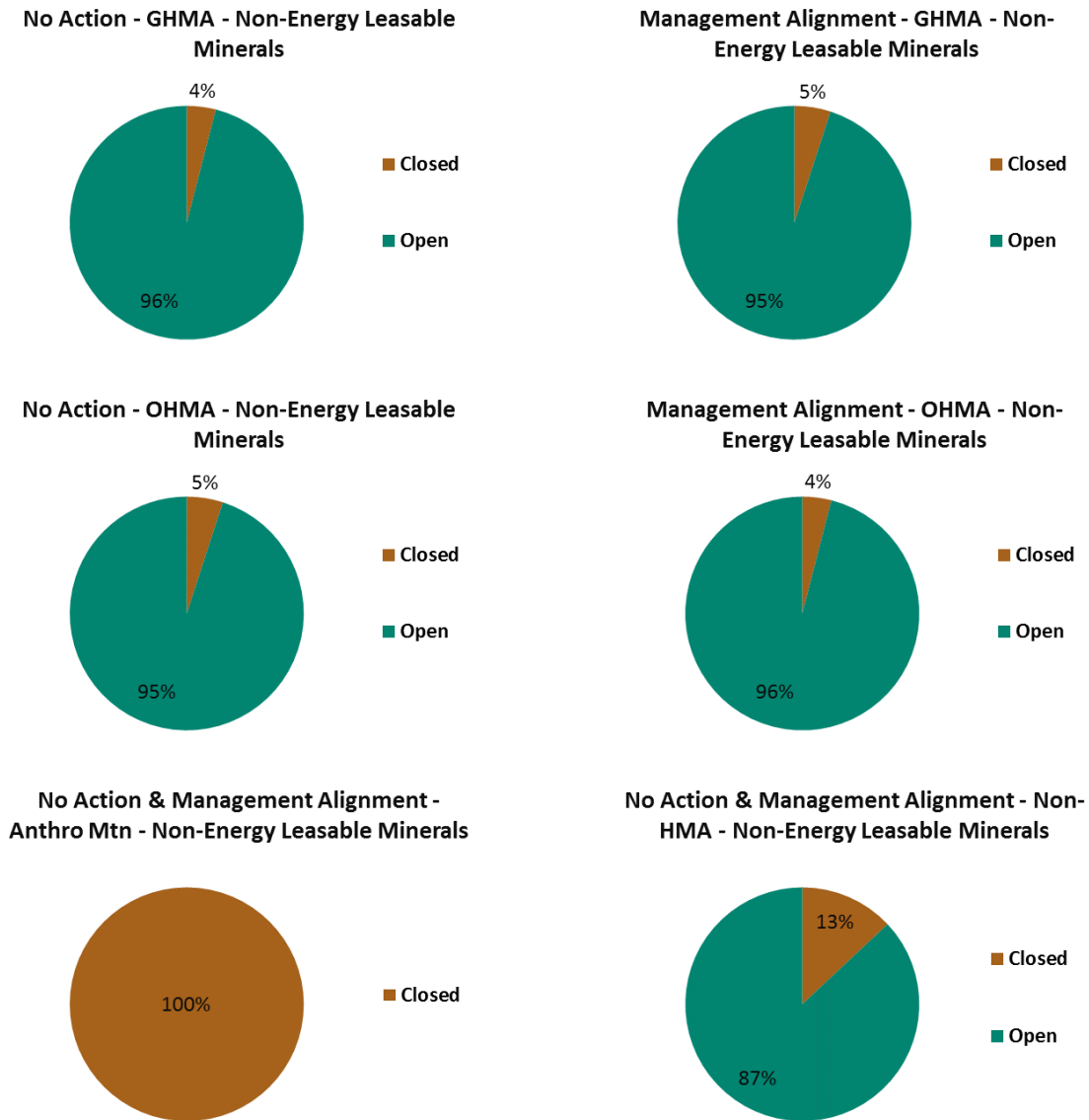
Approximate Acres of Non-Energy Leasable Minerals Decisions in MZ III by Habitat Management Area Type						
Non-Energy Leasable Minerals	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	5,486,000	165,000	230,000	42,000	4,948,000	10,871,000
Open	0	3,766,000	4,042,000	0	33,308,000	41,116,000
<b>Total</b>	<b>5,486,000</b>	<b>3,931,000</b>	<b>4,272,000</b>	<b>42,000</b>	<b>38,256,000</b>	<b>51,987,000</b>
Non-Energy Leasable Minerals	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	5,611,000	176,000	159,000	42,000	4,990,000	10,978,000
Open	0	3,565,000	3,534,000	0	33,904,000	41,004,000
<b>Total</b>	<b>5,611,000</b>	<b>3,741,000</b>	<b>3,693,000</b>	<b>42,000</b>	<b>38,894,000</b>	<b>51,981,000</b>
Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision in MZ III						
Non-Energy Leasable Minerals	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	100%	4%	5%	100%	13%	21%
Open	0%	96%	95%	0%	87%	79%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
Non-Energy Leasable Minerals	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	100%	5%	4%	100%	13%	21%
Open	0%	95%	96%	0%	87%	79%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

No Action & Management Alignment -  
PHMA - Non-Energy Leasable Minerals



**Figure 31 – Non-Energy Leasable Minerals Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



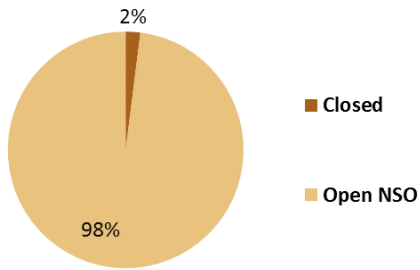
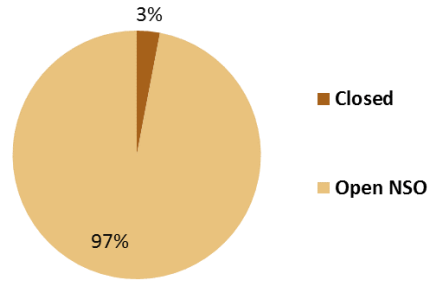
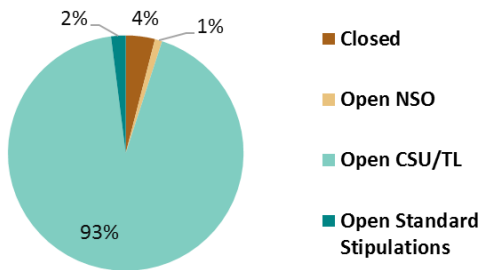
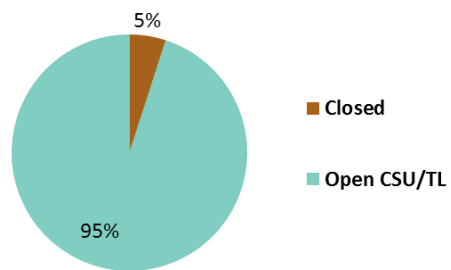
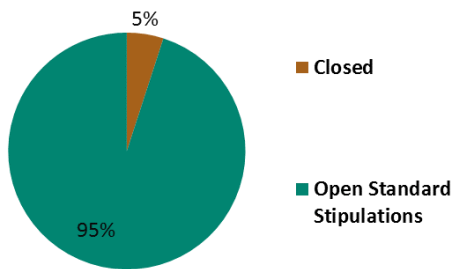
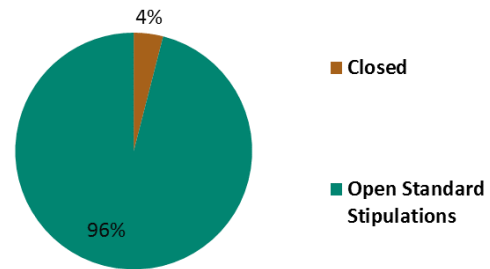
**Figure 31 (cont'd) – Non-Energy Leasable Minerals Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

**VII. Fluid Minerals (Oil & Gas)****Table 33 – Fluid Mineral (Oil & Gas) Decisions within MZ III**

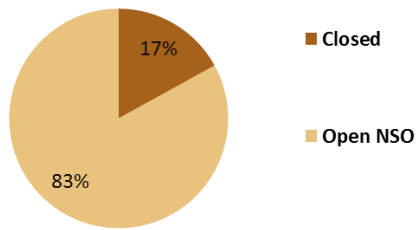
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Fluid Mineral (Oil &amp; Gas) Decisions in MZ III by Habitat Management Area Type</b>						
<b>Fluid Mineral (Oil &amp; Gas) Decisions</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	126,000	165,000	230,000	7,000	4,948,000	<b>5,476,000</b>
Open NSO	5,358,000	23,000	0	35,000	3,431,000	<b>8,847,000</b>
Open CSU/TL	0	3,628,000	0	0	2,135,000	<b>5,763,000</b>
Open Standard Stipulations	0	86,000	4,042,000	0	26,502,000	<b>30,630,000</b>
<b>Total</b>	<b>5,484,000</b>	<b>3,902,000</b>	<b>4,272,000</b>	<b>42,000</b>	<b>37,016,000</b>	<b>50,716,000</b>
<b>Fluid Mineral (Oil &amp; Gas) Decisions</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	144,000	176,000	159,000	7,000	4,990,000	<b>5,476,000</b>
Open NSO	5,464,000	0	0	35,000	3,454,000	<b>8,952,000</b>
Open CSU/TL	0	3,565,000	0	0	2,191,000	<b>5,756,000</b>
Open Standard Stipulations	0	0	3,534,000	0	26,991,000	<b>30,525,000</b>
<b>Total</b>	<b>5,607,000</b>	<b>3,741,000</b>	<b>3,693,000</b>	<b>42,000</b>	<b>37,626,000</b>	<b>50,710,000</b>
<b>Approximate % of Habitat Management Area by Fluid Mineral (Oil &amp; Gas) Decision in MZ III</b>						
<b>Fluid Mineral (Oil &amp; Gas) Decisions</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	2%	4%	5%	17%	13%	<b>11%</b>
Open NSO	98%	1%	0%	83%	9%	<b>17%</b>
Open CSU/TL	0%	93%	0%	0%	6%	<b>11%</b>
Open Standard Stipulations	0%	2%	95%	0%	72%	<b>60%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Fluid Mineral (Oil &amp; Gas) Decisions</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	3%	5%	4%	17%	13%	<b>11%</b>
Open NSO	97%	0%	0%	83%	9%	<b>18%</b>
Open CSU/TL	0%	95%	0%	0%	6%	<b>11%</b>
Open Standard Stipulations	0%	0%	96%	0%	72%	<b>60%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

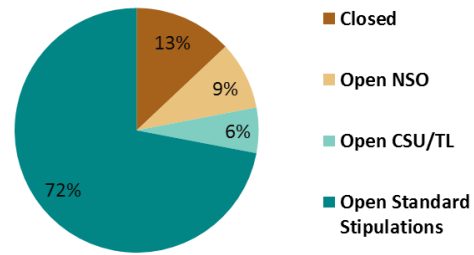
**No Action - PHMA - Fluid Mineral Leasing (Oil & Gas)****Management Alignment - PHMA - Fluid Mineral Leasing (Oil & Gas)****No Action - GHMA - Fluid Mineral Leasing (Oil & Gas)****Management Alignment - GHMA - Fluid Mineral Leasing (Oil & Gas)****No Action - OHMA - Fluid Mineral Leasing (Oil & Gas)****Management Alignment - OHMA - Fluid Mineral Leasing (Oil & Gas)****Figure 32 – Fluid Mineral (Oil & Gas) Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

No Action & Management Alignment -  
Anthro Mtn - Fluid Mineral Leasing (Oil &  
Gas)



No Action & Management Alignment - Non-  
HMA - Fluid Mineral Leasing (Oil & Gas)



**Figure 32 (cont'd) – Fluid Mineral (Oil & Gas) Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## VIII. Rights-of-Ways

**Table 34 – Rights-of-Ways Decisions within MZ III**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Rights-of-Ways Decisions in MZ III by Habitat Management Area Type</b>						
<b>Rights-of-Ways</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	86,000	164,000	230,000	NA	3,794,000	<b>4,274,000</b>
Avoidance	4,591,000	3,495,000	0	NA	799,000	<b>8,884,000</b>
Open	46,000	216,000	4,043,000	NA	27,890,000	<b>32,195,000</b>
<b>Total</b>	<b>4,722,000</b>	<b>3,875,000</b>	<b>4,272,000</b>	<b>NA</b>	<b>32,483,000</b>	<b>45,353,000</b>

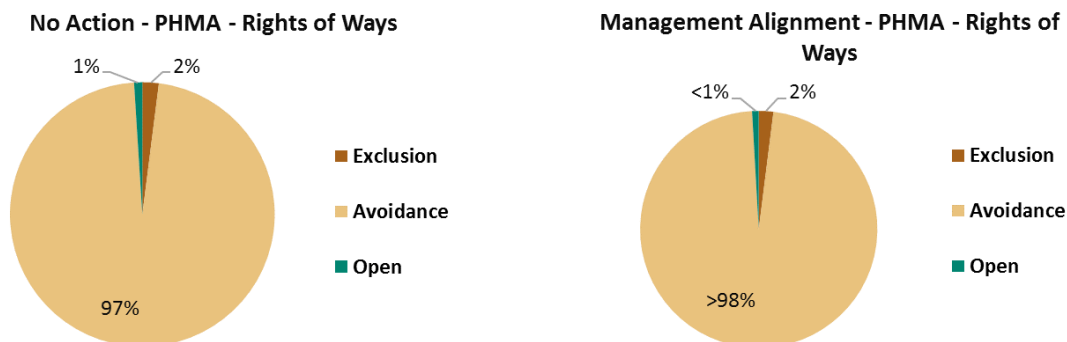
<b>Rights-of-Ways</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	104,000	176,000	159,000	NA	3,837,000	<b>4,275,000</b>
Avoidance	4,726,000	3,565,000	0	NA	373,000	<b>8,664,000</b>
Open	17,000	0	3,534,000	NA	28,857,000	<b>32,408,000</b>
<b>Total</b>	<b>4,847,000</b>	<b>3,741,000</b>	<b>3,693,000</b>	<b>NA</b>	<b>33,066,000</b>	<b>45,348,000</b>

<b>Approximate % of Habitat Management Area by Rights-of-Ways Decision in MZ III</b>						
<b>Rights-of-Ways</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	2%	4%	5%	NA	12%	<b>9%</b>
Avoidance	97%	90%	0%	NA	2%	<b>20%</b>
Open	1%	6%	95%	NA	86%	<b>71%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>

<b>Rights-of-Ways</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	2%	5%	4%	NA	12%	<b>9%</b>
Avoidance	98%	95%	0%	NA	1%	<b>19%</b>
Open	<1%	0%	96%	NA	87%	<b>71%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>

**Figure 33 – Rights-of-Ways Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.





**Figure 33 (cont'd) – Rights-of-Ways Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

**IX. Salable Minerals Materials****Table 35 – Salable Minerals Materials Decisions within MZ III**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Salable Minerals Materials Decisions in MZ III by Habitat Management Area Type</b>						
<b>Salable Minerals Materials</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	4,722,000	172,000	230,000	NA	4,646,000	<b>9,770,000</b>
Open	0	3,707,000	4,042,000	NA	27,834,000	<b>35,583,000</b>
<b>Total</b>	<b>4,723,000</b>	<b>3,878,000</b>	<b>4,272,000</b>	<b>NA</b>	<b>32,479,000</b>	<b>45,353,000</b>
<b>Salable Minerals Materials</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	4,847,000	176,000	159,000	NA	4,694,000	<b>9,876,000</b>
Open	0	3,565,000	3,534,000	NA	28,372,000	<b>35,471,000</b>
<b>Total</b>	<b>4,847,000</b>	<b>3,741,000</b>	<b>3,693,000</b>	<b>NA</b>	<b>33,066,000</b>	<b>45,347,000</b>
<b>Approximate % of Habitat Management Area by Salable Minerals Materials Decision in MZ III</b>						
<b>Salable Minerals Materials</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	100%	4%	5%	NA	14%	<b>22%</b>
Open	0%	96%	95%	NA	86%	<b>78%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>
<b>Salable Minerals Materials</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	100%	5%	4%	NA	14%	<b>22%</b>
Open	0%	95%	96%	NA	86%	<b>78%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>



**Figure 34 – Salable Minerals Materials Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## X. Solar Energy

**Table 36 – Solar Energy Decisions within MZ III**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Solar Energy Decisions in MZ III by Habitat Management Area Type						
Solar Energy	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	4,731,000	3,886,000	3,417,000	NA	24,421,000	36,454,000
Avoidance	2,000	4,000	857,000	NA	7,637,000	8,499,000
Open	0	0	1,000	NA	340,000	341,000
<b>Total</b>	<b>4,732,000</b>	<b>3,889,000</b>	<b>4,274,000</b>	<b>NA</b>	<b>32,398,000</b>	<b>45,294,000</b>

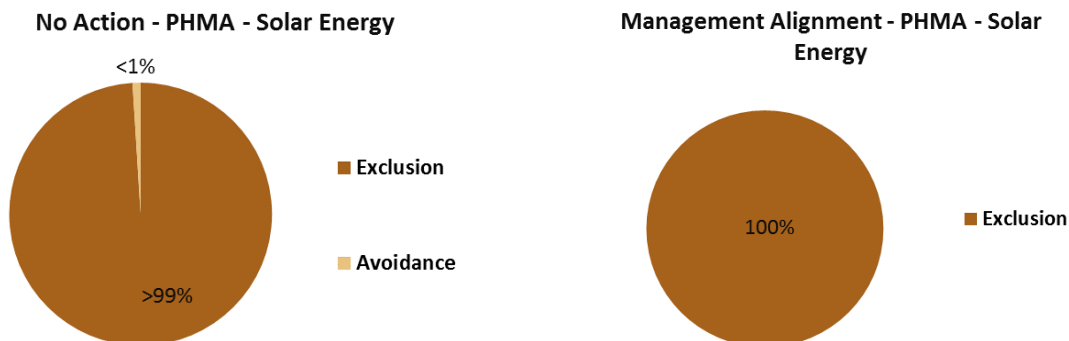
Solar Energy	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	4,858,000	3,748,000	3,699,000	NA	24,867,000	37,172,000
Avoidance	0	0	0	NA	7,770,000	7,770,000
Open	0	0	0	NA	346,000	346,000
<b>Total</b>	<b>4,858,000</b>	<b>3,748,000</b>	<b>3,699,000</b>	<b>NA</b>	<b>32,983,000</b>	<b>45,288,000</b>

Approximate % of Habitat Management Area by Solar Energy Decision in MZ III						
Solar Energy	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	100%	100%	80%	NA	75%	80%
Avoidance	<1%	<1%	20%	NA	24%	19%
Open	0%	0%	<1%	NA	1%	1%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>

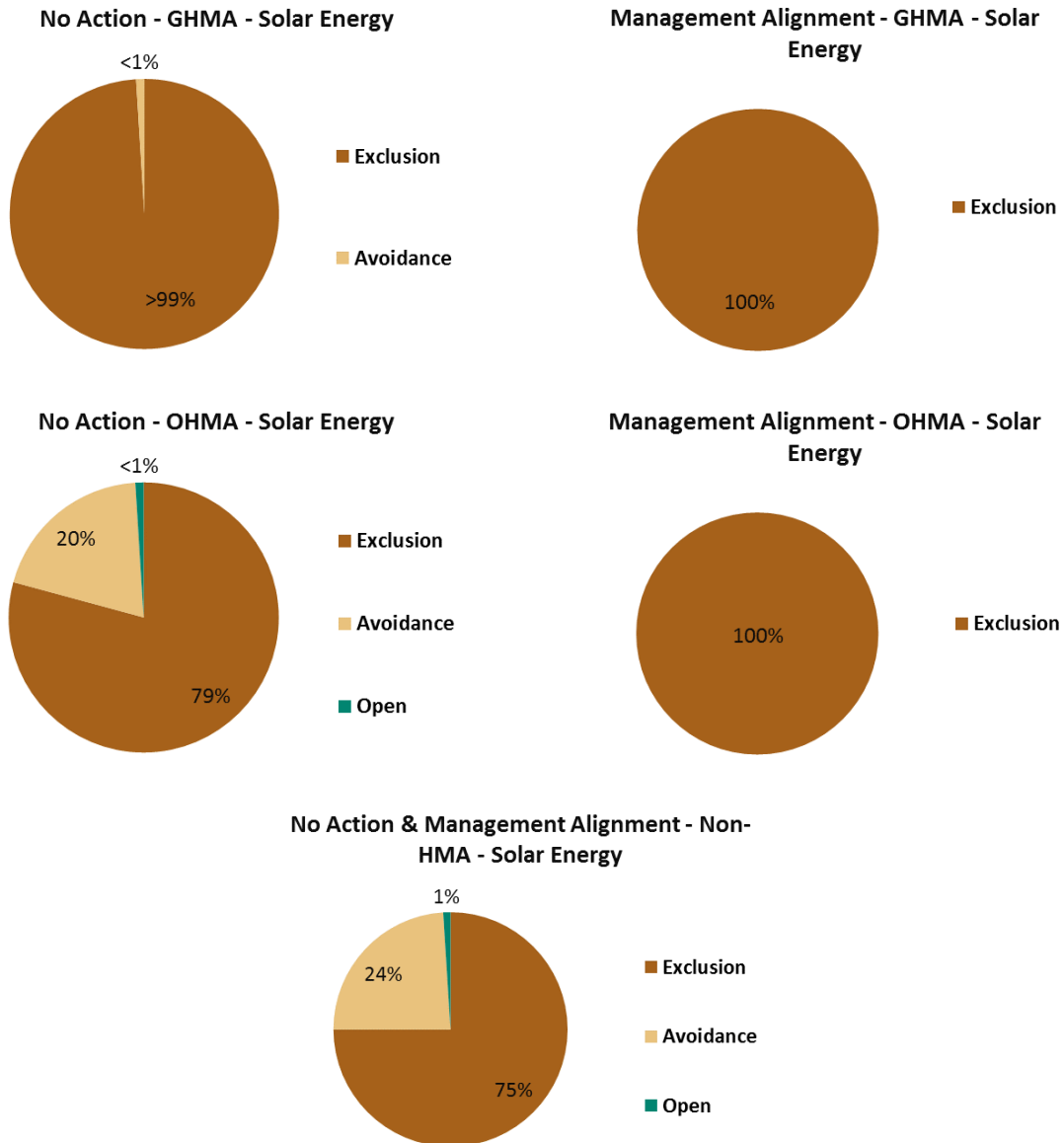
  

Solar Energy	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	100%	100%	100%	NA	75%	82%
Avoidance	0%	0%	0%	NA	24%	17%
Open	0%	0%	0%	NA	1%	1%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>



**Figure 35 – Solar Energy Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



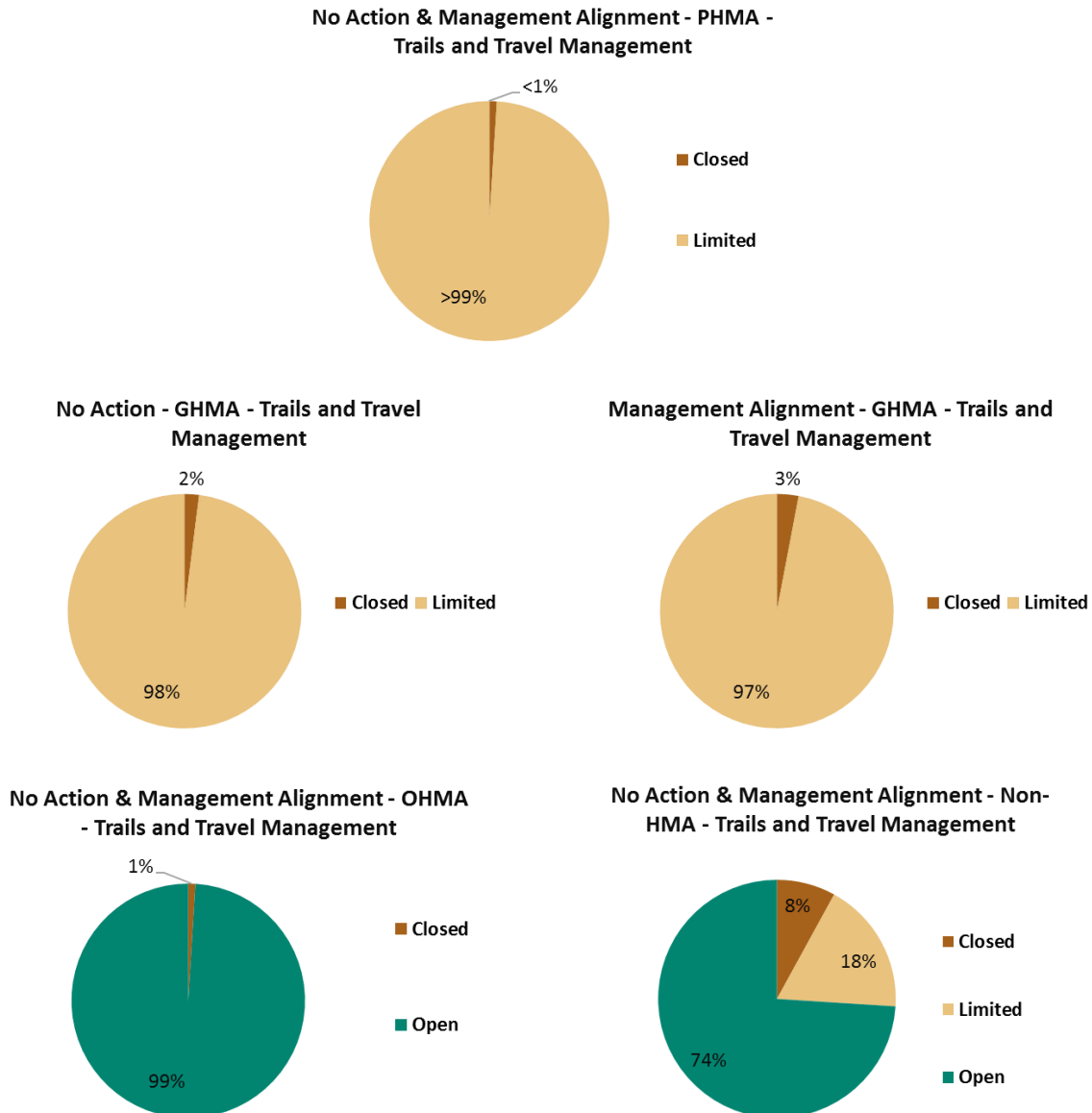
**Figure 35 (cont'd) – Solar Energy Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

**XI. Trails and Travel Management****Table 37 – Trails and Travel Management Decisions within MZ III**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Trails and Travel Management Decisions in MZ III by Habitat Management Area Type</b>						
<b>Trails and Travel Management Decisions</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	16,000	84,000	52,000	NA	2,517,000	<b>2,669,000</b>
Limited	4,702,000	3,791,000	1,000	NA	5,791,000	<b>14,285,000</b>
Open	0	0	4,219,000	NA	24,153,000	<b>28,372,000</b>
<b>Total</b>	<b>4,718,000</b>	<b>3,875,000</b>	<b>4,273,000</b>	<b>NA</b>	<b>32,461,000</b>	<b>45,326,000</b>
<b>Trails and Travel Management Decisions</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	21,000	100,000	42,000	NA	2,505,000	<b>2,668,000</b>
Limited	4,821,000	3,642,000	14,000	NA	6,095,000	<b>14,572,000</b>
Open	0	0	3,637,000	NA	24,429,000	<b>28,066,000</b>
<b>Total</b>	<b>4,842,000</b>	<b>3,741,000</b>	<b>3,693,000</b>	<b>NA</b>	<b>33,030,000</b>	<b>45,307,000</b>
<b>Approximate % of Habitat Management Area by Trails and Travel Management Decisions Decision in MZ III</b>						
<b>Trails and Travel Management Decisions</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	<1%	2%	1%	NA	8%	<b>6%</b>
Limited	100%	98%	0%	NA	18%	<b>32%</b>
Open	0%	0%	99%	NA	74%	<b>63%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>
<b>Trails and Travel Management Decisions</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	<1%	3%	1%	NA	8%	<b>6%</b>
Limited	100%	97%	0%	NA	18%	<b>32%</b>
Open	0%	0%	98%	NA	74%	<b>62%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>



**Figure 36 – Trails and Travel Management Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

**XII. Wind Energy****Table 38 – Wind Energy Decisions within MZ III**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Wind Energy Decisions in MZ III by Habitat Management Area Type</b>						
<b>Wind Energy</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	4,669,000	166,000	230,000	NA	3,939,000	<b>9,004,000</b>
Avoidance	0	3,572,000	0	NA	212,000	<b>3,784,000</b>
Open	54,000	137,000	4,042,000	NA	28,265,000	<b>32,498,000</b>
<b>Total</b>	<b>4,723,000</b>	<b>3,876,000</b>	<b>4,272,000</b>	<b>NA</b>	<b>32,415,000</b>	<b>45,286,000</b>

<b>Wind Energy</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	4,793,000	176,000	159,000	NA	3,982,000	<b>9,110,000</b>
Avoidance	0	3,565,000	0	NA	212,000	<b>3,777,000</b>
Open	54,000	0	3,534,000	NA	28,805,000	<b>32,393,000</b>
<b>Total</b>	<b>4,847,000</b>	<b>3,741,000</b>	<b>3,693,000</b>	<b>NA</b>	<b>32,999,000</b>	<b>45,280,000</b>

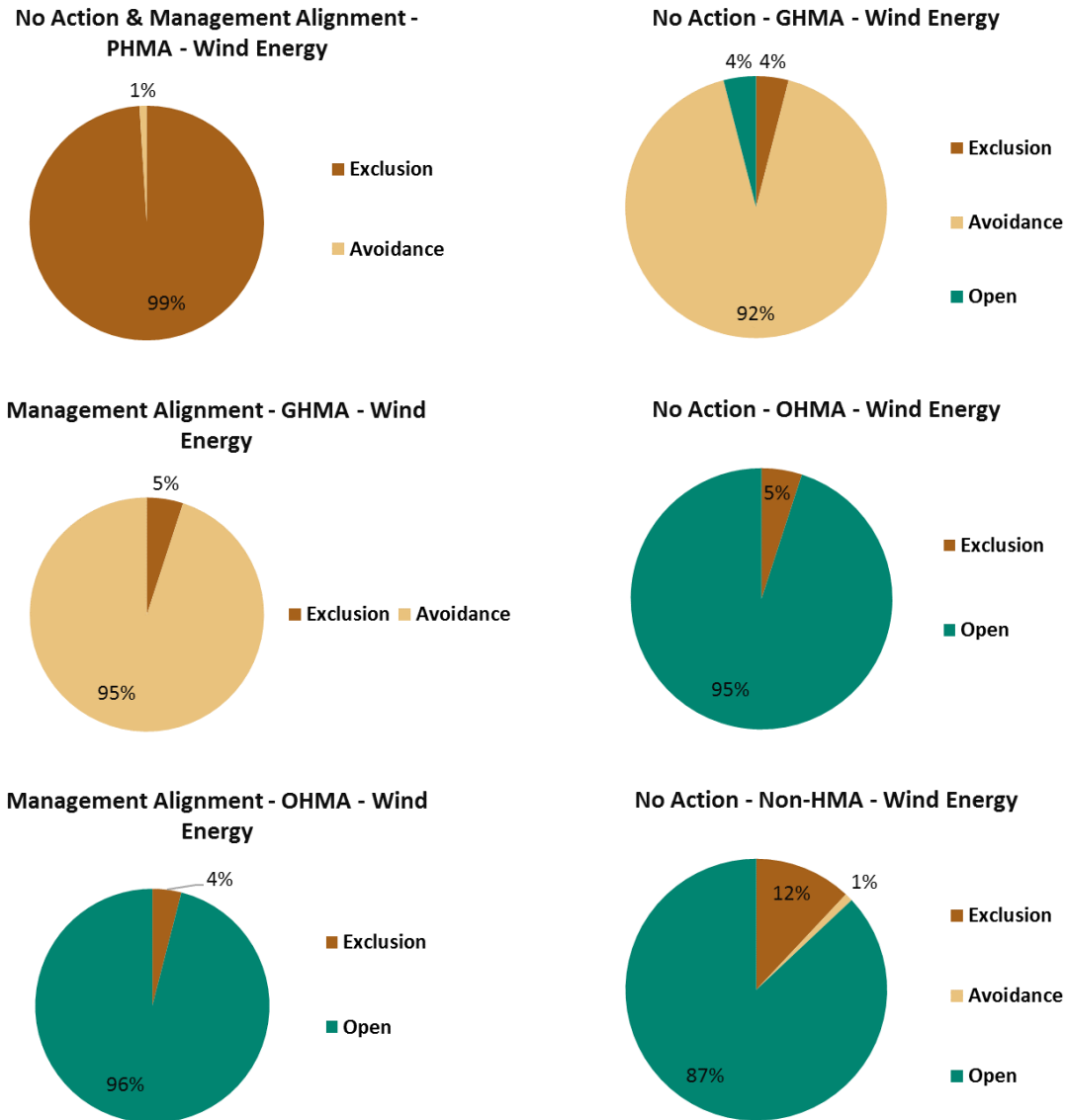
  

<b>Approximate % of Habitat Management Area by Wind Energy Decision in MZ III</b>						
<b>Wind Energy</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	0%	92%	0%	NA	1%	<b>8%</b>
Avoidance	99%	4%	5%	NA	12%	<b>20%</b>
Open	1%	4%	95%	NA	87%	<b>72%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>

<b>Wind Energy</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Anthro Mtn</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	0%	95%	0%	NA	1%	<b>8%</b>
Avoidance	99%	5%	4%	NA	12%	<b>20%</b>
Open	1%	0%	96%	NA	87%	<b>72%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>NA</b>	<b>100%</b>	<b>100%</b>





**Figure 37 – Wind Energy Decisions within MZ III**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## D.2.4 Management Zone IV – Idaho, Utah, Nevada, Oregon

### I. Habitat Management

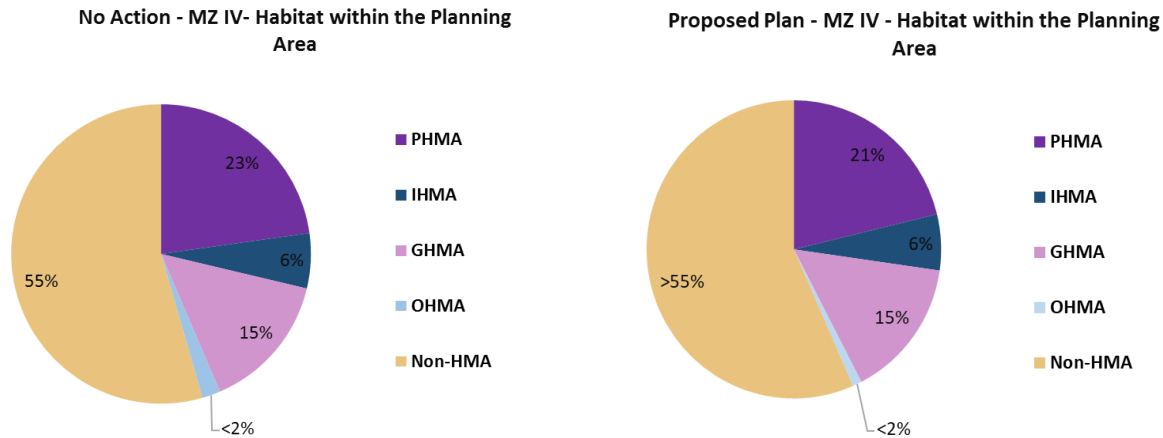
**Table 39 – Habitat Management Areas within MZ IV**

Acres and percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of HMA in MZ IV									
No Action					Management Alignment				
PHMA	IHMA	GHMA	OHMA	Non-HMA	PHMA	IHMA	GHMA	OHMA	Non-HMA
17,170,000	4,449,000	11,447,00	1,261,000	41,395,000	16,147,000	4,519,000	11,297,000	990,000	42,769,022

Approximate Percent of MZ IV that is HMA									
No Action					Management Alignment				
PHMA	IHMA	GHMA	OHMA	Non-HMA	PHMA	IHMA	GHMA	OHMA	Non-HMA
23%	6%	15%	2%	55%	21%	6%	15%	1%	56%



**Figure 38 – Habitat Management Areas within MZ IV**

Percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## II. Geothermal Energy

**Table 40 – Geothermal Energy Decisions within MZ IV**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Geothermal Energy Decisions in MZ IV by Habitat Management Area Type</b>						
<b>Geothermal Energy</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	1,923,000	918,000	1,130,000	4,000	9,440,000	<b>13,415,000</b>
Open NSO	10,256,000	2,638,000	424,000	0	1,125,000	<b>14,443,000</b>
Open CSU/TL	0	0	4,881,000	0	2,196,000	<b>7,077,000</b>
Open Standard Stipulations	0	3,000	20,000	704,000	4,529,000	<b>5,257,000</b>
<b>Total</b>	<b>12,178,000</b>	<b>3,560,000</b>	<b>6,455,000</b>	<b>708,000</b>	<b>17,290,000</b>	<b>40,191,000</b>

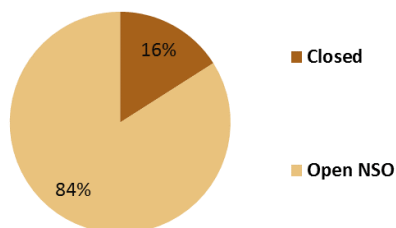
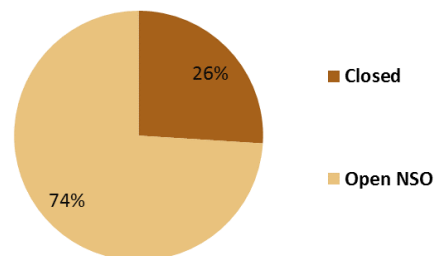
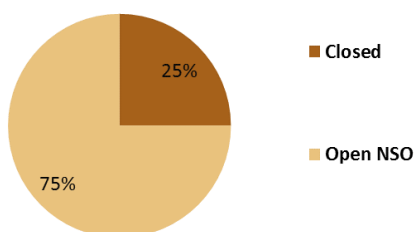
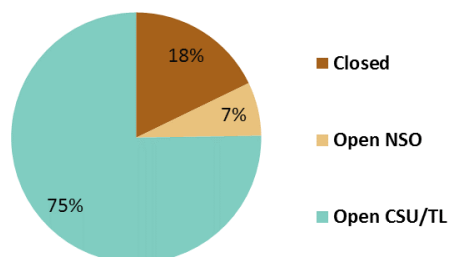
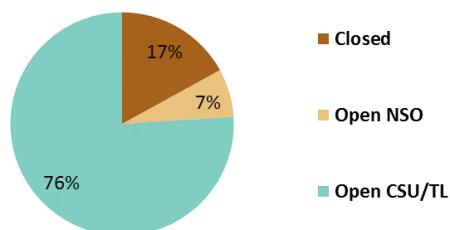
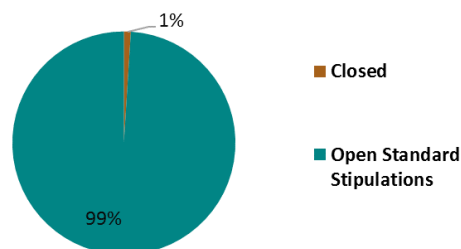
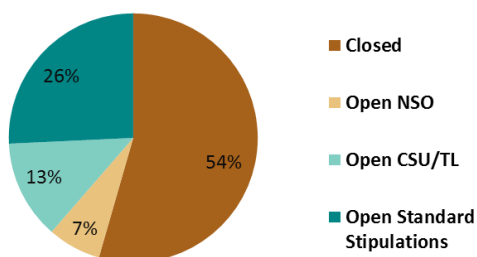
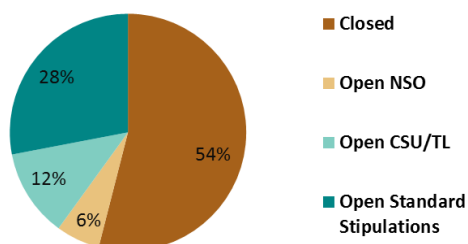
<b>Geothermal Energy</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	1,913,000	918,000	1,133,000	6,000	9,439,000	<b>13,410,000</b>
Open NSO	9,848,000	2,702,000	424,000	0	1,125,000	<b>14,099,000</b>
Open CSU/TL	0	0	4,974,000	0	2,196,000	<b>7,169,000</b>
Open Standard Stipulations	0	3,000	20,000	616,000	4,855,000	<b>5,494,000</b>
<b>Total</b>	<b>11,762,000</b>	<b>3,624,000</b>	<b>6,550,000</b>	<b>622,000</b>	<b>17,615,000</b>	<b>40,173,000</b>

<b>Approximate % of Habitat Management Area by Geothermal Energy Decision in MZ IV</b>						
<b>Geothermal Energy</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	16%	26%	18%	1%	55%	<b>33%</b>
Open NSO	84%	74%	7%	0%	7%	<b>36%</b>
Open CSU/TL	0%	0%	76%	0%	13%	<b>18%</b>
Open Standard Stipulations	0%	0%	0%	99%	26%	<b>13%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<b>Geothermal Energy</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	16%	25%	17%	1%	54%	<b>33%</b>
Open NSO	84%	75%	6%	0%	6%	<b>35%</b>
Open CSU/TL	0%	0%	76%	0%	12%	<b>18%</b>
Open Standard Stipulations	0%	0%	0%	99%	28%	<b>14%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**No Action & Management Alignment - PHMA - Geothermal Energy****No Action - IHMA - Geothermal Energy****Management Alignment - IHMA - Geothermal Energy****No Action - GHMA - Geothermal Energy****Management Alignment - GHMA - Geothermal Energy****No Action & Management Alignment - OHMA - Geothermal Energy****No Action - Non-HMA - Geothermal Energy****Management Alignment - Non-HMA - Geothermal Energy****Figure 39 – Geothermal Energy Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

### III. Land Tenure

**Table 4I – Land Tenure Decisions within MZ IV**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Land Tenure Decisions in MZ IV by Habitat Management Area Type						
Land Tenure	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Disposal	0	0	1,000	146,000	659,000	805,000
Retention	10,726,000	2,719,000	4,948,000	562,000	4,277,000	23,232,000
<b>Total</b>	<b>10,727,000</b>	<b>2,719,000</b>	<b>4,949,000</b>	<b>708,000</b>	<b>4,935,000</b>	<b>24,038,000</b>

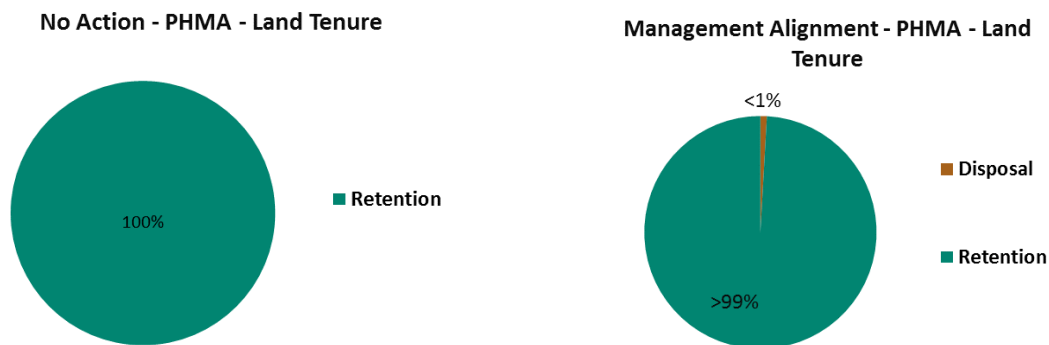
Land Tenure	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Disposal	6,000	0	25,000	85,000	799,000	914,000
Retention	10,319,000	2,780,000	5,019,000	537,000	4,462,000	23,117,000
<b>Total</b>	<b>10,325,000</b>	<b>2,780,000</b>	<b>5,043,000</b>	<b>622,000</b>	<b>5,261,000</b>	<b>24,032,000</b>

Approximate % of Habitat Management Area by Land Tenure Decision in MZ III						
Land Tenure	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Disposal	0%	0%	<1%	21%	13%	3%
Retention	100%	100%	100%	79%	87%	97%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

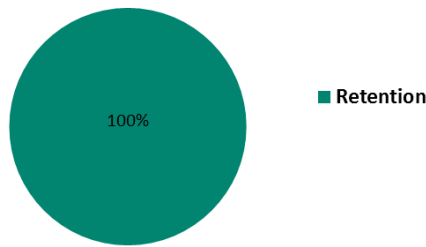
  

Land Tenure	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Disposal	<1%	0%	<1%	14%	15%	4%
Retention	100%	100%	100%	86%	85%	96%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

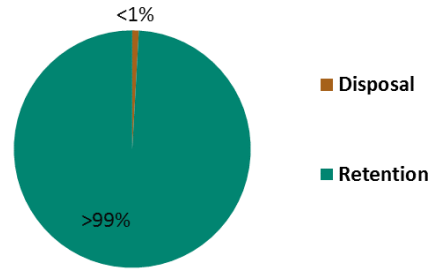


**Figure 40 – Land Tenure Decisions within MZ IV**

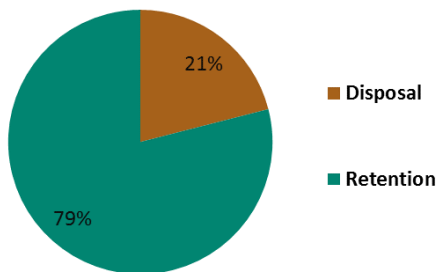
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

No Action & Management Alignment - IHMA  
- Land Tenure

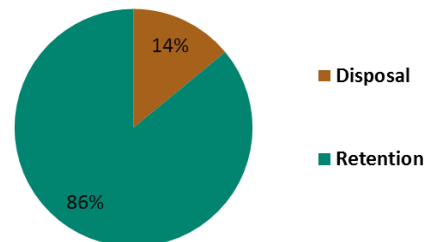
No Action &amp; Management Alignment - GHMA - Land Tenure



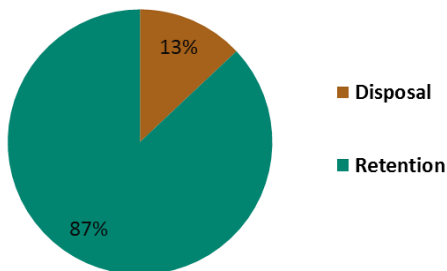
No Action - OHMA - Land Tenure



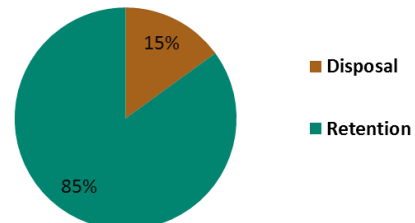
Management Alignment - OHMA - Land Tenure



No Action - Non-HMA - Land Tenure



Management Alignment - Non-HMA - Land Tenure

**Figure 40 (cont'd) – Land Tenure Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

#### IV. Livestock Grazing

**Table 42 – Livestock Grazing Decisions within MZ IV**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

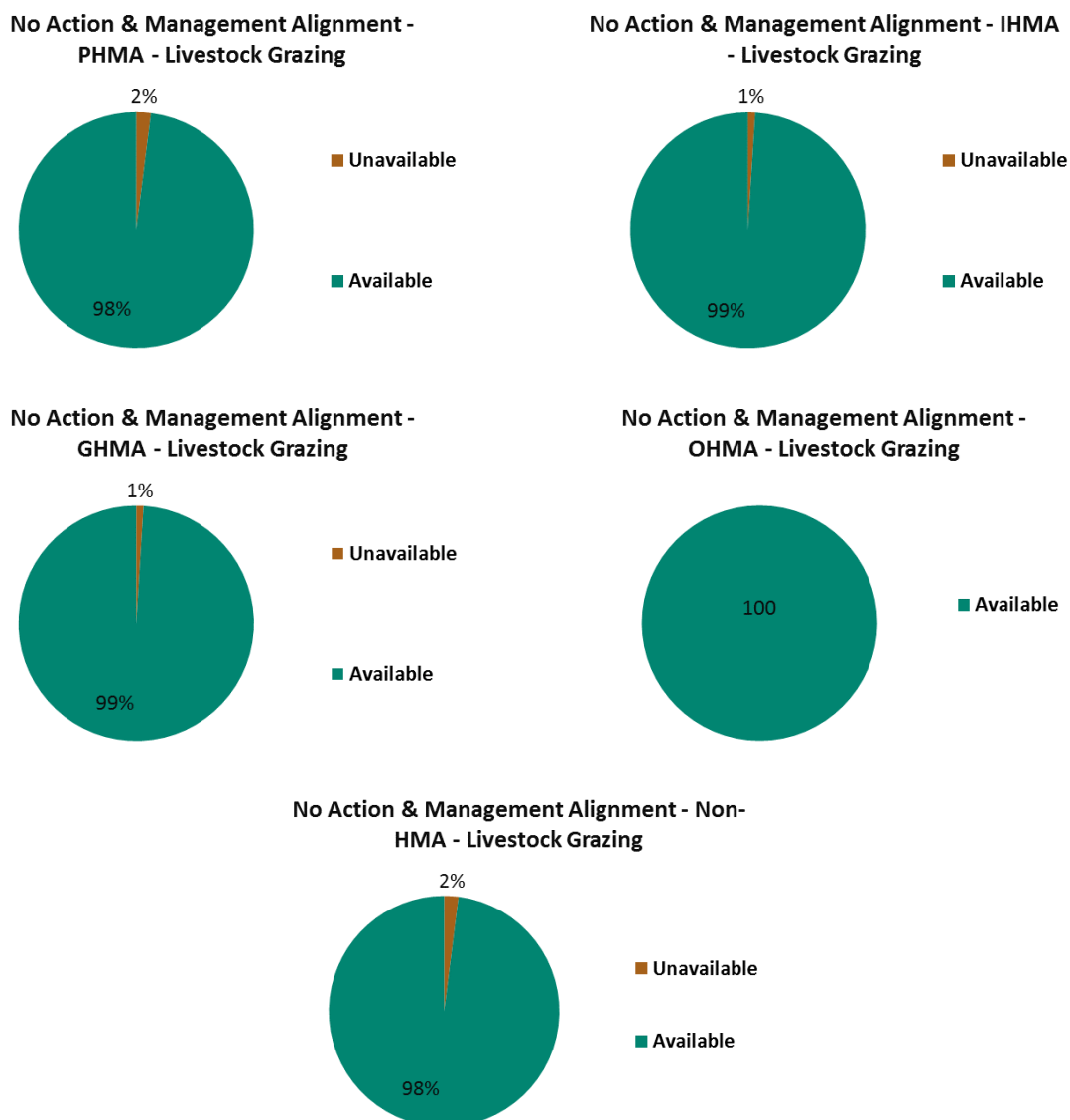
<b>Approximate Acres of Livestock Grazing Decisions in MZ IV by Habitat Management Area Type</b>						
<b>Livestock Grazing</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Unavailable	182,000	18,000	43,000	0	92,000	335,000
Available	10,515,000	2,701,000	4,923,000	709,000	4,562,000	23,411,000
<b>Total</b>	<b>10,697,000</b>	<b>2,719,000</b>	<b>4,966,000</b>	<b>709,000</b>	<b>4,655,000</b>	<b>23,746,000</b>

<b>Livestock Grazing</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Unavailable	182,000	18,000	43,000	0	92,000	335,000
Available	10,112,000	2,762,000	5,029,000	620,000	4,883,000	23,406,000
<b>Total</b>	<b>10,294,000</b>	<b>2,780,000</b>	<b>5,072,000</b>	<b>620,000</b>	<b>4,975,000</b>	<b>23,740,000</b>

<b>Approximate % of Habitat Management Area by Livestock Grazing Decision in MZ IV</b>						
<b>Livestock Grazing</b>	<b>No Action &amp; Management Alignment</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Unavailable	2%	1%	1%	0%	2%	1%
Available	98%	99%	99%	100%	98%	99%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



**Figure 4I – Livestock Grazing Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



**V. Locatable Minerals****Table 43 – Locatable Minerals Decisions within MZ IV**

Acreages and Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Locatable Minerals Decisions in MZ IV by Habitat Management Area Type</b>						
<b>Locatable Minerals</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	1,079,000	442,000	432,000	0	3,606,000	<b>5,560,000</b>
Recommended Withdrawals	4,836,000	0	2,000	0	0	<b>4,838,000</b>
Open	6,074,000	2,858,000	6,055,000	708,000	13,798,000	<b>29,492,000</b>
<b>Total</b>	<b>11,990,000</b>	<b>3,300,000</b>	<b>6,489,000</b>	<b>708,000</b>	<b>17,404,000</b>	<b>39,891,000</b>

<b>Locatable Minerals</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	1,078,000	442,000	431,000	0	3,605,000	<b>5,556,000</b>
Recommended Withdrawals	0	0	2,000	0	0	<b>2,000</b>
Open	10,518,000	2,923,000	6,151,000	622,000	14,113,000	<b>34,327,000</b>
<b>Total</b>	<b>11,597,000</b>	<b>3,364,000</b>	<b>6,584,000</b>	<b>622,000</b>	<b>17,718,000</b>	<b>39,885,000</b>

<b>Approximate % of Habitat Management Area by Locatable Minerals Decision in MZ IV</b>						
<b>Locatable Minerals</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	9%	13%	7%	0%	21%	<b>14%</b>
Recommended Withdrawals	40%	0%	0%	0%	0%	<b>12%</b>
Open	51%	87%	93%	100%	79%	<b>74%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<b>Locatable Minerals</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	9%	13%	9%	0%	20%	<b>14%</b>
Recommended Withdrawals	0%	0%	<1%	0%	0%	<b>0%</b>
Open	91%	87%	91%	100%	80%	<b>86%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



**Figure 42 – Locatable Minerals Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

**VI. Non-Energy Leasable Minerals****Table 44 – Non-Energy Leasable Minerals Decisions within MZ IV**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Non-Energy Leasable Minerals Decisions in MZ IV by Habitat Management Area Type</b>						
<b>Non-Energy Leasable Minerals</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	12,180,000	682,000	1,059,000	4,000	9,139,000	<b>23,064,000</b>
Open	0	2,877,000	5,413,000	704,000	8,375,000	<b>17,369,000</b>
<b>Total</b>	<b>12,180,000</b>	<b>3,559,000</b>	<b>6,472,000</b>	<b>708,000</b>	<b>17,514,000</b>	<b>40,433,000</b>

<b>Non-Energy Leasable Minerals</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	11,775,000	682,000	1,062,000	6,000	9,138,000	<b>22,663,000</b>
Open	0	2,941,000	5,505,000	616,000	8,701,000	<b>17,763,000</b>
<b>Total</b>	<b>11,775,000</b>	<b>3,624,000</b>	<b>6,567,000</b>	<b>622,000</b>	<b>17,839,000</b>	<b>40,426,000</b>

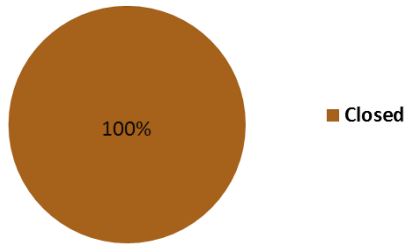
  

<b>Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision in MZ IV</b>						
<b>Non-Energy Leasable Minerals</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	100%	19%	16%	1%	52%	<b>57%</b>
Open	0%	81%	84%	99%	48%	<b>43%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

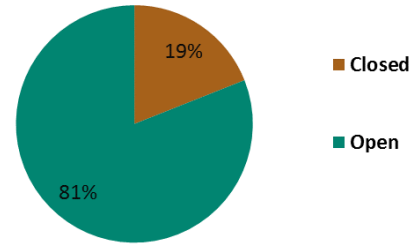
  

<b>Non-Energy Leasable Minerals</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	100%	19%	16%	1%	51%	<b>56%</b>
Open	0%	81%	84%	99%	49%	<b>44%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

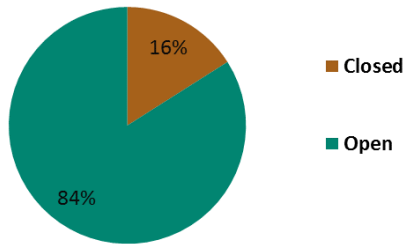
**No Action & Management Alignment - PHMA  
- Non-Energy Leasable Minerals**



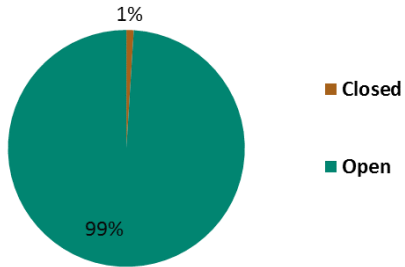
**Management Alignment - IHMA - Non-Energy Leasable Minerals**



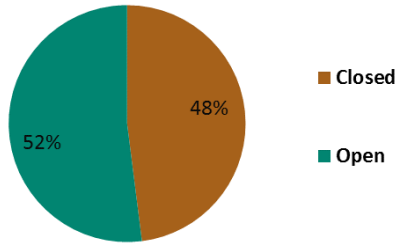
**Management Alignment - GHMA - Non-Energy Leasable Minerals**



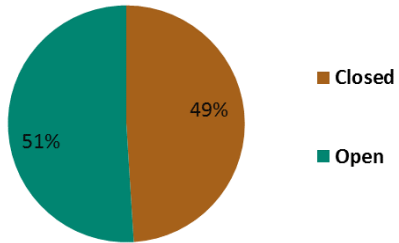
**Management Alignment - OHMA - Non-Energy Leasable Minerals**



**No Action - Non-HMA - Non-Energy Leasable Minerals**



**Management Alignment - Non-HMA - Non-Energy Leasable Minerals**



**Figure 43 – Non-Energy Leasable Minerals Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## VII. Fluid Minerals (Oil & Gas)

**Table 45 – Fluid Mineral (Oil & Gas) Decisions within MZ IV**

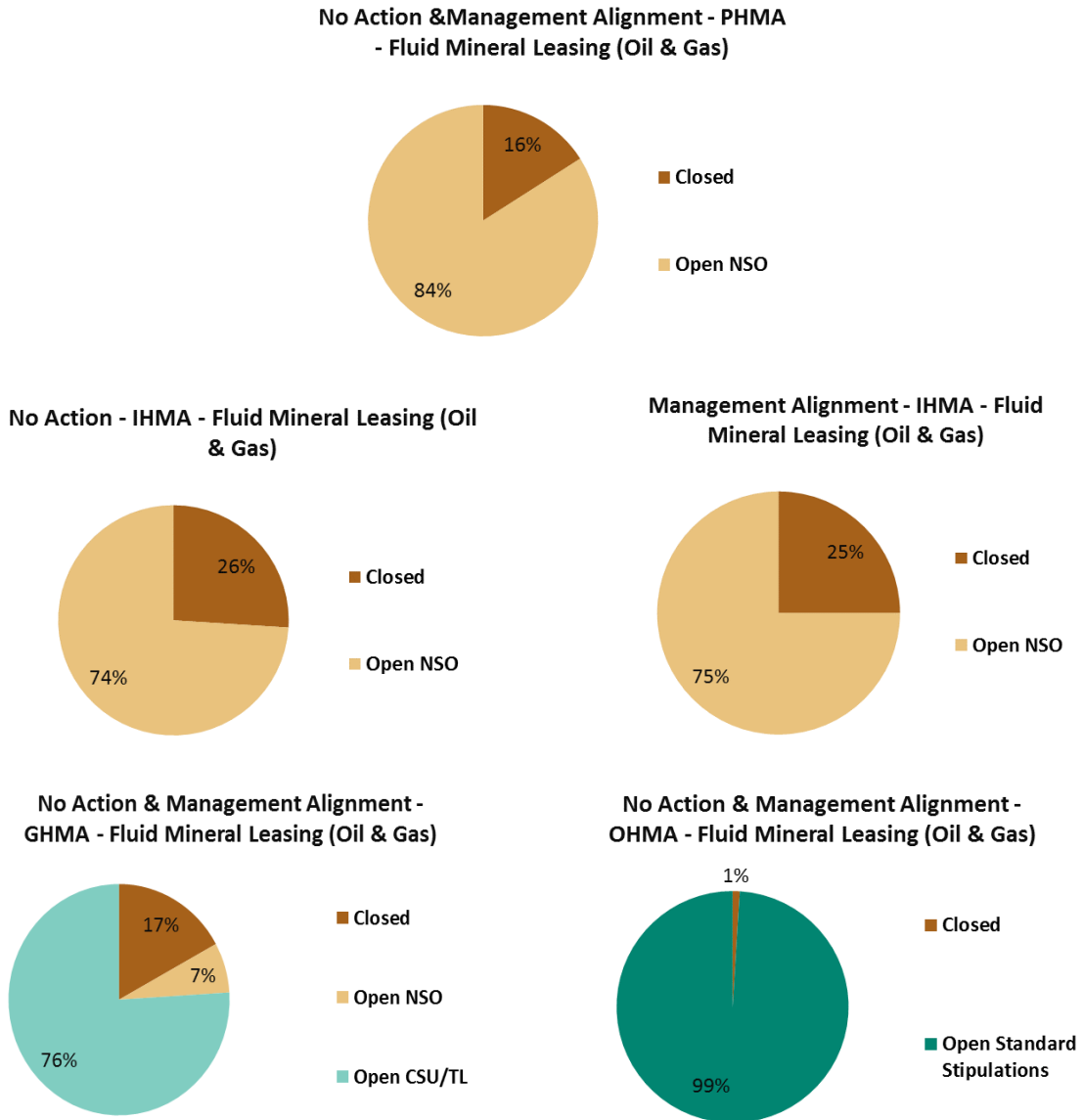
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Fluid Mineral (Oil &amp; Gas) Decisions in MZ IV by Habitat Management Area Type</b>						
<b>Fluid Mineral (Oil &amp; Gas) Decisions</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	1,924,000	1,136,000	1,136,000	4,000	9,542,000	<b>13,523,000</b>
Open NSO	10,245,000	436,000	436,000	0	1,164,000	<b>14,493,000</b>
Open CSU/TL	18,000	4,947,000	4,947,000	0	2,266,000	<b>7,230,000</b>
Open Standard Stipulations	1,000	3,000	3,000	704,000	4,729,000	<b>5,437,000</b>
<b>Total</b>	<b>12,187,000</b>	<b>6,522,000</b>	<b>6,522,000</b>	<b>708,000</b>	<b>17,701,000</b>	<b>40,683,000</b>

<b>Fluid Mineral (Oil &amp; Gas) Decisions</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	1,917,000	917,000	1,138,000	6,000	9,541,000	<b>13,520,000</b>
Open NSO	9,846,000	2,712,000	436,000	0	1,176,000	<b>14,171,000</b>
Open CSU/TL	17,000	0	5,039,000	0	2,266,000	<b>7,322,000</b>
Open Standard Stipulations	1,000	0	3,000	616,000	5,043,000	<b>5,663,000</b>
<b>Total</b>	<b>11,782,000</b>	<b>3,629,000</b>	<b>6,616,000</b>	<b>622,000</b>	<b>18,027,000</b>	<b>40,676,000</b>

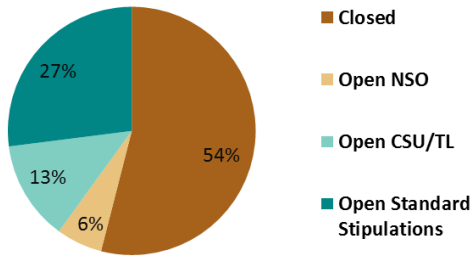
<b>Approximate % of Habitat Management Area by Fluid Mineral (Oil &amp; Gas) Decision in MZ IV</b>						
<b>Fluid Mineral (Oil &amp; Gas) Decisions</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	16%	26%	17%	1%	54%	<b>33%</b>
Open NSO	84%	74%	7%	0%	7%	<b>36%</b>
Open CSU/TL	<1%	0%	76%	0%	13%	<b>18%</b>
Open Standard Stipulations	<1%	0%	<1%	99%	27%	<b>13%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<b>Fluid Mineral (Oil &amp; Gas) Decisions</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	16%	25%	17%	1%	53%	<b>33%</b>
Open NSO	84%	75%	7%	0%	7%	<b>35%</b>
Open CSU/TL	<1%	0%	76%	0%	13%	<b>18%</b>
Open Standard Stipulations	<1%	0%	<1%	99%	28%	<b>14%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

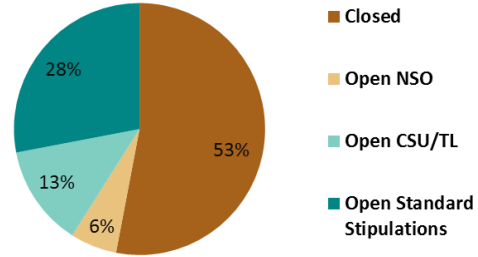


**Figure 44 – Fluid Mineral (Oil & Gas) Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

No Action - Non-HMA - Fluid Mineral Leasing  
(Oil & Gas)

Management Alignment - Non-HMA - Fluid Mineral Leasing (Oil &amp; Gas)

**Figure 44 (cont'd) – Fluid Mineral (Oil & Gas) Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## VIII. Rights-of-Ways

**Table 46 – Rights-of-Ways Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Rights-of-Ways Decisions in MZ IV by Habitat Management Area Type						
Rights-of-Ways	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	637,000	131,000	269,000	3,000	244,000	1,283,000
Avoidance	9,993,000	2,565,000	3,095,000	0	463,000	16,117,000
Open	98,000	24,000	1,827,000	705,000	4,381,000	7,035,000
<b>Total</b>	<b>10,728,000</b>	<b>2,719,000</b>	<b>5,192,000</b>	<b>708,000</b>	<b>5,088,000</b>	<b>24,435,000</b>

Rights-of-Ways	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	631,000	131,000	272,000	6,000	245,000	1,285,000
Avoidance	9,623,000	2,626,000	3,204,000	0	475,000	15,928,000
Open	68,000	24,000	1,810,000	615,000	4,700,000	7,217,000
<b>Total</b>	<b>10,322,000</b>	<b>2,780,000</b>	<b>5,286,000</b>	<b>621,000</b>	<b>5,420,000</b>	<b>24,429,000</b>

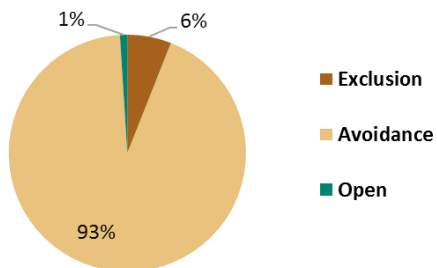
  

Approximate % of Habitat Management Area by Rights-of-Ways Decision in MZ IV						
Rights-of-Ways	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	6%	5%	5%	0%	5%	5%
Avoidance	93%	94%	60%	0%	9%	65%
Open	1%	1%	35%	100%	86%	29%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

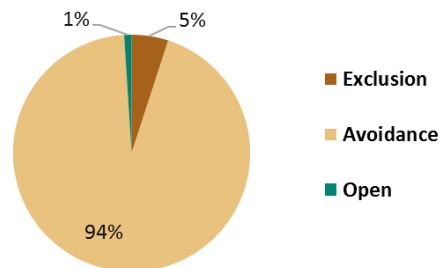
  

Rights-of-Ways	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	6%	5%	5%	1%	4%	5%
Avoidance	93%	94%	61%	0%	9%	65%
Open	1%	1%	34%	99%	87%	30%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

No Action & Management Alignment -  
PHMA - Rights of Ways



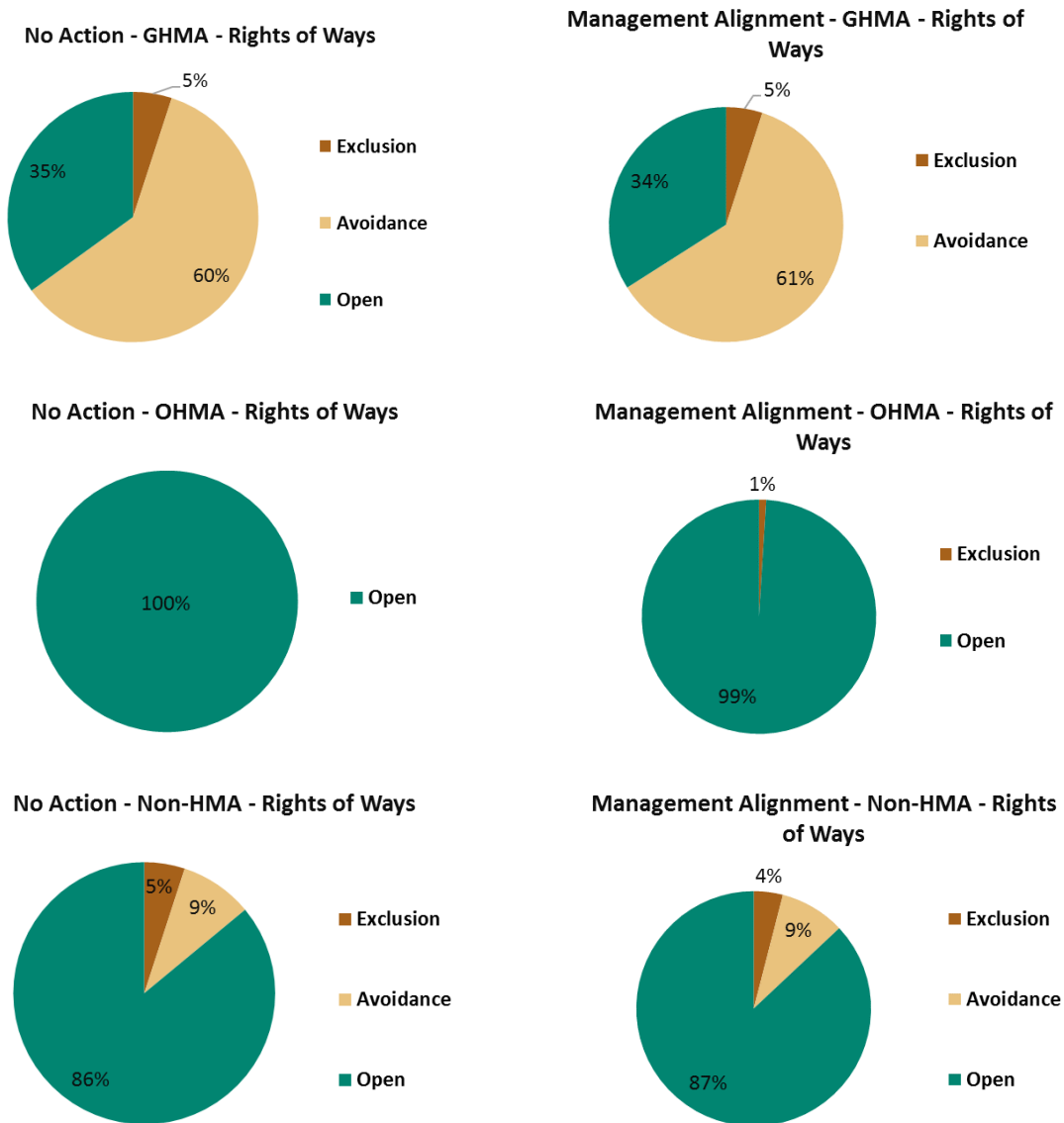
No Action & Management Alignment - IHMA  
- Rights of Ways



**Figure 45 – Rights-of-Ways Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.





**Figure 45 (cont'd) – Rights-of-Ways Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

**IX. Salable Minerals Materials****Table 47 – Salable Minerals Materials Decisions within MZ IV**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Salable Minerals Materials Decisions in MZ IV by Habitat Management Area Type</b>						
<b>Salable Minerals Materials</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	11,494,000	313,000	682,000	4,000	830,000	<b>13,323,000</b>
Open	4,000	2,878,000	5,250,000	704,000	5,504,000	<b>14,339,000</b>
<b>Total</b>	<b>11,497,000</b>	<b>3,191,000</b>	<b>5,932,000</b>	<b>708,000</b>	<b>6,334,000</b>	<b>27,662,000</b>

<b>Salable Minerals Materials</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	11,089,000	313,000	684,000	6,000	829,000	<b>12,922,000</b>
Open	4,000	2,942,000	5,343,000	616,000	5,830,000	<b>14,734,000</b>
<b>Total</b>	<b>11,093,000</b>	<b>3,255,000</b>	<b>6,027,000</b>	<b>622,000</b>	<b>6,659,000</b>	<b>27,656,000</b>

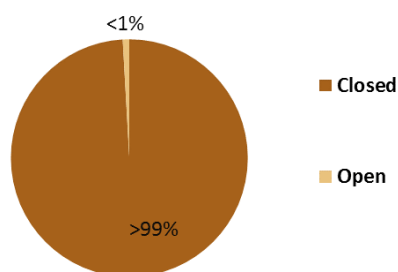
  

<b>Approximate % of Habitat Management Area by Salable Minerals Materials Decision in MZ IV</b>						
<b>Salable Minerals Materials</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	100%	10%	11%	1%	13%	<b>48%</b>
Open	<1%	90%	89%	99%	87%	<b>52%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

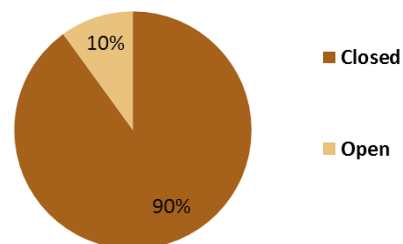
  

<b>Salable Minerals Materials</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	100%	10%	11%	1%	12%	<b>47%</b>
Open	<1%	90%	89%	99%	88%	<b>53%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

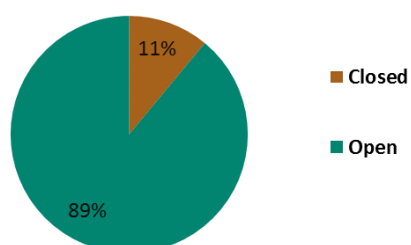
No Action & Management Alignment -  
PHMA - Salable Minerals Materials



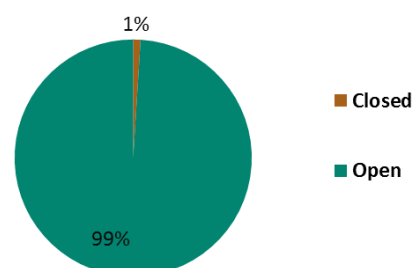
No Action & Management Alignment - IHMA  
- Salable Minerals Materials



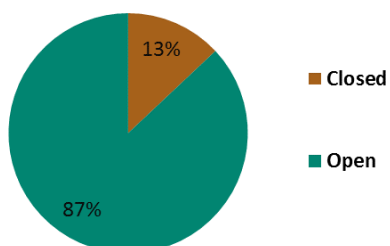
No Action & Management Alignment -  
GHMA - Salable Minerals Materials



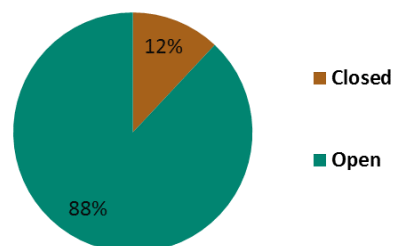
No Action & Management Alignment -  
OHMA - Salable Minerals Materials



No Action - Non-HMA - Salable Minerals  
Materials



Management Alignment - Non-HMA -  
Salable Minerals Materials



**Figure 46 – Salable Minerals Materials Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## X. Solar Energy

**Table 48 – Solar Energy Decisions within MZ IV**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Solar Energy Decisions in MZ IV by Habitat Management Area Type						
Solar Energy	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	9,341,000	363,000	1,210,000	706,000	2,275,000	13,895,000
Avoidance	1,390,000	2,357,000	2,235,000	0	123,000	6,105,000
Open	0	0	1,500,000	1,000	2,521,000	4,022,000
<b>Total</b>	<b>10,731,000</b>	<b>2,719,000</b>	<b>4,945,000</b>	<b>707,000</b>	<b>4,919,000</b>	<b>24,021,000</b>

Solar Energy	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	8,937,000	363,000	1,304,000	622,000	2,605,000	13,831,000
Avoidance	1,390,000	2,417,000	2,235,000	0	123,000	6,165,000
Open	0	0	1,500,000	0	2,520,000	4,020,000
<b>Total</b>	<b>10,326,000</b>	<b>2,780,000</b>	<b>5,039,000</b>	<b>622,000</b>	<b>5,248,000</b>	<b>24,015,000</b>

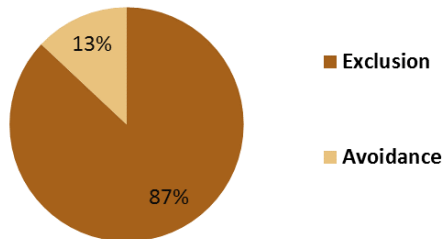
  

Approximate % of Habitat Management Area by Solar Energy Decision in MZ IV						
Solar Energy	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	87%	13%	24%	100%	46%	58%
Avoidance	13%	87%	45%	0%	3%	25%
Open	0%	0%	30%	0%	51%	17%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

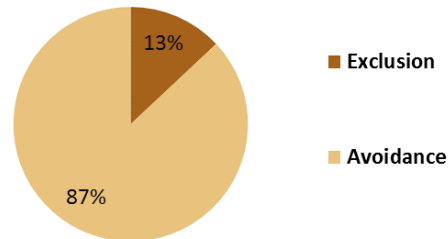
  

Solar Energy	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	87%	13%	26%	100%	50%	58%
Avoidance	13%	87%	44%	0%	2%	26%
Open	0%	0%	30%	0%	48%	17%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

No Action & Management Alignment -  
PHMA - Solar Energy

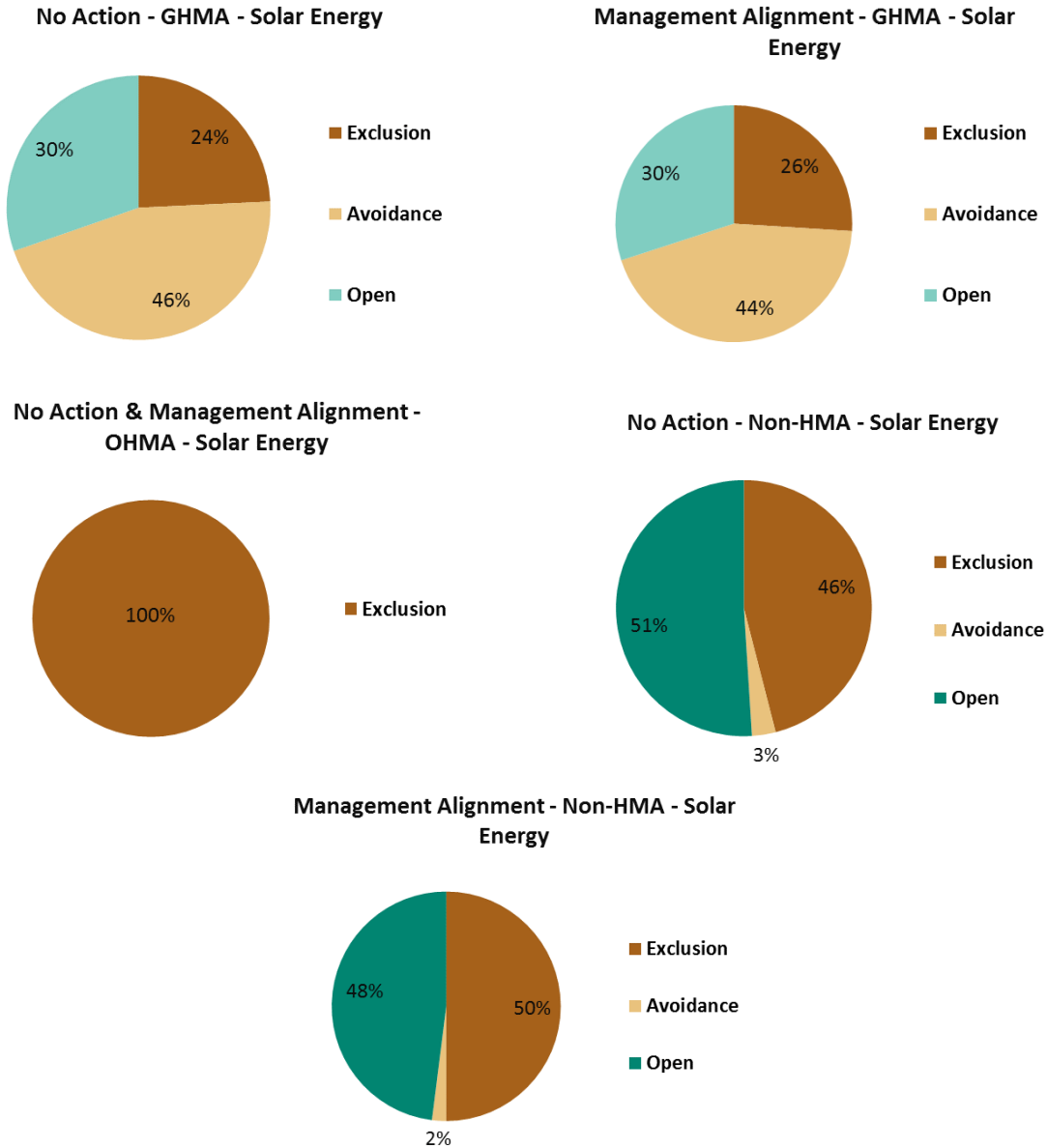


No Action & Management Alignment -  
IHMA - Solar Energy



**Figure 47 – Solar Energy Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



**Figure 47 (cont'd) – Solar Energy Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

**XI. Trails and Travel Management****Table 49 — Trails and Travel Management Decisions within MZ IV**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Trails and Travel Management Decisions in MZ IV by Habitat Management Area Type</b>						
<b>Trails and Travel Management Decisions</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	560,000	83,000	85,000	1,000	215,000	<b>943,000</b>
Limited	10,169,000	2,633,000	4,866,000	1,000	3,101,000	<b>20,770,000</b>
Open	0	3,000	0	707,000	1,619,000	<b>2,329,000</b>
<b>Total</b>	<b>10,729,000</b>	<b>2,719,000</b>	<b>4,951,000</b>	<b>708,000</b>	<b>4,935,000</b>	<b>24,042,000</b>

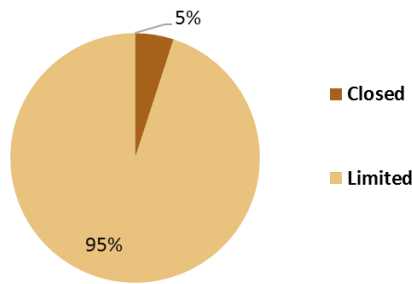
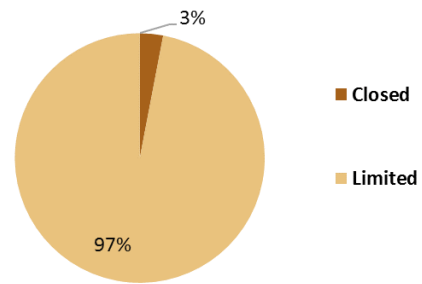
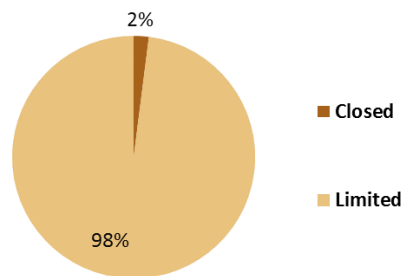
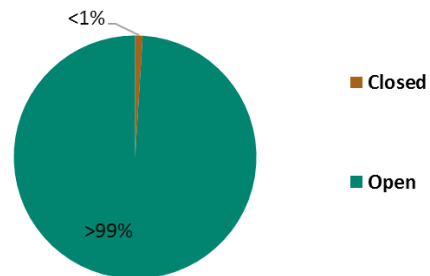
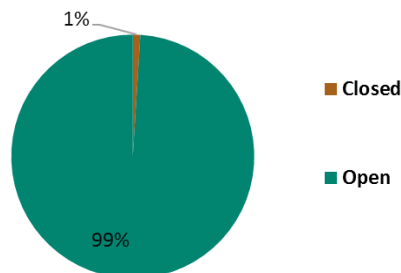
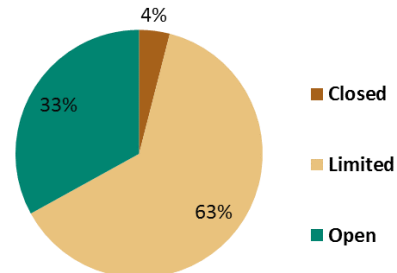
<b>Trails and Travel Management Decisions</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	559,000	83,000	84,000	0	214,000	<b>940,000</b>
Limited	9,768,000	2,694,000	4,961,000	5,000	3,188,000	<b>20,617,000</b>
Open	0	3,000	0	617,000	1,859,000	<b>2,479,000</b>
<b>Total</b>	<b>10,327,000</b>	<b>2,780,000</b>	<b>5,046,000</b>	<b>622,000</b>	<b>5,261,000</b>	<b>24,036,000</b>

<b>Approximate % of Habitat Management Area by Trails and Travel Management Decisions Decision in MZ IV</b>						
<b>Trails and Travel Management Decisions</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	5%	3%	2%	<1%	4%	<b>4%</b>
Limited	95%	97%	98%	<1%	63%	<b>86%</b>
Open	0%	<1%	0%	100%	33%	<b>10%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

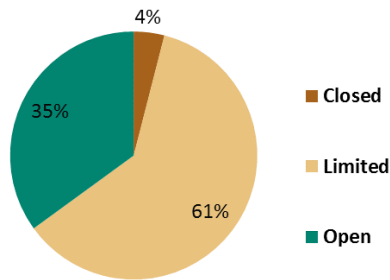
  

<b>Trails and Travel Management Decisions</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	5%	3%	2%	0%	4%	<b>4%</b>
Limited	95%	97%	98%	1%	61%	<b>86%</b>
Open	0%	0%	0%	99%	35%	<b>10%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**No Action & Management Alignment - PHMA - Trails and Travel Management****No Action & Management Alignment - IHMA - Trails and Travel Management****No Action & Management Alignment - GHMA - Trails and Travel Management****No Action - OHMA - Trails and Travel Management****Management Alignment - OHMA - Trails and Travel Management****No Action - Non-HMA - Trails and Travel Management****Figure 48 – Trails and Travel Management Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Management Alignment- Non-HMA - Trails  
and Travel Management



**Figure 48 (cont'd) – Trails and Travel Management Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



**XII. Wind Energy****Table 50 – Wind Energy Decisions within MZ IV**

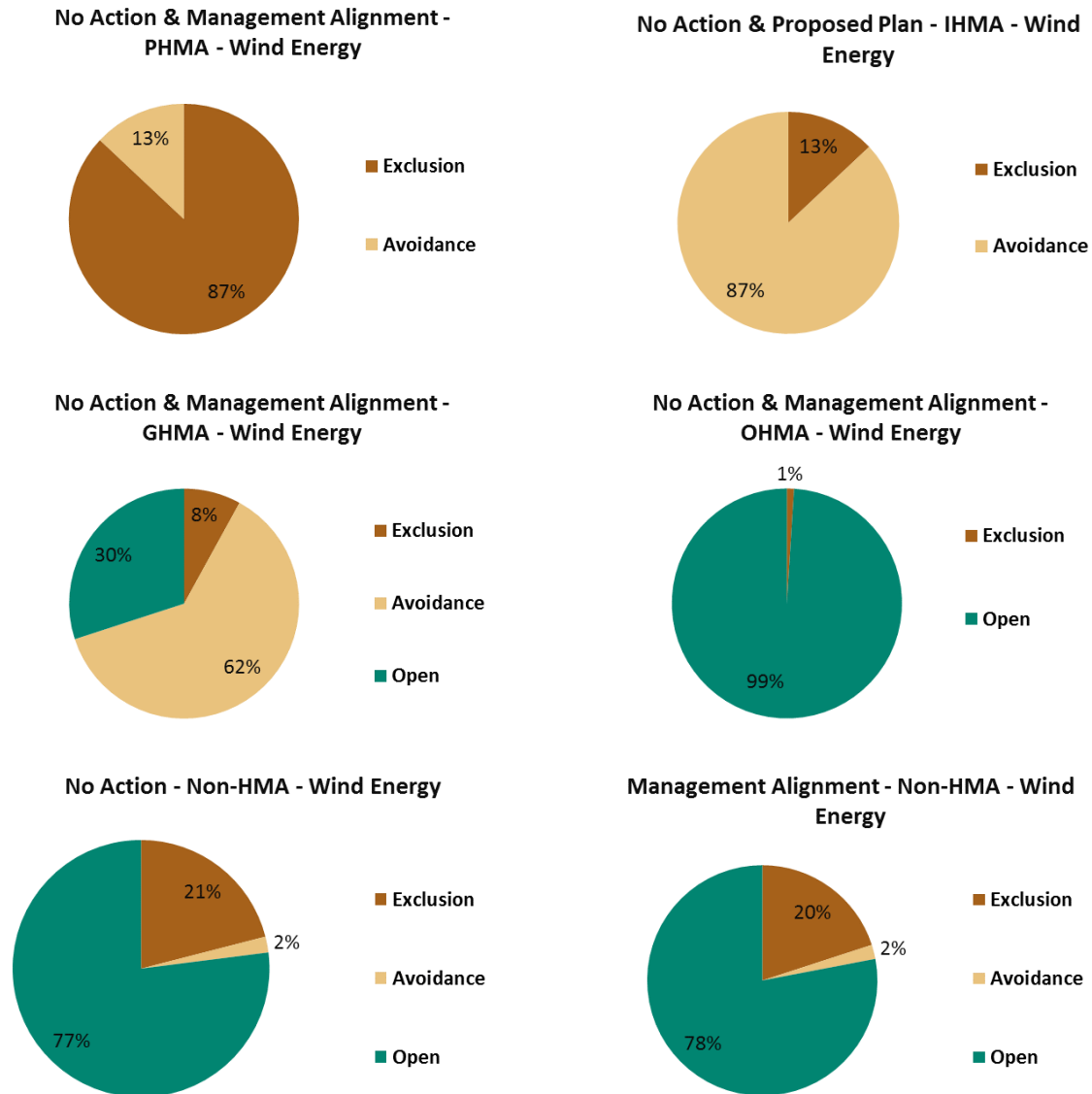
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Wind Energy Decisions in MZ IV by Habitat Management Area Type</b>						
<b>Wind Energy</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	9,339,000	363,000	392,000	4,000	1,035,000	<b>11,133,000</b>
Avoidance	1,390,000	2,357,000	3,051,000	0	123,000	<b>6,920,000</b>
Open	0	0	1,501,000	704,000	3,769,000	<b>5,973,000</b>
<b>Total</b>	<b>10,728,000</b>	<b>2,719,000</b>	<b>4,944,000</b>	<b>708,000</b>	<b>4,926,000</b>	<b>24,026,000</b>

<b>Wind Energy</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	8,938,000	363,000	395,000	6,000	1,046,000	<b>10,748,000</b>
Avoidance	1,390,000	2,417,000	3,144,000	0	123,000	<b>7,073,000</b>
Open	0	0	1,501,000	616,000	4,083,000	<b>6,199,000</b>
<b>Total</b>	<b>10,327,000</b>	<b>2,780,000</b>	<b>5,039,000</b>	<b>622,000</b>	<b>5,252,000</b>	<b>24,020,000</b>

<b>Approximate % of Habitat Management Area by Wind Energy Decision in MZ IV</b>						
<b>Wind Energy</b>	<b>No Action</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	87%	13%	8%	1%	21%	<b>46%</b>
Avoidance	13%	87%	62%	0%	2%	<b>29%</b>
Open	0%	0%	30%	99%	77%	<b>25%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<b>Wind Energy</b>	<b>Management Alignment</b>					
	<b>PHMA</b>	<b>IHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	87%	13%	8%	1%	20%	<b>45%</b>
Avoidance	13%	87%	62%	0%	2%	<b>29%</b>
Open	0%	0%	30%	99%	78%	<b>26%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



**Figure 49 – Wind Energy Decisions within MZ IV**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## D.2.5 Management Zone V – Oregon, Nevada, California

### I. Habitat Management

**Table 51 – Habitat Management Areas within MZ V**

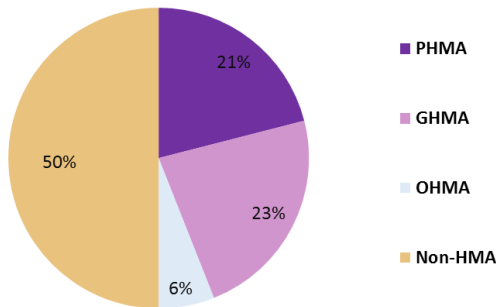
Acres and percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of HMA in MZ V							
No Action				Management Alignment			
PHMA	GHMA	OHMA	Non-HMA	PHMA	GHMA	OHMA	Non-HMA
6,510,000	7,323,000	1,932,000	15,519,000	6,567,000	6,846,000	1,142,000	16,727,000

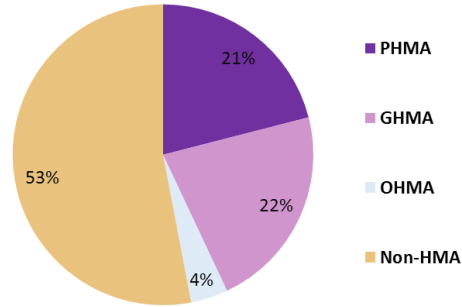
  

Approximate Percent of MZ I that is HMA							
No Action				Management Alignment			
PHMA	GHMA	OHMA	Non-HMA	PHMA	GHMA	OHMA	Non-HMA
21%	23%	6%	50%	21%	22%	4%	53%

No Action - MZ V- Habitat within the Planning Area



Management Alignment - MZV - Habitat within the Planning Area



**Figure 50 – Habitat Management Areas within MZ V**

Percentages reflect all lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## II. Geothermal Energy

**Table 52 – Geothermal Energy Decisions within MZ V**

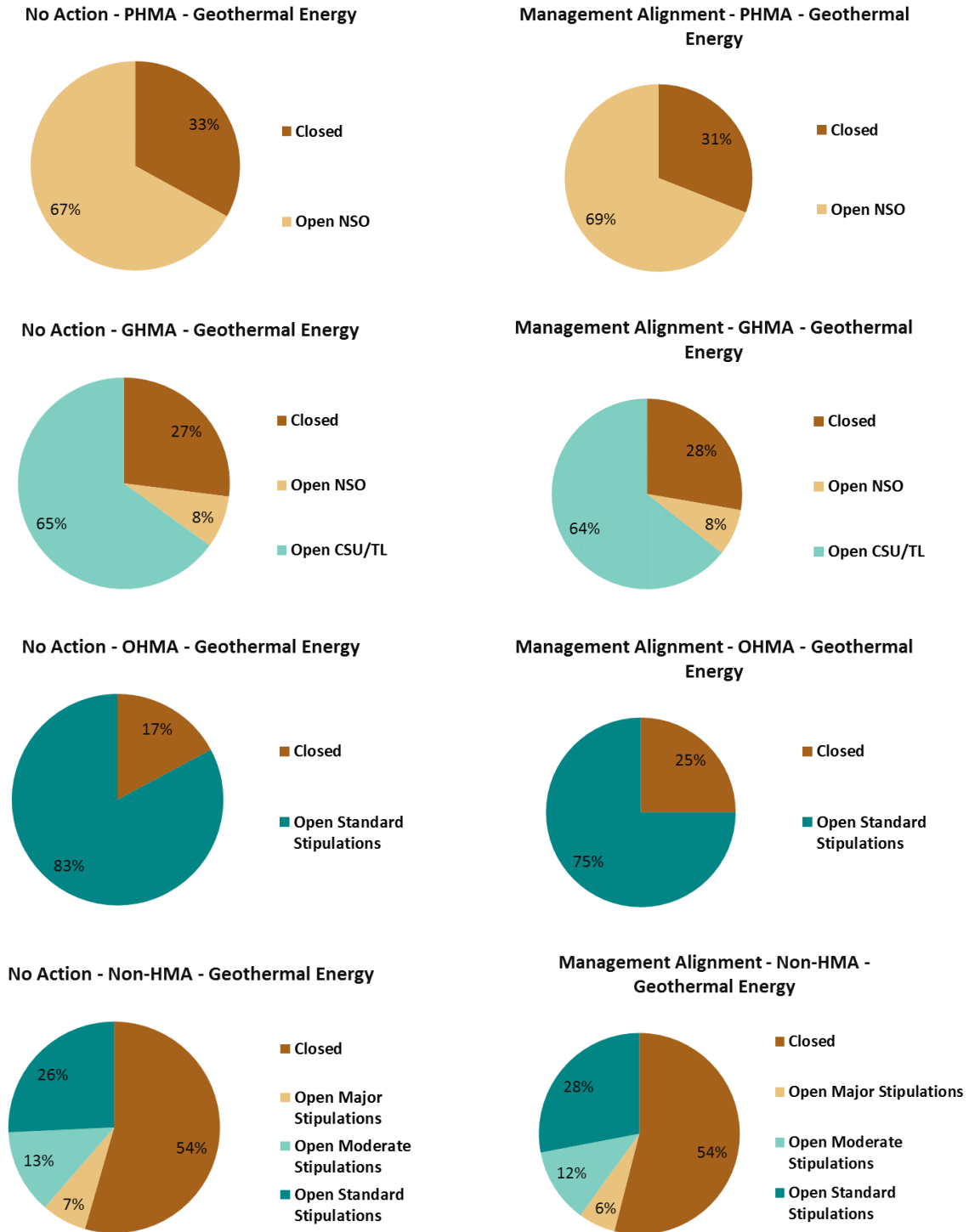
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Geothermal Energy Decisions in MZ V by Habitat Management Area Type</b>					
<b>Geothermal Energy</b>	<b>No Action</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	1,626,000	1,359,000	158,000	898,000	<b>4,042,000</b>
Open NSO	3,350,000	379,000	0	164,000	<b>3,893,000</b>
Open CSU/TL	0	3,287,000	0	335,000	<b>3,622,000</b>
Open Standard Stipulations	5,000	0	744,000	2,367,000	<b>3,117,000</b>
<b>Total</b>	<b>4,982,000</b>	<b>5,026,000</b>	<b>903,000</b>	<b>3,764,000</b>	<b>14,674,000</b>

<b>Geothermal Energy</b>	<b>Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	1,569,000	1,373,000	141,000	935,000	<b>4,018,000</b>
Open NSO	3,566,000	379,000	0	164,000	<b>4,110,000</b>
Open CSU/TL	0	3,185,000	0	335,000	<b>3,520,000</b>
Open Standard Stipulations	0	0	423,000	2,598,000	<b>3,021,000</b>
<b>Total</b>	<b>5,136,000</b>	<b>4,937,000</b>	<b>564,000</b>	<b>4,032,000</b>	<b>14,668,000</b>

<b>Approximate % of Habitat Management Area by Geothermal Energy Decision in MZ V</b>					
<b>Geothermal Energy</b>	<b>No Action</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	33%	27%	17%	24%	<b>28%</b>
Open NSO	67%	8%	0%	4%	<b>27%</b>
Open CSU/TL	0%	65%	0%	9%	<b>25%</b>
Open Standard Stipulations	<1%	0%	82%	63%	<b>21%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<b>Geothermal Energy</b>	<b>Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	31%	28%	25%	23%	<b>27%</b>
Open NSO	69%	8%	0%	4%	<b>28%</b>
Open CSU/TL	0%	65%	0%	8%	<b>24%</b>
Open Standard Stipulations	0%	0%	75%	64%	<b>21%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



**Figure 51 – Geothermal Energy Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

### III. Land Tenure

**Table 53 – Land Tenure Decisions within MZ V**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Land Tenure Decisions in MZ V by Habitat Management Area Type					
Land Tenure	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Disposal	0	0	79,000	521,000	600,000
Retention	4,649,000	4,896,000	822,000	3,044,000	13,410,000
<b>Total</b>	<b>4,649,000</b>	<b>4,896,000</b>	<b>901,000</b>	<b>3,565,000</b>	<b>14,011,000</b>

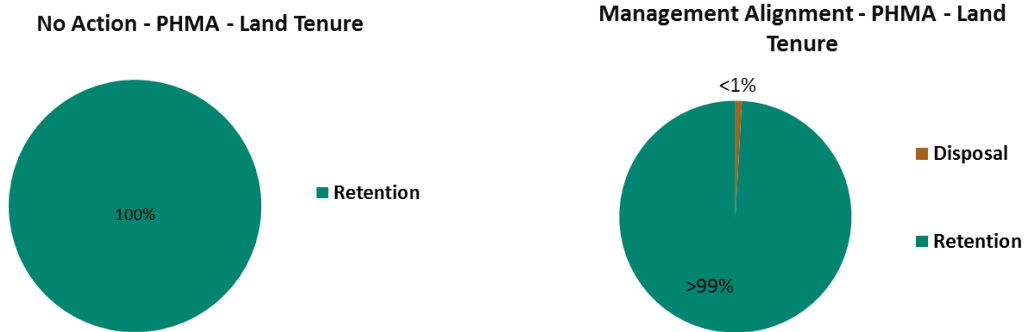
Land Tenure	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Disposal	2,000	19,000	32,000	592,000	644,000
Retention	4,802,000	4,787,000	530,000	3,241,000	13,360,000
<b>Total</b>	<b>4,804,000</b>	<b>4,806,000</b>	<b>562,000</b>	<b>3,833,000</b>	<b>14,005,000</b>

Approximate % of Habitat Management Area by Land Tenure Decision in MZ III					
Land Tenure	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Disposal	0%	0%	9%	15%	4%
Retention	100%	100%	91%	85%	96%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

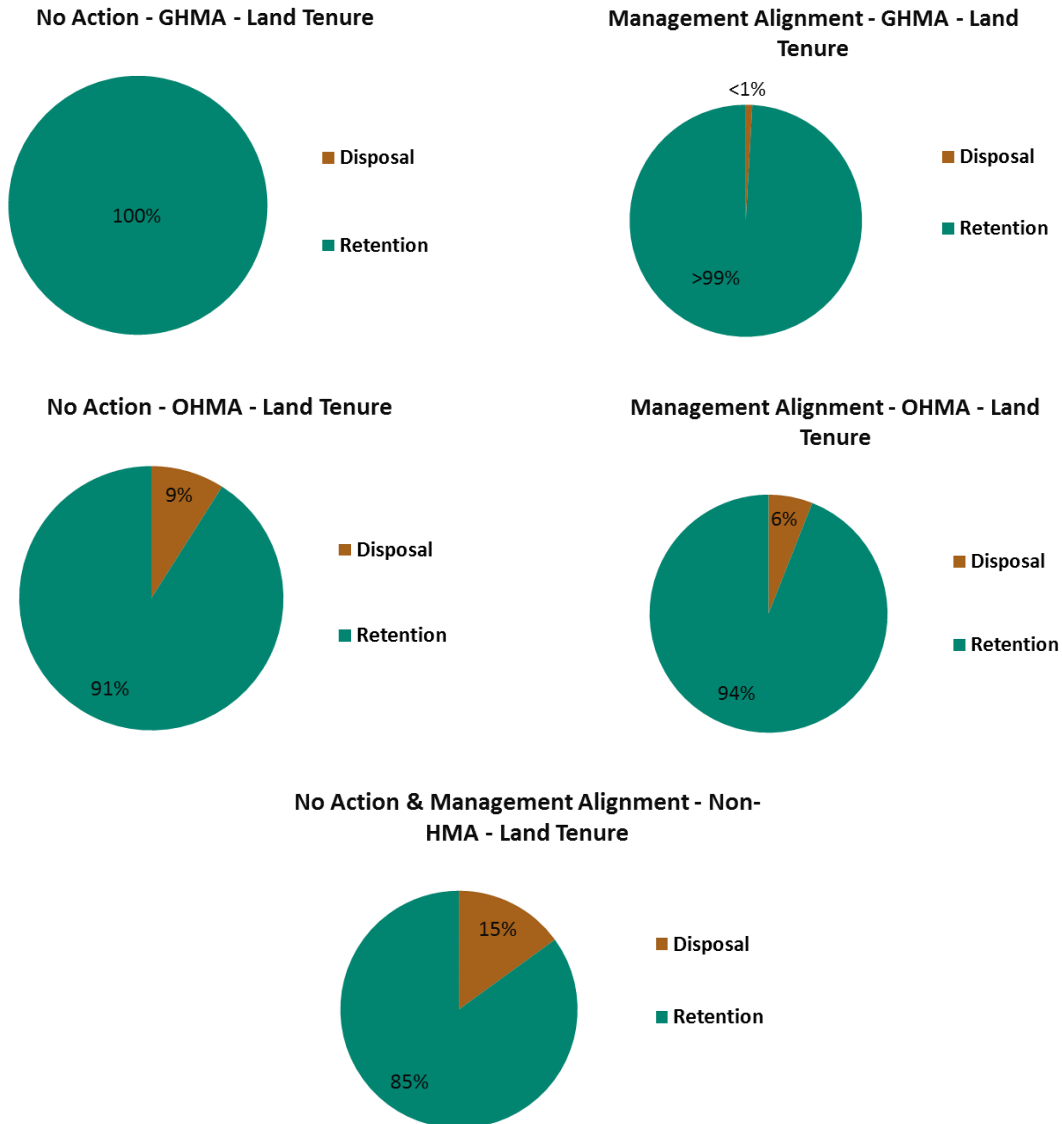
  

Land Tenure	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Disposal	<1%	<1%	6%	15%	5%
Retention	100%	100%	94%	85%	95%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



**Figure 52 – Land Tenure Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



**Figure 52 (cont'd) – Land Tenure Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

#### IV. Livestock Grazing

**Table 54 – Livestock Grazing Decisions within MZ V**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Livestock Grazing Decisions in MZ V by Habitat Management Area Type</b>					
<b>Livestock Grazing</b>	<b>No Action</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Unavailable	47,000	102,000	0	84,000	<b>232,000</b>
Available	4,582,000	4,762,000	883,000	3,233,000	<b>13,461,000</b>
<b>Total</b>	<b>4,629,000</b>	<b>4,864,000</b>	<b>883,000</b>	<b>3,317,000</b>	<b>13,694,000</b>

<b>Livestock Grazing</b>	<b>Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Unavailable	47,000	102,000	0	84,000	<b>232,000</b>
Available	4,736,000	4,671,000	550,000	3,493,000	<b>13,450,000</b>
<b>Total</b>	<b>4,783,000</b>	<b>4,772,000</b>	<b>550,000</b>	<b>3,577,000</b>	<b>13,682,000</b>

<b>Approximate % of Habitat Management Area by Livestock Grazing Decision in MZ V</b>					
<b>Livestock Grazing</b>	<b>No Action</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Unavailable	1%	2%	0%	3%	<b>2%</b>
Available	99%	98%	100%	97%	<b>98%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<b>Livestock Grazing</b>	<b>Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Unavailable	1%	2%	0%	2%	<b>2%</b>
Available	99%	98%	100%	98%	<b>98%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>





**Figure 53 – Livestock Grazing Decisions within MZ V**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## V. Locatable Minerals

**Table 55 – Locatable Minerals Decisions within MZ V**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Locatable Minerals Decisions in MZ V by Habitat Management Area Type</b>					
<b>Locatable Minerals</b>	<b>No Action</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	631,000	687,000	59,000	486,000	<b>1,864,000</b>
Recommended Withdrawals	435,000	5,000	0	0	<b>440,000</b>
Open	3,885,000	4,329,000	842,000	3,048,000	<b>12,104,000</b>
<b>Total</b>	<b>4,951,000</b>	<b>5,022,000</b>	<b>901,000</b>	<b>3,534,000</b>	<b>14,408,000</b>

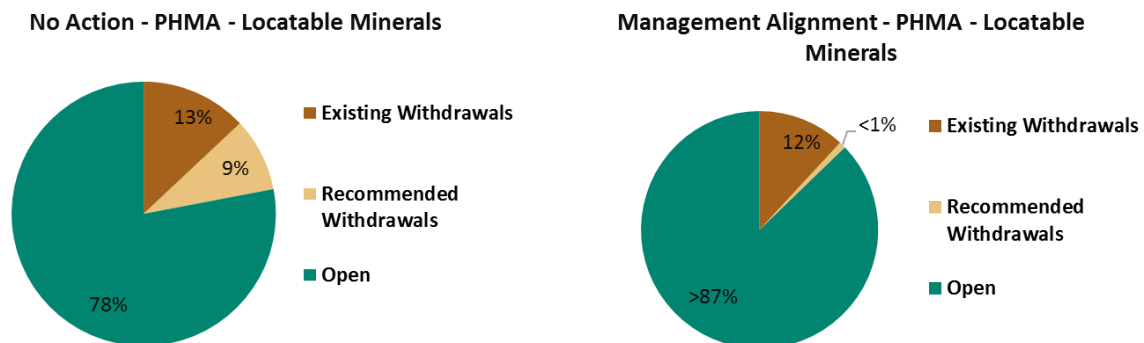
<b>Locatable Minerals</b>	<b>Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	626,000	687,000	64,000	487,000	<b>1,864,000</b>
Recommended Withdrawals	12,000	5,000	0	0	<b>17,000</b>
Open	4,469,000	4,240,000	499,000	3,314,000	<b>12,522,000</b>
<b>Total</b>	<b>5,106,000</b>	<b>4,932,000</b>	<b>562,000</b>	<b>3,801,000</b>	<b>14,403,000</b>

<b>Approximate % of Habitat Management Area by Geothermal Energy Decision in MZ V</b>					
<b>Locatable Minerals</b>	<b>No Action</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	13%	14%	7%	14%	<b>13%</b>
Recommended Withdrawals	9%	0%	0%	0%	<b>3%</b>
Open	78%	86%	93%	86%	<b>84%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<b>Locatable Minerals</b>	<b>Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Existing Withdrawals	12%	14%	11%	13%	<b>13%</b>
Recommended Withdrawals	0%	0%	0%	0%	<b>0%</b>
Open	88%	86%	89%	87%	<b>87%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



**Figure 54 – Locatable Minerals Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



**Figure 54 (cont'd) – Locatable Minerals Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

**VI. Non-Energy Leasable Minerals****Table 56 – Non-Energy Leasable Minerals Decisions within MZ V**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Non-Energy Leasable Minerals Decisions in MZ V by Habitat Management Area Type</b>					
<b>Non-Energy Leasable Minerals</b>	<b>No Action</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	4,980,000	1,388,000	158,000	898,000	<b>7,423,000</b>
Open	0	3,635,000	744,000	2,866,000	<b>7,247,000</b>
<b>Total</b>	<b>4,980,000</b>	<b>5,024,000</b>	<b>903,000</b>	<b>3,764,000</b>	<b>14,671,000</b>

<b>Non-Energy Leasable Minerals</b>	<b>Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	5,135,000	1,402,000	141,000	935,000	<b>7,613,000</b>
Open	0	3,532,000	423,000	3,097,000	<b>7,052,000</b>
<b>Total</b>	<b>5,135,000</b>	<b>4,934,000</b>	<b>564,000</b>	<b>4,032,000</b>	<b>14,665,000</b>

<b>Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision in MZ V</b>					
<b>Non-Energy Leasable Minerals</b>	<b>No Action</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	100%	28%	17%	24%	<b>51%</b>
Open	0%	72%	82%	76%	<b>49%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<b>Non-Energy Leasable Minerals</b>	<b>Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	100%	28%	25%	23%	<b>52%</b>
Open	0%	72%	75%	77%	<b>48%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



**Figure 55 – Non-Energy Leasable Minerals Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

**VII. Fluid Minerals (Oil & Gas)****Table 57 – Fluid Mineral (Oil & Gas) Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Fluid Mineral (Oil &amp; Gas) Decisions in MZ V by Habitat Management Area Type</b>					
<b>Fluid Mineral (Oil &amp; Gas) Decisions</b>	<b>No Action</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	1,590,000	1,373,000	141,000	935,000	<b>4,039,000</b>
Open NSO	3,542,000	379,000	0	164,000	<b>4,085,000</b>
Open CSU/TL	0	3,184,000	0	335,000	<b>3,519,000</b>
Open Standard Stipulations	0	0	423,000	2,598,000	<b>3,021,000</b>
<b>Total</b>	<b>5,133,000</b>	<b>4,936,000</b>	<b>564,000</b>	<b>4,032,000</b>	<b>14,664,000</b>

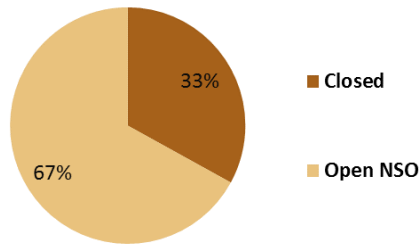
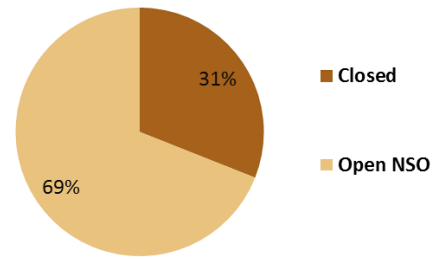
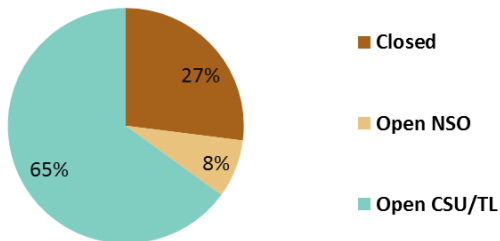
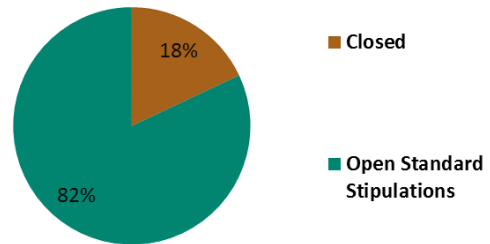
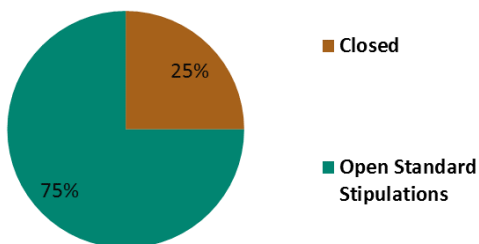
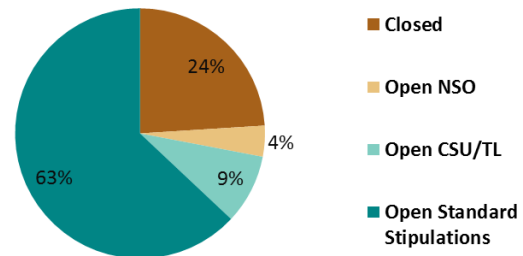
<b>Fluid Mineral (Oil &amp; Gas) Decisions</b>	<b>Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	1,626,000	1,359,000	158,000	898,000	<b>4,042,000</b>
Open NSO	3,354,000	379,000	0	164,000	<b>3,898,000</b>
Open CSU/TL	0	3,287,000	0	335,000	<b>3,622,000</b>
Open Standard Stipulations	0	0	743,000	2,365,000	<b>3,108,000</b>
<b>Total</b>	<b>4,981,000</b>	<b>5,026,000</b>	<b>902,000</b>	<b>3,762,000</b>	<b>14,670,000</b>

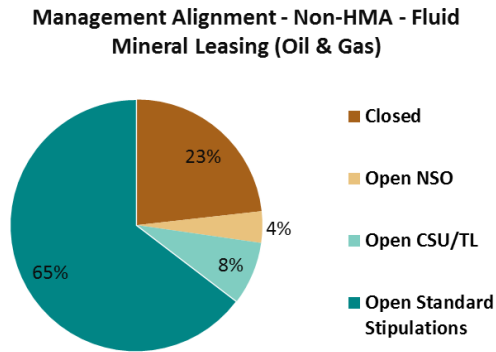
<b>Approximate % of Habitat Management Area by Fluid Mineral (Oil &amp; Gas) Decision in MZ V</b>					
<b>Fluid Mineral (Oil &amp; Gas) Decisions</b>	<b>No Action</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	33%	27%	18%	24%	<b>28%</b>
Open NSO	67%	8%	0%	4%	<b>27%</b>
Open CSU/TL	0%	65%	0%	9%	<b>25%</b>
Open Standard Stipulations	0%	0%	82%	63%	<b>21%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<b>Fluid Mineral (Oil &amp; Gas) Decisions</b>	<b>Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	31%	28%	25%	23%	<b>28%</b>
Open NSO	69%	8%	0%	4%	<b>28%</b>
Open CSU/TL	0%	65%	0%	8%	<b>24%</b>
Open Standard Stipulations	0%	0%	75%	64%	<b>21%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**No Action - PHMA - Fluid Mineral Leasing  
(Oil & Gas)****Management Alignment - PHMA - Fluid Mineral Leasing (Oil & Gas)****No Action & Management Alignment -  
GHMA - Fluid Mineral Leasing (Oil & Gas)****No Action - OHMA - Fluid Mineral Leasing  
(Oil & Gas)****Management Alignment - OHMA - Fluid Mineral Leasing (Oil & Gas)****No Action - Non-HMA - Fluid Mineral Leasing  
(Oil & Gas)****Figure 56 – Fluid Mineral (Oil & Gas) Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



**Figure 56 (cont'd) – Fluid Mineral (Oil & Gas) Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



## VIII. Rights-of-Ways

**Table 58 – Rights-of-Ways Decisions within MZ V**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Rights-of-Ways Decisions in MZ V by Habitat Management Area Type</b>					
<b>Rights-of-Ways</b>	<b>No Action</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	956,000	445,000	158,000	787,000	2,347,000
Avoidance	3,634,000	4,349,000	0	325,000	8,307,000
Open	87,000	106,000	744,000	2,449,000	3,386,000
<b>Total</b>	<b>4,677,000</b>	<b>4,900,000</b>	<b>902,000</b>	<b>3,561,000</b>	<b>14,040,000</b>

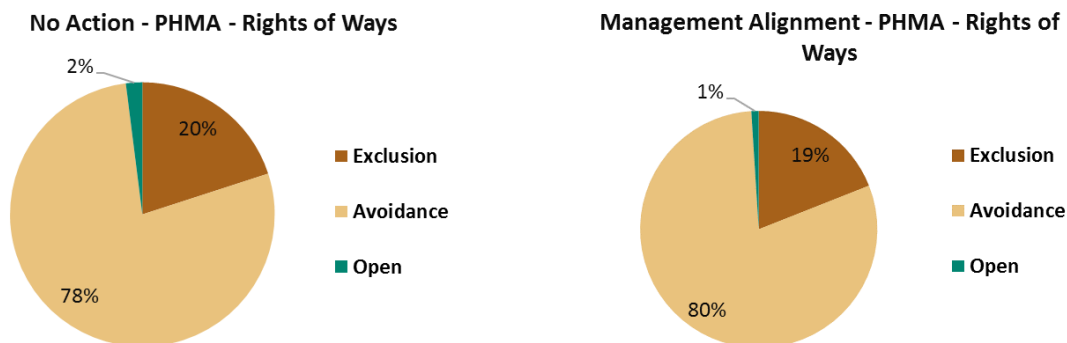
<b>Rights-of-Ways</b>	<b>Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	922,000	459,000	141,000	824,000	2,346,000
Avoidance	3,854,000	4,281,000	0	325,000	8,460,000
Open	51,000	69,000	423,000	2,685,000	3,228,000
<b>Total</b>	<b>4,827,000</b>	<b>4,809,000</b>	<b>564,000</b>	<b>3,834,000</b>	<b>14,034,000</b>

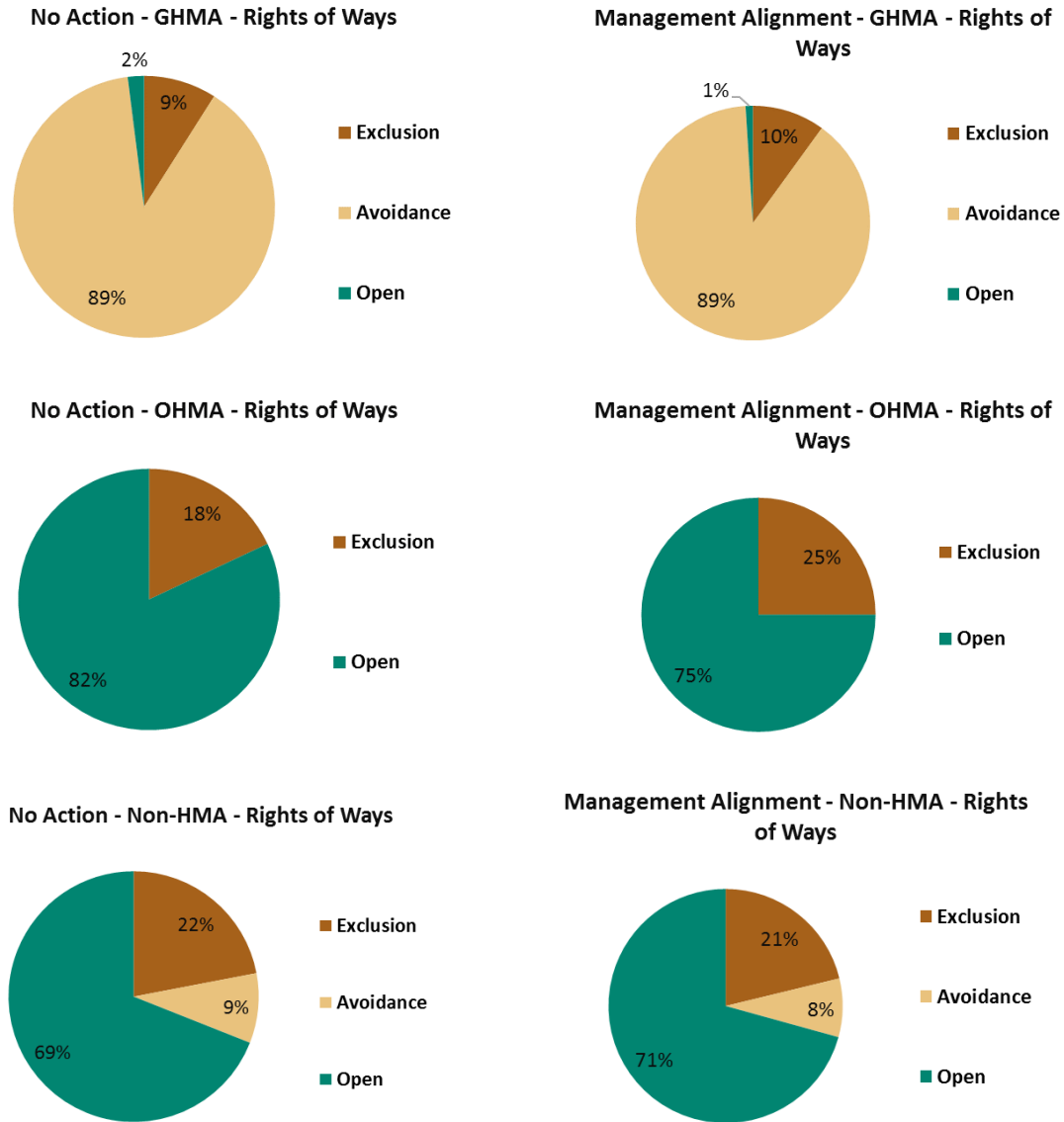
<b>Approximate % of Habitat Management Area by Rights-of-Ways Decision in MZ V</b>					
<b>Rights-of-Ways</b>	<b>No Action</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	78%	89%	0%	9%	59%
Avoidance	20%	9%	18%	22%	17%
Open	2%	2%	82%	69%	24%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<b>Rights-of-Ways</b>	<b>Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Exclusion	80%	89%	0%	8%	60%
Avoidance	19%	10%	25%	21%	17%
Open	1%	1%	75%	70%	23%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**Figure 57 – Rights-of-Ways Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



**Figure 57 (cont'd) – Rights-of-Ways Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

**IX. Salable Minerals Materials****Table 59 – Salable Minerals Materials Decisions within MZ V**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Salable Minerals Materials Decisions in MZ V by Habitat Management Area Type</b>					
<b>Salable Minerals Materials</b>	<b>No Action</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	4,980,000	1,402,000	158,000	935,000	<b>7,475,000</b>
Open	1,000	3,621,000	744,000	2,827,000	<b>7,194,000</b>
<b>Total</b>	<b>4,980,000</b>	<b>5,024,000</b>	<b>903,000</b>	<b>3,762,000</b>	<b>14,669,000</b>

<b>Salable Minerals Materials</b>	<b>Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	5,135,000	1,416,000	141,000	972,000	<b>7,664,000</b>
Open	0	3,518,000	423,000	3,057,000	<b>6,998,000</b>
<b>Total</b>	<b>5,135,000</b>	<b>4,934,000</b>	<b>564,000</b>	<b>4,030,000</b>	<b>14,663,000</b>

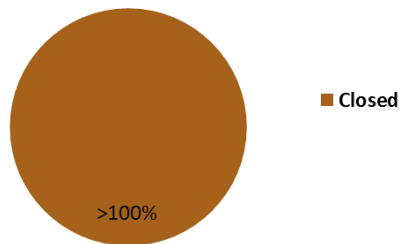
  

<b>Approximate % of Habitat Management Area by Salable Minerals Materials Decision in MZ V</b>					
<b>Salable Minerals Materials</b>	<b>No Action</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	100%	28%	17%	25%	<b>51%</b>
Open	<1%	72%	83%	75%	<b>49%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<b>Salable Minerals Materials</b>	<b>Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	100%	29%	25%	24%	<b>52%</b>
Open	0%	71%	75%	76%	<b>48%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

No Action & Management Alignment -  
PHMA - Salable Minerals Materials

**Figure 58 – Salable Minerals Materials Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



**Figure 58 (cont'd) – Salable Minerals Materials Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## X. Solar Energy

**Table 60 – Solar Energy Decisions within MZ V**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

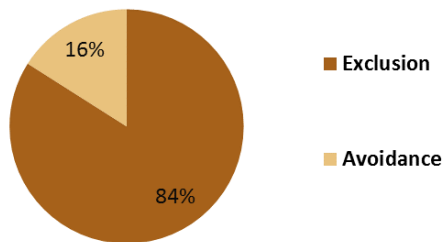
Approximate Acres of Solar Energy Decisions in MZ V by Habitat Management Area Type					
Solar Energy	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	3,932,000	1,466,000	897,000	2,191,000	8,487,000
Avoidance	750,000	3,438,000	1,000	348,000	4,537,000
Open	0	0	4,000	1,032,000	1,036,000
Total	4,683,000	4,904,000	903,000	3,571,000	14,060,000

Solar Energy	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	4,088,000	1,373,000	564,000	2,457,000	8,483,000
Avoidance	750,000	3,438,000	0	349,000	4,537,000
Open	0	0	0	1,034,000	1,035,000
Total	4,838,000	4,810,000	564,000	3,841,000	14,054,000

Approximate % of Habitat Management Area by Solar Energy Decision in MZ V					
Solar Energy	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	84%	30%	99%	61%	60%
Avoidance	16%	70%	<1%	10%	32%
Open	0%	0%	<1%	29%	7%
Total	100%	100%	100%	100%	100%

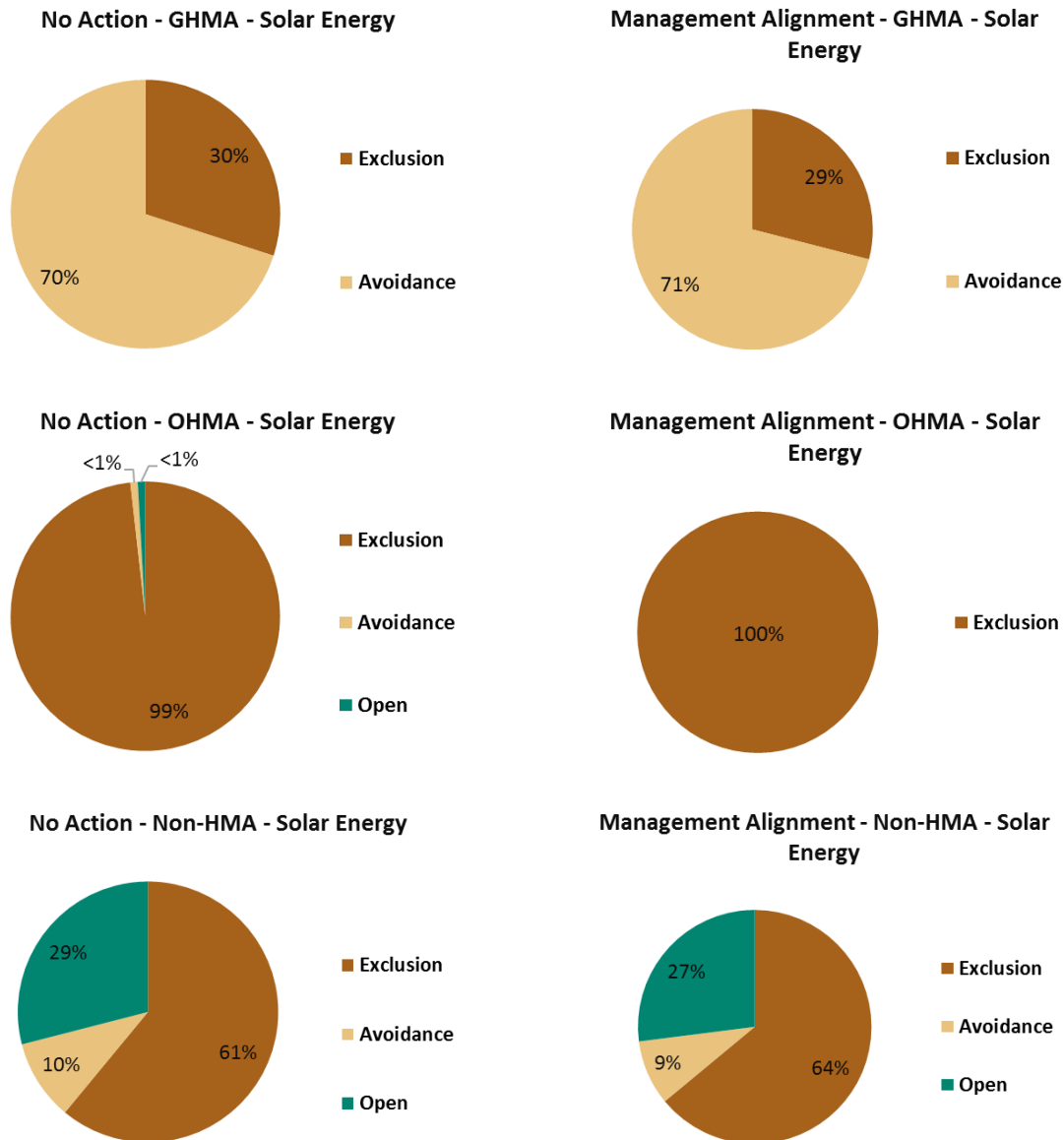
Solar Energy	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	84%	29%	100%	64%	60%
Avoidance	16%	71%	0%	9%	32%
Open	0%	0%	0%	27%	7%
Total	100%	100%	100%	100%	100%

**No Action & Management Alignment -  
PHMA - Solar Energy**



**Figure 59 – Solar Energy Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



**Figure 59 (cont'd) – Solar Energy Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

**XI. Trails and Travel Management****Table 61 – Trails and Travel Management Decisions within MZ V**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

<b>Approximate Acres of Trails and Travel Management Decisions in MZ V by Habitat Management Area Type</b>					
<b>Trails and Travel Management Decisions</b>	<b>No Action</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	220,000	215,000	59,000	423,000	<b>917,000</b>
Limited	4,452,000	4,681,000	428,000	1,257,000	<b>10,818,000</b>
Open	0	2,000	414,000	1,888,000	<b>2,304,000</b>
<b>Total</b>	<b>4,672,000</b>	<b>4,897,000</b>	<b>901,000</b>	<b>3,568,000</b>	<b>14,038,000</b>

<b>Trails and Travel Management Decisions</b>	<b>Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	215,000	214,000	64,000	424,000	<b>917,000</b>
Limited	4,613,000	4,591,000	290,000	1,280,000	<b>10,774,000</b>
Open	0	2,000	209,000	2,131,000	<b>2,342,000</b>
<b>Total</b>	<b>4,828,000</b>	<b>4,807,000</b>	<b>562,000</b>	<b>3,836,000</b>	<b>14,032,000</b>

<b>Approximate % of Habitat Management Area by Trails and Travel Management Decisions Decision in MZ V</b>					
<b>Trails and Travel Management Decisions</b>	<b>No Action</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	5%	4%	7%	12%	<b>7%</b>
Limited	95%	96%	48%	35%	<b>77%</b>
Open	0%	<1%	46%	53%	<b>16%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

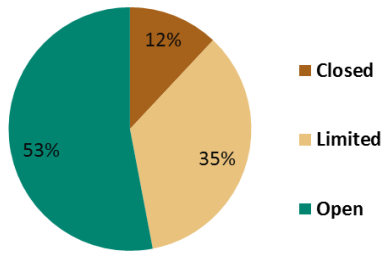
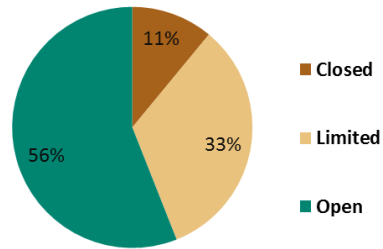
<b>Trails and Travel Management Decisions</b>	<b>Management Alignment</b>				
	<b>PHMA</b>	<b>GHMA</b>	<b>OHMA</b>	<b>Non-HMA</b>	<b>Total</b>
Closed	4%	4%	11%	11%	<b>7%</b>
Limited	96%	96%	52%	33%	<b>77%</b>
Open	0%	<1%	37%	56%	<b>17%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



**Figure 60 – Trails and Travel Management Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



**No Action - Non-HMA - Trails and Travel Management****Management Alignment- Non-HMA - Trails and Travel Management****Figure 60 (cont'd) – Trails and Travel Management Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

## XII. Wind Energy

**Table 62 – Wind Energy Decisions within MZ V**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Wind Energy Decisions in MZ V by Habitat Management Area Type					
Wind Energy	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	3,927,000	454,000	158,000	792,000	5,330,000
Avoidance	750,000	4,445,000	0	321,000	5,516,000
Open	1,000	0	744,000	2,456,000	3,201,000
<b>Total</b>	<b>4,678,000</b>	<b>4,900,000</b>	<b>903,000</b>	<b>3,568,000</b>	<b>14,048,000</b>

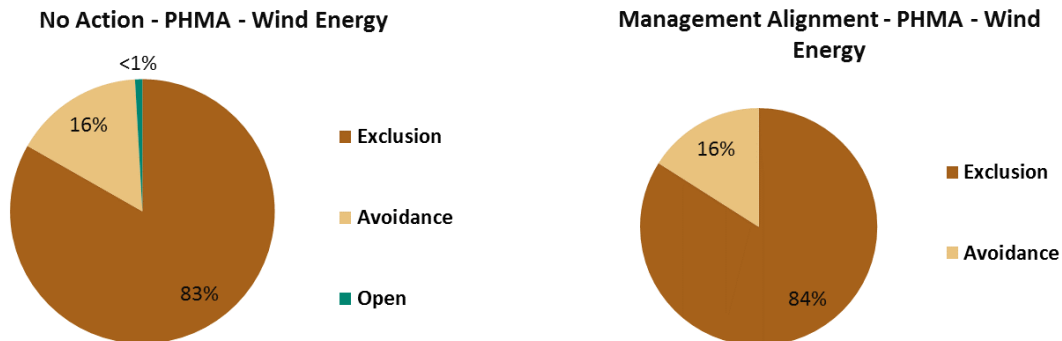
Wind Energy	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	4,083,000	467,000	141,000	829,000	5,520,000
Avoidance	750,000	4,341,000	0	321,000	5,412,000
Open	0	0	423,000	2,686,000	3,110,000
<b>Total</b>	<b>4,833,000</b>	<b>4,809,000</b>	<b>564,000</b>	<b>3,836,000</b>	<b>14,042,000</b>

Approximate % of Habitat Management Area by Wind Energy Decision in MZ V					
Wind Energy	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	84%	9%	17%	22%	38%
Avoidance	16%	91%	0%	9%	39%
Open	<1%	0%	82%	69%	23%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

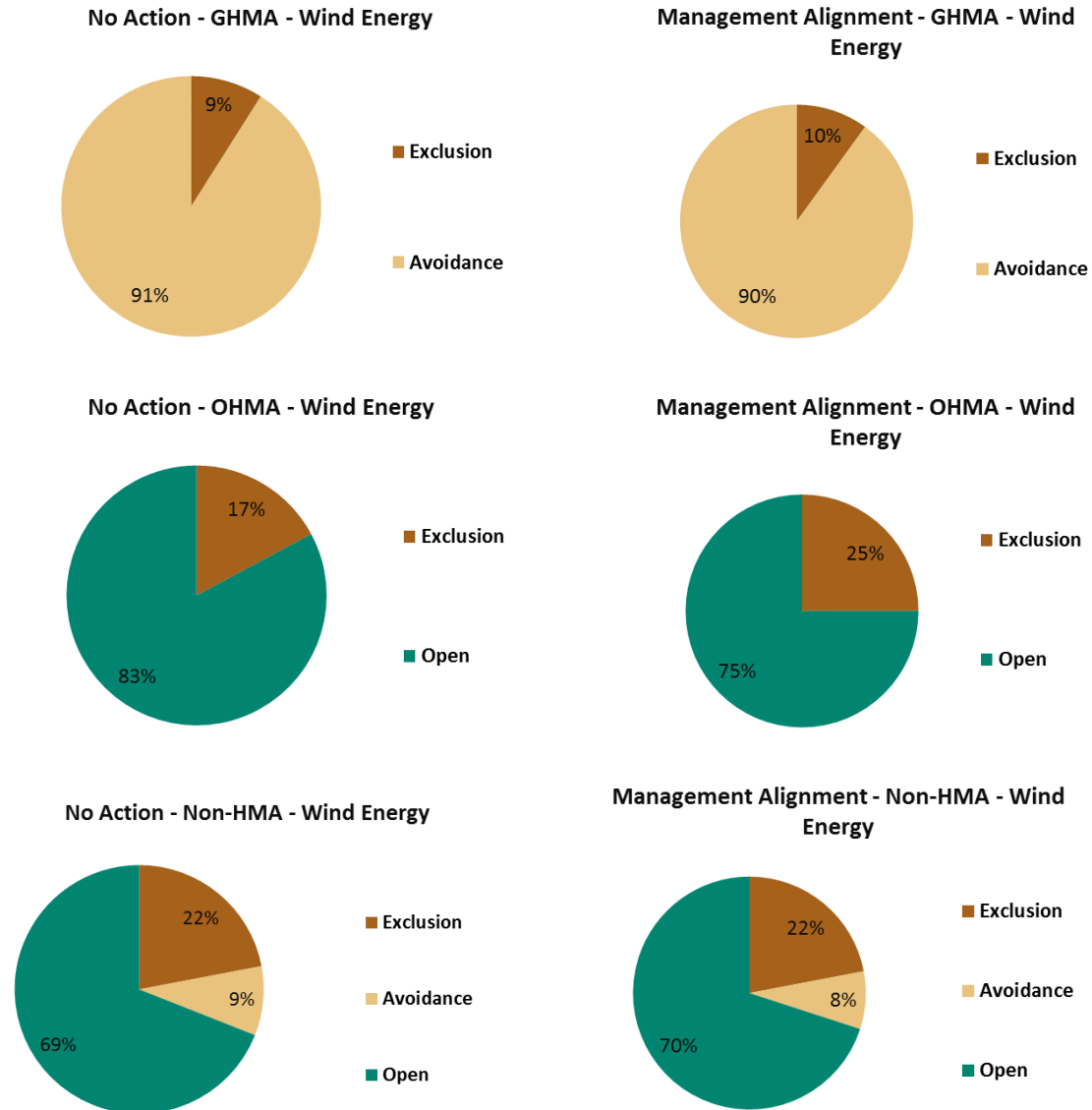
  

Wind Energy	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	84%	10%	25%	22%	39%
Avoidance	16%	90%	0%	8%	39%
Open	0%	0%	75%	70%	22%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



**Figure 61 – Wind Energy Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.



**Figure 6I (cont'd) – Wind Energy Decisions within MZ V**

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

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# Appendix E

Review of the NTT and COT Report's Relevance to  
the Planning Process; Incorporation of the NTT,  
COT, and USGS Summary of Science into the  
Wyoming Planning Process



# **Appendix E. Review of the NTT and COT Report's Relevance to the Planning Process; Incorporation of the NTT, COT, and USGS Summary of Science into the Wyoming Planning Process**

This appendix outlines how the NTT and COT and reports factored into the planning process for the FEIS, and how NTT, COT, and USGS science was incorporated into the planning process.

## **BLM NATIONAL TECHNICAL TEAM REPORT (2011)**

In 2010, the US Fish and Wildlife Service (USFWS) determined that Greater Sage-Grouse warranted listing under the Endangered Species Act, but was precluded from listing due to other priorities. In response to this determination, the BLM initiated a land use planning process in 2011. To help inform that process the BLM assembled a “National Technical Team” (NTT), comprising state and federal resource specialists and scientists to review the scientific literature available at that time. On December 21, 2011 the NTT finalized a document entitled *A Report on National Greater Sage-Grouse Conservation Measures*, also known as the National Technical Team Report (NTT Report). The report was developed to provide “the latest science and best biological judgement” from the available literature (NTT Report, Introduction, page 5). Though the NTT Report is not itself science, the NTT used the best science available at that time to inform the conservation measures it identified for BLM decision-makers to consider through the land use planning and NEPA process.

On December 27, 2011, the BLM issued policy in Instruction Memorandum 2012-044 requiring BLM offices to “consider all applicable conservation measures when revising or amending its RMPs in Greater Sage Grouse habitat” (IM-2012-44, Policy/Action). The IM clarified a distinction between “all applicable conservation measures” and those included in the NTT Report by noting in the following sentence that “the conservation measures developed by the NTT...must be considered and analyzed, as appropriate, through the land use planning process” (ibid). Each BLM planning effort complied with this policy by including an alternative based entirely on the conservation measures identified by the NTT. This was Alternative B in the 2013 Draft EIS and 2015 Final EIS, and by extension in the 2018 Draft and Final EISs. Through this alternative and corresponding analysis, the BLM complied with its policy for considering the conservation measures in the NTT Report.

It is critical to clarify that neither the NTT nor the BLM’s policy intended that the conservation measures in the NTT Report were to be automatically applied across the range without intervening consideration through detailed land use planning and NEPA analysis. In the same paragraph that directs the BLM to “consider all applicable conservation measures” from the NTT Report, IM-2012-044 also notes that “while these conservation measures are range-wide in scale, it is expected that at the regional and sub-regional planning scales there may be some adjustments of these conservation measures in order to address local ecological site variability.” Moreover, the NTT understood that the measures in its report would be evaluated alongside competing land use planning considerations and with follow-up

environmental analysis relating to the conservation efficacy of its measures. As the NTT Report described, the conservation measures are not themselves management decisions but rather have been prepared “to assist [the BLM] in making management decisions.” (NTT Report, Introduction, page 5.) In other words, “the conservation measures described in [the] report *are not an end point* but, rather, *a starting point* to be used in the BLM’s planning processes” (ibid, page 5) (emphasis added).

The principle of local adaptation of scientific results and recommended conservation measures derived from them is present in other documents with Greater Sage-Grouse conservation recommendations. In 2014, three years after the NTT Report, the Department of the Interior requested the US Geological Survey (USGS) prepare a report that compiled and summarized published scientific studies regarding buffer distances around Greater Sage-Grouse habitats. In the report titled *Conservation Buffer Distance Estimates for Greater Sage-Grouse A Review* (Open File Report 2014-1239), USGS scientists note that “responses of individual birds and populations, coupled with variability in land-use patterns and habitat conditions, add variation in research results. This variability presents a challenge for land managers and planners seeking to use research results to guide management and plan for Greater Sage-Grouse conservation measures. Variability between Greater Sage-Grouse populations and their responses to different types of infrastructure can be substantial across the species’ range. Logical and scientifically justifiable departures from the ‘typical response,’ based on local data and other factors, may be warranted when implementing buffer protections or density limits in parts of the species’ range” (USGS Open File Report 2014-1239, page 2). A simple statement from the report indicates this variability, where the USGS scientists noted that “there is no single distance that is an appropriate buffer for all populations and habitats across the sage-grouse range” (ibid, pg. 2).

Further, the BLM’s policy requiring consideration of the conservation measures in the NTT Report allowed for individual planning efforts to make adjustments to the report’s conservation measures. IM-2012-044 states that “the NTT-developed conservation measures were derived from goals and objectives developed by the NTT” and that “these goals and objectives are a *guiding philosophy* that should *inform* the goals and objectives developed for individual land use plans. However, *it is anticipated that individual plans may develop goals and objectives that differ and are specific to individual planning areas*” (emphasis added). The anticipation for variability across the range is even more explicit when the IM notes that “while [the NTT Report’s] conservation measures are range-wide in scale, *it is expected that at the regional and sub-regional planning scales there may be some adjustments of these conservation measures in order to address local ecological site variability*” (emphasis added). With specific consideration of this variability, each BLM planning and NEPA effort developed and analyzed a range of alternative approaches for Greater Sage-Grouse habitat management in each sub-region/state. Through this process, the BLM considered local and regional differences, analyzing the effect of each alternative approach locally and cumulatively.

As the NTT developed its conservation measures, it did not take into consideration other legal and regulatory requirements associated with land use planning and NEPA. For example, the NTT’s range-wide conservation measures did not take into account State or local Greater Sage-Grouse conservation efforts. Further, the NTT Report’s conservation measure that recommends that priority Greater Sage-Grouse habitat areas be designated as unsuitable for all surface mining of coal entirely overlooks the specific process to determine unsuitability prescribed in 43 Code of Federal Regulations (CFR) 3461. Elsewhere the NTT Report states that “a 4-mile [no surface occupancy (NSO) stipulation] likely would not be practical given most leases are not large enough to accommodate a buffer of this size, and lek



spacing within priority habitats is such that lek-based buffers may overlap and preclude all development” (NTT Report, page 21) and therefore presents a conservation measure to close priority Greater Sage-Grouse habitat areas to fluid mineral leasing. This is not consistent with BLM planning guidance directing planning teams that “when applying leasing restrictions, the least restrictive constraint to meet the resource protection objective should be used” (BLM-H-1601 Appendix C page 24); whether or not a lease is large enough to accommodate a large NSO should not be a consideration if NSO provides the necessary protection. In its foundational legislation for the BLM, Congress specifically declared that it neither enlarged nor diminished the authority of the states in managing fish and wildlife. In recognizing this role, as well as local knowledge and expertise, Congress directed the BLM to develop its land use plans to “be consistent with State and local plans to the maximum extent [the BLM] finds consistent with Federal law and the purposes of [FLPMA]” (Federal Land Policy and Management Act {FLPMA}, Section 202 (c)(9)).

In recognition of instances where the NTT Report’s conservation measures were not consistent with law, regulation, or policy, the BLM’s policy direction in IM-2012-044 directs that “when considering the [NTT Report’s] conservation measures...BLM offices should ensure that implementation of any of the measures is consistent with applicable statute and regulation. Where inconsistencies arise, BLM offices should consider the conservation measure(s) to the fullest extent consistent with such statute and regulation.”

Each BLM planning effort fully considered the broad, range-wide recommendations from the NTT Report through the required NEPA process. This consideration was accomplished, as directed by Congress, using a “systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences” (FLPMA Section 202(c)(2)). Through careful consideration of the NTT’s conservation measures, as well as local expertise, monitoring, partnerships, and other resource and land uses, the BLM developed Greater Sage-Grouse management goals, objectives, and management actions that accounted for the variability of habitat and resources across the range. Through the combination of both the 2015 and 2019 planning processes the BLM complied with the statutory requirement that the BLM resolve, “to the extent practical, inconsistencies between Federal and non-Federal Government plans” (FLPMA Sec. 202(c)(9)). Through these efforts, the BLM has met its statutory and regulatory responsibilities related to its consideration of the conservation measures contained in the NTT Report.

What the NTT Report and its Conservation Measures Are:

- The NTT Report included science-based management considerations for Greater Sage-Grouse to promote sustainable Greater Sage-Grouse populations.
- The conservation measures were to be considered and analyzed through the BLM’s land use planning process.
- The conservation measures are range-wide in scale, not accounting for local variability.
- The conservation measures were a starting point to be used in the BLM’s planning process.
- The NTT Report was developed by a team of resource specialists and scientists familiar with Greater Sage-Grouse literature and BLM programs.

What the NTT Report and its Conservation Measures Are Not:

- Unlike FLPMA's requirement that the BLM develop and modify Land Use Plans in coordination with state and local plans and policies, the NTT Report was not developed with input from or consideration of plans, policies, or programs of State, Tribal, or local government agencies.
- The conservation measures were not developed using a systematic interdisciplinary approach, as required by FLPMA for land use plans.
- The NTT Report presented conservation measures that would provide food and habitat for one species of wildlife, but did not consider other FLPMA requirements for BLM to manage for other species and resources while also recognizing the need for sources of minerals, food, timber and fiber from public lands.
- The NTT Report is not a land use plan, or an amendment or revision to a land use plan.
- The conservation measures were based on best available science at the time and do not provide for future updates in scientific knowledge or technological advancements.
- When preparing the NTT Report, the NTT did not complete a NEPA analysis on its conservation measures. Instead, the BLM completed NEPA and land use planning processes in 2015 and 2019 to assess the environmental consequences of the NTT Report's conservation measures, as well as alternatives to those measures—and to account for competing land management considerations.

### **US FISH AND WILDLIFE CONSERVATION OBJECTIVES TEAM REPORT (2013)**

In 2012 the director of the USFWS convened a Conservation Objectives Team (COT) of state and USFWS representatives. The team developed a peer-reviewed report (COT Report) that delineated objectives based on the “best scientific and commercial data available at the time of its release” (COT Report, page ii). The COT Report, released in March 2013, identifies conservation objectives, measures, and options for each of the Greater Sage-Grouse threats assessed. The COT Report also identified Priority Areas for Conservation (PACs) which were identified as “the most important areas needed for maintaining Greater Sage-Grouse representation, redundancy, and resilience across the landscape” (ibid, page 13). Unique compared to the NTT Report, the COT Report identified threats to each PAC, recognizing that threats vary across the range, and therefore corresponding management should vary to address those threats. The preface to the report is clear that the COT report “is guidance only” and that the “identification of conservation objectives and measures does not create a legal obligation beyond existing legal requirements” (ibid, page ii). Further, the preface notes that the objectives “are subject to modification as dictated by new findings, changes in species' status, and the completion of conservation actions” (ibid, page ii).

The COT Report clearly identifies the necessity to adapt Greater Sage-Grouse conservation goals, objectives, and measures due to variability across the range. The COT noted that “due to the variability in ecological conditions and the nature of the threats across the range of the sage-grouse, *developing detailed, prescriptive species or habitat actions is not possible at the range-wide scale*” (emphasis added) (COT Report, Section 5- Conservation Objectives, page 31). The COT Report summarizes the relationship between its range-wide conservation goals, objectives, and measures and the state-specific planning efforts, noting that “specific strategies or actions necessary to achieve the following conservation objectives must be developed and implemented at the state or local level, with the involvement of all stakeholders” (ibid).

The BLM received the COT Report when developing its 2013 Draft EIS and fully considered it prior to Draft EIS publication, providing for public review of the BLM's evaluation. Upon receipt of the Report the BLM evaluated the range of alternatives and determined that the threats addressed by the COT Report were all addressed in the range of alternatives; this was presented to the public in Appendix C in the 2013 Draft EIS. The BLM also evaluated the impacts to Greater Sage-Grouse from the alternatives and determined that the COT Report objectives were all addressed within the range of alternatives; this was presented to the public in the 2013 Draft EIS Chapter 2 Table 2.4 (Comparison of Alleviated Threats to GRS in the Wyoming Sub-Region).

Following public comments and development of the 2015 Proposed Plan, Section 2.5 of the Final EIS updated the crosswalk between the USFWS threats and the BLM program areas, showing that all the threats for which the BLM has discretion were addressed. Section 2.11.7 notes that all conservation measures and objectives identified in the COT report were considered within the 2015 Final EIS range of alternatives. Finally, a table was added to the 2015 Final EIS Executive Summary that showed the management actions from the 2015 Proposed Plan that addressed the COT Report threats.

On October 2, 2015, the USFWS determined that "listing the sage-grouse as a threatened or endangered species is not warranted..." (Federal Register Vol. 80, No. 191, 59936). One of the rationale for this determination was that "the new Federal land-management paradigm is established in 98 amended Federal Plans that reduce and minimize threats to the species in the most important habitat for the species" (ibid). Through this language, it is clear that the 2015 planning efforts incorporated the recommendations from the COT Report to a degree that met the report's goal of "long-term conservation of sage-grouse and healthy sagebrush shrub and native perennial grass and forb communities by maintaining viable, connected, and well-distributed populations and habitats across their range, through threat amelioration, conservation of key habitats, and restoration activities" (COT Report, page 13).

What the COT Report and its Objectives, Measures and Options Are:

- The COT Report is a compilation of reasonable objectives, based upon the best scientific and commercial data available at the time of its release, for the conservation and survival of Greater Sage-Grouse
- The COT Report is guidance to federal land management agencies, state Greater Sage-Grouse teams, and others developing efforts to achieve conservation for Greater Sage-Grouse.
- The COT Report was clear that its objectives were subject to modification based on new findings, changes in species' status, and the completion of conservation actions.
- The COT Report was developed by a team of state and USFWS representatives selected by their respective state or agency.

What the COT Report and its Objectives, Measures and Options Are Not:

- The COT Report is not a recovery plan, conservation strategy, or conservation agreement.
- The COT Report did not include input from BLM biologists or BLM field staff familiar with local habitat conditions and threats.

- The COT Report was not developed with input from the BLM, its managers, planners, wildlife program leads, or field biologists and as such includes objectives, measures and options that do not consider the BLM's statutory, regulatory, or policy requirements.
- When preparing the COT Report, the USFWS did not complete a NEPA analysis on its conservation objectives, measures, and options. Instead, the BLM completed NEPA and land use planning processes in 2015 and 2019 to assess the environmental consequences of the COT Report conservation objectives, measures, and options, as well as alternatives to those objectives, measures, options—as they applied to the development of affected BLM land use planning decisions—while accounting for competing land management considerations.

## **EXCERPTS FROM THE WY FINAL EIS NOVEMBER 2018**

- **Chapter 1: Purpose of and Need for Action**
  - **Section 1.1 Introduction. p 1-2.** On June 7, 2017, the Secretary issued SO 3353, with a purpose of enhancing cooperation among 11 western states and the BLM in managing and conserving Greater Sage-Grouse. SO 3353 directed an interior review team, consisting of the BLM, the USFWS, and the US Geological Survey (USGS), to coordinate with the Greater Sage-Grouse Task Force. They also were directed to review the 2015 Greater Sage-Grouse plans and associated policies to identify provisions that may require modification to make the plans more consistent with the individual state plans and to better balance the BLM's multiple-use mission, as directed by SO 3349.
  - **Section 1.5 Planning Criteria. p 1-7.** The BLM has identified the following planning criteria:
    - It will comply with all laws, regulations, policies, and guidance related to public lands management and implementing the National Environmental Policy Act of 1969 (NEPA) on BLM-administered lands.
    - Greater Sage-Grouse is a state-managed species that depends on sagebrush steppe habitats managed in partnership by federal, state, and local authorities. In making management determinations on BLM-administered lands, the BLM will use, to the fullest extent practicable, state game and fish agencies' Greater Sage-Grouse data and expertise.
    - Lands addressed in the RMPA/EIS will be BLM-administered land in Greater Sage-Grouse habitats, including surface and split-estate lands with federal subsurface mineral rights. Any decisions in the RMPA/EIS will apply only to BLM-administered lands.
    - This RMPA/EIS will comply with orders of the Secretary, including SO 3353 (Greater Sage-Grouse Conservation and Cooperation with Western States), which strives for compatibility with state conservation plans.
    - This RMPA/EIS will incorporate, as appropriate, information in a USGS report that identified and annotated Greater Sage-Grouse science published since January 2015 (Carter et al. 2018) and a report that synthesized and outlined the potential management implications of this new science (Hanser et al. 2018).
    - This RMPA/EIS will comply with BLM Manual 6840, Special Status Species Management.
    - This RMPA/EIS will recognize valid existing rights.

- All activities and uses in Greater Sage-Grouse habitats will be managed to achieve Greater Sage-Grouse objectives and existing land health standards.
- **Chapter 2: Alternatives and Proposed RMP Amendment Description**
  - NTT, COT, and USGS do not appear.
- **Chapter 3: Affected Environment**
  - **Section 3.1 Introduction. p. 3-1.** The BLM analyzed the management situation in full compliance with its regulations and policies. The BLM evaluated inventory and other data and information, partnering with USGS and coordinating extensively with States, to help provide a basis for formulating reasonable alternatives. The BLM described this process in its Report to the Secretary in response to SO 3353 (Aug. 4, 2017). Among other things, the Report describes how the BLM coordinated “with each State to gather information related to the [Secretary’s] Order, including State-specific issues and potential options for actions with respect to the 2015 Greater Sage-Grouse Plans and Instruction Memorandums (IMs) to identify opportunities to promote consistency with State plans.” (Report to the Secretary at 3.) This process overlapped to some degree with the BLM’s scoping process, which also assisted the BLM in identifying the scope of issues to be addressed and significant issues, and with coordination with the States occurring after the Report.
  - **Section 3.1.1 USGS Reports. p. 3-2.** As part of the consideration of whether to amend some, all, or none of the 2014 and 2015 Greater Sage-Grouse land use plans, the BLM requested the USGS to develop an annotated bibliography of Greater Sage-Grouse science published since January 2015 (Carter et al. 2018) and a report that synthesizes and outlines the potential management implications of this new science (Hanser et al. 2018). Following the 2015 plans, the scientific community has continued to improve the knowledge available to inform management actions and an overall understanding of Greater Sage-Grouse populations, habitat requirements, and their response to human activity. The review discussed the science related to six major topics identified by the USGS and BLM, as follows:
    - Multi-scale habitat suitability and mapping tools
    - Discrete human activities
    - Diffuse activities
    - Fire and invasive species
    - Restoration effectiveness
    - Population estimation and genetics
- **Chapter 4: Environmental Consequences**
  - **Section 4.7 Cumulative Effects Analysis. p. 4-17 18.** The Management Alignment Alternative’s effects are effectively within the range of effects analyzed by the 2015 and 2016 EISs. The 2015 Final EISs are quite recent, and we have determined that conditions in the Wyoming planning area have not changed significantly based, in part, on the USGS science review (see Chapter 3), as well as the BLM’s review of additional past, present, and reasonably foreseeable actions in 2018. Conditions on public land have changed little since the 2015 Final EISs, and to the extent that there have been new actions or developments, the impacts associated with those actions or developments are in line

with the projections in the 2015 Final EISs regarding reasonably foreseeable actions and effects. Additionally, changes that have occurred on a smaller level, like wildfires, received prompt responses. Since the nature and context of the cumulative effects scenario has not appreciably changed since 2015, and the 2015 analysis covered the entire range of the Greater Sage-Grouse, the BLM's consideration of cumulative effects in the 2015 Final EISs adequately addresses most, if not all, of the planning decisions to be made through this planning effort.

- **Section 4.7.1 Range-wide Cumulative Effects Analysis Greater Sage-Grouse. p. 4-19.** The BLM's assessment that conditions and cumulative impacts have not changed significantly is based, in part, on the USGS science review (see Chapter 3) and the BLM's review of additional past, present, and reasonably foreseeable actions in 2018. Since the nature and context of the cumulative effects scenario have not appreciably changed since 2015, and the 2015 plans included analysis by WAFWA MZ across the entire range of the Greater Sage-Grouse, the cumulative effects analysis in the 2015 Final EIS applies to this planning effort and provides a foundation for the BLM to identify any additional cumulative impacts.
- **Section 4.7.2 Why Use WAFWA Management Zones? p. 4-20 21.** The cumulative effects analysis area for Greater Sage-Grouse extends beyond a state, political, or planning area boundary to reflect the WAFWA MZs because they encompass areas with similar issues, threats, and vegetation conditions important to Greater Sage-Grouse habitat management. Each suite of threats to specific Greater Sage-Grouse populations have been identified in the COT Report, 2015 Regional RODs, and the Listing Decision. The 2015 regional RODs identify how planning-level allocation decisions address the identified threats to populations, which are aggregated in this analysis by management zones. The threats vary geographically and may have more or less impact on Greater Sage-Grouse and its habitat in some parts of the MZs, depending on such factors as climate, land use patterns, and topography.

**EXCERPTS FROM CHAPTER 2 WY ARMPA FINAL EIS JUNE 2015 FOR NTT AND COT:**

<b>Page</b>	<b>NTT</b>	<b>COT</b>	<b>USGS</b>
2-2			In November 2014, the USGS released their Report on Conservation Buffer Distance Estimates for Greater Sage-Grouse A Review (Mainer et al. 2014). The purpose of this report is to provide a reference for land managers and others who are working to develop biologically relevant and socioeconomically practical buffer distances around sage-grouse habitats. The Proposed LUP Amendments, in accordance with the State of Wyoming's Core Area Strategy, impose restrictions targeted to the individual threats to breeding and nesting activity in Greater Sage-Grouse habitat. In light of the USGS report, the USFWS has indicated that the Core Area Strategy's overlapping and reinforcing mechanisms gives the USFWS confidence that the lek-buffer distances in the State's Core Area Strategy will be protective of breeding sage-grouse for habitat within the State of Wyoming. The buffers in the Proposed LUP Amendments (consistent with the State's Core Areas Strategy) were designed based on recommendations from biologists in the USFWS, BLM, and WGFD, and based on WAFWA standards. Thus, the findings of the Buffer Study have not been incorporated into the Proposed LUP Amendments. Adaptive Management—Identification of hard and soft adaptive management triggers for population and habitat and identified appropriate management responses.
2-6	Developed one No Action Alternative (Alternative A) and four preliminary action alternatives. The first action alternative (Alternative B) is based on <i>A Report on National Greater Sage-Grouse Conservation Measures</i> (NTT 2011).		

E. Review of the NTT and COT Report's Relevance to the Planning Process; Incorporation of the NTT, COT, and USGS Summary of Science into the Wyoming Planning Process

Page	NTT	COT	USGS
2-6	Customized the goals, objectives, and actions from the National Technical Team (NTT)-based alternative (Alternative B) to develop a third action alternative (Alternative D) that strives for balance among competing interests.		
2-7		The direction for managing Greater Sage-Grouse habitat in this document is focused on responding to the threats identified by the USFWS in their 2010 warranted but precluded finding on listing the Greater Sage-Grouse, as well as their Conservation Objectives Team (COT) Report. The USFWS threats do not necessarily align with BLM or Forest Service resource program areas, and are often integrated into several different resource program areas. Table 2-1, USFWS Threats to Greater Sage-Grouse and Their Habitat, Applicable BLM and Forest Service Proposed LUP Amendments Resource Program Areas Addressing These Threats, provides a cross-walk between each of the 2010 warranted but precluded finding and COT identified threats and the BLM and Forest Service program areas addressing these threats, with references to specific sections of the LUP amendments.	



E. Review of the NTT and COT Report's Relevance to the Planning Process; Incorporation of the NTT, COT, and USGS Summary of Science into the Wyoming Planning Process

Page	NTT	COT	USGS
2-10			The BLM/Forest Service's Proposed LUP Amendments consider documents related to the conservation of Greater Sage-Grouse that have been released since the publication of the Draft LUP Amendments/Draft EIS. For example, these Proposed LUP Amendments consider the USFWS' October 27 <sup>th</sup> , 2014 memorandum <i>Greater Sage-Grouse: Additional Recommendations to Refine Land Use Allocations in Highly Important Landscapes</i> and the USGS' November 21 <sup>st</sup> , 2014 report <i>Conservation Buffer Distance Estimates for Greater Sage-Grouse—A Review (USGS 2014)</i> . Based on these documents, the BLM and Forest Service are proposing to designate SFAs to further protect highly valuable habitat and are proposing disturbance limits, excluded activities, and a sophisticated mapping utility to monitor the amount and density of disturbance when authorizing activities near leks.
2-54		<p><b>Within PHMAs, specific to management for Greater Sage-Grouse, all RMPs are amended as follows:</b> For fuels management, the BLM would consider multiple tools for fuels reduction and would analyze in NEPA compliance documentation before electing to implement prescribed fire in PHMAs. If prescribed fire is used in Greater Sage-Grouse habitat, the NEPA analysis for the Burn Plan will address:</p> <ul style="list-style-type: none"> <li>• Why alternative techniques were not selected as a viable options</li> <li>• How Greater Sage-Grouse goals and objectives would be met by its use</li> <li>• How the COT Report objectives would be addressed and met</li> <li>• A risk assessment to address how potential threats to Greater Sage-Grouse habitat would be minimized.</li> </ul>	

E. Review of the NTT and COT Report's Relevance to the Planning Process; Incorporation of the NTT, COT,  
and USGS Summary of Science into the Wyoming Planning Process

Page	NTT	COT	USGS
2-83	<p>Alternative B is based on the conservation measures developed by the NTT planning effort in IM No. WO2012-044. As directed in the IM, the conservation measures developed by the NTT must be considered and analyzed, as appropriate, through the land use planning process and NEPA by all BLM state and field offices that contain occupied Greater Sage-Grouse habitat. Under this alternative, a surface disturbance cap of 3% per 640 acres is considered within sage-grouse priority habitat. In areas where the disturbance cap has been met by the project proponent, the BLM and Forest Service should consider opportunities for reclamation or removal of surface disturbing features that are no longer in use in order to reduce the current disturbance before further projects are permitted. This alternative considers incorporating a light grazing strategy, utilizing a 20-30% forage allocation for livestock allotments not meeting standards due to livestock grazing in sage-grouse priority habitat. Alternative B uses the term "Greater Sage-Grouse priority habitat" as described in IM No. WO-2012-044 and defined in this document's Glossary. Priority habitat is comprised of core habitat and connectivity habitat. Management actions proposed under Alternative B are presented in Table 2-11 and reflected in Table 2-7 (land use restrictions) and Tables 2-8 and 2-9 (oil and gas leasing stipulations). Alternative B is not strictly based on the conservation measures developed by the NTT planning effort. In the Western Watersheds Project v. US Department of Interior, the Court remanded the Pinedale RMP decision to the BLM, without vacating the RMP, to allow the BLM to remedy the FLPMA and NEPA defects identified by the Court with respect to the Pinedale RMP and EIS. These remedies can be found in Alternative B.</p>		

- End of tables of excerpts from the WY Greater Sage-Grouse ARMPA 2015 Final EIS and 2018 Final EIS -

## **COT, NTT AND USGS 2018 GENERAL INFORMATION**

### Outline:

- I) COT and NTT Reports
  - a) Introduction
  - b) Description of each document
  - c) How the reports were considered in 2015 and 2019 LUP decision
  - d) How/which parts were implemented
- 2) USGS 2018 Annotated Bibliography: Research on Greater Sage-Grouse since 2015
  - a) Description
  - b) How it was considered in 2018

#### I.a. Introduction to COT and NTT reports:

Upon review of the best available science and commercial information, the USFWS concluded in 2010 that the Greater Sage-Grouse warranted protection under the ESA. Two factors leading to the decision to list the species as “warranted but precluded” were threats to habitat and the inadequacy of existing regulatory mechanisms.

I.b.i. Greater Sage-Grouse National Technical Team (NTT). A Report on National Greater Sage-Grouse Conservation Measures. December 2011. [https://eplanning.blm.gov/epl-front-office/projects/lup/9153/39961/41912/WySG\\_Tech-Team-Report-Conservation-Measure\\_2011.pdf](https://eplanning.blm.gov/epl-front-office/projects/lup/9153/39961/41912/WySG_Tech-Team-Report-Conservation-Measure_2011.pdf) In 2011, in response to the USFWS 2010 warranted but precluded finding, the BLM initiated a land use planning process and assembled a National Technical Team (NTT) made up of state and federal Greater Sage-Grouse experts to review all of the best available science on Greater Sage-Grouse and habitat impacts and make recommendations for conservation measures that should apply inside Priority Habitats. The report describes the scientific basis for the conservation measures proposed within each BLM program area.

Among the key recommendations of the National Technical Team’s final report (NTT 2011) were recommendations to: (1) close Priority Habitats to future mining claims and leasing for oil, gas, and coal; (2) apply four-mile NSO buffers around Greater Sage-Grouse leks for existing oil and gas leases; and (3) cap cumulative habitat disturbance at 3% of the landscape and one industrial site per square-mile.

I.b.ii. Conservation Objectives Team (COT). Greater Sage-Grouse Final Report. February 2013. <https://www.fws.gov/greatersagegrouse/documents/COT-Report-with-Dear-Interested-Reader-Letter.pdf>

In 2012, at the request of the Greater Sage-Grouse Task Force, a group of state and federal representatives (Conservation Objectives Team (COT)) produced a report that identified the most significant areas for Greater Sage-Grouse conservation (Priority Areas for Conservation (PACs)), the principal threats within those areas, and the degree to which such threats need to be reduced or ameliorated to conserve the Greater Sage-Grouse so that it would not be in danger of extinction or likely to become so in the foreseeable future.

#### I.c. How COT and NTT were considered in 2015 and 2019 LUP decisions:

2015: As directed in the BLM Washington Office IM 2012-044, the conservation measures developed by the National Technical Team were to be considered and analyzed, as appropriate, through the land use planning and NEPA processes by all BLM state and field offices that contain occupied Greater Sage-

Grouse habitat. IM 2012-144 <https://www.blm.gov/policy/im-2012-044> also directed the BLM to refine the Preliminary Priority Habitat and Preliminary General Habitat data through the land use planning process. The 2013 Draft Greater Sage-Grouse RMP amendments and revisions/Draft EISs contained one alternative based on the conservation measures developed by the National Technical Team and evaluated through the 2012-2015 planning process.

2019: The BLM considered the entire range of alternatives from the 2015 Final EIS to identify issues meriting reconsideration, given the BLM's goal of enhancing alignment with state plans. In this manner, the BLM will continue to appropriately manage Greater Sage-Grouse and its habitat through this planning effort in tandem with the 2015 ROD/ARMPA.

I.d. How/which parts of NTT were implemented:

The 2015 Proposed LUPA incorporated management based on the National Technical Team recommendations.

2 USGS 2018 Annotated Bibliography: Research on Greater Sage-Grouse since 2015

2.a. Description:

In June 2017, Secretarial Order 3353 Greater Sage-Grouse Conservation and Cooperation with Western States established a team to review the federal land management agencies' Greater Sage-Grouse Plan Amendments or Revisions completed on or before September 2015.

[https://www.doi.gov/sites/doi.gov/files/uploads/so\\_3353.pdf](https://www.doi.gov/sites/doi.gov/files/uploads/so_3353.pdf)

In 2018, additional constraints on land uses or development without a documented need would not meet the purpose of SO 3353. The BLM did not discover new information that would indicate the agency should increase the level of conservation, management, and protection to achieve its land use plan objective. As part of the consideration of whether to amend the 2015 Greater Sage-Grouse RMPs, the BLM requested the USGS to develop an annotated bibliography of Greater Sage-Grouse science published since January 2015 (Carter et al. 2018; see Section 3.1). In addition, SO 3353 directs the BLM to promote habitat conservation, while contributing to economic growth and energy independence. As analyzed in the 2015 Final EIS, all of the previously analyzed alternatives, including one proposing constraints stricter than the current management plan, were predicted to result in a loss of development opportunities on public lands.

2.b. How USGS Bibliography was considered in 2018

As part of the consideration of whether to amend some, all, or none of the 2015 Greater Sage-Grouse land use plans, the BLM requested the USGS to develop an annotated bibliography of Greater Sage-Grouse science published since January 2015 (Carter et al. 2018) and a report that synthesizes and outlines the potential management implications of this new science (Hanser et al. 2018).

## **HOW THE 2019 ARMPA CHANGES AFFECT ALIGNMENT WITH USFWS CONSERVATION OBJECTIVES TEAM OBJECTIVES**

This appendix includes a description of the 2013 USFWS Conservation Objectives Team (COT) Report, including how the 2013 Draft EIS and 2015 Final EIS included sections that documented how the report's objectives were all addressed in the considered range of alternatives. The October 2, 2015 USFWS determination that not listing Greater Sage-Grouse as threatened or endangered was partially based on the 2015 ARMPAs incorporating management that reduced or minimized threats. This section summarizes how the 2019 ARMPA affects alignment of the BLM Wyoming's plan with the COT Report

objectives and the COT Report's goal of "long-term conservation of sage-grouse and healthy sagebrush shrub and native perennial grass and forb communities by maintaining viable, connected, and well-distributed populations and habitats across their range, through threat amelioration, conservation of key habitats, and restoration activities" (COT Report, page 13).

#### **Issue: Modifying Habitat Management Area Boundaries**

The COT Report clearly anticipates updating boundaries with the objective that "PAC boundaries should be adjusted based on new information regarding habitat suitability and refined mapping techniques, new genetic connectivity information, and new or updated information on seasonal range delineation" (COT Report, page 37). Language was already in the 2015 ARMPA addressing such adjustments. The 2019 ARMPA added additional detail to clarify PHMA boundary adjustments through issuance of a new Wyoming Governor's Executive Order revising or amending the boundaries and upon completion of appropriate NEPA analysis and process, prior to adopting any revised boundaries. Additional detail on this is included in the 2018 Final EIS, Section 1.6.1 and in ARMPA: MD GMD-28; BFO: MD SS WL-4035; CyFO: MD 4156, LFO: MD 4133; and WFO: MD 4151. This clarification in the 2019 ARMPA is consistent with the COT objectives.

#### **Issue: Sagebrush Focal Area Designations/Withdrawal Recommendation**

Removal of the SFAs does not affect meeting the COT objectives. SFAs are not identified as required to meet any specific COT objective, and are not mentioned in the COT Report. The 2019 ARMPA still manages all the PHMA inside the former SFAs as PHMA, with the associated goals, objectives, and protective management. Removing the SFA recommendation for withdrawal from locatable mineral entry would not result in changes to impacts in PHMA as any such development would occur within the framework of PHMA management, and therefore would not result in any threat to Greater Sage-Grouse populations from mining in the Wyoming SFA (see 2016 Draft EIS). Further, prioritizing grazing permit renewals and vegetation treatments within SFAs over all other PHMA (or non- Greater Sage-Grouse habitat within designated PHMA as specified in the 2015 RODs/ARMPA) could have re-directed limited staff time and funding to areas that already provide functioning Greater Sage-Grouse habitat characteristics and away from areas that may have substantial resource concerns, actually resulting in the increased potential for decreased habitat quality and quantity.

#### **Issue: Managing Noise Standards Outside PHMA**

Noise restrictions inside the PHMAs would be retained and, thus, upholding the COT conservation goal of conserving key habitats. The change aligns with the Wyoming Sage-Grouse Core Area Protection Executive Order (now 2019-3), clearly outlined in the COT Report (pgs. 11-12) as "constituting substantial regulatory mechanisms that contribute to the conservation of sage-grouse" and "demonstrating the potential for successfully ameliorating the primary threats to sage-grouse and their habitat through the development and implementation of sufficient regulatory mechanisms."

The 2019 ARMPA Noise Standards are consistent with the COT goals for key habitat conservation.

#### **Issue: Modifying Habitat Objectives**

The COT Report includes general descriptions of Greater Sage-Grouse seasonal habitat needs. It cites several references where various habitat characteristics (vegetation type, density, height, etc.) are detailed. However, the COT chose not to prescribe or recommend a range-wide standard of metrics for habitat characteristics in the COT Report. Instead, the COT objectives are more general,

recommending that habitats be managed “in a manner consistent with local ecological conditions that maintains or restores healthy sagebrush shrub and native perennial grass and forb communities and conserves the essential habitat components for sage-grouse (e.g. shrub cover, nesting cover)” (COT Report, page 45 emphasis added).

Consistent with this approach, the 2019 ARMPA makes changes to intent and to the specific habitat objective values (percent cover, height, composition, etc.) based on ESD site potential or best available science in consideration of local variability to Greater Sage-Grouse use of habitats throughout Wyoming. These changes are precisely aligned with the COT objective to manage habitats “consistent with local ecological conditions” (COT Report, page 45), as well as modifying the specificity of habitat objectives “as dictated by new findings” (COT Report, page ii).

The 2019 ARMPA Habitat Objectives are in alignment with the COT objectives for habitat.

### **Issue: Livestock Management Permit Renewals, Existing Range Improvement Structures and Riparian Area Management**

The COT Report includes a table that characterizes threats to Greater Sage-Grouse by population. One of the threats assessed included grazing. For three of the four Wyoming populations assessed, threats from grazing were identified as “present and widespread” while the fourth (Jackson Hole) was identified as “not known to be present.” (see COT Report, Table 2, pages 16 through 29).

The COT Report objective for livestock grazing in general is to “conduct grazing management...in a manner consistent with local ecological conditions that maintains or restores healthy sagebrush shrub and native perennial grass and forb communities and conserves the essential habitat components for sage-grouse (e.g. shrub cover, nesting cover)” (COT Report, page 45). It goes on to note that “areas which do not currently meet this standard should be managed to restore these components.” There are also objectives for range management structures (“avoid or reduce the impact of range management structures on sage-grouse”), and fences (“Minimize the impact of fences on sage-grouse populations”). The 2019 ARMPA livestock grazing management aligns with these objectives.

The 2019 ARMPA specifically addresses how to manage grazing in areas that do not currently meet the vegetation objectives. Wyoming ARMPA MD LG 4, BFO MD-6017, CYFO: MD-6130, and WFO: MD-6202 directs that “within PHMA, if monitoring data show that wildlife special status species standard has not been meeting nor progress being made toward meeting that standard, there would be an evaluation and a determination made as to the cause. If it is determined that the current authorized livestock use is a significant causal factor in failing to achieve the wildlife /special status species standard, the BLM will address achievement or progress toward achieving the LHSs and, if needed, Greater Sage-Grouse habitat maintenance or improvement..”

The 2019 ARMPA includes management that addresses the COT objectives regarding range improvements and fences. MA-LG-10 requires that existing and new water developments would continue to be evaluated and modified when necessary. As stated in the 2019 ARMPA, “maintenance of existing improvement would help disperse use and reduce localized impacts and evaluation of existing range improvements would likely prevent vegetation from degradation and would result in benefits to habitat and to Greater Sage-grouse.” Additionally, MD LG-10 requires, “in PHMA, for riparian and/or wet meadow communities utilized by Greater Sage-Grouse, livestock grazing” to “be managed to

promote the production and availability of beneficial grasses and forbs for use during brood-rearing, while maintaining upland conditions and functions.” This management would allow for achievement of an abundance of beneficial grasses and forbs within riparian areas and would benefit Greater Sage-grouse during brood-rearing.

The 2019 ARMPA livestock grazing objectives and management actions are consistent with the COT report.

#### **Issue: Modifying Adaptive Management Strategies**

The COT Report recommends developing and implementing a monitoring plan to track the success of conservation plans. It notes that “without this information... there is no capacity to adapt if current management actions are determined to be ineffective” (ibid). The COT Report suggested development and implementation of adaptive management actions “if the monitoring determines that current management actions are ineffective” (COT Report page 35). However, the COT Report did not identify any specific criteria to monitor or recommend any management responses.

Consistent with COT recommendations, the 2015 ARMPA included an adaptive management approach complete with specific triggers and responses (see 2015 ARMPA MD SSS-13, BFO SS WL-4010, CyFO MD-4116, and WFO MD-4115 and Appendix C). The 2019 ARMPA carried this strategy forward with a few adjustments based on lessons-learned from implementing the strategy. The 2015 ARMPA requires a response, broadly applying suggested management changes before determining if those changes even related to the cause of the declines. The 2019 ARMPA provides for returning the adaptively changed management to that of the original 2019 ARMPA once the identified causal factor is resolved. This provides for returning management priorities if the affected population recovers, allowing for staff and budget priorities to again be evaluated based on needs of similarly properly functioning habitat and populations statewide. Absent this change, any population that exceeds an adaptive management trigger would forever remain in a prioritized state until a plan amendment is completed, even if the population recovers and is functioning consistent with normal population cycles.

This change in the 2019 ARMPA is consistent with the COT Report's language of adjusting management in direct response to collection and evaluation of monitoring data.

#### **Issue: Prioritization of Fluid Mineral Leasing**

The COT appropriately recognizes that energy “development results in sage-grouse population declines.” The specific effects of energy development on Greater Sage-Grouse and its habitat are analyzed in detail in the 2015 Final EIS (see pages 4-16 through 4-29), which was incorporated into the analysis of the 2018 Final EIS. The COT objective is that “energy development should be designed to ensure that it will not impinge upon stable or increasing sage-grouse population trends” (COT Report, page 43). One of the suggested conservation measures states plans should “identify areas where leasing is not acceptable, or not acceptable without stipulations for surface occupancy that maintains sage-grouse habitats” (COT Report, page 43). Both the 2015 ARMPA and the 2019 ARMPA align with this objective by requiring a CSU stipulation on all PHMA.

Additionally, the analysis in the 2015 Final EIS Chapter 4, incorporated into the 2018 Final EIS by reference, shows that prioritization objective can be eliminated while still maintaining sufficient protections for the Greater Sage-Grouse. Further analysis included in the 2018 Final EIS correctly points

out that prioritization is not the same as a closure, and at best would merely temporarily defer a parcel in PHMA from leasing to a later date. The mineral leasing prioritization objective provides no certain or durable protection to PHMA, while the CSU lease stipulation does, which is more consistent with BLM policy.

The removal of the lease prioritization objective does not remove a stipulated protection, and it also increases alignment with BLM policy, increases conformance with state and local plans, and does not change the alignment of the 2019 ARMPA with the COT objective.

The 2019 ARMPA is consistent with the COT report.



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# Appendix F

Responses to Substantive Public Comments  
on the 2020 Draft Supplemental EIS



# Appendix F. Responses to Substantive Public Comments on the 2020 Draft Supplemental EIS

## INTRODUCTION

The Notice of Availability (NOA) for the Wyoming Draft Supplemental Environmental Impact Statement (DSEIS) was published in the *Federal Register* on February 21, 2020 (85 Federal Register 10183, February 21, 2020), followed by a 90-day public comment period ending on May 21, 2020.

The Bureau of Land Management (BLM) received comments primarily through the online comment form that was provided on the project website<sup>1</sup>. The BLM recognizes that commenters invested considerable time and effort to submit comments on the DSEIS; as such, the BLM developed a comment analysis method to ensure that all comments were considered, as directed by National Environmental Policy Act (NEPA) regulations.

The BLM developed a systematic process for responding to comments to ensure all comments were tracked and considered. On receipt, each comment letter was assigned an identification number and logged into a tracking database that allowed the BLM to organize, categorize, and summarize comments. Comments were coded by appropriate categories based on content of the comment.

Comments similar to each other were grouped under a topic heading. The BLM then drafted a statement summarizing the issues contained in each group of comments. Responses to all substantive comments submitted on the DSEIS will be provided in the Final Supplemental Environmental Impact Statement (FSEIS) in accordance with 40 CFR 1503.4 – Response to Comments<sup>2</sup>.

Across all six Draft SEISs that were published on February 21, 2020, a total of 125,840 submissions were received; 222 of these were considered unique submissions. Some of the comments received throughout the public comment period expressed personal opinions or preferences, had little relevance to the adequacy or accuracy of the DSEIS, or represented commentary on resource management that is outside the scope of this planning process. These commenters did not provide specific information to assist the planning team in making a change to the DSEIS, did not suggest other alternatives, and did not take issue with methods used in the DSEIS; these comments are not addressed further in this comment summary report. Copies of all substantive comment letter submissions are available upon request.

Several organizations and groups held standardized letter campaigns to submit comments during the public comment period for the DSEIS. Through this process, their constituents were able to submit the standard letter or a modified version of the letter indicating support for the group's position on the DSEIS. Individuals who submitted a modified standard letter generally added new comments or

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<sup>1</sup> <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=renderDefaultPlanOrProjectSite&projectId=105596&dctmId=0b0003e88110d407>

<sup>2</sup> <https://www.govinfo.gov/content/pkg/CFR-2012-title40-vol34/pdf/CFR-2012-title40-vol34-sec1503-4.pdf>

information to the letter or edited it to reflect their main concerns. The BLM received 125,840 campaign letters from two separate organizations, most of which were identical to the master letter.

The BLM read, analyzed, and considered all comments of a personal or philosophical nature and all opinions, feelings, and preferences for one element or one alternative over another. Because such comments were not substantive, the BLM is not responding to them. It is also important to note that, while the BLM reviewed and considered all comments, none were counted as votes. The NEPA public comment period is neither an election nor does it result in a representative sampling of the population. Therefore, public comments are not appropriate to be used as a democratic decision-making tool or as a scientific sampling mechanism.

The BLM received substantive comments regarding best available science and information considered while preparing the DSEIS. These included peer reviewed articles, references, and requests for new studies. The BLM will review the full text citations outlined in these comments and will consider information presented when determining if plan modifications are necessary.

## **SUMMARIES OF ISSUE TOPICS**

This appendix is split up into four sections: Rangewide Comment Responses; Wyoming-Specific Comment Responses; Rangewide Comments; and Wyoming-Specific Comments. The Rangewide Comment Responses section contains a summary of comments received that apply mostly rangewide. The BLM recognizes that not all of these comments apply to all states, but they do apply across multiple states. This section also contains a response to the summaries of comments. The Wyoming-Specific Comment Responses section contains a summary of comments received specific to Wyoming and responses to those comments. The full text of parsed comments received both rangewide and Wyoming-specific can be found in the respective sections.

## **F.1 RANGEWIDE SUMMARY OF PUBLIC COMMENTS AND RESPONSES**

### **F.1.1 Rangewide**

**Summary:** Commenters felt that the DSEIS is lacking in that there is no assessment of broad-scale applicability of these plans to meet the management goals BLM has established.

**Response:** Each BLM State Office is undergoing a 5-year monitoring reporting process regarding the progress of implementing Greater Sage-Grouse management. Based on the 2015 EIS monitoring plans, the BLM is producing a National Greater Sage-Grouse 5-Year Implementation Monitoring Report that it will submit to WAFWA for its Greater Sage-Grouse 2020 Conservation Assessment. The WAFWA-led team will review multiple reports from state and federal agencies, including BLM's Monitoring Report, to assess the implementation of the conservation commitments that resulted in the not warranted determination in 2015. The WAFWA team will review the Conservation Efforts Database as well. These additional steps are an assessment of the broad-scale applicability of the plans over a subregion.

### **F.1.2 Purpose and Need**

**Summary:** Commenters asserted that the purpose and need in the DSEIS should reflect the need to address the new circumstances, science, and environmental concerns of the proposed action in the 2018 FEIS allowing for informed decision-making.

**Response:** The purpose and need was defined specifically to address a preliminary injunction order by the US District Court, which preliminarily found that the 2018 EISs likely needed to be supplemented to address the range of alternatives, a hard look at environmental impacts, cumulative effects analysis, and the BLM's approach to compensatory mitigation. The BLM continues to review new science related to Greater Sage-Grouse, and the plan allows for flexibility to consider new science, based on each state's needs and circumstances.

**Summary:** Commenters noted that the purpose and need in the DSEIS is different from the 2015 EIS and should consider a new range of alternatives.

**Response:** The purpose and need for this SEIS does differ from the 2015 EISs' purpose and need. In the 2018 FEISs, the BLM analyzed the Management Alignment Alternative and the Proposed Plan Amendment, incorporating the full range of alternatives considered in the 2015 EISs. The purpose and need for the SEIS is solely to address the preliminary injunction order by the US District Court, which preliminarily found that the 2018 EISs likely needed to be supplemented to address the range of alternatives, a hard look at environmental impacts, cumulative effects analysis, and the BLM's approach to compensatory mitigation. No new alternatives are needed to satisfy the purpose and need of the SEIS.

### F.1.3 Issues

**Summary:** Commenters requested that the BLM provide additional new analysis in the FSEIS and not just refer to previous analysis.

**Response:** The purpose and need for this SEIS is solely to address the preliminary injunction order by the US District Court, which preliminarily found that the 2018 EISs likely needed to be supplemented to address the range of alternatives, a hard look at environmental impacts, cumulative effects analysis, and the BLM's approach to compensatory mitigation. Only that analysis needed to respond to the purpose and need is included in the SEIS. For example, the cumulative analysis section was updated in the SEIS to account for additional past, present, and reasonably foreseeable projects; there is an updated assessment of habitat and population triggers tripped; and there is an update to the number of acres of habitat treated.

**Summary:** Commenters expressed concern about dismissing the issue of predators from detailed analysis in the DSEIS.

**Response:** The issue was not carried forward for additional analysis in the 2019 planning process because predation was not an issue specifically raised by the Governors for consistency and alignment of the BLM's plans with state Greater Sage-Grouse management plans and policies. As such, there was no need to re-evaluate decisions related to predation from the 2015 plans in the DSEIS. The purpose and need for the SEIS is solely to address the preliminary injunction order by the US District Court, which preliminarily found that the 2018 EISs likely needed to be supplemented to address the range of alternatives, a hard look at environmental impacts, cumulative effects analysis, and the BLM's approach to compensatory mitigation.

**Summary:** Commenters asserted that the FSEIS should analyze the magnitude of predation as a factor in causing the decline in Greater Sage-Grouse populations.

**Response:** Under the approved plans, when population triggers are tripped, the BLM does a causal factor analysis to determine the factors in declining populations in an area, which may include predation. The BLM acknowledges the multitude of factors that potentially contribute to population declines, as reflected in the adaptive management strategy.

#### **F.1.4 Range of Alternatives**

**Summary:** Commenters felt that the DSEIS does not explore the differences in the range of alternatives between the 2015 and 2019 plans, and only analyzes two alternatives: a No Action Alternative and the Management Alignment Alternative. Commenters felt that this is an inadequate range of alternatives.

**Response:** In the 2018 FEISs, the BLM analyzed the Management Alignment Alternative and the Proposed Plan Amendment, while also incorporating the full range of alternatives considered in the 2015 plans. The DSEIS carries this full range of alternatives forward, as described in detail in Section 2.1 of each DSEIS.

#### **F.1.5 New Alternative**

**Summary:** Commenters felt that the BLM should consider a new alternative that withdraws the 2019 ROD and that rejects the 2015 protection measures for Greater Sage-Grouse.

**Response:** Such a proposal would be the No Action Alternative analyzed in the 2015 EISs and part of the full range of alternatives analyzed in the 2018 FEISs.

#### **F.1.6 Alternatives—Other**

##### **F.1.7 Data and Science**

**Summary:** The public submitted studies published since the 2018 USGS synthesis for consideration by the BLM. Additionally, the public submitted reviews of scientific literature for the BLM to consider in the FSEISs.

**Response:** The BLM partnered with USGS in 2018 to review new information since the 2015 RODs. The BLM subsequently incorporated the management implications of that information into the 2018 EISs. The report from USGS is available [here](#) and referenced throughout the SEIS.

The BLM places great import on the best available information, including new scientific studies and government reports that indicate a potential change in BLM's assumptions or conditions related to a land use planning effort. The BLM has to balance reviewing new information with determining what information is relevant to a decision in light of the BLM's purpose and need. Many commenters highlighted information and studies for the BLM to consider, and the BLM has reviewed each source submitted.

Upon review, the BLM found that the most up-to-date Greater Sage-Grouse science and other information has incrementally increased, and built upon, the knowledgebase of Greater Sage-Grouse management evaluated by the BLM most recently in its 2019 land use plan amendments, but does not change the scope or direction of the BLM's management. While the NTT, the COT and this new science and information remain thus consistent with the scope of the 2019 planning decisions, new science does suggest adaptations to management may be warranted at site-specific scales. This is

precisely the approach envisioned by the NTT and COT reports as well as the BLM's decades long planning efforts to address local actions that may affect Greater Sage-Grouse.

The scientists and managers that authored the COT and NTT reports could not have anticipated all the variables that would affect sage grouse into the future when they provided their recommendations. Varying topographic factors, ecological site potential, changes in methodologies, technological advances, variation in vegetation types, and anthropogenic disturbance, to name a few, make it difficult to adequately address all factors that affect sage grouse populations and habitat. Therefore, where appropriate, the BLM will consider this science and information through implementation-level NEPA analysis, consistent with its approved land use plans, policies, and regulatory frameworks.

**Summary:** The DSEIS inadequately addresses best available science on anthropogenic climate change.

**Response:** The BLM has analyzed climate change, including by addressing changes in fire frequency, changes in frequency of drought conditions, and the spread of invasive species. All of these factors can contribute to impacts on Greater Sage-Grouse and its habitat, regardless of the cause. Climate is one factor that affects populations and habitat, but not the only factor.

**Summary:** The DSEIS neglects the advances in technology that reduce the potential disturbance to Greater-Sage Grouse.

**Response:** The 2019 plans sought maximum alignment with state management plans for Greater Sage-Grouse within the BLM's management authority. BLM anticipated advances in technology and built in increased flexibility in implementation through things like exceptions, modifications, and waivers for fluid minerals stipulations. This increased flexibility would allow for oil and gas development in instances where impacts on Greater Sage-Grouse can be reduced to acceptable levels, such as through technology advancement.

**Summary:** The BLM should coordinate and consult with other federal or state agencies that maintain scientific expertise on both sage-grouse and sagebrush habitat to ensure that the conclusions in the FSEIS are scientifically credible.

**Response:** The BLM places great import on the best available information, including scientific studies and government reports that indicate a potential change in our assumptions or conditions related to a land use planning effort. The BLM acknowledges that states have management responsibility for managing Greater Sage-Grouse populations. In managing Greater Sage-Grouse, the BLM works closely with the states to determine population trends, and coordinates with other federal agencies such as USGS, USFWS, and NRCS on interpreting scientific information related to the species. The BLM has to balance reviewing new information with determining what information is relevant to a decision in light of the BLM's purpose and need. The BLM will continue to coordinate and, as applicable, consult with its partners on Greater Sage-Grouse management.

**Summary:** A commenter suggests that the need to address and correct the scientific flaws that originated in the 2015 plans and were carried forward to the 2019 plans has become even more urgent. The 2015 plans ignored the full spectrum of on-point, more recent science currently available, and instead relied upon biased and outdated science. BLM should consider usage of a stage-based population dynamic model. The reports erroneously ignore accurate population data and adopt methodologically

flawed modeling approaches that have consistently failed to accurately predict populations. The reports ignore natural population fluctuations and land use plans must consider large-scale climatic fluctuations and Greater Sage-Grouse population responses.

**Response:** The BLM partnered with USGS in 2018 to review new information since the 2015 RODs and the BLM subsequently incorporated the management implications of that information into the 2018 EISs. The report from USGS is available [here](#) and referenced throughout the SEIS.

The BLM places great import on the best available information, including new scientific studies and government reports that indicate a potential change in our assumptions or conditions related to a land use planning effort. The BLM has to balance reviewing new information with determining what information is relevant to a decision in light of the BLM's purpose and need. Many commenters highlighted information and studies for the BLM to consider, and the BLM has reviewed each source submitted. The BLM will continue to consider new science at the project phase of plan implementation as standard practice, as new science is constantly being published. Amending the plans to incorporate new science is not necessary because authorized officers use best available information to inform their decisions during plan implementation.

The Purpose and Need statement for the 2019 plans included a goal of aligning the BLM's management of Greater Sage-Grouse habitat with state plans. There were several instances during the 2019 planning process where states brought new science to BLM's attention that was used to formulate the Management Alignment Alternative. For example, the BLM incorporated new science on residual grass height, habitat mapping, and effects of oil and gas drilling.

**Summary:** Declining Greater Sage-Grouse populations in recent years should be considered in the analysis.

**Response:** Population declines are tracked in the land use plan through the adaptive management strategy. The trigger sensitivity accounts for the cyclical nature of Greater Sage-Grouse population levels. The SEISs address population declines through the disclosure of tripped triggers in Chapter 3 of each state's SEIS. The BLM acknowledges that states have management responsibility for managing Greater Sage-Grouse populations. In managing Greater Sage-Grouse, the BLM works closely with the states to determine population trends, and coordinates with other federal agencies such as USGS, USFWS, and NRCS on interpreting scientific information related to the species. There is a fresh look each year when the BLM receives the annual population data from the states, which, taken with the habitat data collected annually by the BLM, informs any adaptive management needed. If the data indicate that a trigger has been tripped, the BLM works with state and local partners to determine the causal factors and propose management changes.

In areas where triggers have been tripped, as disclosed in Chapter 3 of each state's SEIS, adaptive management has been implemented to prevent new disturbance that would impact Greater Sage-Grouse habitat on BLM-administered lands. The adaptive management framework was set up so that the BLM could respond to population and habitat dynamics without a plan amendment.

**Summary:** BLM should clarify the shortcomings of the NTT and COT reports.



**Response:** This was clarified in an appendix to each of the DSEISs titled *Review of the NTT and COT Report's Relevance to the Planning Process; Incorporation of the NTT, COT, and USGS Summary of Science into the [Subregion] Planning Process*.

#### **F.1.8 Direct/Indirect Impacts**

**Summary:** The BLM should include robust assessments of Greater Sage-Grouse population-level response to direct, indirect, and cumulative impacts associated with the alternatives.

**Response:** The SEISs address population declines through the disclosure of tripped triggers in Chapter 3 of each state's SEIS. In areas where triggers have been tripped, adaptive management has been implemented to prevent new disturbance that would impact Greater Sage-Grouse habitat on BLM-administered lands. The adaptive management framework was set up so that the BLM could respond to population and habitat dynamics without a plan amendment.

#### **F.1.9 Assumptions and Methodology**

**Summary:** Commenter argues that the proposed changes to the 2015 plan contradict scientific recommendations for conserving Greater Sage-Grouse, and the supplemental environmental impact statement fails to analyze and acknowledge the negative impacts that will result from the agency's proposed change in management direction.

**Response:** No changes were proposed in the 2020 SEISs.

#### **F.1.10 Cumulative Impacts**

**Summary:** The CEA failed to account for a number of relevant activities.

**Response:** The BLM has updated the past, present, and reasonably foreseeable actions as needed to reflect all current projects in the FSEIS.

**Summary:** The BLM should clarify in the FSEIS whether the cumulative effects analysis was done at the rangewide level organized by the WAFWA management zones.

**Response:** The BLM considered cumulative impacts on a rangewide basis, organizing that analysis at the geographic scale of each WAFWA management zone.

#### **F.1.11 Adaptive Management**

**Summary:** Flexibility should be added to adjustments in "Land Tenure," to "Rights-of-Way," and to "Travel Management" relative to site conditions in any FSEIS and plan amendments.

**Response:** The 2019 plans sought maximum alignment with state management plans for Greater Sage-Grouse within the BLM's management authority. Where such flexibility was needed to align with state plans, it was included in the 2019 Approved Plans. Additional flexibility or changes to decisions from the 2019 Approved Plans is outside the scope of these SEISs.

**Summary:** BLM should explain how ARMPA's adaptive management will work without monitoring the plan.

**Response:** BLM's ARMPA adaptive management strategy is based on population data from the states and habitat data collected by the BLM. These data are evaluated annually to determine the need for adaptive management changes as a result of tripped triggers. In addition, the BLM's 5-year monitoring report (completed in 2020) will be used in the WAFWA Greater Sage-Grouse 2020 Conservation Assessment.

#### **F.1.12 Burial of Transmission Lines**

**Summary:** The public submitted studies for consideration by the BLM regarding mitigation to transmission lines.

**Response:** Mitigation measures will be considered during project design and implementation and will be based on best available science and site-specific conditions.

**Summary:** Transmission line projects should not be exempt from abiding by the avoidance areas. All high-voltage related projects should comply with the proposed LUPA conservation measures. Alternative routes for these transmission projects exist, and more can be suggested to avoid interference with PHMA and GHMA. Flexibility in these projects to find a balance in interests is still possible to reap the benefits of energy for human use, while also preventing degradation of Greater Sage-Grouse habitat in PHMA and GHMA.

**Response:** Mitigation measures, including alternative routes, will be considered during project design and implementation and will be based on best available science and site-specific conditions.

#### **F.1.13 Disturbance and Density Caps**

**Summary:** The DSEIS fails to explain why Greater Sage-Grouse in Wyoming are more tolerant of disturbance than other states, or indeed, more tolerant than the best available science demonstrates.

**Response:** Wyoming BLM's 5 percent disturbance cap includes additional disturbance types (e.g., burned areas) not included in the list of disturbance types in other states, where the disturbance cap was set at 3 percent.

#### **F.1.14 Habitat Management Area**

**Summary:** The spatial extent of habitat management areas should not be modified.

**Response:** HMAs reflect habitat that is mapped based on best available information. If BLM and the state find that habitat was not reflected correctly in light of new information, plan maintenance or an amendment can be used to update boundaries to reflect the change in information.

**Summary:** The management prescriptions associated with habitat management areas should not be modified.

**Response:** The purpose of these plan amendments is to increase consistency with state management. In some cases that resulted in changes to management within the HMAs.

**Summary:** Restoration targets for Priority Habitat Management Areas (PHMA) should be developed and incorporated into the plans.

**Response:** While BLM has not developed specific restoration targets, the BLM has committed to significant restoration and recovery actions. The BLM spent considerable time and energy on the development of the FIATs that identify specific areas for specific types of actions and used that as a basis for requesting funding from Congress. Some targets have been developed but are not included in the plans for reasons such as uncertainty of funding to implement the actions to reach the targets.

**Summary:** The DSEIS fails to take a hard look at tripped triggers and fails to provide a full and clear listing of tripped triggers.

**Response:** The SEISs address population declines through the disclosure of tripped triggers in Chapter 3 of each state's SEIS. In areas where triggers have been tripped, adaptive management has been implemented to prevent new disturbance that would impact Greater Sage-Grouse habitat on BLM-administered lands. The adaptive management framework was set up so that the BLM could respond to population and habitat dynamics without a plan amendment.

**Summary:** Commenters state that the 2018 FEIS and DSEIS continue to fail to disclose the basis by which private lands can be considered in a federal land management planning document, and that the BLM has no authority under FLPMA to apply land use plan restrictions on private land. Other commenters request that the BLM apply Greater Sage-Grouse habitat management area definitions to private land.

**Response:** The BLM acknowledges that this planning effort does not apply land use plan restrictions on private land. However, when calculating disturbance either at the project or BSU level, the BLM does consider the cumulative disturbance in the area, which may include private, state, or other federal land. Based on the total disturbance in the area, the BLM has the authority to apply the management prescribed in the plan on BLM-administered lands. Furthermore, during cumulative effects analysis, the BLM considers past, present, and reasonably foreseeable projects on all lands in the impact area, regardless of jurisdiction.

#### **F.1.15 Habitat Objectives**

**Summary:** The BLM has neglected to acknowledge the habitat conditions and trends across Greater-Sage Grouse range in the DSEISs, despite that trends are currently declining.

**Response:** The BLM acknowledged habitat changes for Greater Sage-Grouse when in 2010 it undertook a planning action to provide regulatory certainty for the species. Prior to that effort, the BLM partnered with the WAFWA, state wildlife agencies, and others, to manage habitat for Greater Sage-Grouse. Habitat conditions are assessed using the Habitat Assessment Framework. Habitat availability is tracked according to the Monitoring Framework or by the adaptive management strategy described in each land use plan. The adaptive management strategy is designed to respond to changing habitat conditions when triggers are tripped. The BLM considered cumulative impacts on a rangewide basis, organizing that analysis at the geographic scale of each WAFWA management zone.

**Summary:** The DSEIS inadequately addresses fragmentation within management areas on an individual scale.

**Response:** Fragmentation was addressed during the 2015 planning process. The analysis was incorporated by reference in the 2019 planning process. Additional information regarding habitat fragmentation was not needed to meet the purpose and need of the SEIS.

#### **F.1.16 Lek Buffers**

**Summary:** Lek buffers should be maintained to protect leks.

**Response:** The BLM agrees that lek buffers are one of many important conservation tools available to manage sagebrush habitat and protect Greater Sage-Grouse. The BLM is retaining, and in some instances modifying or clarifying, the application of lek buffers as a management tool.

**Summary:** Lek buffers should be larger than prescribed in the plan amendments.

**Response:** As applicable, each RMPA has an appendix that addresses lek buffers and allows the BLM to adjust lek buffers based on the best available science, which would allow the BLM to adjust the buffers based on new information as well. Further, some states are clarifying the approach in this RMPA effort, or adjusting to better align with their individual state's management. For more specific information, please refer to the individual plans and their associated lek buffer appendix.

**Summary:** The 2011 NTT and 2013 COT report have a substantive number of flaws that need to be revised.

**Response:** The role of the NTT and COT reports is discussed in an appendix to each of the DSEISs titled *Review of the NTT and COT Report's Relevance to the Planning Process; Incorporation of the NTT, COT, and USGS Summary of Science into the [Subregion] Planning Process*. These reports are static reviews of scientific literature. The USGS did an updated review of scientific literature prior to the 2019 planning process. The BLM will continue to take into account best available science for Greater Sage-Grouse management.

**Summary:** Use of lek buffers and associated modifications must be included for analysis in this SEIS, not left for clarification through plan maintenance, because lek buffers were not fully analyzed in the previous EIS nor provided for public review and consideration.

**Response:** Lek buffers were part of the 2015 planning process and the public was provided an opportunity to comment during that process. As part of the 2019 planning process, the intent of lek buffers was clarified for some states, which is a maintenance action. For other states, the lek buffers were modified and the intent was clarified. In both cases, the public was provided an opportunity to comment on the 2018 DEIS and this DSEIS.

#### **F.1.17 Livestock Grazing Management**

**Summary:** Rangeland health assessments do not adequately ensure protection and restoration of sage-grouse habitat. The BLM should include a discussion about how changes to scale and timeframe for rangeland health assessments will impact sage-grouse habitat management and agency land managers to adjust grazing practices when standards are not met.

**Response:** Rangeland health assessments are used to assess whether the rangelands are meeting standards and are not intended to protect or restore Greater Sage-Grouse habitat, although there is a

standard for wildlife/special status species habitat, which would include Greater Sage-Grouse habitat. The analysis of any future changes to the grazing regulations is outside the scope of this analysis and will be disclosed during other decision-making processes.

**Summary:** The DSEIS inadequately addresses the plan for closure of sage-grouse allotments upon receipt of waived or retired grazing permits.

**Response:** As explained in the DSEISs, the 2019 planning process incorporated the full range of alternatives from the 2015 planning process. Therefore, neither the 2019 planning process nor these SEISs expressly address this issue because there was no change proposed to the decision in the 2019 process. However, as the commenter acknowledges, the BLM did consider this within the range of alternatives for Greater Sage-Grouse management.

**Summary:** The DSEIS inadequately addresses the potential impact of livestock grazing on Greater Sage-Grouse habitat.

**Response:** The impacts of livestock grazing were disclosed in the 2015 plans. The 2019 plans did not change decisions that change the impacts previously disclosed, as described in Chapter 1 of the 2018 FEISs. Therefore, it was neither a subject of analysis in 2019 nor one in the SEISs. Furthermore, the purpose and need for the SEISs is solely to address the preliminary injunction order by the US District Court, which preliminarily found that the EISs likely needed to be supplemented to address the range of alternatives, a hard look at environmental impacts, cumulative effects analysis, and the BLM's approach to compensatory mitigation. No new alternatives are needed to satisfy the purpose and need of the SEISs.

#### **F.1.18 Withdrawal Recommendation and SFAs (Sagebrush Focal Areas)**

**Summary:** Sagebrush focal areas (SFAs) should not be removed from the plans. Inconsistency in retention and removal of SFA across states is arbitrary and capricious. BLM is not legally required to remove SFA. Justifications for eliminating SFAs are inadequate.

**Response:** BLM is focused on aligning its management with state management. BLM's goal is to promote consistency and alignment with each state's management for Greater Sage-Grouse. Where BLM has increased its management flexibility, it has done so to improve alignment with the state plans and based on local information. In 2019, the BLM determined that SFA designations provided a redundant layer of resource protection and land use prioritization within PHMA and is acting within its discretion to remove SFA designation. Further, the BLM canceled the proposed withdrawal of SFAs through a publication in the *Federal Register* on October 11, 2017 (82 Fed. Reg. 47,248) after findings in the Sagebrush Focal Area Draft EIS noted that there was broadly low potential for locatable minerals within the recommended withdrawal area.

**Summary:** BLM should remove all reference to SFAs. SFAs are an overreach and unnecessary as priority habitat designations provide adequate habitat protection.

**Response:** SFAs and associated management direction specific to the SFAs were removed through the 2019 plans, except for in Oregon where they retained the SFA designation.

### F.1.19 Mitigation

**Summary:** A mandatory net-gain compensatory mitigation standard is supported by some commenters and objected to by others.

**Response:** Following extensive review of FLPMA, including existing regulations, orders, policies, and guidance, the BLM concluded that FLPMA does not explicitly mandate or authorize the BLM to require public land users to implement compensatory mitigation as a condition of obtaining authorization for the use of the public lands (Instruction Memorandum No. 2018-093, *Compensatory Mitigation*, July 24, 2018). Under FLPMA, the BLM has an obligation to ensure that its actions do not result in “unnecessary or undue degradation.” Preventing unnecessary or undue degradation does not mean preventing all adverse impacts upon the land. The negative inference of the words “unnecessary” and “undue” is that a certain level of impairment may be necessary and due under a multiple use mandate. See *Theodore Roosevelt Conservation Partnership v. Salazar*, 661 F.3d 66, 78 (D.C. Cir. 2011) (“FLPMA prohibits only unnecessary or undue degradation, not all degradation.”) (emphasis in the original); see also BLM, Instructional Memorandum No. 92-67 (Dec. 3, 1991) (“‘Unnecessary and undue degradation’ implies that there is also necessary and due degradation. For example, if there is only one route of access possible for development of an existing oil and gas lease, and that route presents the likelihood of some degradation of public lands or resources, such degradation may be considered necessary for the management of the oil and gas resource. . . . As another example, the RMP/EIS or site-specific environmental document may identify mitigation which would result in excessive expenditures of money or unusual technological requirements to achieve compliance. Otherwise there would be some degree of degradation of public lands or resources. If the mitigation would render the proposed operation uneconomic or technologically infeasible so that a prudent operator would not proceed, such degradation may also be considered necessary for the management of the oil and gas resource.”) (emphasis in the original). Accordingly, FLPMA does not require and implicitly counsels against a net-gain standard, which would be inconsistent with the negative inference of the phrase “unnecessary or undue degradation.” Even if the BLM has authority to use compensatory mitigation, the BLM has – consistent with its multiple-use mission – determined that exercise of that authority to meet a net conservation gain mitigation standard is unwarranted. Moreover, as described in the FEIS, the goal of the RMP amendments to– improve the condition of sage grouse habitat – remains as a planning-level objective for sage grouse conservation.. As a practical matter, it is too speculative to analyze the impacts of the shift back to a “no net loss” standard from a “net-gain” standard at the programmatic level. First, the BLM continues to identify ways to avoid, minimize, and rectify the impact of specific projects at the project-specific level. Second, it is impossible to predict the amount of compensatory mitigation that might voluntarily occur in the future and the environmental consequences of that compensatory mitigation. Therefore, analysis of the environmental impact of compensatory mitigation (or lack thereof) is more appropriate for future project-specific NEPA, where it is possible to assess any project-specific compensatory mitigation that is offered voluntarily or as part of a state approach, including avoidance, minimization, and rectification measures applicable to the specific project and site. The BLM is committed to working with the project proponents and States to ensure that those actions are reasonable, effective, and implemented according to best management practices, to the extent that federal law allows.

**Summary:** Various commenters argued that the “net conservation gain” standard should be retained, modified, or eliminated. Many commenters requested clarification of the BLM’s authority to impose compensatory mitigation.

**Response:** Following extensive review of FLPMA, including existing regulations, orders, policies, and guidance, the BLM concluded that FLPMA does not explicitly mandate or authorize the BLM to require public land users to implement compensatory mitigation as a condition of obtaining authorization for the use of the public lands (Instruction Memorandum No. 2018-093, Compensatory Mitigation, July 24, 2018). Under FLPMA, the BLM has an obligation to ensure that its actions do not result in “unnecessary or undue degradation.” Preventing unnecessary or undue degradation does not mean preventing all adverse impacts upon the land. The negative inference of the words “unnecessary” and “undue” is that a certain level of impairment may be necessary and due under a multiple use mandate. See *Theodore Roosevelt Conservation Partnership v. Salazar*, 661 F.3d 66, 78 (D.C. Cir. 2011) (“FLPMA prohibits only unnecessary or undue degradation, not all degradation.”) (emphasis in the original); see also BLM, Instructional Memorandum No. 92-67 (Dec. 3, 1991) (“‘Unnecessary and undue degradation’ implies that there is also necessary and due degradation. For example, if there is only one route of access possible for development of an existing oil and gas lease, and that route presents the likelihood of some degradation of public lands or resources, such degradation may be considered necessary for the management of the oil and gas resource. . . . As another example, the RMP/EIS or site-specific environmental document may identify mitigation which would result in excessive expenditures of money or unusual technological requirements to achieve compliance. Otherwise there would be some degree of degradation of public lands or resources. If the mitigation would render the proposed operation uneconomic or technologically infeasible so that a prudent operator would not proceed, such degradation may also be considered necessary for the management of the oil and gas resource.”) (emphasis in the original). Accordingly, FLPMA does not require and implicitly counsels against a net-gain standard, which would be inconsistent with the negative inference of the phrase “unnecessary or undue degradation.” Even if the BLM has authority to use compensatory mitigation, the BLM has – consistent with its multiple-use mission – determined that exercise of that authority to meet a net conservation gain mitigation standard is unwarranted. Moreover, as described in the FEIS, the goal of the RMP amendments to– improve the condition of sage grouse habitat – remains as a planning-level objective for sage grouse conservation.. As a practical matter, it is too speculative to analyze the impacts of the shift back to a “no net loss” standard from a “net-gain” standard at the programmatic level. First, the BLM continues to identify ways to avoid, minimize, and rectify the impact of specific projects at the project-specific level. Second, it is impossible to predict the amount of compensatory mitigation that might voluntarily occur in the future and the environmental consequences of that compensatory mitigation. Therefore, analysis of the environmental impact of compensatory mitigation (or lack thereof) is more appropriate for future project-specific NEPA, where it is possible to assess any project-specific compensatory mitigation that is offered voluntarily or as part of a state approach, including avoidance, minimization, and rectification measures applicable to the specific project and site. The BLM is committed to working with the project proponents and States to ensure that those actions are reasonable, effective, and implemented according to best management practices, to the extent that federal law allows.

**Summary:** Various commenters argued that recent changes in mitigation policy and the applicability to sage-grouse warrant additional analysis, public review, or an SEIS.

**Response:** The BLM has prepared this SEIS with the explicit intention of providing commenters and the public at large with an additional opportunity to review and analyze the BLM’s approach to mitigation policy. To wit, the BLM received approximately 70 discreet public comments referencing the BLM’s approach to mitigation and the applicability to Greater Sage-Grouse. These comments build upon and

supplement public input on the 2018 DEISs, which requested comment on implementing mitigation, “including alternative approaches to requiring compensatory mitigation in BLM land use plans.” The 2018 FEISs clarified how voluntary compensatory mitigation should be considered in the management of Greater Sage-Grouse habitat and how BLM will work with each state management agency to implement its compensatory mitigation strategy. This clarification aligned the 2019 ARMPAs with BLM policy and with the scope of compensatory mitigation authority expressly provided by FLPMA. Further, in many cases, the public will have additional opportunity to comment on specific mitigation approaches at the project-specific level.

**Summary:** Many commenters stated the BLM should clarify how it will implement compensatory mitigation.

**Response:** The BLM entered into agreements with the States of Colorado, Idaho, Nevada, Oregon, Utah, and Wyoming to clarify how BLM, project proponents, and state management agencies will collaborate to implement a state’s compensatory mitigation plan. The BLM will defer to a state methodology for habitat quantification if such a tool exists and incorporate the state’s assessment into the appropriate NEPA documentation. The Proposed Plan Amendment clarified that the BLM will consider compensatory mitigation only as a component of compliance with a state mitigation plan, program, or authority, or when offered voluntarily by a project proponent. The Proposed Plan Amendment further clarified the application of the mitigation standard as a planning-level goal and objective for Greater Sage-Grouse habitat conservation. BLM commits to cooperating with the states to analyze applicant-proffered or state-imposed compensatory mitigation to offset residual impacts. BLM may then authorize such actions consistent with NEPA analysis and the governing land use plan.

**Summary:** The BLM should work with the states to recommend compensatory mitigation actions.

**Response:** The BLM follows the memoranda of understanding with the states regarding compensatory mitigation which, as clarified in the 2019 plans, generally states that the states are to recommend compensatory mitigation actions and the BLM is to analyze them in the appropriate NEPA document. Although the states recommend compensatory mitigation, there is close coordination between the BLM and the state wildlife agencies when discussing site conditions and the mitigation hierarchy.

**Summary:** To be effective, mitigation should be required by the BLM and not left to the states.

**Response:** Following extensive review of FLPMA, including existing regulations, orders, policies, and guidance, the BLM has concluded that FLPMA does not explicitly mandate or authorize the BLM to require public land users to implement compensatory mitigation as a condition of obtaining authorization for the use of the public lands (Instruction Memorandum No. 2018-093, *Compensatory Mitigation*, July 24, 2018). However, the BLM is committed to applying and enforcing the mitigation hierarchy of actions to avoid, minimize, and otherwise mitigate impacts to the extent that federal law allows. A principal component of Greater Sage-Grouse management is the implementation of mitigation actions to ameliorate the threats and impacts to Greater Sage-Grouse and its habitats. The 2019 Proposed Plans clarified how voluntary compensatory mitigation should be considered in the management of Greater Sage-Grouse habitat and how BLM will work with each state management agency to implement its compensatory mitigation strategy. Additionally, compensatory mitigation was one of many tools used in the 2015 plans to balance uses of public land. However, the mechanism for implementing compensatory mitigation has changed since the 2015 plans as the BLM clarified its



mitigation policy. Furthermore, since the 2015 plans were implemented, many states have established their own compensatory mitigation programs and increased their own investment in restoring and improving Greater Sage-Grouse habitat. The BLM sought comment on compensatory mitigation again as part of this SEIS.

#### **F.1.20 Modifying Waivers, Exceptions, and Modifications of Fluid Minerals**

**Summary:** The uncertainty with how waivers, exceptions, and modifications will be used introduces uncertainty to protections that are not fully analyzed. Criteria for the use of waivers, exceptions, and modifications should be more narrowly prescribed.

**Response:** Under the 2019 ARMPAs, waivers, exemptions, and modifications would be granted only when meeting specific criteria designed to advance the management goals and objectives in the RMPs. BLM's Approved Plan Amendment balanced the risk of uncertainty against the benefits of management flexibility when considering whether to grant a waiver, exception, or modification. Planning criteria identified for that amendment include consideration of how planning decisions may impact future listing determinations under the Endangered Species Act.

**Summary:** BLM should monitor the use of waivers, exceptions, and modifications.

**Response:** Some BLM State Offices, through the fluid minerals program, track waivers, exceptions, and modifications. The BLM is currently reviewing whether and how to apply these practices at the national level. It should be noted that waivers, exceptions, and modifications would only be authorized upon meeting the criteria in the Approved Plans, which demonstrate that Greater Sage-Grouse and its habitat would not be adversely impacted.

#### **F.1.21 Prioritization of Mineral Leasing**

**Summary:** The BLM does not address the elimination of prioritizing project-level development outside PHMA, which is required under the 2015 ARMPAs but eliminated under the 2018/2020 EISs.

**Response:** The BLM has implemented the plans in conformance with its regulations and policies. IM 2018-026 explicitly states that "BLM does not need to lease and develop outside of Greater Sage-Grouse habitat management areas before considering any leasing and development within Greater Sage-Grouse habitat." Prioritization of oil and gas leasing outside of PHMA and GHMA is included as an objective in the 2015 plans, not an allocation. The 2018 plan continues restrictive stipulations in PHMA and may serve to encourage leasing and development outside of PHMAs but does not represent a prohibition on doing so and is consistent with IM 2018-026. The BLM will continue to work with states in determining appropriate prioritization of leasing outside of PHMA.

#### **F.1.22 Greater Sage-Grouse**

**Summary:** Regulatory changes and regulatory uncertainty increase the likelihood of listing of the species under the Endangered Species Act. The impacts analysis is deficient. Protections afforded by the plans are not sufficient to prevent listing of the species.

**Response:** The BLM's 2018 proposed plans balance the risk of uncertainty against the benefits of management flexibility and alignment when considering changes to the 2015 plans. Planning criteria

identified for the 2019 amendments include consideration of how planning decisions may impact future listing determinations under the Endangered Species Act.

**Summary:** The FSEIS needs to evaluate current population status and trends and disclose how the various alternatives would impact future population trends, which directly affect the risk that Greater Sage-Grouse may face “potential listing” under the Endangered Species Act.

**Response:** Population declines are tracked in the land use plan through the adaptive management strategy. The trigger sensitivity accounts for the cyclical nature of Greater Sage-Grouse population levels. The SEISs address population declines through the disclosure of tripped triggers in Chapter 3 of each state’s SEIS. The BLM acknowledges that states have management responsibility for managing Greater Sage-Grouse populations. In managing Greater Sage-Grouse, the BLM works closely with the states to determine population trends, and coordinates with other federal agencies such as USGS, USFWS, and NRCS on interpreting scientific information related to the species. There is a fresh look each year when the BLM receives the annual population data from the states, which, taken with the habitat data collected annually by the BLM, informs any adaptive management needed. If the data indicate that a trigger is tripped, the BLM works with state and local partners to determine the causal factors and propose management changes.

In areas where triggers have been tripped, as disclosed in Chapter 3 of each state’s SEIS, adaptive management has been implemented to prevent new disturbance that would impact Greater Sage-Grouse habitat on BLM-administered lands. The adaptive management framework was set up so that the BLM could respond to population and habitat dynamics without a plan amendment.

Because part of the purpose for the 2015 plans was to provide for regulatory certainty with respect to Greater Sage-Grouse management and prevent the listing of the species, analysis of the alternatives considered in 2015 inherently included a risk assessment regarding the potential for listing. One of the alternatives considered in each of the plans in 2015 was the state management plans. In the 2019 planning process, the BLM again evaluated the state management plans as the management alignment alternatives and agreed-upon changes as the proposed plan amendments. Many factors outside of the BLM’s authority contribute to population fluctuations; therefore, BLM management cannot be directly linked to predicting future population trends.

Additionally, while planning criteria identified for the 2019 amendments included consideration of how planning decisions may impact future listing determinations under the Endangered Species Act, it is not within the BLM’s authority to determine whether certain actions would be sufficient to avoid listing. NEPA does not require the BLM to disclose whether the proposed changes provide regulatory certainty to support a determination that is within the jurisdiction of the USFWS. The BLM has disclosed the impacts of the changes in management regarding mitigation.

### **F.1.23 Non-Greater Sage-Grouse**

**Summary:** There is a lack of information in the DSEIS regarding the environmental baseline and information needs to be updated.

**Response:** The BLM acknowledged that there have been changes to the landscape since 2015; however, due to the scale of the analysis in the 2019 planning process, data collected consistently across the range indicate that the extent of these changes to the landscape are relatively minimal. For example,

BLM monitoring data collected and analyzed annually at the BSU scale, as outlined in the Greater Sage-Grouse Monitoring Framework, indicate that there has been a minimal overall increase in estimated disturbance within PHMA. Moreover, there has been an overall minimal decrease in sagebrush availability in PHMA within BSUs. Based on available information, including the USGS reports, the BLM concluded that the existing condition was not substantially different from that which existed in 2015; therefore, the data and information presented in the 2015 FEISs were incorporated by reference into the 2018 RMPAs/EISs. Where notable changes to the baseline condition changed, a discussion was included.

#### **F.I.24 Fluid Minerals**

**Summary:** The BLM does not disclose acreage of oil and gas leasing activities rangewide and must correct this.

**Response:** Existing oil and gas leases form the affected environment. To the extent detail is needed to support analysis, information has been disclosed through the 2015 and 2019 planning processes. The BLM continues to offer oil and gas leases in conformance with the Greater Sage-Grouse management plans.

#### **F.I.25 Fire and Fuels**

**Summary:** Many commenters requested use of managed livestock grazing as a means of reducing fuel loads and affirmed that restricting grazing will increase vegetative fuel loads and increase wildfires.

**Response:** Restricting livestock grazing (specific to identifying areas as unavailable to livestock grazing) is not analyzed or incorporated in the RMPA. In addition, use of managed livestock grazing as a means of reducing fuel loads (targeted grazing) is a tool that BLM can implement and would not be prevented based on the provisions in any of the alternatives analyzed in this planning effort.

**Summary:** The BLM needs to address the threat of invasive plant species as well as sagebrush and other shrub encroachment in fire management considerations. Outcome-based grazing practices could be a tool to control these species.

**Response:** Management prescriptions associated with reducing invasive species were analyzed and discussed in the 2015 FEIS and were incorporated by reference in the 2018 EIS. Outcome-based grazing is a tool that can be implemented where appropriate and is authorized through 43 CFR 4120.2 of the livestock grazing regulations during permit renewal.

#### **F.I.26 Vegetation**

**Summary:** The BLM did not disclose the effectiveness of treatments in recent years for Greater Sage-Grouse habitat enhancement.

**Response:** A NEPA analysis of BLM-proposed vegetation treatments is performed at the local level, and post-treatment monitoring is conducted at that level. Treatments are expected to be successful when fully implemented as described in the project NEPA. No national repository of effectiveness of treatments exists. Projects are designed at the field level based on current conditions, past success, recent literature, and the purpose and need for the proposal.

**Summary:** Commenters caution that juniper-removal projects in Greater Sage-Grouse habitat may result in expansion of cheatgrass. Activities should be limited that cause soil disturbance (grazing, drilling, etc.) in order to prevent the spread of invasive species.

**Response:** The 2015 plans include RFDs to prevent the spread of invasive species. It is also common practice to implement such measures during project design and implementation.

#### **F.1.27 Guidance and Policy**

**Summary:** As cooperating agencies, the Counties should be involved throughout the NEPA process, including the preparation of this SEIS. BLM should thoroughly consider these plans and alternatives and coordinate with the Counties on the final land use plans.

**Response:** The BLM values its coordination with local jurisdictions as it does other federal and state agencies. The BLM relied on the special expertise of these entities as cooperating agencies during the 2015 and 2019 planning processes. The SEISs were undertaken solely to respond to the preliminary injunction order. No new decisions are required to be made. Instead, BLM clarified and updated its existing NEPA analysis, highlighting the issues raised in Judge Winnill's order. Although many agencies have special expertise related to Greater Sage-Grouse management, such expertise was not necessary to comply with the purpose and need for these SEISs.

#### **F.1.28 Statutes and Regulations**

**Summary:** The BLM inappropriately tiered to a document of equal scope. The BLM failed to summarize and relate applicability of material incorporated by reference to the new plans.

**Response:** BLM is using incorporation by reference to streamline its analysis consistent with administrative priorities. Incorporation of the 2015 EIS by reference is allowable under BLM regulations and is appropriate in this circumstance because the purpose of this action builds upon the goals and objectives of the 2015 EIS. Further, the CEQ 40 Questions, Question 24c, states that, "Tiering is a procedure which allows an agency to avoid duplication of paperwork through the incorporation by reference of the general discussions and relevant specific discussions from an environmental impact statement of broader scope into one of lesser scope or vice versa." The BLM summarized and referenced applicable aspects of the 2015 EIS throughout the 2018 EIS, but especially in Chapters 2 and 4.

**Summary:** The BLM has failed to consult with USFWS about the impacts of the proposed plan.

**Response:** The BLM coordinated with USFWS in 2018 regarding the changes in the Proposed Plan Amendments to determine if there would be different effects from those referenced in the Biological Opinions. All states received concurrence letters from USFWS that, while the 2019 plans constituted a change to the 2015 plans, the effects described in the 2019 plans were consistent with those analyzed during 2015 consultation efforts and did not consider re-initiation of Endangered Species Act Section 7 consultation necessary. Because no new decisions are being considered in the SEISs, consultation as part of this effort is not necessary.

## **F.2 WYOMING-SPECIFIC SUMMARY OF PUBLIC COMMENTS AND RESPONSES**

### **F.2.1 Purpose and need**

**Summary:** Commenters felt that the BLM is overstepping management responsibilities by managing a non-listed ESA species.

**Response:** The BLM has management responsibilities for special status species. The objectives of the BLM special status species policy are:

A. To conserve and/or recover ESA-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species.

B. To initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA<sup>3</sup>.

### **F.2.2 Issues**

**Summary:** Commenters recommended that the BLM completed a workforce capacity and workload analysis as part of the NEPA process. Commenter doubted that the BLM has the capacity to accomplish the goals set forth in the plan. Commenters recommended that the BLM partner with outside agencies to implement the strategies outlined in the DSEIS in a reasonable timeframe and effective scale.

**Response:** The BLM does not base management decisions on budget or workforce capacity. The BLM must assume that it will be capable of carrying out the proposed decisions and be able to implement the plans. Otherwise, there would be no planning effort. To date, the BLM has treated 1,505,326 acres; 1,159,247 of those acres since 2015. Further, specific Congressional appropriations have provided the funds allowing the BLM to treat more acres every fiscal year, highlighting both Congressional and the BLM's commitment to Greater Sage-Grouse conservation. The BLM is committed to the continued implementation of Greater Sage-Grouse habitat and sagebrush steppe management.

### **F.2.3 Livestock Grazing**

**Summary:** Commenters felt that livestock grazing is compatible with Greater Sage-Grouse conservation and can have a positive impact on Greater Sage-Grouse. However, other commenters expressed concern regarding the continuation of livestock grazing in PHMA and questioned if grazing would be incorporated into habitat objectives.

**Response:** The BLM's analysis in the DSEIS provides a high-level overview of the research on impacts of livestock to Greater Sage-Grouse. The effect of grazing on Greater Sage-Grouse and habitat is provided for in the 2015 FEISs and is incorporated by reference into the DSEIS. Further, additional studies do not clearly provide information that would change the conclusions the BLM came to in 2015. The record of research shows that while in some circumstances the relationship of livestock grazing and Greater Sage-Grouse may be positive, there is not enough data to make a clear conclusion that grazing generally benefits Greater Sage-Grouse.

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<sup>3</sup> BLM Manual 6840, Special Status Species Management

The effect of grazing (from ungulates and other grazers) on Greater Sage-Grouse and habitat is provided for in the 2015 FEISs and is incorporated by reference into the DSEIS. In addition, additional studies do not clearly provide information which would change the conclusions the BLM came to in 2015 and in this current planning effort.

**Summary:** Commenters requested that the BLM not remove range improvements and expand existing range improvements to benefit multiple species.

**Response:** The BLM would continue to evaluate and modify existing range improvements when necessary, under all alternatives (Amended MD LG 8).

**Summary: Commenters** recommended that the FSEIS include a requirement that all alternatives in NEPA analyses for livestock grazing permit issuances or renewals in PHMA include specific mechanisms to make adjustments during the permit term when livestock grazing is identified as a significant factor in the failure to meet habitat objectives and overlying LHS. Commenters suggested that the alternatives in the NEPA document could analyze a range of different approaches and mechanisms for achieving those standards and objectives.

**Response:** IM 2018-23, Incorporating Thresholds and Responses into Grazing Permits/Leases, clarifies the relationship of the Greater Sage-Grouse habitat objectives table, land health standards, and thresholds and responses in grazing permits or lease terms and conditions.

#### **F.2.4 Livestock Grazing Management**

#### **F.2.5 Habitat Boundary/Habitat Management Area Designations**

**Summary:** Commenter suggested expanding current PHMA boundaries and designating new PHMA areas in the Powder River Basin of Wyoming.

**Response:** HMAs reflect habitat that is mapped based on best available information. If the BLM and the State finds that habitat was not reflected correctly in light of new information, plan maintenance or an amendment can be used to update boundaries to reflect the change in information. The management areas HMAs in the BLM's plans are based on the State identified habitat areas (core/non-core). If changes to the State's management areas are desired, the State of Wyoming has a process under which the public can propose changes to the habitat boundaries.

#### **F.2.6 Adaptive Management**

**Summary:** Commenters recommended that the BLM either explain why reversing adaptive management actions once adverse effects are resolved would not result in a return of the causal factor and its impacts, or remove this provision from the Proposed Plan Amendment. Commenters also recommended that the FSEIS include examples of the types of actions that would be taken when soft-trigger and hard-trigger deadlines are not met.

**Response:** Untriggering triggers does not guarantee that the causal factor will not return and trip a trigger again. If that were to happen, the BLM would again implement adaptive management. The BLM analyzed adaptive management identified in the strategy through the 2015 and 2019 planning processes. Additional implementation management measures would be analyzed through appropriate NEPA processes.

### F.2.7 Mitigation

**Summary:** Commenters recommended that the FSEIS specify any anticipated limits of federal law, regulation, and policy on the BLM's ability to fully adopt the State Mitigation Framework.

**Response:** As appropriate and consistent with applicable law, the BLM will work with the State of Wyoming on project proposals as described in Appendix C [of the 2019 Amendment] of the Wyoming Sage-Grouse plans and Federal and State Permitting Agency Coordination on Proposed Projects MOU (2017 MOU).

In the 2019 MOA between the State of Wyoming and the Bureau of Land Management Wyoming State Office (BLM WYSO), the BLM WYSO committed to the following: "In all Greater Sage-Grouse habitat, when authorizing third-party actions in designated Greater Sage-Grouse habitat, the BLM will seek to achieve the planning-level Greater Sage-Grouse management goals and objectives through implementation of mitigation and management actions, consistent with valid existing rights and applicable law. Management would be consistent with the Greater Sage-Grouse goals and objectives, and in conformance with BLM Manual 6840, Special Status Species Management. In accordance with BLM Manual 6840, the BLM will undertake planning decisions, actions and authorizations 'to minimize or eliminate threats affecting the status of [Greater Sage-Grouse] or to improve the condition of [Greater Sage-Grouse] habitat' across the planning area. Accordingly, before authorizing third-party actions that result in habitat loss and degradation, the BLM will complete ... steps (seven steps included in the MOA), in alignment with the Governor of Wyoming's Executive Order 2015-4 (updated to 2019-3)."

### F.2.8 Mineral Withdrawal

**Summary:** Commenters recommended decreasing allowable surface disturbance from 5% to 3% in Wyoming.

**Response:** Wyoming's five percent disturbance calculation is derived from fine-scale mapping using current 1-meter resolution NAIP imagery, with 'heads-up' digitizing of existing disturbances to supplement existing disturbance shapefiles maintained in each field office. Disturbance is defined as all activities which have removed sagebrush habitat, consisting of anthropogenic features, including agriculture and vegetation treatments, as well as incorporating wildfires. Since 2012, disturbance has been calculated from aerial imagery, there is no way to determine when disturbance occurred, therefore all disturbances are incorporated into the calculation. Additionally, known permitted activities which have been approved, but not yet built are included in the disturbance calculation. This calculation is conducted on every proposed activity in Core Areas.

The DDCT process manual identifies a differentiation in calculation of existing disturbances between pre and post 2008 oil and gas units. If units were established prior to 2008, the DDCT estimates that 100% of the unit is or will be disturbed unless a Plan of Development, detailing all existing and proposed disturbance, is provided by the operator. The Plans of Development are required to include exact, calculated disturbances which is then utilized to calculate the existing disturbances using the DDCT. Thus, the only significance attached to whether the disturbance is pre- or post-2008 is that pre-2008 disturbance may be overestimated.

There is scientific support for the five percent approach as well as the limits on number of features on the landscape, including Kirol 2012 and Naugle et al. 2011. Kirol (2012) found evidence that overall

disturbance began impacting brood survival at rates greater than six percent per square kilometer in a developing gas field and that “moderate levels of surface disturbance in habitats being used by brooding females appeared to have little influence on brood survival” (Kirol 2012, pg. 62). With regard to limits on the number of features on the landscape in Greater Sage-Grouse habitat, Naugle et al (2011) identified impacts to breeding Greater Sage-Grouse populations when the number of wells exceeded one per square mile.

In the NTT Report on National Greater Sage-Grouse Conservation Measures (NTT Report), a sub-objective for priority habitats is to manage priority Greater Sage-Grouse habitats so that discrete human-caused (anthropogenic) disturbances cover less than three percent of the total Greater Sage-Grouse habitat, regardless of ownership. The NTT Report’s three percent approach is based on 90-meter resolution vegetation maps modelled at a landscape scale (Knick et al. 2013). The types of disturbances identified through this approach incorporate anthropogenic features, but do not include vegetation treatments, wildfires and agriculture.

**Table 1. Summary of Wyoming’s 5% Disturbance Approach and the NTT Report’s 3% Disturbance Approach**

Disturbance Features	Wyoming’s Approach	NTT Report’s Approach
Anthropogenic features	Included	Included
Vegetation treatments	Included	Not Included
Wildfires	Included	Not Included
Agriculture	Included	Not Included
Data Resolution		
	1- meter resolution NAIP imagery supplemented with heads-up digitizing	90-meter resolution vegetation maps

Paramount to the success of Wyoming’s DDCT / five-percent approach is the cooperation of the State of Wyoming and other Wyoming partners in their agreement to actively participate in the Core Area Strategy. The FWS’s Conservation Objectives Team (COT) report also recognizes state strategies generally, and the Wyoming Core Area Strategy specifically, as an important factor. Wyoming’s Core Strategy considers all potential sources of impacts to Greater Sage-Grouse populations and the habitats on which they rely, across all land ownerships.

**Summary:** Commenters recommended that the BLM look at the mining-specific RFD for Wyoming to estimate the percent of SFAs in Wyoming that could be impacted by removing withdrawal from the Proposed Plan Amendment in order to determine, in consultation with USFWS, whether the effects in Wyoming would be minor or moderate. Additionally, commenters asserted that the BLM should add, the effects to Greater Sage-Grouse conservation of not withdrawing SFAs from locatable mineral development in Table I, Appendix D of the FSEIS, **and** further assess these effects in the cumulative context

**Response:** The BLM canceled the proposed withdrawal of SFAs through a publication in the *Federal Register* on October 11, 2017 (82 Fed. Reg. 47,248) after findings in the Sagebrush Focal Area Draft EIS noted that there was broadly low potential for locatable minerals within the recommended withdrawal area. The effects of the SFA withdrawal are disclosed in the 2015 FEISs as well as the 2016 DEIS for the



mineral withdrawal. The effects of not withdrawing those areas are disclosed in the Preferred Alternative of the 2015 DEISs as well as the Management Alignment and Proposed Plan Amendment alternatives of the 2018 FEIS.

BLM is focused on aligning its management with state management. BLM's goal is to promote consistency and alignment with each state's management for Greater Sage-Grouse. Where BLM has increased its management flexibility, it has done so to improve alignment with the state plans and based on local information. BLM has determined that SFA designations provide a redundant layer of resource protection and land use prioritization within PHMA and is acting within its discretion to remove SFA designation. Further, the BLM canceled the proposed withdrawal of SFAs through a publication in the *Federal Register* on October 11, 2017 (82 Fed. Reg. 47,248) and findings in the Sagebrush Focal Area Draft EIS noted that there was broadly low potential for locatable minerals within the recommended withdrawal area.

#### **F.2.9 Sage-Grouse**

**Summary:** Commenters asserted that the BLM should include all trends, since 2015, in development and disturbances in Greater Sage-Grouse habitat, in the FSEIS. Commenters stated that useful indicators to measure the effectiveness of the management decisions in BLM's 2015 Plan Amendment for PHMA, GHMA, and other habitat management areas would include the following metrics: number of leases issued per year, the associated acreage, the rate of leasing in acres per month, and the rate of Applications to Permit to Drill (APD) in APDs per month.

**Response:** The adaptive management strategy was developed during the 2015 planning process and was carried forward unchanged in the Approved Plan in the 2019 planning process and DSEIS. Although the suggested metrics may be interesting, they are part of metrics used when evaluating projects against the density and disturbance caps. On their own they do not indicate anything about habitat for quality or availability or populations.

#### **F.2.10 Non-Greater Sage-Grouse**

**Summary:** Commenter requested that the BLM include further information regarding Section 106 of the NHPA in the FSEIS.

**Response:** The BLM coordinated with the SHPO during the 2015 planning process and determined that no consultation was necessary. There were no management decisions largely different from those explored in 2015, so the BLM did not undertake any consultation in the 2019 planning process or for this SEIS.

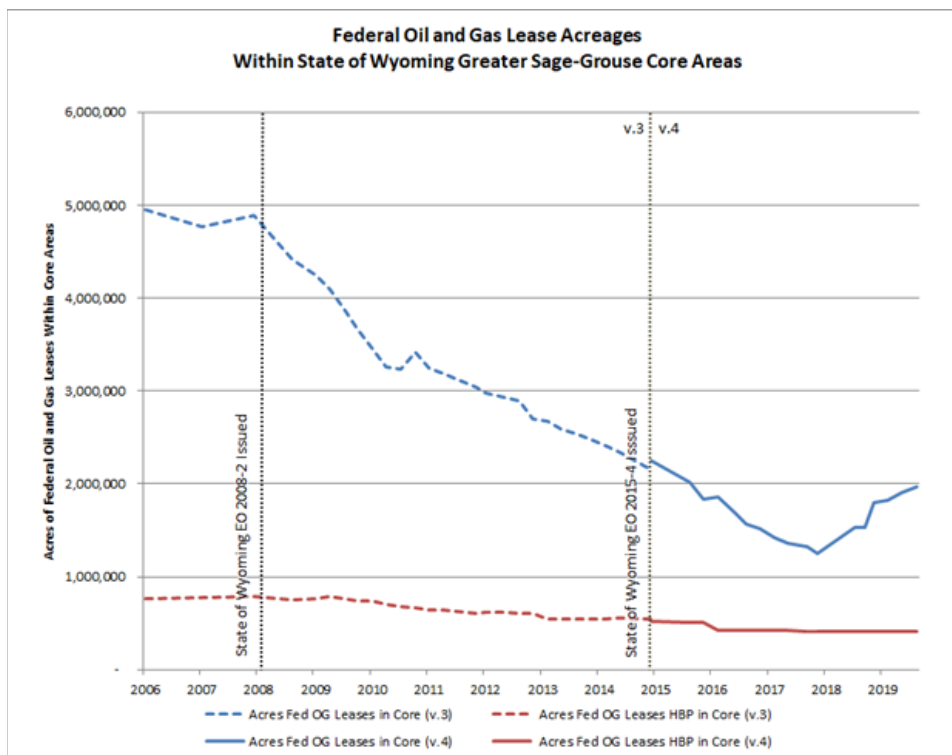
**Summary: Commenters stated that** the SEIS needs to quantify and clearly display for each alternative the indirect impacts to Greater Sage-Grouse from the continued invasion and expansion of cheatgrass into sagebrush habitat at and from newly disturbed sites associated with energy development.

**Response:** The 2015 plans included RFDs to prevent the spread of invasive species, and the affected environment accounted for the threat of the expansion of invasive species into Greater Sage-Grouse habitat. The 2015 impact analysis explored whether the alternatives may have ameliorated the threat. To the extent that the alternatives in the 2018 planning process changed those outcomes, impacts were disclosed in the DSEIS.

### F.2.11 Fluid Minerals

**Summary:** Commenters recommended that the FSEIS analyze to what extent the BLM's previously determined areas of low, medium, and high fluid mineral potential overlap with PHMA, GHMA, winter concentration areas, and remaining linkage areas. Additionally, commenters recommended that the BLM calculate what percent of each habitat area has already been leased, and whether the remaining unleased areas have low, medium, or high mineral potential.

**Response:** Since the BLM, State of Wyoming, and other partners began development and implementation of the current Greater Sage-Grouse conservation strategy in 2008, there has been a 60% reduction in the area of Federal oil and gas leases in Core Population Areas. Similarly, there has been a 48% reduction in the area of Federal oil and gas leases that are Held by Production (HBP) within Core Population Areas (see below).



Data source: BLM GIS Data as of January 2020

**Summary:** Commenters recommended that the BLM should identify and disclose instances where oil and gas development with controls similar to those required in the Proposed Plan Amendment have had no or negligible effect on nearby populations of Greater Sage-Grouse in Wyoming or other states.

**Response:** The BLM is not aware of any definitive assessment of the effectiveness of post-2015 “controls” (Assuming the EPA primarily means the allocation decisions, lease stipulations, and permit COAs the BLM uses under our revised and amended RMPs) for oil and gas development, particularly to a standard of concluding “no or negligible effect.” The USGS’s 2015-2017 Synthesis (page 14) concluded that the published research findings during that period: “support the conclusion that overall the Wyoming Governor’s Executive Order is helping safeguard critical [Greater Sage-Grouse] habitats at the State-wide scale. Other recent research is consistent with past findings that the implementation of

certain mitigation techniques or design features for oil and gas operations may be beneficial in reducing, but not eliminating, adverse effects to [Greater Sage-Grouse].”

**Summary:** Commenters recommended that the FSEIS clarify whether exceptions, modifications and waivers in the Proposed Plan Amendment would or would not differ from those in the 2015 Plan Amendment.

**Response:** As noted in Table I-2 on page I-9 of the DSEIS, changing exceptions, modifications, and waivers was not considered in the 2019 planning process or subsequently this process. Therefore, the exceptions, modifications, and waivers remain the same as those in the 2015 Plan Amendment.

### **F.3 RANGEWIDE COMMENT EXCERPTS**

#### **F.3.1 Range-wide**

State-level approaches to managing sage-grouse differ substantially across the range of the species. While some of these programs have been evaluated for effectiveness at statewide or smaller scales, other state plans are untested. Further, the potential collective effectiveness of these programs has not been examined, and the BLM provides no assessment of broad-scale applicability of these programs to meet the management goals the agency has established for itself. It is critical that the BLM evaluates the local programs it relies on and aligns only with programs that rigorously demonstrate that the conservation efforts collectively have a high probability of maintaining the long-term viability of sage-grouse populations across the range of the species.

#### **F.3.2 Purpose and Need**

There is no need to undertake the massive effort and expense of a totally new planning process. We urge the BLM to complete the 2020 DSEISs and issue a new record of decision based on the 2015 and 2019 NEPA analyses, as supplemented, rather than initiate a new land use planning process to consider new alternatives or information.

#### **F.3.3 Issues**

The 2019 plan amendments fail to provide adequate protections for sage grouse habitats from mineral development, livestock grazing, renewable energy development, range improvement structures, recreational facilities (including motorized trails), transmission lines, and other permitted activities, and also fail to consider reasonable alternatives to add science-based protections to avoid or minimize these impacts

BLM has failed to take a hard look at noise impacts to sage-grouse, and the resulting noise restrictions are scientifically invalid. We raised this issue in earlier comments and protests on all the plans (see Appendices B-K) and provided the relevant science supporting our claims. The DSEISs persist in allowing noise levels that will be harmful to sage-grouse.

BLM made no effort at all to analyze the impacts of noise on sage-grouse in PHMA in the FEISs; it makes the same mistake in the DSEISs. See Idaho DSEIS at 4-30; Wyoming DSEIS at 4-98. There is no analysis of the impacts of allowing limitless noise during the breeding and nesting seasons. There is no analysis of the impact of disturbing and stressing sage-grouse using habitats that surround leks, or of the magnitude of impact of displacement, reduction of nest success or brood success, and potentially lek abandonment that would result from daytime noise authorized within PHMA, IHMA, and GHMA. There is also no

analysis on the effects of allowing noise greater than 25 dBA by failing to set baseline levels at natural ambient noise levels that have been empirically established. Indeed, if there is already human-caused noise at a lek site, and this noise level becomes the new ambient baseline (which is permitted under the wording of the DSEIS), then noise levels could be authorized to steadily creep upward until surrounding habitats and leks are abandoned by grouse. But the DSEISs do not disclose this, because the DSEISs do not make a good-faith effort to take a hard look at the impacts of noise, and instead perpetuates the problems of the FEISs..

#### **F.3.4 Range of Alternatives**

The document only analyzes 2 alternatives -- a no-action alternative and the Management Alignment Alternative. This is an inadequate range of alternatives, particularly as one of them is "Do-nothing".

There is an inadequate range of alternatives – only 2 were actually analyzed: No Action Alternative and the Management Alignment Alternative

In the 2019 Plan Amendments, there were two alternatives, but one - the "No Action" alternative - was not actually an alternative, since the BLM concluded that it would not meet the stated purpose and need. Similarly, while BLM purported to incorporate its evaluation of alternatives from the 2015 Sage-grouse Plans, those alternatives also did not meet its purpose and need for the 2019 Amendments. The court found: "Common sense and this record demonstrate that mid- range alternatives were available that would contain more protections for sage grouse than this single proposal." *WWP v. Schneider*, 417 F.Supp.3d at 1332. The court found that BLM must consider reasonable alternatives, including mid-range alternatives that would contain more protections for sage grouse than the "Management Alignment Alternative." *Id.* Nonetheless, in the Draft Supplemental EISs, BLM declines to consider any new alternatives and continues its commitment to the only action alternative in the 2019 Amendments. With respect to other alternatives, BLM states that "all of the previously analyzed alternatives, including one proposing constraints stricter than the current management plan, were predicted to result in a loss of development opportunities on public lands," which is in conflict with the goals and purpose of SO 3353 to "promote habitat conservation, while contributing to economic growth and energy independence." Oregon Draft SEIS, p. 2-3. Clearly, BLM is not evaluating the alternatives from the 2015 Sage-grouse Plans or any other alternatives. Rather, the agency is just re-explaining an approach that the court has already rejected. The range of alternatives is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14. NEPA requires BLM to "rigorously explore and objectively evaluate" a range of alternatives to proposed federal actions, including considering more environmentally protective alternatives and mitigation measures. See 40 C.F.R. §§ 1502.14(a) and 1508.25(c); see also, *Kootenai Tribe of Idaho v. Veneman*, 313 F.3d 1094, 1122-1123 (9th Cir. 2002) (and cases cited therein)

In this new DSEIS, the BLM has added nearly 300 pages of analyses of alternatives. However, these alternatives were considered in the 2015 LUPA process and decision, and not considered as alternatives in the 2019 RMPA process or in this DSEIS process. It is unclear how including these alternatives will cure the likely NEPA violation described in the Preliminary Injunction. "The stated goals of a project necessarily dictate the range of 'reasonable' alternatives. *Id.* An agency need not consider alternatives that are 'unlikely to be implemented or those inconsistent with its basic policy objectives.' *Id.*" 13 Presumably this set of alternatives, like the No Action Alternative would not comport with the purpose and need of the 2019 RMPA because the 2019 RMPA purpose and need comports with new science and new policy implemented after the 2015 effort.

The DSEISs defend the failure to consider a range of alternatives in the 2018 FEIS by citing back to the 2015 plans' range of alternatives. See, e.g., Idaho DSEIS at ES-4; NV/CA DSEIS at 2-1 to 2-3. But the DSEISs fail to explore the differing contexts of the 2015 and 2018 plans, including the decrease in sage-grouse populations since the 2015 plans and the 2.4 million acres of new oil and gas leases the 3,570 new drilling permits in designated sage-grouse habitat allowed between January 2017 and March 2019. The "No Action" alternative has thus changed significantly since 2015.

BLM's regulations require BLM to "develop several complete alternatives for detailed study" in land-use planning. 43 C.F.R. § 1610.4-5. BLM cannot legitimately claim that it "considered" all of the alternatives evaluated during the 2015 Plan Amendment NEPA process. BLM eliminated these from reconsideration in 2019 because they "were predicted to result in a loss of development opportunities." See e.g., ID 831-33.11. Alternatives not considered in detail cannot be used to meet the agency's obligations to "rigorously explore" alternatives. Moreover, the Ninth Circuit has flatly rejected the approach of "incorporating" previously considered but rejected alternatives. See *Sierra Forest Legacy v. Rey*, 577 F.3d 1015 (9th Cir. 2009); *Sierra Forest Legacy v. Sherman*, 646 F.3d 1161 (9th Cir. 2011).

ICA believes that when the BLM conducted their analysis for the 2019 RMP, they considered a reasonable range of alternatives. During that process, they also referenced the alternatives that were extensively analyzed in the 2015 planning process. The DSEIS accurately justifies this process and underscores that a reasonable range of alternatives were presented and adequately analyzed.

### **F.3.5 New Alternative**

We have repeatedly proposed a number of reasonable alternatives and BLM should evaluate them and others. As part of addressing the court's ruling, BLM should consider the alternatives we have proposed, including: \* An alternative that is explicitly focused on enhancing cooperation with the states while conserving, enhancing and restoring sage-grouse habitat. We submitted a proposed alternative that would accomplish these goals, set out in detail in Attachment 1 to Exhibit 2 (our overarching comments), incorporated herein by reference. \* Alternatives to complete additional analysis of net conservation gain and Sagebrush Focal Areas (SFA), which the 2019 Amendments eliminated in some states. \* An alternative to maintain SFAs without the previously-proposed mineral withdrawal, while considering how application can be better coordinated with the states. \* An alternative to strengthen criteria and restrictions for waivers, exceptions and modifications to lease stipulations. \* An alternative to strengthen the approach to prioritizing oil and gas leasing and development outside habitat.

### **F.3.6 Alternatives - Other**

BLM claims to have incorporated by reference alternatives from the 2015 ARMPA EIS process, and to have "Fully Analyzed" these alternatives, along with others, in the DSEIS. Table 2-2, Idaho DSEIS at 2-19; Table 2-2, Wyoming DSEIS at 2-13; NV/CA DSEIS at 2-9 to 2-12 (Table 2-2a); Northwest Colorado DSEIS at 2-5 (Table 2-1). This table is immediately followed by Table 2-3, "Detailed Comparison of 2019 Alternatives," in which only a No Action Alternative, the Management Alignment Alternative, and the Proposed Plan (essentially identical to the Management Alignment alternative) are described. Idaho DSEIS at 2-23; Wyoming DSEIS at 2-28; NV/CA DSEIS at 2-16; Northwest Colorado DEIS at 2-9 (Table 2-2). The Management Alignment Alternative and Proposed Plan are so similar that BLM provides a single, common impacts analysis for both, with no differentiation between the effects of the two alternatives. See Wyoming DSEIS at 4-91. Thus, the 2019 plan amendment EIS considers basically two alternatives: a No Action alternative (which would leave the 2015 Plan Amendment, with all its

weaknesses and inadequacies, unchanged), and the Management Alignment/Proposed Plan alternative, which the agency ultimately adopted and which significantly weakened sage-grouse habitat protections provided under the 2015 plan amendment. This Management Alignment alternative is designed to make federal sage-grouse protections mirror state policies

### **F.3.7 Data and Science**

The Winmill Decision reinstates the 2015 Plans, and BLM has stated that it is accordingly implementing the 2015 Plans in the affected states.<sup>3</sup> Consequentially, the need to address and correct the scientific flaws that originated in the 2015 Plans and carried forward to the 2019 Plans has become even more urgent.

The 2015 Plans ignored the full spectrum of on-point, more recent science currently available, and instead relied upon biased and outdated science. Namely, BLM relied on several outdated and faulty reports: the National Technical Team ("NTT") Report, the Conservation Objectives Team ("COT") Report, the Comprehensive Review of Ecology and Conservation of the Greater Sage Grouse: A Landscape Species and its Habitats ("the Monograph"), and the "Conservation Buffer Distance Estimates for Greater Sage-Grouse-A Review" (the "Buffer Report")<sup>4</sup>(collectively "the Reports."). <sup>4</sup> Daniel J. Manier, et al., Conservation Buffer Distance Estimates for Greater Sage-Grouse-A Review, U.S. GEOLOGICAL SURVEY OPEN-FILE REPORT 2014-1239 (2014), <http://dx.doi.org/10.3133/ofr20141239>.

The Reports erroneously ignore accurate population data and adopt methodologically- flawed modeling approaches that have consistently failed to accurately predict populations. This selective use of science is wholly misleading, and assumes GRSG populations are in decline despite evidence to the contrary. More specifically, the Reports ignore natural population fluctuations; single out human-driven activities for alleged declines; and, again, overlook actual threats to GRSG such as weather, predation, and hunter harvest-primary drivers of GRSG population changes (in contrast to anthropogenic disturbance) (see Blomberg et al. 2014<sup>9</sup> Guttery et al. 2013<sup>10</sup>, and Ramey et al. 2018<sup>11</sup>). Other factors not seriously considered were raven predation (see, e.g., Coates et al. 2016<sup>12</sup>) and hunter harvest at times of the year and during life stages when GRSG are most vulnerable (see, e.g., Blomberg et al. 2015<sup>13</sup>; Caudill et al. 2017<sup>14</sup>). It is worthwhile to note that GRSG hunter harvest reports from the states of Colorado, Utah, Wyoming, Montana, Oregon, Nevada, and California show a take of approximately 129,095 birds between 2000 and 2018. <sup>9</sup> Erik J. Blomberg, et al., Carryover Effects and Climatic Conditions Influence the Postfledging Survival of Greater Sage-Grouse, 4(23) *ECOLOGY & EVOLUTION*, 4488-4499 (2014), <https://doi.org/10.1002/ece3.1139>. <sup>10</sup> Michael R. Guttery, et al., Effects of Landscape-Scale Environmental Variation on Greater Sage-Grouse Chick Survival, 8(6) *PLoS ONE* e65582 (2013), <https://doi.org/10.1371/journal.pone.0065582>. <sup>11</sup> Rob Roy Ramey II, et al., Local and population-level responses of Greater sage-grouse to oil and gas development and climatic variation in Wyoming. *PeerJ* 6: e5417 (2018), <http://doi.org/10.7717/peerj.5417>. <sup>12</sup> Peter S. Coates, et al., Landscape characteristics and livestock presence influence common ravens-Relevance to greater sage-grouse conservation: *ECOSPHERE*, v. 7, no. 2, article e01203, 20 p., <https://doi.org/10.1002/ecs2.1203>. <sup>13</sup> Erik J. Blomberg, et al., The influence of harvest timing on greater sage-grouse survival-A cautionary perspective: *J. OF WILDLIFE MANAGEMENT*, v. 79, no. 5, p. 695-703 (2015). <sup>14</sup> Danny Caudill, et al., Individual heterogeneity and effects of harvest on greater sage-grouse populations: *J. OF WILDLIFE MANAGEMENT*, v. 81, no. 5, p. 754-765 (2017).

the Reports themselves were premised on a faulty bias-the presumption that GRSG populations are in decline due to disturbance from various land use activities, of which oil and gas development was allegedly a primary factor. The NTT Report also failed to acknowledge lower impact technologies and mitigation that emerged and became the standard in the oil and gas industry around 2005, such as hydraulic fracturing and directional drilling. These modern technologies, along with 3-D and 4-D remote-sensing of underground hydrocarbon reservoirs and other developments, have radically minimized disturbance compared to the practices in use just a decade or more previously which were reviewed by the studies cited by the Reports.<sup>15</sup> See Rob Roy Ramey II, et al., Oil and Gas Development and Greater Sage Grouse ("Centrocercus urophasianus"): A Review of Threats and Mitigation Measures, 35 (1/2) J. OF ENERGY AND DEV., 49-78 (2011)

GRSG research published since 2015 is "extensive and collectively supersedes the NTT and COT reports." See Exhibit A at 1; see also Exhibit A-1. Much of the new research has occurred thanks to improvements in: estimating seasonal habitat, modeling population trends in light of climate variables, and determining causality behind predation and disturbances. Further, new science has shown that GRSG dispersal is much more expansive than was thought prior to 2015, both in distances flown and dispersal frequency. In addition, improved means of mitigation and habitat recovery have decreased overall GRSG disturbances. In sum, the scientific understanding of GRSG populations and how various factors affect said populations has advanced far beyond the biased and limited work upon which the 2015 Plans (and, to a certain extent, the 2019 Plans) rely.

Since 2005, studies have analyzed large-scale climatic fluctuations and the resulting effects on inland species, including GRSG. Notably, research has emphasized the impacts sea surface temperature variations in the North Pacific Ocean have on GRSG populations due to the resulting climatic patterns. The PDO is one of several climate indices useful in estimating population responses. Ramey et al. 2018. In sum, GRSG populations experience cyclic fluctuations "linked to patterns of temperature and precipitation. . .which affect reproduction and survival. . ." Exhibit B at 1. To maintain accuracy, any land use plans must take into account large-scale climatic fluctuations and GRSG population responses.

GRSG populations fluctuate naturally due to "population density feedbacks affect[ing] population growth rate" and "inter-annual and multi-decadal variation in large-scale regional weather patterns." See Exhibit D at 1. Therefore, any research which calculates population estimates in terms of the effect of anthropogenic activities must also account for population changes resulting from these natural factors. Furthermore, changes to one GRSG lek population may affect nearby leks. Id. at 2. Ideally, population modeling should incorporate data from unrelated leks (to function as a control group) and data regarding effects from climate changes and density feedbacks. We urge BLM to consider usage of a stage-based population dynamic model. "The advantages of stage-based population dynamic models are that multiple sources of information for different life-stages and sexes including prior information from previous analysis can be readily incorporated while lags are readily accounted for thus providing tighter linkages between population drivers and lek counts." Id. This will bring sage grouse management into the contemporary realm of real-time population modeling.

Mathematical Error in Edmunds et al. 2017<sup>16</sup> Managers must be cognizant of errors scientific papers that can compromise results and interpretations, even if identified and "corrected" later. We highlight here, a paper by Edmunds et al. (2017) that found that "populations in 5 of the 8 working group[s] in Wyoming] significantly declined ( $\chi^2 < 1$  with  $p < 0.05$ ) between 1993 and 2015; and 2) that

[sub]populations within working groups can follow different trends." See Exhibit E at 1. However, Edmunds et al. later published an erratum (Edmunds et al. 2018)<sup>17</sup> finding that the mathematical calculations were incorrect, thereby invalidating their first conclusion: that the populations in 5 of the 8 working group significantly declined ( $? < 1$  with  $p < 0.05$ ) between 1993 and 2015. However, they authors did not state that needed change to the text of their erratum. Thus, managers could easily misinterpret the conclusions as valid, when they are not. Beyond this issue, a central failure of many past papers (including those cited by the Reports), is that they do not account for population-wide temporal oscillations (i.e., those driven by climatic variation/weather). Moreover, analyzing subpopulation-level differences in trends merely adds noise to analyses. <sup>16</sup> David R. Edmunds, et al., Greater sage-grouse population trends across Wyoming: WY Sage-Grouse Population Viability Analysis. *J. WILDLIFE MANAGEMENT*, 82(2): 397-412 (2017), <http://doi.org/10.1002/jwmg.21386>. <sup>17</sup> David R. Edmunds, et al., Erratum-Greater sage-grouse population trends across Wyoming. *J. WILDLIFE MANAGEMENT*, 82(8):1808 (2018).

The agency should emphasize the use of locally-collected monitoring and transparent assessment data and the continued development and integration of local data and information, peer-reviewed science (with publicly-available data), and other high quality information.

The Counties urge BLM to consider innovative new tools, such as the use of unmanned aerial vehicles with infrared sensing, and new statistical approaches to undertake more accurate population counts.

Federal population targets and triggers are inappropriate and unwarranted. First, local governments may have better information. Second, wildlife management is a state issue. To the extent population numbers are utilized, the BLM should rely upon state and local population data

It is vital that the BLM develop processes to use data from a variety of sources, including peer-reviewed journals with associated data, agency data, and local collected partner information. BLM should also rely upon locally-relevant science and data to inform implementation of management actions, data sharing, and the development of methods to gather and use local and traditional ecological knowledge. BLM must review and consider the DQA Challenges with respect to the Reports underpinning the land use plan amendments and the GRS listing decision and revise its planning documents and decisions appropriately. The Counties strongly support peer review, transparency and reproducibility in regards to science as well as the relevance to local conditions. Had BLM recognized the flaws brought to bear in the Challenges and new science available, the Winmill Decision may have turned out differently.

Sage-Grouse populations have declined precipitously over the past three years; The Draft SEIS's do not take into account the significant declines (30-60 percent) in Sage-Grouse populations in all 7 states over the past 3 years (2016-19) California – reduced 3.86 percent/year since 1999 (60 percent total) Montana – 40 percent reduction since 2016 Oregon – the lowest population levels ever recorded; 28% loss in one year Idaho – 52 percent reduction since 2015 Nevada – one third reduction since 2016 Wyoming – 44 percent reduction since 2016 Utah – 61 percent reduction since 2015 Colorado – 5 out of 6 leks showed a 69 percent reduction since 2016

The draft EIS does not mention or take into account that all 7 states where populations were monitored from 2016 to 2019 showed significant population declines ranging from 30% to over 60% decline.



The Draft SEIS's do not take into account the significant declines (30-60 percent) in sage-grouse populations in all 7 states over the past 3 years (2016-19)

On a related note, DNR encourages the BLM to consider the most recent available data in its analyses in future versions of this supplemental review process. We note, for instance, that Section 3.3 in the 2020 DSEIS, Changes to Affected Environment Since 2015, replicates the same section from the 2018 PRMPA/FEIS, which considered 2014-2017 data in calculating the 3-year average High-Male Count (HMC) used to estimate GrSG populations. Subsequent revisions to this EIS should examine data from the previous two years (2018-2019) when calculating the most recent 3-year average HMC. In addition, the BLM mentions Reasonably Foreseeable Actions as an item to be clarified in the 2020 DSEIS, but the document does not take any new information into account in its analysis. 20 Future EIS revisions or planning decisions should incorporate updated data, recent events, BLM actions, new plans and decisions, revised regulations, etc., when presenting reasonably foreseeable scenarios both in the evaluation of cumulative or other environmental effects and in consideration of changed conditions that could warrant new review (see Appendix 2, Section 2.1, Table 1, Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions). For example, a recent report suggests a significant increase in the rate of fluid mineral leases issued within GHMA and PHMA under the 2015 CO GrSG RMPA, as compared to in recent years.<sup>21</sup> 20 DSEIS, I-13. 21 National Audubon Society, Oil and Gas Leasing on Federal Lands and in Sage Grouse Habitats: October 2015 through March 2019 (July, 2019), Tables 2-4.

Improved Prioritization of GRSG Management Author: Doherty et al. Year: 2016 Title: Importance of regional variation in conservation planning-A rangewide example of greater sage-grouse: *Ecosphere*, v. 7, no.10, article e01462, 27 p. Implications: Improved spatial population models show overlap of habitats, populations, conservation actions, and threats. Threats to, or conservation actions in, these hotspots could affect a large proportion of GRSG populations. Thresholds in vegetation cover types, disturbance, and other factors varied spatially, so results from one location may not extrapolate to other locations. GRSG in MZ VI (Columbia Basin) and MZ I (Northern Great Plains) appeared to diverge in functional habitat selection from other MZs. The authors emphasize the large spatial scale of this analysis and that on-the-ground management actions may need to be informed by analyses at smaller spatial scales. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; Conservation planning Significance: Management prioritization, improved methodology Comments: Underscores the fact that a one-size fits all approach is inappropriate.

Improved Prioritization of GRSG Management Author: Chambers et al. Year: 2016 Title: Using resilience and resistance concepts to manage threats to sagebrush ecosystems, Gunnison sage-grouse, and greater sage-grouse in their eastern range-A strategic multi-scale approach: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, General Technical Report RMRS-GTR-356, 143 p., Implications: "This [USDA] report provides a strategic approach developed by a Western Association of Fish and Wildlife Agencies interagency working group for conservation of sagebrush ecosystems, Greater sage-grouse, and Gunnison sage-grouse. It uses information on (1) factors that influence sagebrush ecosystem resilience to disturbance and resistance to nonnative invasive annual grasses and (2) distribution and relative abundance of sage-grouse populations to address persistent ecosystem threats, such as invasive annual grasses and wildfire, and land use and development threats, such as oil and gas development and cropland conversion, to develop effective management strategies." "Areas for targeted management are assessed by overlaying matrix components with Greater sage-grouse Priority Areas for Conservation and Gunnison sage-grouse critical habitat and linkages, breeding bird

concentration areas, and specific habitat threats. Decision tools are discussed for determining the suitability of target areas for management and the most appropriate management actions." Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; Conservation management Significance: Prioritization of management; Provides a holistic approach to managing threats, conservation, and restoration. Comments: Caveat: long-term projections based on untestable Global Circulation Models

Improved Prioritization of GRSG Management Author: Chambers et al. Year: 2017 Title: Science framework for conservation and restoration of the sagebrush biome: Linking the Department of the Interior's Integrated Rangeland Fire Management Strategy to long-term strategic conservation actions. Part I. Science basis and applications: Gen. Tech. Rep. RMRS-GTR-360. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. p. 213. Implications: This comprehensive report provides the scientific basis and applications for the DOI's Conservation and Restoration Strategy for sagebrush ecosystems. As such, it is a highly influential document. The Science Framework is intended to "help prioritize areas for management and determine the most appropriate management strategies. The Science Framework is based on: (1) the likely response of an area to disturbance or stress due to threats and/or management actions (i.e., resilience to disturbance and resistance to invasion by nonnative plants), (2) the capacity of an area to support target species and/or resources, and (3) the predominant threats." Supersedes NTT: Yes Supersedes COT: Yes Issue: Comprehensive conservation strategy. Significance: Likely highly influential document. Comments: Additional review suggested.

Improved Prioritization of GRSG Management Author: Chambers et al. Year: 2017 Title: Using resilience and resistance concepts to manage persistent threats to sagebrush ecosystems and greater sage-grouse: Rangeland Ecology and Management, v. 70, no. 2, p. 149-164. Implications: From the paper's conclusions: "We successfully operationalized resilience and resistance concepts in a risk-based framework to help managers reduce persistent threats to a species of high concern in one of the largest terrestrial ecosystems in North America. By linking our understanding of sagebrush ecosystem resilience to disturbance and resistance to invasive annual grasses to sage-grouse distribution and habitat requirements, we provided a means for decision makers to strategically allocate resources and triage complex problems. This approach offers an innovative decision support system to address the needs of at-risk species in the context of dynamic and adaptive ecosystems. We believe this approach is applicable to species conservation in other largely intact ecosystems with persistent, ecosystem-based threats such as invasive species and altered disturbance regimes." Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; identification of threats; conservation triage Significance: Improved methodology and prioritization of management Comments: Utilize an operational definition of resistance and resilience.

Improved Prioritization of GRSG Management Author: Crist et al. Year: 2019 Title: Science framework for conservation and restoration of the sagebrush biome: Linking the Department of the Interior's Integrated Rangeland Fire Management Strategy to long-term strategic conservation actions. Part 2. Management applications. Gen. Tech. Rep. RMRS-GTR-389. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 237 p. Implications: The strategic, long-term, multiscale approaches described in this report, as well as associated tools, will aid resource managers in implementing on-the-ground management actions in the sagebrush biome. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement Significance: Prioritization of management. Likely highly influential. Comments: Additional review suggested.

PAW maintains the NTT Report does not represent the best available science as it relates to oil and gas impacts to sage-grouse habitat. The technological improvements associated with oil and gas development also reduced the threats of oil and gas as outlined in the COT Report. BLM should not solely rely on these documents when forming oil and gas stipulations and conservation measures. We are encouraged that BLM included a review of these Reports and analyzed their relevance to the planning process in Appendix F to the Draft SEIS.

PAW supports the analysis provided in the Draft SEIS, particularly as the 2015 ARMPAs analyzed impacts that were as a result of previous technological techniques and the science does not reflect the significant changes that have taken place over the past decade. Specifically, the timeframe of the research included in the NTT and COT Reports predates significant technological advancements that have taken place in the oil and gas industry during that timeframe. These advancements have played a dramatic role in reducing well pad and road density and disturbance associated with oil and gas development.

the NTT report failed to recognize that the level of disturbance and activity associated with a well is not constant throughout its life. The highest level of surface disturbance associated with oil and gas development occurs during the construction, drilling and completion phases, which can last up to a few months, depending upon the time it takes to complete the well. Once production ensues, these activities subside dramatically, especially with the increased use of remote monitoring of oil and gas operations. Shortly after well completion, the operator normally begins interim reclamation to restore any impacted habitat that is not being used. This interim reclamation remains in effect until the well has been depleted. Upon conclusion of production activities, the operator will then move forward with plugging and abandonment procedures, which also includes final reclamation that will ultimately result in full restoration of the site and its return to productive habitat.

they believe that a wide variety of peer-reviewed publications which collectively provide the best available science for sage-grouse should form BLM's basis for conserving the species. They went on to recommend that management and regulatory mechanisms be centered upon the best available science which would provide the best strategy for near- and long-term management of sage-grouse and provide the best opportunity for precluding a listing under the Endangered Species Act (ESA).

Based upon these new documented findings, the assumptions contained in the NTT are incomplete. They are predicated upon widespread development of oil and gas using tightly spaced vertical wells and, therefore, result in inaccurate hypothesis that oil and gas development "impacts are universally negative and typically severe."

More importantly, new science and new technology in the deployment of oil and gas development indicates impacts to sage-grouse will be significantly lower than those described in the NTT Report.

The 2015 plans resulted from years of negotiations between ranchers, scientists, state and Federal agencies, and the conservation community. It is a science based plan that was agreeable to all the stakeholders. It led to the USFWS withdrawing it's plan to list the species under the Endangered Species Act. If the 2015 plan is NOT adopted, I feel that the Greater Sage-Grouse SHOULD be listed under the Endangered Species Act

Similarly, while BLM refers to its reliance on "best available science," that is not defined or explained in the Draft Supplemental EISs. In fact, as discussed in detail in a June 2018 letter submitted by numerous

sage-grouse scientists recognized as experts in this field, the 2019 Amendments were contrary to the best science. See, June 2018 Sage-grouse scientists letter, attached as Exhibit 3.

BLM is also obligated to evaluate "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts" through supplemental NEPA. 40 C.F.R. § 1502.9(c)(ii). There are significant new circumstances and information that BLM must take into account, some of which we have repeatedly highlighted in previous comments and protests but have continued to intensify. These are discussed in detail in a letter from expert sage-grouse scientists, attached as Exhibit 4. Sage-grouse populations have been declining and this trend has become even more concerning. As noted in the attached sage-grouse scientists' letter, state-level data indicates sage-grouse populations have declined 44% on average over the last four years, with estimated statewide declines in strongholds of between 33% and 52% in Oregon, Idaho, Nevada, Montana, and Wyoming. BLM must take these losses and the continued projected declines into account in evaluating the impacts of the proposed changes to the 2015 Sage-grouse Plans.

Specifically, the DSEIS does not update the No Action Alternative using the best available science. It remains based on analysis that was not comprised of the best available science and includes outdated and improper habitat mapping, 15 an issue that this County and others repeatedly explained throughout the RMPA process.<sup>16</sup> As the Court pointed out in its October 2019 decision, "In order to be adequate, an environmental impact statement must consider "not every possible alternative, but every reasonable alternative."<sup>17</sup> The No Action Alternative, as it is currently presented and analyzed, is not a reasonable alternative as it fails to include the best available science or comport with current BLM policy. A possible solution therefore is for BLM to update the science behind the No Action Alternative so that it is current with the science used in the Management Alignment Alternative. The County hopes that the BLM will update the science of the No Action Alternative in order to demonstrate how the preferred alternative better aligns with the BLM's stated policy goals and the conservation of Sage-grouse.

Chapter 5, Consultation and Coordination, does not indicate any coordination or consultation with other Federal (USFWS, USGS) or state agencies, who maintain scientific expertise on both sage-grouse and sagebrush habitat. Without consultation with these scientific experts, the conclusions of this document on potential impacts to the Greater sage-grouse lack scientific credibility.

The Idaho District court granting the motion to preliminarily enjoin the 2019 plans relies in large part on the assumption that the 2015 plans were based on the sound science, specifically the findings and suggestions contained in the 2011 National Technical Team (NTT) and 2013 Conservation Technical Team (COT) Reports.<sup>11</sup> The Idaho District Court incorrectly assumed in its decision that the NTT and COT reports represent the best available science, and therefore, any deviation from these reports amounts to an unjustified reduction in protection for the Sage Grouse.<sup>12</sup> This reliance on the NTT and COT Reports is misplaced. <sup>11</sup> See *Western Watersheds Project et al v. Schneider et al*. Case No. CV-00083-BLM, 2019, at 11, 17. (D. Idaho Oct. 16, 2019). <sup>12</sup> *Id.* The 2011 NTT Report and the 2013 COT Report did not receive adequate peer review and suffered from a number of substantive flaws including: ignoring substantial threats such to the Greater Sage Grouse such as predation in favor of unsupported conjectures regarding human impact; failure to account for natural population fluctuations due to weather patterns; not using the best available science, and were policy rather than science driven. These flawed reports suggested the adoption of equally flawed measures that became central to the 2015

planning effort including the designation of Sage Brush Focal Areas (SFAs) and the establishment of lek buffers.

the application of lek buffer distances was integrated into another document previously not available or included in the DEIS for public review: a U.S. Geological Survey (USGS) report entitled Conservation Buffer Distance Estimates for Greater Sage-grouse - a Review, USGS Open File Report 2014 1239. Both SFAs and lek buffer distances were allowed to evolve from the NTT and COT reports into the 2015 plans without receiving adequate review and comment and in place of utilizing existing conservation tools already available.

Although the SFAs and the lek buffers constituted substantial changes to the proposed action, no supplemental EIS was prepared to analyze them and the public was not provided an opportunity to offer input on their use as guiding elements of the 2015 land use plans. As a result, the 2015 plans did not reflect the best scientific information available to and used by the states that are home to the Greater Sage Grouse.

Sage-grouse population declines and habitat loss represent significant new environmental information that bears on the management actions established in the 2015 and 2019 sage-grouse RMP amendments. BLM must address these circumstances through supplements to the EISs used to inform those RMPs as prescribed in 40 CFR 1502.9(c)(1)(ii) of the National Environmental Policy Act (NEPA). Specifically, the regulations require agencies to: "prepare supplements to either draft or final environmental impact statements if there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." The Draft SEISs released February 11, 2020 do not reflect the reality of these new circumstances and provide no scientific justification for the majority of BLM management decisions given the current situation. Accordingly, BLM must expand the scope of these SEISs to address this new information and set of circumstances facing sage-grouse and sagebrush habitat.

The BLM needs to expand the scope of the Draft SEISs to address new circumstances described and substantiated with recent population and sagebrush habitat trends. Expansion of the scope provides an opportunity for the BLM to more rigorously analyze and assess the direct, indirect and cumulative impacts of management decisions on sage-grouse populations and habitats. Accomplishing such assessments is entirely feasible given the expertise, data, and analytical tools currently available to the BLM. The U.S. Geological Survey (USGS) in their synthesis of relevant literature published from 2015 to 2017 describe several decision-support tools that would apply directly to such analyses. The BLM itself has developed the Assessment, Inventory, and Monitoring (AIM) strategy and the Fire and Invasives Assessment Tool (FIAT) which are expressly meant to provide the agency with analytically derived information for making impact and habitat management decisions. Further, in each of the 2015 Final EISs the BLM included a Greater Sage-grouse Monitoring Framework which established metrics and approaches for monitoring response of sage-grouse to management actions. The data and analytical tools established in this framework are also directly applicable to analyses we suggest.

2015 Greater Sage Grouse Plans Were Not Supported by the Best Available Science The Idaho District court granting the motion to preliminarily enjoin the 2019 plans relies in large part on the assumption that the 2015 plans were based on the sound science, specifically the findings and suggestions contained in the 2011 National Technical Team (NTT) and 2013 Conservation Technical Team (COT) Reports. The Idaho District Court incorrectly assumed in its decision that the NTT and COT reports represent

the best available science, and therefore, any deviation from these reports amounts to an unjustified reduction in protection for the Sage Grouse.<sup>12</sup> This reliance on the NTT and COT Reports is misplaced.

we believe it is imperative that BLM clarify how the 2019 plans relied on the best available science, a critical component of the decision in the district court. As such, we request that BLM update and supplement its review of the scientific information on which it relies for conservation of sage grouse habitat and management of those federal lands. Specifically, BLM must take into account scientific information that has been developed since the reports prepared by the National Technical Team (NTT)<sup>1</sup> in 2011 and the Conservation Objectives Team (COT)<sup>2</sup> in 2013, including over 150 scientific papers and reports prepared since 2014 that are described and referenced in the materials we submit as attachments to this letter (Attachment B and F below). These reports make clear that the NTT and COT reports are no longer the best available science, contra the district court's assertion. 1 Report on National Greater Sage-Grouse Conservation Measures Produced by the BLM Sage-Grouse National Technical Team, Bureau of Land Management (Dec. 2011). 2 Greater Sage-Grouse (*Centrocercus urophasianus*) Conservation Objections: Final Report, U.S. Fish and Wildlife Service (Feb. 2013).

The Trades previously argued that BLM's reliance in the 2015 Land Use Plan Amendments (LUPAs) on the U.S. Fish and Wildlife Service's COT Report and BLM's NTT Report in determining stipulations, restrictions, and conservation measures for operations in sage-grouse country was arbitrary and capricious under the Administrative Procedures Act. The NTT Report and the COT Report failed to utilize the best available science; failed to adhere to the standards of integrity, objectivity, and transparency required by the agency guidelines implementing the Data Quality Act, and suffered from inadequate peer review (Attachment A below). The NTT Report fails to adequately support its propositions and conclusions. For example, the NTT Report provided no scientific justification for the three percent disturbance cap, which was described in the 2015 LUPAs. Rather, the disturbance cap was based upon the "professional judgment" of the NTT authors and the authors of the studies they cited, which represents opinion, not fact. The noise restrictions and required design features in the 2015 LUPAs, also recommended by the NTT report, are likewise based upon studies that relied on unpublished data and speculation, and employed suspect testing equipment under unrealistic conditions. Conservation measures based upon "professional judgment" and flawed studies do not constitute the best available science, and BLM should not have relied upon these studies or the NTT Report in the 2015 LUPAs

the NTT Report failed to cite or include numerous scientific papers and reports on oil and natural gas operations and mitigation measures that were available at the time the report was created. For example, the NTT Report failed to cite a 2011 paper (which was made available to the NTT authors) that discusses the inadequacy of the research relied upon by the NTT Report in light of new technologies and mitigation measures designed to enhance efficiency and reduce environmental impacts

The COT Report likewise fails to utilize the best available science, and the BLM and other agencies inappropriately relied upon it in the 2015 LUPAs. The COT Report provides no original data or quantitative analyses, and therefore its validity as a scientific document hinges on the quality of the data it employs and the literature it cites. The COT Report contains serious methodological biases and mathematical errors, and the report's data and modeling programs are not public and thus neither verifiable nor reproducible. Finally, the COT Report provides a table assigning various rankings to GrSG

threats, but gives no indication that any quantitative, verifiable methodology was used in assigning these ranks. Absent a quantifiable methodology, these rankings are subjective and rather than relying upon any conservation measures derived from these rankings.

more recent genetic studies with large sample sizes and data from GPS tagged birds reveal that sage grouse disperse over much greater distances than previously thought, refuting previous assumptions central to the NTT and COT reports that sage grouse dispersal was limited. These same data also refute the assumptions behind the extinction predictions by Garton et al. (2011) that were central to the COT report and the 2010 "Warranted but Precluded" ESA-listing decision. Finally, this new body of science provides extensive documentation of refined mitigation measures and habitat restoration that reduce impacts to GrSG. This dramatically improved body of research is more precise and reliable than the studies previously relied upon in the NTT and COT Reports, and other reports relied upon in the development of the 2015 LUPAs.

as the information we're submitting with this letter will describe in more detail, various advancements in operational efficiency, with secondary benefits to sage grouse, have also been implemented in exploration and production operations carried out within the GrSG range, both as voluntary efforts and as measures undertaken in compliance with regulatory requirements. These improvements in operational efficiency translate into reduced drilling and completion times, reductions in operational footprints, reduced noise and truck traffic, and therefore, reduced disturbance to sage grouse and other species. Virtually all of these innovations came after the primary and most influential studies on which the NTT and COT Reports rely were conducted (i.e. after 2006)

The Pinedale Planning area is an area in which a significant population of the GrSG occurs as well as a region within which periods of noteworthy oil and natural gas resource development have taken place during the past 100 years. Therefore, we think it is particularly important to note that another difference between past and current oil and natural gas development, particularly in the Pinedale Planning Area, has been the implementation of extensive mitigation measures designed to reduce overall impacts to sage grouse and enhance their habitat. Pinedale was the subject of many of the reports upon which the findings and conclusions of the NTT and COT Reports were based. These factors demonstrate the importance of BLM's management of these lands and lands elsewhere in the range of the GrSG being informed by the best available science (Attachment E).

What would be the most effective strategy to ensure that an effort to revise and update LUPs are not again influenced by misguided information and recommendations of the Monograph and NTT, COT, and Buffer reports? With over 150 scientific papers and reports produced on greater sage-grouse biology and conservation since 2014, a straightforward solution would be to either file new DQA challenges, describing why the Monograph and reports are outdated and superseded by new research, or work with the BLM to help them reach the same conclusion and revise its contested RMPs accordingly

we produced our annotated bibliography as a spreadsheet (Attachment F). This spreadsheet lists: the lead author, citation, implications, whether it supersedes the NTT or COT reports, the primary issue addressed, the significance of the findings, and additional comments. We have also flagged papers for additional review because of their potential to be highly influential during the upcoming USFWS status review and land use plan revisions. After reviewing these papers, several key observations emerge: 1) The science that has been published since 2015 is extensive and collectively supersedes the NTT and COT reports. Importantly, improved methodologies such as: refined technology to estimating GRSG

seasonal habitat, models that incorporate climate variables to predict population trends, and cause and effect mechanisms that drive predation or disturbance. Additionally, several recent papers document how new oil and gas technologies (i.e. directional drilling) and environmental regulations (i.e. Wyoming's Core Areas) have measurably reduced impacts to GRSG. Similarly, genetic studies with large sample sizes and data from GPS tagged birds reveal that GRSG disperse over much greater distances than previously thought, refuting previous assumptions central to the NTT and COT reports that GRSG dispersal was limited. These same data also refute the assumptions behind the extinction predictions by Garton et al. (2011) that were central to the COT report and the 2010 "Warranted but Precluded" ESA-listing decision. And finally, this new body of science provides extensive documentation of refined mitigation measures and habitat restoration that reduce impacts to GRSG. This dramatically improved body of research is more precise and reliable than the studies previously relied upon in the NTT, COT, Buffer Report, and land use plans.

We expect that anthropogenic climate change will be cited in the upcoming USFWS status review as a serious threat to sage grouse. That assessment is based on multiple papers that make long-range projections regarding the future of GRSG habitat, forward in time to 2050, 2070, and 2100. The weakness of these papers however, is three-fold. First, these papers base their long-range predictions on downscaled general circulation models (IPCC or similar) and rely on linking outputs of several models, thus multiplying uncertainty. Second, we found that at least two of these papers utilize the "unlikely high-risk future" scenarios of the IPCC Representative Concentration Pathway RCP8.5. A recent January 29, 2020 paper in the journal *Nature* pointed out the fallacy of basing predictions on such worst-case scenarios as they are highly unlikely to come true (<https://www.nature.com/articles/d41586-020-00177-3>). And third, such long-range predictions are inherently untestable as hypotheses because: a) their predictions extend far enough into the future that they exceed a typical human career span (i.e. 30 years), thus it is highly unlikely that they will ever be tested, and b) because of the fast pace of climate science, no one bothers to testing the validity of such predictions at shorter intervals in the first place. This general lack of potential falsifiability puts many climate science predictions outside the realm of empirical, testable science.

numerous papers point to a stable or not-so troubling GRSG declines to a stable equilibrium, there are a handful of authors who consistent seem to find severe, ongoing declines in the same data sets. It would be worthwhile reviewing these papers in detail to understand why this is the case. These reviews should be completed before the USFWS status review gets underway

It is well documented in the scientific literature that annual fluctuations in sea surface temperatures in the North Pacific Ocean drive multi-year variation in temperature and precipitation patterns in western North America. The Pacific Decadal Oscillation (PDO) is an index of the sea surface temperature variation in the North Pacific Ocean that has a significant influence on temperature and precipitation patterns (<http://research.jisao.washington.edu/pdo/PDO.latest>). This regional climatic variation (i.e. periodic fluctuations in large-scale weather patterns) in turn affect marine and terrestrial plant and animal population cycles, and contributes to phenomena such as summer heat and fire frequency in the western USA. Large-scale climate indices, such as the PDO, often outperform local temperature and precipitation data in predicting population dynamics and ecological processes (Stenseth et al. 2002; Hallett et al. 2004). Multiple authors have reported that greater sage-grouse populations experience cyclic fluctuations, and that these population dynamics are linked to patterns of temperature and precipitation, or the PDO, which affect reproduction and survival (Blomberg et al., 2012, 2014, 2017;



Green, Aldridge & O'Donnell, 2016; Coates et al., 2016; Gibson et al., 2017; Ramey et al. 2018). This relationship between climatic variation on population dynamics of greater sage-grouse is not surprising as there is a long and ecologically important history of studies examining the influence of climatic variation on the population dynamics of other tetraonids, including black grouse, ptarmigans, and prairie chickens. Those papers include: Moran (1952, 1954); Ranta, Lindstrom & Linden (1995); Lindström et al. (1996); Cattadori, Haydon & Hudson (2005); Ludwig et al. (2006); Kvasnes et al. (2010); Selås et al. (2011); Viterbi et al. (2015); Ross et al. (2016); Hagen et al. (2017). Significance The significance of these findings to the conservation of sage grouse, and to future land use plans in particular, are threefold: 1) State and federal agencies need to account for the predictable responses to periodic regional climatic fluctuations when managing sage grouse in Wyoming and elsewhere in the western USA in an adaptive management framework. This is especially important as the current USFS and BLM Land Use Plans for greater-sage grouse make no mention of this obviously important demographic phenomenon. 2) Policies based on population "triggers" (i.e. additional restrictions and conservation measures that are implemented when a population dips to a certain level) are flawed unless the effects of the PDO are taken into account so that natural fluctuations are not misinterpreted. Such triggers should be defined as the percent divergence from the expected carrying capacity, with the carrying capacity tracking the regional climate. Several of the current triggers will be tripped during the course of natural population fluctuations. 3) The current pattern of the PDO indicates that sage grouse populations will be at a temporary low ebb in 2020 when the US Fish and Wildlife Service conducts a status review and reconsiders an Endangered Species Act "threatened" listing

Neilson et al. (2005) were the first to hypothesize that inter-annual and inter-decadal climate variability of El Niño-La Niña (ENSO) and the Pacific Decadal Oscillation (PDO) affect sagebrush ecosystem dynamics in the Great Basin, with the PDO being the primary driver of wet-dry cycles

Fedy and Doherty (2011) Reported on the synchrony between population cycles of Wyoming cottontail rabbits (*Sylvilagus* spp.) and greater sage-grouse, and hypothesized "a broad-scale causal influence" of weather cycles affecting these species.

Blomberg et al. (2012) reported that as much as 75% of the annual variance in greater sage-grouse population size in their study area over 12 years could be accounted for with annual variation in precipitation variables. The authors concluded that, "These results are consistent with bottom-up regulation of sage-grouse populations, where abundance is determined in large part by climate-driven variation in resource availability."

Guttry et al. (2013) reported that large-scale climatic variability in Utah and Idaho plays a primary role in determining greater sage-grouse reproductive success and that temperature and precipitation variables were found to have significant effects on chick survival. They concluded that, "An understanding of large-scale population drivers is essential for effective wildlife conservation planning and provides a baseline for developing meaningful hypotheses about specific local factors affecting populations at smaller spatial and temporal scales."

Coates et al. (2016 and 2017) demonstrated the importance of modeling climatically driven population cycles of sage grouse in Nevada and eastern California to understand "the difference between when populations are responding naturally to weather related patterns, compared to experiencing more localized- and habitat-based declines."

**3D seismic surveys** The rapid evolution of 3D seismic survey technology and its widespread adoption in the mid-1990s was arguably the most significant change to how oil and gas exploration and development occurred in sage grouse habitat (Gray et al. 2002; Chopra and Marfurt 2005). While this technology resulted in the discovery and development of new oil and gas fields, it also led to far more efficient and concentrated development of those resources than was previously possible. Consequently, the previous practice of grading access roads and drilling numerous exploratory "wildcat wells" across the landscape became obsolete by the late 1990s. With concentrated development possible directly over the most concentrated resources, planned oil and gas development was possible along with large, planned conservation set-asides for sage grouse and other species. In the Pinedale Planning Area, this led to large no surface occupancy areas being set aside by the BLM for sage grouse and other species. To visualize one-hundred years of change in surface development in the Pinedale Planning Area, from the era of wildcat well exploration and development to 3D seismic exploration and development (post 1995)

The most environmentally-significant of these new technologies has been improvements to and widespread adoption of directional drilling (Arthur and Cornue 2010; BLM 2006a; Ramey, Brown, and Blackgoat 2011; Seto 2011; Applegate and Owens 2014). Directional drilling involves drilling multiple wells (up to 50 presently) that angle away from a centralized well pad and single rig to tap oil and gas deposits a mile or more away and thousands of feet below the surface ([https://www.rigzone.com/training/insight.asp?insight\\_id=295](https://www.rigzone.com/training/insight.asp?insight_id=295)). This is a far more efficient, economical, and less environmentally impactful method than drilling many vertical wells to tap the same resource, because operators can access subsurface resources over a broad area from a single pad. (Directional wells that start vertically and make a 90-degree turn to traverse laterally to access in horizontal strata are known as horizontal wells.) Formerly, many closely-spaced vertical wells on separate pads were required to tap the same resource, which resulted in extensive surface disturbance, such as that seen in aerial photographs of the Jonah Field in Wyoming in the early 2000s. The Jonah Field underwent extensive vertical drilling in the 1990s before the widespread adoption of directional drilling and more stringent regulations on well pad spacing. While many directional wells currently traverse laterally a distance of less than two miles, the most recent records for lateral distance is 6.1 miles in the USA and 6.8 miles in Qatar (<https://www.drillingcontractor.org/corva-helps-break-north-american-drilling-record-for-longest-lateral-with-32468-ft-well-53647>; <https://www.guinnessworldrecords.com/world-records/longest-drilled-oil-well/>). These records illustrate that under ideal conditions a single well pad has the potential to access oil and gas resources in a subsurface area of over 19 square miles (12,265 acres) with minimal surface disturbance. Data from the Pinedale Planning Area shows that the transition from predominantly vertical wells to directional wells occurred around 2004 (Figure 1). This represented a major shift in drilling efficiency and subsequently less surface disturbance. Directional wells now account for virtually all of the wells drilled in the Pinedale Planning Area and those planned for the Normally Pressurized Lance Field. More recently, advances in computational geoscience coupled with down-hole, near-the-drill-bit gamma ray, resistivity, and navigational sensors, allow real-time, high resolution 3D visualization of subsurface features in rocks surrounding the bore as drilling proceeds. This technology, coupled with the advent of rotary steerable system drill bits (first introduced on the Pinedale Anticline in 2008) dramatically decreases drilling time (Okafor et al. 2009). This combination of technologies, along with more recent advances in dynamic point-the-bit rotary steerable systems and analytical software has ushered in a new era of "geosteering" which has further increased the efficiency of tapping subsurface resources (Zhang et al. 2019). In simple terms, higher drilling efficiency translates into less surface disturbance and activity above ground, both of which can affect sage grouse. Directional drilling of multiple wells from the same well pad has also led to a new type of operational efficiency, one

that was not possible during the single-well-per-pad-era: the co-location of supporting infrastructure for completion and production activities being simultaneously carried out on different wells drilled from the same well pad. This translates into reduced surface disturbance, equipment moving on and off site, and manpower required. For example, drilling rig moves that used to take 150 or more truck trips to move between pads, are now accomplished by skidding the rig a few feet to a nearby location on the same pad (Kreckel, 2011). See attachment for Figure 1. Figure 1. Annual number of vertical and directional wells drilled by the oil and gas industry in the Pinedale Planning Area from 1973 to 2012. The annual number of traditional vertical bore wells is indicated in red, and directional wells (including horizontal wells) are indicated in blue. The transition from predominantly vertical wells to directional wells took place in 2004. As of 2010, virtually all new wells drilled in the Pinedale Planning Area are directional wells.

Advances in technology allow shorter drilling and completion times, reducing potential disturbance to sage grouse. More efficient technology has also resulted in shorter drilling and well completion times. While the averages we report show marked improvement (from spudding to completion), it should be noted that these completion times also include periods of inactivity at a well site due to interruptions from logistical and seasonal constraints. Therefore, actual drill and completion times (not including inactive periods), may provide a more accurate portrayal of the duration of potentially disturbing activities to sage grouse. For example, companies reported that drilling a well on the Pinedale Anticline (with an average depth of 13,000 feet) took an average of 65 days in 2002 and this decreased to 35 days by 2006 (OGJ 2007). By 2011 this had improved further, to an average of 14 days of drilling to depth, and in 2013, QEP Resources reported that they had achieved a well to depth time of 9.3 days, a new record (QEP 2013). Similar improvements in drilling and completion efficiency have been reported elsewhere (DTC Energy Group 2013). Overall, uninterrupted completion times have dropped from six months to as few as 2 to 3 days in 2013 (AECOM 2013). Currently (as of January 2020), the average well depth on the Pinedale Anticline is 13,700 feet and drilling from spud to total depth takes an average of 8 days (range 6 to 10 days). Completions take approximately 3 days for two wells which are done in pairs for greater efficiency (data from Ultra Resources, Inc.). Collectively, these data illustrate that much has changed in drilling and completion technology over the 18 years from 2002 to 2020, resulting in reduced industrial activity and subsequent potential disturbance to sage grouse.

Beginning in the early 2000s closed-loop drilling fluid systems began to replace open reserve pits adjacent to wells being drilled. Closed-loop drilling fluid systems are a best management practice that has emerged as a more environmentally responsible and economically viable alternative to open reserve pits and evaporation ponds that require frequent truck trips, can trap sage grouse and other birds, and represent a potential source of groundwater pollution (US Environmental Protection Agency 2019). Closed-loop systems separate drilling fluid from drill cuttings and other solids, which are dewatered for solid waste disposal in landfills. Water is then recycled back into the drilling process, minimizing fresh water use and making solid waste easier to dispose of (Colorado School of Mines. 2009; Pei et al. 2011). While an increasing number of companies have adopted closed loop drilling systems and on-site water purification systems to recycle produced water (Colorado Department of Natural Resources 2019, as cited in U.S. Environmental Protection Agency 2019), some have gone further and implemented a comprehensive, field-level liquid gathering systems (LGS) and water purification facilities. The most notable of these liquid gathering and water purification facilities went online on the Pinedale Anticline in 2012 and was designed to eliminate 165,000 truck trips per year (BLM 2005). A study conducted over two winters reported that the LGS system reduced overall human activity at LGS-equipped well pads, as compared to conventional well pads, by at least a factor of two and thereby reduced avoidance by sage

grouse (Holloran et al. 2015). That study concluded that "implementing efforts to decrease anthropogenic activity levels associated with infrastructure of natural gas fields during both drilling and production phases of development (i.e. using LGS) may also help reduce effects of the infrastructure on wintering sage-grouse." A similar LGS and water purification system is also planned for the Normally Pressurized Lance Field for the same reasons

Other advancements in operational efficiency, with secondary benefits to sage grouse, have also been implemented in the Pinedale Planning Area, both as voluntary and regulatory efforts. The most significant of these to sage grouse have included: - Installation of remote telemetry systems to monitor wells and condensate tanks (initiated in 2008 and completed in 2012; BLM 2008a,b). - Electrification of the Pinedale Anticline (BLM 2012), allowing equipment to be powered with electricity rather than internal combustion generators and motors. While this change was originally intended to reduce high levels of ozone accumulation in the Pinedale Planning Area, it has the secondary benefit of reducing engine noise and truck traffic (needed to refuel and maintain internal combustion engines). - Required use of EPA compliant Tier II diesel engines on drill rigs, with phase out into more efficient Tier III and IV designs, all of which reduce noise (and pollutants) compared to non-compliant engines in use prior to 2006. Collectively, these improvements in efficiency translate into reduced drilling and completion times, reduced noise and truck traffic, and therefore, reduced disturbance to sage grouse and other species. Virtually all of the innovations listed above came after the primary and most influential studies were conducted at Pinedale (i.e. after 2006). Admittedly, the development of more efficient oil and gas development and production technology is often driven by economic considerations, however the benefits to the environment are obvious: reduced drilling and completion time which translates into less noise, less traffic, and less overall disturbance to wildlife

The biggest limitation of a statistical approach is the uncertainty in the effect of an individual project. At more local scales, this uncertainty can be substantially reduced by including data from other similar projects in the analyses while allowing for inter-project variation in the response (LaMontagne et al. 2002) through a random effect (Kéry 2010). Large-scale projects such as land-management plans may have to be broken into a series of smaller activities in order to estimate the effect with sufficient certainty for it to be useful in decision-making. The models should strive to analyse all available lek count data including historical counts using stage-based population dynamic models (Kery and Schaub 2011; McCaffery and Lukacs 2016). The advantages of stage-based population dynamic models are that multiple sources of information for different life-stages and sexes including prior information from previous analysis can be readily incorporated while lags are readily accounted for thus providing tighter linkages between population drivers and lek counts. However, computational memory and/or run-time requirements may necessitate the fitting of simpler models to reduced datasets if they cannot be overcome through the use of supercomputers

Mining Author: Petersen et al. Year: 2016 Title: Response of greater sage-grouse to surface coal mining and habitat conservation in association with the mine: Human-Wildlife Interactions, v. 10, no. 2, p. 205-216. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: The authors conclude that surface coal mining and associated mitigation did not cause a decline in the existing GRSG population at the Alton/Sink Valley area of southwest Utah. Habitat fidelity and acclimation to a long history of anthropogenic activities may have affected GRSG behavior in this region. GRSG at this location did not avoid mining activities as other GRSG populations have been observed to

do elsewhere in the range. Supersedes NTT: Yes Supersedes COT: Yes Issue: Coal mining; mitigation Significance: Lack of avoidance is notable, the question is why?

Predation Author: Harju et al. Year: 2018 Title: Common raven movement and space use: influence of anthropogenic subsidies within greater sage-grouse nesting habitat: *Ecosphere*, v. 9, no. 7, article e02348, 16 p, <https://doi.org/10.1002/ecs2.2348>. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: Lethal control of ravens at primary subsidies likely does not impact breeding ravens, who tend to utilize these sources less and pose a greater threat to GRSG through nest depredation. Inducing nest failure may cause ravens to change their space use and movement patterns to a wider-ranging nonbreeding pattern, which would likely, and leave them more vulnerable to lethal control at primary subsidies. Supersedes NTT: Yes Supersedes COT: Yes Issue: Predation; mitigation (Technique refinement) Significance: Ravens Comments: Potential method to disrupt raven behavior making them more susceptible to lethal control.

Author: Creutzburg et al. Year: 2015 Title: Climate change and land management impact rangeland condition and sage-grouse habitat in southeastern Oregon: *AIMS Environmental Science*, v. 2, no. 2, p. 203-236. Implications: This paper, "evaluated varying scenarios of future climate and management and their implications for rangeland condition and habitat quality, ... simulations indicate that climate change may have both positive and negative implications for maintaining sage-grouse habitat." Supersedes NTT: Yes Supersedes COT: Yes Issue: Climate (long range predictions) Significance: Potential changes to habitat are positive and negative for GRSG Comments: "Linking multiple models creates greater complexity and creates new opportunities for error." In this case, four models with unknown error.

Climate (long range predictions) Author: Homer et al. Year: 2015 Title: Forecasting sagebrush ecosystem components and greater sage-grouse habitat for 2050-Learning from past climate patterns and Landsat imagery to predict the future. *Ecological Indicators*, v. 55, p. 131-145. Implications: Predicted losses of GRSG habitat to 2050 based on two extreme scenario, downscaled IPCC general circulation models. Issue: Climate (long range predictions) Significance: Questionable long-range predictions Comments: Caveats: Old error-prone data mixed with new data (1984-2011); Predictions rely on two highest anthropogenic radiative forcing models

Climate (long range predictions) Author: Balzotti et al. Year: 2016 Title: Beyond the single species climate envelope-A multifaceted approach to mapping climate change vulnerability: *Ecosphere*, v. 7, no. 9, article e01444, 23 p., <https://doi.org/10.1002/ecs2.1444>. Implications: Long-range predictions of habitat changes in Nevada and Utah (to 2070) were based on machine-learning software utilizing regional predictions derived from previously published, downscaled global general circulation models and data from 1961-90 "normal period." Issue: Climate (long range predictions) Significance: Long-term predictions on habitat or population trends Comments: Caveat: Long range predictions to 2070. Predictions untestable.

Climate (long range predictions) Author: Boyte et al. Year: 2016 Title: Boyte, S.P., Wylie, B.K., and Major, D.J., 2016, Cheatgrass percent cover change-Comparing recent estimates to climate change-driven predictions in the northern Great Basin: *Rangeland Ecology and Management*, v. 69, no. 4, p. 265-279. Implications: Identified areas where cheatgrass was likely to change and projected the potential future magnitude of change for years 2050 and 2070. Climate projections were based on scenarios from the Intergovernmental Panel on Climate Change (IPCC) for 2050 and 2070. Issue: Climate (long range predictions) Significance: Evaluated potential cheatgrass spread in future Comments: Caveat: Climate projections based on scenarios derived from IPCC general circulation models

Climate (long range predictions) Author: Palmquist et al. Year: 2016 Title: Mid-latitude shrub steppe plant communities-Climate change consequences for soil water resources: *Ecology*, v. 97, no. 9, p. 2342-2354 Implications: Long-range predictions (to 2100) based on global circulation models (GCM), representative concentration pathways (RCPs), and process-based soil water model. Longer, drier summers will likely have a negative effect on sagebrush regeneration and seedling survival and may result in changes to plant functional group composition within current GRSG habitats. Outcome depends on GCM chosen. Issue: Climate(long range predictions) Significance: Questionable very long-range predictions Comments: Caveats: Predictions based on down-scaled general circulation models and outputs of multiple linked models.

Climate (long range predictions) Author: Palmquist et al. Year: 2016 Title: Spatial and ecological variation in dryland ecohydrological responses to climate change- Implications for management: *Ecosphere*, v. 7, no. 11, article e01590, 20 p., Implications: Long-range predictions (2050) based on GCM and RCPs. Predict drier summer conditions in higher elevation areas could lead to increased suitability for big sagebrush, whereas mid to lower elevation sites could become less suitable for big sagebrush and consequently GRSG. This information could help prioritize areas for conservation of shrub steppe ecosystems into the future (but they do not say how). Issue: Climate (long range predictions) Significance: Questionable long-range predictions based on most extreme warming scenario (i.e. 5°C by 2100). Comments: Caveat: Predictions based on most extreme scenario RCP8.5 (i.e. unlikely high-risk future) and outputs of multiple linked models.

Regional climatic variation and weather Author: Caudill et al. Year: 2016 Title: Factors affecting seasonal movements of juvenile greater sage-grouse-A reconceptualized nest survival model: *The Condor*, v. 118, no. 1, p. 139-147. Implications: Results suggested that precipitation, rather than snow accumulation or depth, was the primary driver of juvenile migration. Movement from late fall habitats to winter habitats was variable, indicating that the effects of harvest may vary with harvest timing and its relation to seasonal movements. Changes in climate may negatively affect GRSG if the onset of winter conditions is delayed, affecting the movement of juveniles to winter habitat. The model application presented here may be used to develop a better understanding of relations between environmental factors and GRSG behavior. Supersedes NTT: Yes Supersedes COT: Yes Issue: Seasonal climate and juvenile GRSG migration; Technique refinement: hunting season Significance: Measurable effects of weather on seasonal movements and habitat use; prioritization of management

Regional climatic variation and weather Author: Gibson et al. Year: 2017 Title: Weather, habitat composition, and female behavior interact to modify offspring survival in greater sagegrouse: *Ecological Applications*, v. 27, no. 1, p. 168-181. Implications: The authors evaluated relations between (1) weather and brood survival, (2) drought and breeding site selection, and (3) shifts in breeding site selection and brood survival of GRSG. Chick survival was negatively related to drought severity. Nest sites at low elevations may contribute little to reproduction in drought years, and extended droughts may be detrimental to GRSG populations that cannot access high elevation sites. Supersedes NTT: Yes Issue: Climate (local/seasonal and regional drought) Significance: Local/seasonal effects of weather and drought on vital rates, nesting behavior, and population Comments: GRSG exhibit behavioral response to drought although prolonged drought can be deleterious.

Regional climatic variation and weather Author: Coates et al Year: 2018 Title: The relative importance of intrinsic and extrinsic drivers to population growth vary among local populations of greater sage-

grouse: an integrated population modeling approach: AUK, v. 135, no. 2, p. 240-261. Implications: Using integrated population modeling allowed the authors to disentangle the effects of precipitation variability on GRSG populations at the DPS level from those at the sub-population level. This information will help resource managers understand how growth rates in the Bi-State DPS can appear stable, while at the same time, certain sub-populations may decline due to extrinsic factors such as drought, unless management actions are taken. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; population trends Significance: Measurable local, seasonal effects of precipitation variability on population dynamics.

Regional climatic variation and weather Author: Mathews et al. Year: 2018 Title: An integrated population model for greater sage-grouse (*Centrocercus urophasianus*) in the bi-state distinct population segment, california and nevada, 2003-17: US Geological Survey Open-File Report 2018-1177, 89 p., <https://doi.org/10.3133/ofr20181177>. Implications: Results suggested that GRSG use increased following pinyon-juniper conifer removal treatments. Modeling showed annual variations in subpopulations, with an overall 2 percent decline in the Bi-State population from 2003 to 2017. The overall decline in the Bi-State population was likely a result of drought events; subpopulations that are stable or increasing are insulated from drought due to water availability. Issue: Climate (regional variation and drought); Habitat restoration; Translocation Significance: Population trends in response to drought, Positive response to habitat restoration) Comments: Increased GRSG use after tree removal, drought causes population declines. Mixed results for translocated broods.

Regional climatic variation and weather Author: Ramey et al Year: 2018 Title: Local and population-level responses of greater sage-grouse to oil and gas development and climatic variation in Wyoming: PEERJ, v. 2018, no. 6, p. e5417, <https://doi.org/10.7717/peerj.5417>. Implications: Hierarchical models were used to estimate the effects of the areal disturbance due to well pads as well as climatic variation on individual lek counts and Greater sage-grouse populations (management units) over 32 years. Modeling revealed that oil and gas had a strong negative effect on local-scale lek attendance within a 3.2 km radius around a well. Oil and gas was a weak predictor of population-scale changes, but appeared consistent with local-scale responses. The PDO was found to be a strong predictor of long-term population density fluctuations at local and population scales. Supersedes NTT: Yes Supersedes COT: Yes Issue: Climate (regional climatic variation); population fluctuations; oil & gas Significance: PDO was the major driver of population trends rather than oil and gas development Comments: Wildlife agencies need to account for the effects of regional climatic variation when managing sage-grouse populations.

Translocation and Captive Breeding for GRSG Restoration Author: Thompson et al. Year: 2015 Title: Captive rearing sagegrouse for augmentation of surrogate wild broods-Evidence for success: Journal of Wildlife Management, v. 79, no. 6, p. 998-1013. Implications: Egg collection and hatching, rearing, and adoption of captive-raised chicks into wild broods is feasible. Supersedes NTT: Yes Supersedes COT: Yes Issue: Captive rearing GRSG; itigation Significance: Another paper showing population augmentation is feasible

Translocation and Captive Breeding for GRSG Restoration Author: Gruber-Hadden et al. Year: 2016 Title: Population vital rates of resident and translocated female greater sage-grouse: Journal of Wildlife Management, v. 80, no. 4, p. 753-760. Implications: Retention of translocated GRSG within the targeted release site was 82 percent. There was not statistical support for a difference between resident and translocated birds for female, nest, and chick survival. Nest initiation rates and clutch sizes were

generally higher for residents compared to translocated GRSG. Nest success was positively related to grass height. Successful translocations will depend on resolving issues that have imperiled the resident population. Supersedes NTT: Yes Supersedes COT: Yes Issue: Mitigation Significance: Translocation Comments: Small sample size, more data needed

Translocation and Captive Breeding for GRSG Restoration Author: Apa, et al. Year: 2017 Title: Apa, A.D., Thompson, T.R., and Reese, K.P., 2017, Juvenile greater sage-grouse survival, movements, and recruitment in Colorado: Journal of Wildlife Management, v. 81, no. 4, p. 652-668. Implications: Experimentally introduced domestically-hatched chicks into existing wild broods. Was deemed successful because survival rates of these birds were comparable to wild-hatched birds. Supersedes NTT: Yes Supersedes COT: Yes Issue: mitigation; translocation Significance: Translocation successful; reintroduction and augmentation are viable techniques Comments: Successful experimental reintroduction technique.

Translocation and Captive Breeding for GRSG Restoration Author: Duvuvuei et al. Year: 2017 Title: Contribution of translocated greater sage-grouse to population vital rates: Journal of Wildlife Management, v. 81, no. 6, p. 1033-1041. Implications: Translocating adult females may maximize translocation success overall, as adults are more likely than juveniles to raise a brood in the first year. Authors recommend continuing monitoring for multiple years following translocations. They suggest that factors causing declines in the focal GRSG population be mitigated prior to receiving translocated females. Supersedes NTT: Yes Supersedes COT: Yes Issue: Mitigation Significance: Translocation/population augmentation Comments: One of several recent studies that have shown translocation is a useful tool for GRSG conservation.

Translocation and Captive Breeding for GRSG Restoration Author: Ebenhoch et al. Year: 2019 Title: Effects of post-release movements on survival of translocated sage-grouse: The Journal of Wildlife Management, v. 83, no. 6, p. 1314-1326. Implications: Supersedes NTT: Newly translocated GRSG had smaller home ranges and traveled longer daily distances than either resident or previously translocated birds, but distances moved between seasonal centers did not differ among the three groups. Annual survival was not significantly lower in newly translocated birds; males and birds that moved greater daily distances had greater mortality risk. Newly translocated birds initiated nests less often than other groups, but nest initiation date and nest survival did not vary with residency status. Nest success was higher when nests were initiated later in the nesting season. Resident GRSG nested farther from active leks than translocated birds. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique improvement; Mitigation Significance: Translocation of GRSG is a potential tool for augmenting declining populations or reestablishing ones that have been extirpated. Comments: It has long been argued that translocation is unsuccessful despite data to the contrary (Strawberry Hill). This information also suggests that survival of translocated birds does not differ from resident birds

Translocation and Captive Breeding for GRSG Restoration Author: Heinrichs et al. Year: 2019 Title: Optimizing the use of endangered species in multi-population collection, captive breeding and release programs: Global Ecology and Conservation, v. 17, article e00558, 12 p, <https://doi.org/10.1016/j.gecco.2019.e00558>. Implications: Modeled tradeoffs of releasing captive bred birds to augment populations. Reported, "Releases into small and rapidly declining populations provided the greatest near-term reductions in extinction risk, but improvements were short-term. Yet releases into larger and more stable populations resulted in longer lasting conservation benefits than in more



vulnerable populations but required greater initial release effort. Systematic modeling approaches that evaluate a spectrum of trade-offs and quantify conservation risks and benefits can help direct the expectations and effort invested in captive breeding and release programs." Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; captive breeding and release Significance: Captive breeding and release is a potentially effective tool to bolster wild populations.

Improved Habitat Mapping and Assessment Author: Gibson et al. Year: 2015 Title: Observer effects strongly influence estimates of daily nest survival probability but do not substantially increase rates of nest failure in greater sage-grouse: *The Auk*, v. 132, no. 2, p. 397-407 Implications: Observer-induced nest abandonment can decrease estimates of daily nest survival. The authors recommend assessing the potential costs and benefits of nest surveys on sensitive populations and incorporating bias corrections into estimates of nest survival. Supersedes NTT: Yes Issue: Technique refinement; nest survival studies Significance: Researchers can have deleterious effect on parameter they are studying. Comments: Raises concern that some previous studies may have biased results.

Improved Habitat Mapping and Assessment Author: McCaffery et al. Year: 2016 Title: Improved analysis of lek count data using N-mixture models: *Journal of Wildlife Management*, v. 80, no. 6, p. 1011-1021 Implications: The authors found that N-mixture models produced more accurate population trend estimates than naive lek count data, largely because they corrected for substantial year-to-year variability in detection probability. Using naive lek count data may result in inaccurate and misleading estimates of GRSg population size and trend when compared to results obtained by using an N-mixture modeling approach that can better account for variable detection probability and missing data. The authors provide suggestions for lek monitoring designs that can be analyzed using N-mixture models Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; population trend estimates Significance: Highly significant paper on estimating population trend estimates than traditional methods from lek count data. Comments: Additional review suggested

Improved Habitat Mapping and Assessment Author: McCaffery and Lukacs Year: 2016 Title: A generalized integrated population model to estimate greater sage-grouse population dynamics: *Ecosphere*, v. 7, no. 11, article e01585, 14 p., Implications: Integrated population models improved estimates of annual GRSg population dynamics by smoothing variability attributable to sampling noise. The authors conclude that their integrated population model framework could provide robust assessments of population size and trend, information on mechanisms underlying observed trends, and a unified tool for use by GRSg biologists studying various populations throughout the range of the species. The authors suggest that future field sampling efforts should seek improved information on sex and age ratios, female population sizes, sex-specific survival rates by life stage, and the proportion of leks surveyed annually in a given area. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement: Improved analysis of lek count data using N-mixture models Significance: Highly significant paper for future estimating of population trends and abundance Comments: Additional review suggested

Improved Habitat Mapping and Assessment Author: Caudill et al. Year: 2017 Title: Individual heterogeneity and effects of harvest on greater sage-grouse populations: *Journal of Wildlife Management*, v. 81, no. 5, p. 754-765. Implications: "Using the revised formulae, the authors demonstrated that effects of selective harvest on grouse tend to be compensatory [adult mortality contributes to reduced productivity and/or survivorship in the population] when robust individuals are more susceptible to harvest, and some level of compensation is likely when frail individuals are more

susceptible to harvest." Issue: Technique refinement; Hunting Significance: Mitigating potential population-level effect of hunting Comments: Example of effective application of determining cause and effect mechanisms for effective mitigation.

Improved Habitat Mapping and Assessment Author: Forby et al. Year: 2017 Title: Emerging technology to measure habitat quality and behavior of grouse-Examples from studies of greater sage-grouse: Wildlife Biology, article wlb.00238, 10 p., <https://doi.org/10.2981/wlb.00238> Implications: Significant changes in our understanding of GRSG ecology may arise from new technologies, but they will require scientific testing, calibration, and communication between managers and scientists to overcome challenges and target data collection and use Supersedes NTT: Yes Issue: Potential technique refinements Significance: Showcasing of various potential Improvements in methodology via UAVs, spectral imaging, robotic animals and biotelemetry systems. Comments: Caveat: Except for spectral imaging of vegetation, seems like high tech methods in search of a question.

Improved Habitat Mapping and Assessment Author: Fregman et al. Year: 2017 Title: Necklace-style radio-transmitters are associated with changes in display vocalizations of male greater sage-grouse: Wildlife Biology, article wlb.00236, 8 p., <https://doi.org/10.2981/wlb.00236>. Implications: Vocalizations made by males with necklace-style radio transmitters fell outside the normal range of vocalizations produced by males throughout the range of GRSG, suggesting that radio collars may impair their ability to produce normal vocalizations. The use of necklace-style collars that sit on the necks of GRSG are not recommended for use in behavioral studies of GRSG. Alternative attachment methods should be developed and tested. Supersedes NTT: Yes Issue: Technique refinement Significance: Necklace-style transmitters alter behavior. Comments: Raises concern that previous studies that used this and other outdated technology may have biased results.

Improved Habitat Mapping and Assessment Author: Hagen et al. Year: 2018 Title: Estimating sex-ratio, survival, and harvest susceptibility in greater sage-grouse: making the most of hunter harvests: Wildlife Biology, article wlb.00362, 7 p., <https://doi.org/10.2981/wlb.00362>. Implications: The authors suggest that demographics of harvested populations can be modeled for GRSG or other game birds using a mark-recovery approach of harvested individuals. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; population estimation Significance: Hunter harvested sage grouse are an important source of data on survivorship. Comments: Caveat: requires hunting

Improved Habitat Mapping and Assessment Author: Monroe et al. Year: 2019 Title: The importance of simulation assumptions when evaluating detectability in population models: Ecosphere, v. 10, no. 7, p. 1-17., <https://doi.org/10.1002/ecs2.2791>. Implications: Using simulation scenarios with systematic trends in detectability may be more informative for evaluating population models than scenarios that assume detectability is constant or random. With finite monitoring resources available, using auxiliary data on lek attendance to model GRSG populations with N-mixture models may allow more leks to be studied less intensively. However, additional investigation is needed to evaluate the extent to which auxiliary data are appropriate for different GRSG populations across their range. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; estimating abundance and population trend Significance: Simulations used to evaluate proposed analytical approach which performed favorably

Improved Habitat Mapping and Assessment Author: Severson et al. Year: 2019 Title: Global positioning system tracking devices can decrease Greater Sage-grouse survival: The Condor, v. 121, p. 1-15. Implications: The authors reported, "We found lower survival for GPS marked compared to VHF-

marked sage-grouse across most sex, age, and seasonal comparisons. Estimates of annual survival for GPS-marked sage-grouse were 0.55-0.86 times that of VHF-marked birds with considerable variation among sex and age classes. Differences in survival could be attributed to features associated with GPS devices, including greater weight, position of attachment (e.g., rump-mount harness), and a semi-reflective solar panel." Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; GPS tagging Significance: GPS tagged individual had decreased survival compared to older VHF rtechnology. Studies using GPS tags assume no cost to survival or fitness, an assumption obviously violated. Comments: Consistent with other studies. Previos studies using GPS may have biased results.

Improved Prioritization of GRSG Management Author: Dahlgren et al. Year: 2015 Title: Greater sage-grouse and range management-Insights from a 25-year case study in Utah and Wyoming: Rangeland Ecology and Management, v. 68, no. 5, p. 375-382. Implications: This retrospective analysis used 25 years of data across three large landscapes in northern Utah and southwestern Wyoming to assess sage-grouse population change and corresponding land management differences and sagebrush treatments (prescribed fire, chemical treatment, and grazing) in a case study design to test hypotheses and make recommendations based on research. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; habitat and population management Significance: Long-term research used to inform effective habitat and population management.

Improved Prioritization of GRSG Management Author: Carlisle et al. Year: 2018 Title: Identifying holes in the greater sage-grouse conservation umbrella: Journal of Wildlife Management, v. 82, no. 5, p. 948-957. Implications: The authors conclude that species with small distributions or those with habitat requirements that are only partly similar to those of GRSG will receive relatively fewer conservation benefits from GRSG as an umbrella species. These species may need seperate protections established for their conservation. The authors further suggest that applying the umbrella species concept to GRSG and sagebrush habitats requires attention to details regarding the umbrella species, habitat reserves created to benefit the species, and the degree of habitat similarity shared with co-occurring species. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; GRSG as a conservation "umbrella species" Significance: Prioritization of management actions; unintended consequences Comments: The NTT, COT, and LUPs completely fail to take into account other species and can have negative impacts on other species at a local level. The one-size fits all, single species managemnt approach has proven adverse effects to other species.

Improved Prioritization of GRSG Management Author: Hanser et al. Year: 2018 Title: Greater sage-grouse science (2015-17)-synthesis and potential management implications: U.S. Geological Survey, Open-File Report 2018-1017, 46 p., <https://doi.org/10.3133/ofr20181017>. Implications: This is a USGS synthesis of papers from the USGS annotated bibliography on GRSG literature by Carter et al. (2018) covering topics: The six primary topics were: Multiscale habitat suitability and mapping tools; Discrete anthropogenic activities; Diffuse activities; Fire and invasive species; Restoration effectiveness; Population estimation and genetics. Supersedes NTT: Yes Supersedes COT: Yes Issue: Literature review 2015-2018 Significance: Likely influential in USFWS 2020 status review. Comments: USGS literature review. Potentially influential, additional review recommended.

Habitat Improvement Author: Gustafson et al. Year: 2018 Title: Using object-based image analysis to conduct high-resolution conifer extraction at regional spatial scales: International Journal of Applied Earth Observation and Geoinformation, v. 73, p. 148 - 155. Implications: The maps produced can help to

inform land managers on where to target pinyon-juniper treatment in order to aid sagebrush restoration and GRSG conservation. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement Significance: Prioritization of management actions; Unintended consequences Comments: The NTT, COT, and LUPs completely fail to take into account other species and can have negative impacts on other species at a local level. The one-size fits all, single species management approach has proven adverse effects to other species.

Habitat Improvement Author: Gustafson et al. Year: 2018 Title: Using object-based image analysis to conduct high-resolution conifer extraction at regional spatial scales: *International Journal of Applied Earth Observation and Geoinformation*, v. 73, p. 148 - 155. Implications: The maps produced can help to inform land managers on where to target pinyon-juniper treatment in order to aid sagebrush restoration and GRSG conservation. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; habitat mapping; Pinyon-juniper treatment Significance: Habitat mapping; habitat restoration Comments: Potential technique for offset mitigation.

Habitat Improvement Author: Ricca et al. Year: 2018 Title: A conservation planning tool for greater sage-grouse using indices of species distribution, resilience, and resistance: *Ecological Applications*, v. 28, no. 4, p. 878-896. Implications: The CPT could help resource managers evaluate potential costs and benefits of treatments in particular locations in order to facilitate restoration prioritization decisions across landscapes used by GRSG. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; habitat restoration Significance: Prioritization of management; new planning tool Comments: An improved planning tool. Also undermines the argument that habitats cannot be restored by recognizing the BLM prioritization process for restoring lands needs improvement. This tool can help with that.

Habitat Improvement Author: Davee et al. Year: 2019 Title: Using beaver dam analogues for fish and wildlife recovery on public and private rangelands in Eastern Oregon: Research Paper PNW-RP-617. Northwest Climate Hub, U.S Department of Agriculture, Forest Service, Pacific Northwest Research Station, p. 32. Implications: Beaver dam analogues can improve habitat for fish and wildlife, including GRSG, but implementing this tool may require navigating new or yet-to-be established regulatory pathways and obtaining buy-in from private landowners and ranchers is an important consideration for increasing implementation of this tool. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; Mitigation; Habitat restoration Significance: Innovative method for habitat restoration; habitat expansion Comments: Expands mesic areas making them more resilient (potentially useful for drought/climate mitigation and/or conservation offset).

Mitigation-Restoration of Habitat - Pinyon-Juniper removal Author: Farzan et al. Year: 2015 Title: Western juniper management-Assessing strategies for improving greater sage-grouse habitat and rangeland productivity: *Environmental Management*, v. 56, no. 3, p. 675-683. Implications: The study showed that juniper removal can benefit both GRSG and cattle forage production, but the benefits depend on site characteristics and how sites were selected. Sites chosen to maximize forage did not substantially benefit GRSG. Sites chosen for GRSG habitat did benefit forage production, but larger habitat treatments had decreasing returns on investment. The benefits achieved for either goal were altered by agency coordination, budgetary constraints, and wildfire. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; pinyon-juniper removal Significance: Management can be

prioritized to benefit GRSG habitat and cattle forage Comments: Management actions can have a dual purpose.

Mitigation-Restoration of Habitat - Pinyon-Juniper removal Author: Coates et al. Year: 2017 Title: Pinyon and juniper encroachment into sagebrush ecosystems impacts distribution and survival of greater sage-grouse: *Rangeland Ecology and Management*, v. 70, no. 1, p. 25-38. Implications: From the authors: "Collectively, these results provide clear evidence that local sage-grouse distributions and demographic rates are influenced by pinyon-juniper, especially in habitats with higher primary productivity but relatively low and seemingly benign tree cover. Such areas may function as ecological traps that convey attractive resources but adversely affect population vital rates. To increase sage-grouse survival, our model predictions support reducing actual pinyon-juniper cover as low as 1.5%, which is lower than the published target of 4.0%." Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; Improved standards for pinyon-juniper removal Significance: New threshold for pinyon-juniper removal provided greater benefits to GRSG

Mitigation-Restoration of Habitat - Pinyon-Juniper removal Author: Prochazka et al. Year: 2017 Title: Encounters with pinyon-juniper influence riskier movements in greater sage-grouse across the Great Basin: *Rangeland Ecology and Management*, v. 70, p. 39-49. Implications: The authors conclude that GRSG are negatively affected by pinyon-juniper encroachment because this habitat type stimulates faster, high-risk movements, such as flight, which likely attract visual predators. Further, the study quantifies age-specific GRSG mortality risk when individuals move through landscapes containing pinyon-juniper stands. Supersedes NTT: Yes Supersedes COT: Yes Issue: Pinyon-juniper; predation risk Significance: Pinyon-juniper; predation risk Comments: Cause and effect mechanism explaining predation risk

Mitigation-Restoration of Habitat - Pinyon-Juniper removal Author: Reinhardt et al. Year: 2017 Title: The authors conclude that the optimization framework and models used in this study illustrate an approach, increasingly available to land managers, which can augment or complement standard expert-based approaches to planning and prioritization. Such approaches could reduce planning and implementation time for landscape-scale conifer removal treatments. Topics: broad-scale habitat characteristics, conifer expansion, new geospatial data, habitat restoration or reclamation Implications: Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; conifer removal Significance: Prioritization of management Comments: Improved methodology

Mitigation-Restoration of Habitat - Pinyon-Juniper removal Author: Davies and Bates Year: 2019 Title: Longer-term evaluation of sagebrush restoration after juniper control and herbaceous vegetation trade-offs: *Rangeland Ecology & Management*, v. 72, no. 2, p. 260-265. Implications: Following juniper control in dense stands that lack sagebrush, mountain big sagebrush re-establishment is likely to be accelerated by seeding, whereas herbaceous vegetation cover may be reduced. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; pinyon-juniper removal and sagebrush restoration

Mitigation-Wildfire Author: Davis and Crawford Year: 2015 Title: Case study-Short-term response of greater sage- grouse habitats to wildfire in mountain big sagebrush communities: *Wildlife Society Bulletin*, v. 39, no. 1, p. 129-137. Implications: The authors sought to identify the short-term (<11 year) response of GRSG nesting and brood-rearing habitats to wildfire. In mountain big sagebrush communities where sagebrush is abundant, the understory is composed of adequate native perennial grasses and forbs, and invasive annual grasses are limited, prescribed burning may be a useful tool for

improving GRSG nesting and brood-rearing habitat. The application of fire treatments in less mesic sagebrush communities with fewer forbs may not produce the desired results, which emphasizes that management decisions need to be made in light of existing conditions and documented GRSG seasonal habitat needs. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; prescribed fire Significance: Selective use of prescribed fire to improve GRSG habitat. Comments: Supersedes NTT because fire treatments may benefit higher elevation mountain big sagebrush communities i.e. not a one-size-fits-all strategy.

Mitigation-Wildfire Author: Coates et al. Year: 2016 Title: Wildfire, climate, and invasive grass interactions negatively impact an indicator species by reshaping sagebrush ecosystems: Proceedings of the National Academy of Sciences of the United States of America, v. 113, no. 45, p. 12745-12750. Implications: The authors describe, "Using three decades of sage-grouse population count, wildfire, and climate data within a modeling framework that allowed for variable postfire recovery of sagebrush, we provide quantitative evidence that links long-term declines of sage-grouse to chronic effects of wildfire. Projected declines may be slowed or halted by targeting fire suppression in remaining areas of intact sagebrush with high densities of breeding sage-grouse." Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; targeted wildfire suppression Significance: Prioritization of fire suppression to minimize deleterious effects to GRSG Comments: Important preplanning strategy to reduce threat of wildfire.

Mitigation-Wildfire Author: Ellsworth et al. Year: 2016 Title: Ecosystem resilience is evident 17 years after fire in Wyoming big sagebrush ecosystems: Ecosphere, v. 7, no. 12, article e01618, 12 p., <https://doi.org/10.1002/ecs2.1618>. Implications: Results demonstrate post-fire resilience of the xeric Wyoming big sagebrush system, possibly because of its high quality and presence of unburned patches within the fire perimeter. The conditions are representative of xeric Wyoming big sagebrush communities prior to the invasion of cheatgrass, where there were islands of sagebrush left after fire which helps the system recover from fire and provide habitat for GRSG. Controlled burning of some xeric sagebrush systems that are in good condition and dominated by natives may have benefits for ecosystem heterogeneity and herbaceous cover. Authors conclude, "Our results illustrate that management of all habitat components, including natural disturbance and a mosaic of successional stages, is important for persistent resilience and that suppression of all fires in the sagebrush steppe may create long-term losses of heterogeneity in good condition Wyoming big sagebrush ecosystems." Supersedes NTT: Yes Supersedes COT: Yes Issue: Wildfire; mitigation strategy Significance: Selective use of prescribed fire

Mitigation-Wildfire Author: Foster et al. Year: 2018 Title: Potential effects of GPS transmitters on greater sage-grouse survival in a post-fire landscape: Wildlife Biology, v. 2018, no. 1, p. 1-5. Implications: Survival rates measured in this post-fire study were much lower than observed in other studies in the Great Basin, though they did eventually increase to comparable levels (after the conclusion of this study). If the slightly lower survival rates of birds with GPS versus VHF devices observed in this study are confirmed (5% lower survival), they are of concern because of the increasing use of GPS units and the potential for effects of this magnitude to affect population growth rates. Findings from this study were limited by small sample sizes. Supersedes NTT: Yes Supersedes COT: Yes Issue: Post-fire study; GPS transmitters affect survival Significance: GPS transmitters reduce survival compared to VHF transmitters Comments: Authors appropriately recognize that the GPS may have biased the conclusions. As such, this study better informs future study designs.

Mitigation-Wildfire Author: Shinneman et al. Year: 2018 Title: A conservation paradox in the great basin-altering sagebrush landscapes with fuel breaks to reduce habitat loss from wildfire: US Geological Survey, v. XXX, no. XXX, p. XXX\*Open File Report. Implications: The authors conclude that more research is needed to document fuel break effectiveness, effects on plant communities, and effect on wildlife. However, they suggest that installing fuel breaks in an effort to protect intact sagebrush habitat may provide long-term benefits to sagebrush-associated species, even if these benefits come at a cost to some individual species at local scales. Supersedes NTT: Yes Supersedes COT: Yes Issue: Wildfire; fuel breaks Significance: Supports the reality that historical habitat was not a vast sagebrush sea, but rather an ecosystem made up of sagebrush islands. Comments: Suggest additional review due to significance as a mitigation measure.

Mitigation-Wildfire Author: Foster et al. Year: 2019 Title: Greater sage-grouse vital rates after wildfire: Journal of Wildlife Management, v. 83, no. 1, p. 121-134. Implications: GRSG continued to use areas within the wildlife perimeter, but had lower nest and adult survival rates compared to other reported values for GRSG in the Great Basin. Apparent decreased nest site fidelity within the fire perimeter may relate to increased habitat fragmentation. Increased nest survival in the second year may relate to increased vegetation in the burned area. Findings suggest that fire suppression activities to maintain intact habitat patches may be a critical tool for managers of GRSG populations and habitat in landscapes prone to fire. Supersedes NTT: Yes Supersedes COT: Yes Issue: Wildfire; mitigation strategy Significance: Improved Wildfire firefighting strategy to benefit GRSG.

Mitigation-Wildfire Author: Shinneman et al. Year: 2019 Title: The ecological uncertainty of wildfire fuel breaks: examples from the sagebrush steppe: Frontiers in Ecology and Environment, v. 17, no. 5, p. 279-289. Implications: To produce a robust cost-benefit analysis regarding fuel break effectiveness and ecological impacts, more research is needed. The authors suggest several specific research questions that could provide useful information to policy and decision-makers "to disentangle their ecological costs and benefits." Supersedes NTT: Yes Supersedes COT: Yes Issue: wildfire; fuel breaks Significance: Ecological cost benefit analysis of fuel breaks Comments: Ecological cost benefit analysis of fuel breaks

Mitigation-Wildfire Author: Stenvoorden et al. Year: 2019 Title: The potential importance of unburned islands as refugia for the persistence of wildlife species in fire-prone ecosystems: Ecology and Evolution, DOI: 10.1002/ece3.5432. Implications: Population dynamics of leks located within fire perimeters are negatively impacted. Unburned islands play an important role as refugia, and maintaining unburned vegetation may be vital for the success of GRSG populations after a wildfire event. The recovery of natural vegetation postfire may also benefit GRSG populations. Supersedes NTT: Yes Supersedes COT: Yes Issue: Wildfire; fire suppression Significance: Prioritization of fire suppression to maintain unburned refugia and enhance post-wildfire restoration.

Other Mitigation Author: Blomberg et al. Year: 2015 Title: Blomberg, E.J., 2015, The influence of harvest timing on greater sage-grouse survival-A cautionary perspective: Journal of Wildlife Management, v. 79, no. 5, p. 695-703. Implications: The author concluded that timing of mortality, coupled with potential effects indicated by compensatory and additive mortality models, suggests that moving harvest to later in the year will not benefit GRSG populations and may have unintended negative consequences. Issue: Technique refinement: hunting season Significance: Reducing population effects but shifting hunting season Comments: Applies only to where GRSG are hunted

Other Mitigation Author: Wing and Messmer Year: 2016 Title: Impact of sagebrush nutrients and monoterpenes on greater sage-grouse vital rates: Human-Wildlife Interactions, v. 10, no. 2, p. 157-168. Implications: Study results confirmed the importance of black sagebrush as pre-nesting season forage and suggested that any forage selection related to monoterpenes may reflect some aspect of an individual monoterpene rather than the total concentration of all monoterpenes. Study results should be interpreted cautiously because of the small sample size, single year, and single study site. Supersedes NTT: Yes Supersedes COT: Yes Issue: black sagebrush; GRSG forage

Other Mitigation Author: Blomberg et al. Year: 2015 Title: Blomberg, E.J., 2015, The influence of harvest timing on greater sage-grouse survival-A cautionary perspective: Journal of Wildlife Management, v. 79, no. 5, p. 695-703. Implications: The author concluded that timing of mortality, coupled with potential effects indicated by compensatory and additive mortality models, suggests that moving harvest to later in the year will not benefit GRSG populations and may have unintended negative consequences. Issue: Technique refinement: hunting season Significance: Reducing population effects but shifting hunting season Comments: Applies only to where GRSG are hunted

The BLM 2020 draft SEISs do not address or offer any substantive analysis or cumulative impact assessments of its management decisions.

Only after thoroughly analyzing these eminently reasonable, science-based sage-grouse habitat protections will BLM have given the requisite consideration to a range of reasonable alternatives under its plan amendment SEISs. (We also note that BLM did not provide a scoping period for the SEIS; this is WWP et al.'s first opportunity to provide comments on the scope of the 2020 draft SEIS.)

Also notable is BLM's claim that "it did not discover new information that would indicate the agency should increase the level of conservation, management, and protection to achieve its land use plan objective." New information on habitat and population declines clearly provides such "new information" suggesting that protections should be increased. Moreover, BLM's claim begs the question: did BLM discover new science suggesting the agency should decrease the level of conservation?

BLM has a NEPA duty to evaluate how baseline sage-grouse conditions have changed since its last analysis in the 2015 Plans and since BLM prepared its 2018 FEIS. The DSEIS, like the FEIS, is flawed because it fails to look at updated data on sage-grouse populations and analyze the proposed actions against this new baseline.

The BLM's failure to consider updated population data is just one failing of the agency to take a hard look and use the best available science in informing its decision-making. In fact, population declines have continued across the species' range.

In Montana, the population dropped more than 40 percent in the past three years. MFWP 2019.

In North Dakota, a spring 2019 survey found just 29 male grouse, despite having supplemented the population with birds from Wyoming since 2017.<sup>10</sup> [https://bismarcktribune.com/news/state-and-regional/years-long-effort-to-save-sage-grouse-in-nd-takes-a/article\\_ff07b771-lad0-5861-8eal-e2c7d2695805.html](https://bismarcktribune.com/news/state-and-regional/years-long-effort-to-save-sage-grouse-in-nd-takes-a/article_ff07b771-lad0-5861-8eal-e2c7d2695805.html) ? In South Dakota and Washington, sage-grouse populations are vanishingly small.



WWP has gathered population data directly from state wildlife agencies and, upon review and analysis, verified the reported trajectories; presumably, the BLM should be able to obtain, analyze, and disclose the same downward trends in this SEIS process. BLM should provide a spatially explicit lek trend analysis, determining whether downward population counts are proximate to habitat impacts authorized by these plans, and/or whether management and land tenure makes a difference as to the population trajectory on leks. This analysis should include all of the states with Greater sage-grouse-including Washington, North and South Dakota, and Montana-not just the states included in the recent plan revisions.

Another new and relevant study pertaining to sage-grouse populations that should be considered is Edmunds et al. 2018, which discusses how the scale of a population analysis may obscure the site-specific population impacts of disturbance. BLM should collect the spatial population data for every state and take a fresh, hard look at the lek trends relative to the disturbances allowed by the plans.

The BLM must also consider the new scientific evidence that pinyon-juniper forests comprise an enormous amount of the Great Basin's potential for carbon storage. See Fusco, et al. 2019. The impacts of the vegetation treatment projects that BLM is promoting must be balanced against the loss of this potential. The BLM must also consider the new evidence that shows how coniferous forests are able to respond to climate change and analyze how the proposed vegetation projects undermine that potential.<sup>15</sup> BLM must also analyze how its habitat improvement projects for sage-grouse affect the habitat of other sagebrush species, such as mule deer. Morano et al. 2019. Additionally, the predictions of climate-adaptations and species movement should be used for determining the connectedness of sage-grouse populations and the need for more protected habitats, not fewer, as the 2019 plans provide.<sup>16</sup> <sup>15</sup> D. Scott Mackay, Philip R. Savoy, Charlotte Grossiord, Xiaonan Tai, Jonathan R. Pleban, Diane R. Wang, Nathan G. McDowell, Henry D. Adams, John S. Sperry. Conifers depend on established roots during drought: results from a coupled model of carbon allocation and hydraulics. *New Phytologist*, 2019; 225 (2): 679 DOI: 10.1111/nph.16043 <sup>16</sup> Lawler JJ, Rinnan DS, Michalak JL, Withey JC, Randels CR, Possingham HP. 2020 Planning for climate change through additions to a national protected area network: implications for cost and configuration. *Phil. Trans. R. Soc. B* 375: 20190117. <http://dx.doi.org/10.1098/rstb.2019.0117>

BLM seems to claim, in identical or virtually-identical appendices to the DSEISs, that the NTT Report and COT Report no longer represent the best available science on sage-grouse needs in light of new State sage-grouse plans, or else that BLM relied on the best available science because it included the U.S. Fish and Wildlife Service as a cooperating agency in developing the 2019 sage-grouse plans, or else that it did not need to apply the best available science in the NTT Report, only consider it, and the Plans comply with the COT Report. See, e.g., WY DSEIS at 1-3 to 1-4; ID DSEIS at 1-3. These statements are incoherent and inaccurate; sage-grouse habitat needs have not changed since 2011, nor has our scientific understanding of those needs, nor could the implementation of State plans alter sage-grouse biology. BLM's failure to apply the science-based recommendations set forth in the NTT Report was an error in its 2015 Plans that carried over in the 2019 Plans and persists in the rationalizations set forth in the DSEISs now.

The NTT Report set forth science-based protections recommended to protect sage-grouse from the effects of activities shown to be harmful to the species and its habitat. The reasons BLM gives for departing from NTT's recommendations reveal that BLM's motivation in this planning effort is not to

implement protections the sage- grouse needs, but rather to loosen restrictions on activities known to harm the species.

BLM claims that it can depart from the NTT Report recommendations because IM-2012- 044 states "while [the NTT Report's] conservation measures are range-wide in scale, it is expected that at the regional and sub-regional planning scales there may be some adjustments of these conservation measures in order to address local ecological site variability." ID DSEIS at Appx. S-1-2 (emphasis added). But this highlights one of the problems with the Plans that we have repeatedly identified; adjustments to sage-grouse habitat needs identified in the NTT are not being made "to address local ecological site variability," they are being made based upon what is politically acceptable to powerful State and industry interests. BLM has not identified any science on "local ecological site variability" that would support its departures from the NTT report. Indeed, BLM's initiation of this new NEPA process to advance "management alignment" and backfill its decision to depart still farther from NTT's science-based recommendations only underlines that the process is being dictated by politics and not by what science says the species needs to survive and recover.

BLM makes much of the assertion that the NTT prescribes conservation measures that are applicable rangewide, and are not tailored to local conditions or political preferences. See, e.g., Northwest Colorado DSEIS at App-3-3, App-3-4. This is because NTT recommendations are based on the best available science, whereas politics are bound to influence local decision- making more so than science. . The habitat requirements of sage-grouse do not differ substantially from state to state, or from county to county. Sage-grouse require large tracts of undeveloped sage-grouse habitat, everywhere throughout their range. Sage-grouse are sensitive to industrial activity, and are disturbed and displaced by it, everywhere throughout their range. The large majority of sage-grouse nest within 4 miles of the lek site, everywhere throughout their range (and this has been shown in habitats as disparate as the cold deserts of western Wyoming (Holloran et al. 2005), the mixed-grass prairies of the High Plains in the Dakotas (Kaczor et al. 2011), and the hot deserts of Nevada (Coates et al. 2013)). Sage-grouse require at least 7 inches of grass height (10.2 inches in the far eastern end of their range) for hiding cover to maximize their nest success and ability to escape predation, and this has been demonstrated definitively from the shortgrass prairies on northeastern Wyoming (Doherty et al. 2014) to the arid deserts of the Great Basin in Oregon (Gregg et al. 1994). This objective, as listed in the objective table, needs to be an enforceable standard that is applied annually as a term of use for every livestock grazing lease.

The burden of proof is upon the BLM if they wish to show a scientific basis for altering protection measures from region to region, but there is no such scientific basis. Instead, BLM seeks only to defer to the desires of certain state and local governments, and industry lobbyists, to minimize sage grouse protections to levels that would be more profitable for local, politically influential industries, but detrimental to sage-grouse based on the best available science. The habitat requirements of sage-grouse do not differ significantly, rangewide, and it is therefore inappropriate for sage-grouse habitat protection thresholds to differ rangewide.

BLM seems to be trying to address its failure to adhere to the recommendations of the NTT Report by now claiming the NTT Report somehow does not represent the best available science. WY DSEIS at I-3. "Of course, agencies may change their policies over time. But an agency must at least display awareness that it is changing position and show that there are good reasons for the new policy." Oregon Nat. Desert Ass'n v. Rose, 921 F.3d 1185, 1190 (9th Cir. 2019), reh'g denied (July 3, 2019) (internal

quotations omitted). BLM seems intent on ignoring that the NTT Report is still the only available resource recommending science-based measures to protect sage-grouse. Until BLM and other agencies produce equally robust and scientifically-supported recommendations on measures to protect sage-grouse, the NTT measures remain what science says is required to protect sage-grouse. The burden of proof is upon the BLM if they wish to show a scientific basis for altering protection measures from region to region, but there is no such scientific basis.<sup>38</sup> BLM posits that Carter et al. (2018) and Hanser et al. (2018) constitute significant advancements in the best available science on sage-grouse that should inform plan amendments. See, e.g., ID DSEIS at S-I-14. However, neither the annotated bibliography provided by Carter et al. (2018) - essentially a collection of abstracts - nor the Hanser et al. (2018) which adds two paragraphs of generalizations about the need for more sagebrush science and science-based management decisions to accompany its collection of abstracts (without making a single recommendation regarding a sage-grouse habitat protection threshold) attempt a current review of the science leading to science-based sage-grouse habitat management prescriptions. Which is not to say these publications are devoid of scientific value. Hanser et al. (2018) includes abstracts for papers by Shinneman et al. (2018) (reviewing the science and concluding that fuel break construction has no proven value for reducing the intensity or extent of fires in sagebrush habitats, while the impacts of fuel break construction to sage grouse are known and certain), Shinneman et al. (2019) (showing that fuel breaks could be vectors for cheatgrass invasion, fragment sagebrush habitats, and increase predation on sage-grouse by ravens and other predators), Pilliod et al. (2017) (showing that cheatgrass expands during wet years), Coates et al. (2016a) (fire and subsequent cheatgrass invasion have contributed significantly to sage-grouse declines in the Great Basin), and Coates et al. (2016b) (showing that the presence of livestock significantly increased raven occurrence, to the detriment of sage-grouse). However, for most of the key issues surrounding the appropriate levels of habitat protections under the Wyoming DSEIS (appropriate size of lek buffers, appropriate disturbance density, legitimacy of DDCT/BSU-level analysis of disturbance density thresholds, appropriateness of Wyoming lek buffers in PHMA or GHMA, appropriate allowable noise levels, or appropriateness of sage-grouse PHMA boundaries), the studies in these two compendia of abstracts are silent, and the best available science either was reviewed in the NTT report, or has been brought forward to the BLM's attention by conservation NGOs like WWP et al. in comments on the sage-grouse RMPA process.

In addition to arbitrarily downplaying the importance of the NTT Report, the DSEISs contains a misleading analysis of why the 2019 amendments are supposedly consistent with the COT Report. See, e.g., UT Appx 4 at 4-21; CO Appx 3 at App-3-16; ID Appx S-I at App-S-I-15; WY Appx F at App-F-15. But the COT report was primarily focused on identifying threats to the sage-grouse, not on undertaking a comprehensive review of the scientific literature (as NTT did) nor recommending measurable sage-grouse protections based on that science to be applied in land-use plans (as NTT did). Simply complying with the COT Report (to the extent the Plans do) is not enough - they must also implement the protections required by NTT.

As someone who cares about birds and the places they need, I strongly oppose any changes to the BLM sage-grouse management plans from what was originally agreed to in 2015. The health of our nation's public lands is important to me. It is a legacy that we are passing on to future generations. BLM should focus on engaging communities in implementing the 2015 plans. In 2010, the U.S. Fish and Wildlife Service determined that Greater Sage-Grouse populations were in serious trouble and warranted protection under the Endangered Species Act. An unprecedented numbers of stakeholders across the West worked for many years on ensuring that sage-grouse management is based on science and good

for local economies. The plans that were agreed to in 2015 led the USFWS to reverse its 2010 decision and find the future for sage-grouse was secure. Weakening the plans would not be good for western states, put years of good work to waste, and revive the risk of a threatened or endangered species listing that was averted in 2015. BLM must use this supplemental process to thoroughly evaluate how its proposed change in management direction is likely to harm Greater Sage-Grouse habitat and is inconsistent with accepted science that tells us to meaningfully protect it. An honest analysis should lead to a different conclusion. Management of our nation's public lands should be based on science and take the long-term needs of communities into consideration, not the short-term political gains of a few.

The DSEIS addresses the agency's past and present use of the 2011 National Technical Team report (NTT) and the 2013 Conservation Objectives Team report (COT). In general, ICA both approves of and encourages the agency's use of the best available science throughout the NEPA analysis process and when decisions are made. We have long maintained significant concerns with the 2011 National Technical Team report (NTT). Among other things, the NTT was a one-size-fits-all management prescription that treated livestock grazing as a primary threat, contrary to the COT Report and the best available science. Further, the use of the NTT report was problematic as it contained overly burdensome recommendations that were not based on local conditions in Idaho. The NTT report failed to make use of the latest scientific and biological information available. According to an independent review of the report, it contained many methodological and technical errors, selectively presented scientific information to justify recommended conservation measures, and was disproportionately influenced by a small group of specialist advocates. By contrast, the COT allows land managers to be more responsive to localized threats and concerns and emphasizes the importance for state-based plans.

Predation Author: Howe and Coates Year: 2015 Title: Observations of territorial breeding common ravens caching eggs of greater sage-grouse: *Journal of Fish and Wildlife Management*, v. 6, no. 1, p. 187-190. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: Ravens can significantly influence reproductive success of GRSG at local scales, but population-level effects remain unclear. Breeding ravens may target GRSG nests more than nonbreeders. Declines of GRSG may be compounded by anthropogenic activities that have improved nesting habitat for ravens in sagebrush ecosystems. Supersedes NTT: Yes Supersedes COT: Yes Issue: predation; mitigation (Technique refinement) Significance: Predator management and mitigation Comment: Examined cause and effect mechanisms behind predation

Predation Author: Coates et al. Year: 2016 Title: Landscape characteristics and livestock presence influence common ravens-Relevance to greater sage-grouse conservation: *Ecosphere*, v. 7, no. 2, article e01203, 20p., <https://doi.org/10.1002/ecs2.1203>. Background: Over the last four decades, Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: Supersedes NTT: Yes Supersedes COT: Yes Issue: Predation mitigation; reducing GRSG nest and brood predation by ravens Significance: Anthropogenic subsidies; Ravens Comment: Important as it examined cause and effect mechanisms.

Predation Author: Dinkins et al. Year: 2016 Title: Effects of common raven and coyote removal and temporal variation on climate on greater sage-grouse nesting success: *Biological Conservation*, v. 202, p. 50-58 Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: The authors asked whether (1) changes in raven density and coyote abundance following removal efforts affected GRSG nest success and (2) weather conditions influenced these results for coyotes.

Management of breeding and transient ravens may be a viable mitigation action in areas with high raven densities because it can reduce raven abundance and may increase GRSB nest success. However, long-term solutions, such as reducing supplemental food sources and perch structures, are necessary. Coyote removal likely results in lowered GRSB nest success because of the potential expansion of mesopredators (for example, badgers, skunks, and raccoons), which do better at smelling and thus locating and predating GRSB in wetter years. Supersedes NTT: Yes Supersedes COT: Yes Issue: Predation; Potential mitigation (Technique refinement) Significance: Recommendations for more effective predator management; Mesopredator release after coyote removal Comment: Also, noted increased coyote predation on GRSB in wet years (likely due to smell) - good investigation of cause and effect mechanisms.

Predation Author: Peebles et al. Year: 2016 Title: Effectiveness of the toxicant DRC-1339 in reducing populations of common ravens in Wyoming: *Wildlife Society Bulletin*, v. 40, no. 2, p. 281- 287. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: Results indicated that raven populations near GRSB nests can be reduced through DRC-1339 poisoning. However, populations quickly recovered to pretreatment levels, suggesting that annual treatment may be needed. The authors also suggested limiting anthropogenic sources of food for ravens and frequently removing roadkill. Supersedes NTT: Yes Supersedes COT: Yes Issue: Predation (Technique refinement) Significance: Prioritization of management actions; raven management using DRC-1339 avicide

Predation Author: Walker et al. Year: 2016 Title: Mapping and prioritizing seasonal habitats for greater sage-grouse in Northwestern Colorado: *Journal of Wildlife Management*, v. 80, no. 1, p. 63-77. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: Study in Northwestern Colorado. GRSB generally selected for vegetation characteristics at small spatial scales (100-400 m); terrain roughness was also a strong negative predictor at 100 m in all seasons. A mosaic of habitats with sagebrush are important in multiple seasons, and actions that increase sagebrush within 400 m and reduce forest within 100-400 m may be most beneficial. Topics: broad-scale habitat characteristics, new geospatial data, effect distances or spatial scale, behavior or demographics, habitat selection, site-scale habitat characteristics Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; habitat mapping Significance: Improved habitat mapping for enhancement (i.e. piñon-juniper removal) and mitigation.

Predation Author: Conover and Roberts Year: 2017 Title: Predators, predator removal, and sage-grouse-A review: *Journal of Wildlife Management*, v. 81, no. 1, p. 7-15. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: This was a literature review of past studies of varying quality, methods, and conclusions. The authors concluded that predation is not a likely factor in rangewide GRSB trends, with the exception of ravens in recent years. Issue: Predation Significance: Literature review Comments: Caveat: literature review of papers looking at different predator species and using different methods.

Predation Author: Peebles et al. Year: 2017 Title: Adult sage-grouse numbers rise following raven removal or an increase in precipitation: *Wildlife Society Bulletin*, v. 41, no. 3, p. 471-478. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: Supersedes NTT: Yes Supersedes COT: Yes Issue: Predation; mitigation (Technique refinement) Significance: Prioritization of management; Predator control Comments: Makes a connection between weather conditions and predator control, suggesting that when used in conjunction managers can increase GRSB survival.

Predation Author: Gibson et al. Year: 2018 Title: Effects of power lines on habitat use and demography of greater sage-grouse (*Centrocercus urophasianus*): Wildlife Monographs, v. 200, no. 1, p. 1-41. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: There was support for GRSG avoidance of power lines to 10 km, for decreased demographic rates to 12.5 km, and for decreased population growth to 5 km. Multiple effects of transmission lines varied with raven abundance, which increased near the transmission line in this study. Some effects were small, highlighting the importance of long-term (10-20 year) studies of impact assessment. Transmission line effects on GRSG may be mitigated by decreasing raven numbers near the line, but the effectiveness of previous predator control and perch deterrent efforts have been inconclusive. Co-locating, burying, or routing lines outside of GRSG habitat may be options. Supersedes NTT: Yes Supersedes COT: Yes Issue: Transmission lines; associated predation; mitigation Significance: Potential mitigation of raven predation near transmission lines. Comments: Negative effects can be potentially mitigated

Predation Author: Kirol et al. Year: 2018 Title: Using DNA from hairs left at depredated greater sage-grouse nests to detect mammalian nest predators: Wildlife Society Bulletin, v. 42, no. 1, p. 160-165. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: This study presents a novel, noninvasive, and cost-effective survey method that minimizes collection bias and can be used at larger spatial scales to gain insight on mammalian predators that influence GRSG nest productivity. It can also help to identify exotic predators that benefit from human subsidies and habitat modification. This methods could be expanded to include other forms of DNA (e.g. feathers or saliva) for greater inference. Supersedes NTT: Yes Supersedes COT: Yes Issue: Predation (Technique refinement) Significance: Potential method for identifying mammalian predators of GRSG nests. Comment: Trail cameras at nests would provide data with shorter turn-around time.

Predation Author: O'Neil et al. Year: 2018 Title: Broad-scale occurrence of a subsidized avian predator-reducing impacts of ravens on sage-grouse and other sensitive prey: Journal of Applied Ecology, v. 55, no. 6, p. 2641-2652., <https://doi.org/10.1111/1365-2664.13249> Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: The authors proposed that their anthropogenic influence index can be used to identify priority areas where ravens are more likely to affect GRSG. It can also be used to target where management of anthropogenic features can help reduce raven expansion. Finally, they argued that their methods can be applied to the management of other generalist predators. Supersedes NTT: Yes Supersedes COT: Yes Issue: predation (Technique refinement) Significance: Prioritization of management; improved methodology for more effective predator management

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Predation Author: Smith et al. Year: 2018 Title: Phenology largely explains taller grass at successful nests in greater sage-grouse: *Ecology and Evolution*, v. 8, p. 356-364 Implications: The available evidence for a causal relation between grass height and nest success was weak, although grass height remained positively correlated with nest survival in the Powder River Basin of Wyoming after correction. Variations in results suggested that taller grass may be beneficial to nest survival in some circumstances (such as where shrub cover is low), but this explanation was not supported by the data analyzed here. Nest site selection or other life stages (for example, brood survival) may be affected by the structure of grasses. The authors suggested that findings from previous studies may have led to an overemphasis of the role of grass height in GRSG nesting habitat quality. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement: habitat quality mapping Significance: Grass height is over emphasized in evaluating habitat quality.

Predation Author: Dudko et al. Year: 2019 Title: Movements of female sage grouse *centrocercus urophasianus* during incubation recess: *IBIS*, v. 161, no. 1, p. 222-229. Implications: Data suggest that a larger area around nests than previously thought may be important for nesting success, which is an important consideration in determining minimum patch sizes needed for nesting and appropriate spatial scales for evaluating nesting habitat. The flights associated with recesses may expose GRSG to predation by ravens. Striking vertical structures during these flights, which typically occur during low light conditions, may be a mortality risk. Issue: Predation risk; Potential mitigation Significance: Ravens Comments: Provides a behavioral mechanism for susceptibility to raven predation, and therefore informs better predator control methods.

Predation Author: Kammerle and Storch Year: 2019 Title: Predation, predator control and grouse populations: a review: *Wildlife Biology*, article wlb.00464, 12 p., <https://doi.org/10.2981/wlb.00464>. Implications: Well-designed predator control programs are likely to cause short-term benefits to various grouse species. However more research is needed, particularly on how the competitive interactions of predator species influence grouse predation risk and whether removing certain predator species may have unintended cascading effects. Supersedes NTT: Yes Supersedes COT: Yes Issue: Predation; mitigation (Technique refinement) Significance: Predator management Comments: Looked at cause and effect mechanisms behind unintended consequences.

Predation Author: Smith et al. Year: 2019 Title: Approaches to delineate Greater Sage-grouse winter concentration areas: *The Journal of Wildlife Management*, v. 83, no. 7, p. 1495-1507. Implications: The authors suggest that individual-based resource selection function models(RSF) can be useful when data on flock sizes are not available in winter concentration areas. They also suggest that their survey and modeling approach was constructive for identifying habitat selection and determining whether currently protected areas are adequate for all seasons of use by GRSG (. They conclude that an important amount of GRSG winter habitat might not be adequately protected by Core Areas in Wyoming (although this conclusion is not well justified). Issue: Potential technique refinement Significance: This is duplicative of other methods to delineate winter habitat.

Analysis and mitigation to address impacts of predation of sage-grouse should also be taken into consideration. NACD encourages BLM to work with state and local governments and other appropriate federal agencies (such as U.S. Fish and Wildlife Service and USDA-Wildlife Services) to determine the most sensible approach to reduce the impacts of predation. Species such as the Common Raven have a

disproportionate impact on sage-grouse but also have paradoxical protections under the Migratory Bird Treaty Act

The DSEISs and the BLM still haven't taken a hard look at the effects of anthropogenic infrastructure and the subsidization of sage-grouse predators. We have provided extensive discussions of this in the past, but BLM continues to ignore the fact that its actions are creating improved conditions for predatory species such as ravens. Three new papers illuminate raven interactions with sage-grouse. Harju et al. (2018) discusses breeding ravens' use of structures (including oil and gas facilities) and the differences in the use of space between breeding and non-breeding ravens, which has implications for raven management that induces nest failure (such as oiling eggs) as a means for affecting predation on sage-grouse. O'Neil et al. (2018) provide spatial information about the effects of anthropogenic infrastructure and discuss how removing these subsidies could assist in preventing raven predation on sage-grouse. Dudko et al. (2019) posit that movements by sage hens assist in raven detection of nests, and that habitat important for nesting "may be more extensive than previously appreciated."

Habitat Improvement Author: Davee et al. Year: 2019 Title: Using beaver dam analogues for fish and wildlife recovery on public and private rangelands in Eastern Oregon: Research Paper PNW-RP-617. Northwest Climate Hub, U.S Department of Agriculture, Forest Service, Pacific Northwest Research Station, p. 32. Implications: Beaver dam analogues can improve habitat for fish and wildlife, including GRSG, but implementing this tool may require navigating new or yet-to-be established regulatory pathways and obtaining buy-in from private landowners and ranchers is an important consideration for increasing implementation of this tool. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; Mitigation; Habitat restoration Significance: Innovative method for habitat restoration; habitat expansion Comments: Expands mesic areas making them more resilient (potentially useful for drought/climate mitigation and/or conservation offset).

Mining Author: Pratt and Beck Year: 2019 Title: Greater sage-grouse response to bentonite mining: The Journal of Wildlife Management, v. 84, no. 4, p. 866-879 Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: In general, the adverse effects of bentonite mining on GRSG appear to be consistent with those of energy development. A greater proportion of the Bighorn Basin GRSG population is affected by mining during the winter season than at other times of the year. Therefore, prioritization of winter habitat may be a key management strategy there. Further, reclaimed mines remain unsuitable for GRSG due to slow regeneration of sagebrush cover, so intense promotion of sagebrush regeneration is important for restoring GRSG habitat. Issue: bentonite mining impacts Significance: Reclaimed mines not utilized by GRSG due to slow regeneration

Re-setting noise limits to a maximum of 25 dBA, in accordance with the best available science;

Sage-grouse lek population declines occur once noise levels exceed the 25 dBA level. With this in mind, ambient noise levels should be defined in all plans as 15 dBA and cumulative noise should be limited to 25 dBA in occupied breeding, nesting, brood-rearing, and wintering habitats, which equates to 10 dBA above the scientifically-derived ambient threshold.

### **F.3.8 Direct/Indirect Impacts**

Lastly, the terms "minor", "negligible", "similar", and "no measurable effects" run rampant throughout Chapter 4, however, none carry any objective definitions relative to the currently proposed alternatives.



For example, consider Section 4.11 Impacts on Livestock Grazing Subsection 4.11.2 Management Alignment Alternative: "Despite minor differences between the actions described in the Management Alignment Alternative and those analyzed in the 2015 Final EIS, the difference between the nature and type of impacts described would be negligible.

These impacts are discussed in Section 4.10 of the 2015 Final EIS." Modification of management procedures and stipulations regarding millions of acres of public land is hardly "minor," therefore, the impacts of such modifications cannot be "negligible." Furthermore, referencing an impact analysis corresponding to the current policy as analyzed in the past bears no merit to a "hard look" at impacts pertaining to the proposed modification of the current policy relative to its potential impacts in the future.

There is an inadequate analysis of the impacts to sage-grouse and sagebrush habitat from the proposed management changes, including increased oil and gas leasing, reduced mitigation, elimination of buffers, and the increased opportunity to use waivers, exemptions or modifications to oil and gas permit stipulations including within priority sage-grouse habitat. The conclusion that these changes will have no additional impact to sage-grouse populations is not supported. Allows county governments to determine whether waivers should be allowed rather than the scientists from the state wildlife agencies and U.S. Geological Survey.

The proposed management changes in the EIS which include increased oil and gas leasing, reduced mitigation, and oil and gas permit stipulations either being reduced or eliminated in sage grouse priority habitat are profoundly significant changes yet the document states that these changes will have no significant impact-- a conclusion that simply makes no sense. These changes will instead have significant impact.

It is imperative the scope of the current SEIS process be expanded to include robust examinations of multiscaled assessments of sage-grouse population-level response to direct, indirect, and cumulative impacts associated with management alternatives. Informed decision-making requires scientifically-valid approaches to assessing these impacts that expressly take into account the uncertainty and risk inherent in sagebrush habitat management.

### **F.3.9 Assumptions and Methodology**

The attempts by the BLM to weaken the 2015 plan are putting our sagebrush ecosystem, and the hundreds of species that rely on it, at risk. The proposed changes to the 2015 plan contradict scientific recommendations for conserving greater sage-grouse, and the supplemental environmental impact statement fails to analyze and acknowledge the negative impacts that will result from the agency's proposed change in management direction.

### **F.3.10 Cumulative Impacts**

In the 2019 Plan Amendments, BLM failed to conduct sufficient analysis of the proposed changes. As an example, the court found that BLM did not justify limiting its cumulative effects analysis to state boundaries, finding "sage grouse range covers multiple states and that a key factor - connectivity of habitat - requires a large-scale analysis that transcends the boundaries of any single State." *WWP v. Schneider*, 417 F.Supp.3d at 1333. Although the court noted BLM's unique position in being able to analyze cumulative impacts over the entire range of sage-grouse, the Draft Supplemental EISs ignore the

opportunity to conduct a sufficient analysis. Instead, BLM states: Conditions on public land also have changed little since the 2015 Final EISs, and to the extent that there have been new actions or developments, the impacts associated with those actions or developments are in line with the projections in the 2015 Final EISs regarding reasonably foreseeable actions and effects. . . . Since the nature and context of the cumulative effects scenario has not appreciably changed since 2015, and the 2015 analysis covered the entire range of the Greater Sage-Grouse, the BLM's consideration of cumulative effects in the 2015 Final EISs adequately addresses most, if not all, of the planning decisions to be made through this planning effort. Nevada Draft SEIS, pp. 4-53. This statement outright rejects the purpose of supplemental analysis, which is to supplement previous analysis to address impacts that have not yet been sufficiently considered, and ignores the substantial changes in condition on public lands. The 2019 Plan Amendments present sweeping changes across sage grouse range, yet fail to analyze large-scale impacts, as found by the court. Similar to the Richardson case, "BLM neglects the fundamental nature of the environmental problem at issue" that location of development widely influences the impacts on wildlife. 565 F.3d at 705. Reliance on previous analysis utterly fails to address the need for additional environmental review.

The court also found that BLM must conduct a "robust cumulative impacts analysis" but did not take into account impacts outside of state boundaries, even though "the sage grouse range covers multiple states and that a key factor - connectivity of habitat - requires a large-scale analysis that transcends the boundaries of any single State." *WWP v. Schneider*, 417 F.Supp.3d at 1332.

Instead of expanding its cumulative impacts analysis to the requisite scope, BLM made no changes and states: Since the nature and context of the cumulative effects scenario has not appreciably changed since 2015, and the 2015 analysis covered the entire range of the Greater Sage-Grouse, the BLM's consideration of cumulative effects in the 2015 Final EISs adequately addresses most, if not all, of the planning decisions to be made through this planning effort. Nevada Draft SEIS, p. 4-55. This is the same statement that BLM included in the 2019 Amendments. Further, the cumulative impacts analysis does not appear to address leasing and development that has occurred since 2018, which makes a significant contribution to overall impacts across the species' range. See, Appendix H (Cumulative Effects Supporting Information); Nevada Draft SEIS, p. 4-55. The BLM is required to consider the cumulative environmental impacts to sage-grouse and sage- grouse habitat in these FEISS. Cumulative environmental impacts are defined as: The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. 40 C.F.R. § 1508.7. "Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." *Id.* Cumulative impacts must be considered in the scope of an EIS. *Id.* § 1508.25(c). BLM has not complied with this requirement, which would require evaluation of the impacts of the changes in the 2019 Amendments across the range of the sage-grouse, including population declines, loss of habitat to fire, the likely effects of fuel breaks projects, and the impact of increased oil and gas leasing and drilling.

Cumulative Impacts ? We agree with using the cumulative effects analysis (CEA) of the 2015 FEIS as a fundamental data to identify the additional cumulative impact. However, there is no clear information about the past cumulative effects analysis in the 2019 DEIS. It will impede public review and confuse decision makers. We request that it is made clear that the CEA in 2015 FEIS must appear in the 2019 EIS. According to the past cumulative effects analysis, the 2019 EIS also needs to clearly provide additional cumulative impacts between 2015 FEIS and 2019 EIS. ? The CEA does not include all relevant

activities, with oil and gas projects in Wyoming and other scheduled lease sales not contributing to the assessment. We ask that the BLM consider all relevant activities while conducting the CEA. When writing the FEIS, we ask that the BLM provide all past, present, and expected actions that will impact connected projects. ? Although Management Action 4 would allow Greater-Sage Grouse to be considered through site-specific analysis, it seems safer to keep the specific language regarding Greater-Sage Grouse in the Proposed Plan in Wyoming. This would guarantee that the Greater-Sage Grouse is considered when taking action. ? The preservation of Greater-Sage grouse habitat is vital, and millions of dollars have been spent protecting the species. Regarding the use and development of sage grouse critical habitat mentioned in the Unavoidable Adverse Impacts, a no net loss policy should be implemented to at least maintain the current amount of habitat available.

The counties have consistently opposed range-wide cumulative effects analysis and opposed the use management zones that go beyond a local BLM field office planning area or a particular National Forest. The counties' position on this has not changed. However, as to the question whether the DSEIS has clarified that the cumulative effects analysis was done at the range wide level organized by WAFWA management zones

Science-based Decision Making Data-driven, statistically-sound assessments of potential responses of sage-grouse populations and habitats to proposed management are necessary to ensure informed decision-making. Yet, the BLM in the 2020 Draft SEISs does not offer any substantive analysis of the indirect and cumulative impacts to sage-grouse of its management decisions. Given current circumstances, rigorous cumulative impact assessments are especially important because of BLM's reliance on the largely disjunct set of management approaches being implemented across the species' range (i.e., state-to-state coordination is limited). The BLM has failed to inform its decision making by not conducting rigorous impact analyses. This oversight will likely jeopardize the agency's ability to meet sage-grouse management goals.

NEPA requires adequate disclosure of the cumulative impacts of the proposed action "when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions." 40 C.F.R. § 1508.7. If separate proposed actions themselves are connected or cumulative, they must be analyzed in a single EIS. Id. § 1508.25(a). Here, BLM improperly fragmented its analysis into six EISs, in violation of 40 C.F.R. § 1508.25(a), and then also failed to conduct any meaningful cumulative impacts analysis within each EIS, in violation of 40 C.F.R. § 1508.25(c).

For example, the oil and gas leasing cumulative effects supporting data for the NW Colorado, Nevada/California, Utah, and Wyoming DSEIS analyses is out of date or non-existent. The Utah DSEIS does not include acreages for oil and gas lease sales held after December 2018 or that are currently pending, even though these lease sales include designated sage-grouse habitat management areas, which means that BLM is using outdated information for its decision- making.<sup>25 25</sup> See Nevada/California DSEIS at H-4 and Utah DSEIS at D-8.

It is arbitrary and capricious for BLM to consider oil and gas leasing acreages in its sage- grouse plan NEPA analyses for some states but not all. Moreover, all of these acreage omissions must be remedied in the FSEIS for each state with oil and gas leasing. In order that BLM can make an informed decision about these greater sage-grouse plans, cumulative effects oil and gas leasing acreages should include both an acreage total and acreage breakouts by sage-grouse habitat management area type.

**F.3.11 Adaptive Management**

However, we oppose the universal retention as to "Land Tenure"; we oppose the universal avoidance of "Rights-of-way" in PHMA and IHMA, and we oppose the universal limited access as to "Travel management" - for the reasons we previously addressed in our comments. Specifically, flexibility should be added to adjustments in "Land Tenure", to "Rights-of-Way, and to "Travel Management" relative to site conditions in any FSEIS and plan amendments.

The SEISs also must disclose the known flaws in the methodology of Coates and others, which has resulted in some questions about the triggering changes from various states. The BLM should revisit all the states' data to see where triggers have been met with new and improved methods, and explain in the forthcoming EISs what causal factor analyses have resulted in which adaptive management changes

**F.3.12 Burial of Transmission Lines**

Wind Turbines and Transmission Lines Author: LeBeau et al. Year: 2017 Title: Greater sage-grouse habitat selection, survival, and wind energy infrastructure: *Journal of Wildlife Management*, v. 81, no. 4, p. 690-711. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: GRSG appeared to select nest sites without regard to wind energy infrastructure but avoided such infrastructure during brood rearing and summer. Stronger effects of disturbance associated with wind energy on brood-rearing habitat selection in the later time period suggest a lagged population-level response. GRSG survival did not appear to be negatively affected by the facility. Supersedes NTT: Yes Supersedes COT: Yes Issue: Wind energy; GRSG habitat use and survivorship Significance: Apparent lag effect of wind energy infrastructure.

Wind Turbines and Transmission Lines Author: Kohl et al. Year: 2019 Title: The effects of electric power lines on the breeding ecology of greater sage-grouse: *Plos One*, v. 14, no. 1, p. E0209968., <https://doi.org/10.1371/journal.pone.0209968> Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: The authors proposed 2.3 km buffer zones around active leks as a best management practice for new transmission line construction. They also proposed site-specific management for distribution lines, and colocation with existing disturbances for all new power lines. Maintenance of sagebrush cover around power lines may improve GRSG habitat suitability, despite the presence of human disturbance. Issue: Mitigation Significance: Transmission lines

Wind Turbines and Transmission Lines Author: LeBeau et al. Year: 2019 Title: Greater Sage-grouse habitat function relative to 230-kV transmission lines: *The Journal of Wildlife Management*, p. 1-14. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: The authors suggest that future transmission line placement decisions should consider potential negative effects on GRSG habitat and demographics and that transmission lines should be located in areas of lower GRSG habitat suitability and greater than 3.1 km from occupied leks if possible. Issue: Mitigation Significance: Transmission lines

**F.3.13 Disturbance and Density Caps**

Uniquely among the ARMPAs, the Wyoming 2019 RMPA applied a disturbance density cap of 5% in PHMA rather than the 3% applied under other plans. The DSEIS fails to explain why sage-grouse in Wyoming are more tolerant of disturbance than other states, or indeed, more tolerant than the best available science demonstrates. Knick et al. (2013) concluded that 99% of the active leks in the study area (encompassing the entire western range of the greater sage grouse) were surrounded by habitat

with 3% or less surface disturbance (defined using GIS as residential or industrial development). Kirol (2012), found for his Wyoming study area that surface disturbance greater than or equal to 4% of the land area had a significant negative impact on greater sage grouse brood rearing habitat.

#### **F.3.14 Habitat Management Area**

Definitions and management actions associated with BLM habitat designations need to be removed from private land as they apply specifically to BLM administered lands; therefore there is no basis for including private land in density and disturbance calculations.

As Simplot noted in previous comments to the Draft ARMPA, the Final EIS and DSEIS continue to fail to disclose the basis by which private lands can be considered in a federal land management planning document. This seems to suggest a de-facto critical habitat designation without a listed endangered or threatened species. While section 4 of the ESA can take into consideration conservation efforts on state and private lands to avoid a listing, BLM has no authority under FLPMA to apply land use plan restrictions on private land. The Draft RMPA, the Final EIS and the DSEIS continue to apply Sage-Grouse habitat management area definitions, designated through the BLM planning process specifically for BLM administered land, to private land (including Planning Area, PHMA, IMHA and BSUs).

The DSEIS offers absolutely no science-based justification for the "modification" of HMAs. The only justification that can be ascertained from the document amounts to nothing more than an argumentum ad verecundiam opinion: "BLM recognizes that landscape level mapping may not accurately reflect on-the-ground conditions. Therefore, the HMAs (Figure 2-1 b) do not constitute a land use plan decision but rather a landscape level reference of relative habitat suitability. " (DSEIS Table 2-2b). Clearly as based on fundamental logic, HMAs constitute a land use plan decision because each HMA requires an explicit set of stipulations regarding how the land is utilized within each HMA. For example, as defined in the 2015 ARMPA for the Great Basin, SFAs are not simple "landscape level mapping" that "may not accurately reflect on-the-ground conditions". Rather, SF As are areas identified by interagency GRSG experts based on on-the-ground research that has occurred for decades. SF As are thus identified by the U.S. Fish and Wildlife Service (FWS) as GRSG "strongholds" and represent "a subset of priority habitat most vital to the species persistence within which we recommend the strongest levels of protection" (2015 ARMP A, Page 1-16). "The strongest levels of protection" can be further defined as No Surface Occupancy (NSO) to be applied without waiver, modification, or exception.

For example, consider W AFW A MZ III. How many acres of each HMA designation will be removed? How many acres are currently leased and planned to be leased for Minerals and Energy? How will modification of each HMA designation in W AFW A MZ III change the current HMA designation stipulations relative to Minerals and Energy development requirements? How many acres of currently leased and planned to be leased public lands for Minerals and Energy development occur in SF As? How would removal of SF As and their associated "NSO without waiver, exception, or modification, for fluid mineral leasing" stipulation both directly and indirectly impact GRSG?

In order to take a hard look, the DSEIS needs to consider the effects of existing management and predict the impacts of future decisions. Without considering the current context of population and habitat triggers in each state, the agency is failing to take a hard look at its proposed amendments.

Aside from a brief, but incomplete (and already now outdated) narrative summary, the DSEIS fails to provide a full and clear listing of the PACs and tripped triggers, and how they relate to the key RNAs. BLM fails to include its Causal Factor Analyses ("CFA"), including the worksheets, annual review documents, and full reports, as an appendix to the EIS or otherwise. In fact, we understand that BLM has failed to complete many of the required CFAs. Again, the DSEIS fails to discuss this information essential to meaningful public review and informed agency decision making.

These results show that the ARMPA sage-grouse protections are not having the desired effect of recovering sage-grouse populations and habitats, but instead that populations and habitats across the West continue to deteriorate and "trip triggers" toward more intensive management actions. Thus, the BLM is using more protective management as a backstop when populations and habitats are in trouble instead of preventing the trouble in the first place through adequate regulatory mechanisms. The DSEIS is being issued in this context, and the BLM must take a hard look at this information in assessing the impacts of the proposed plans, including the effects on the ground of existing management.

Nor can BLM write off the tripping of these triggers as unrelated to management and excuse its failure to rein in industrial uses of sage-grouse habitats that way. Regardless of whether BLM management or some other factor is the direct cause of population declines and habitat degradation, BLM should address those problems by limiting known disturbances in sage-grouse habitats. To the extent the existing Plans or revised Plans allow the agency to do otherwise, they are inadequate to protect sage-grouse.

The 2019 amendments in certain states purport to allow BLM to adjust habitat management area boundaries through plan maintenance. These provisions must be cabined to ensure compliance with BLM land-use planning regulations, which provide that land use plan maintenance is only proper to reflect "minor changes in data." 43 CFR § 1610.5-4 (emphasis added) Thus, plan maintenance cannot properly be used to make anything exceeding a minor adjustment to habitat boundaries. See also *Klamath Siskiyou Wildlands Ctr. v. Booday*, 468 F.3d 549 (9th Cir. 2006) ("whenever resource management plans are changed in any meaningful way, the changes must be made via amendment (i.e., supported by scientific environmental analysis and public disclosure"); see also *Conservation Nw. v. Sherman*, 715 F.3d 1181, 1186 (9th Cir. 2013) (observing that there is a "low threshold to trigger formal amendment procedures").

### **F.3.15 Habitat Objectives**

Section: 2.5 Page: 2-23 Paragraph/Line/Figure/Table: Table 2-2b Issue: Modifying Habitat Objectives

Comment: No-Action Alternative: We do not support this approach as it does not allow for incorporation of the best available science that has emerged since, was not considered or was omitted previously, or will emerge. Additionally, the Habitat Objectives themselves are not achievable, applicable, or warranted in many areas of GRSG range, particularly in those areas that have crossed an ecological threshold to some other state. Setting objectives that are not SMART - specific, measurable, achievable, relevant, and time-certain - violates the BLMs own planning handbook. Proposed Plan Amendment: We generally support this alternative and the ability to incorporate best available science moving forward as well as the clarification as to how objectives are to be viewed and implemented. The following suggested revisions are intended to strengthen this alternative. Please revise the second paragraph to read "The Habitat Objectives (Table 2-2) in the 2015 Final EIS would be implemented following this guidance: The Habitat Objectives (Table 2-2) in the 2015 Final EIS are desired habitat conditions that are broad goals

based on Greater Sage-Grouse habitat selection that may not be achievable or applicable in all areas. The ability of a site to achieve the objectives should be based on site potential informed by ecological site descriptions, state-and-transition models, Disturbance Response Groups, etc. We also request adding a citation to the MOU that BLM and other federal agencies signed with NRCS regarding update and use of ESDs. The following references also support the use and application of these tools: \* BOLTZ, S., AND G. PEACOCK. 2002. Ecological sites: understanding the landscape. *Rangelands* 24:18-21. \* BRISKE, D.D., B.T. BESTELMEYER, T.K. STRINGHAM, AND P.L. SHAVER. 2008. Recommendations for development of resilience based state-and-transition models. *Rangeland Ecology & Management* 61:359-367. \* SOIL SURVEY DIVISION STAFF. 1993. Soil survey manual. Soil Conservation Service US Department of Agriculture Handbook 18. \* STRINGHAM, T.K., P. NOVAK-ECHENIQUE, P. BLACKBURN, C. COOMBS, D. SNYDER, AND A. WARTGOW. 2015. Final report for USDA ecological site description state-and-transition models, Major Land Resource Area 28A and 28B Nevada. University of Nevada Reno, Nevada Agricultural Experiment Station Research Report 2015-01. p. 1524. Available at: <http://www.cabnr.unr.edu/resources/MLRA.aspx>. \* STRINGHAM, T.K., P. NOVAK-ECHENIQUE, P. BLACKBURN, D. SNYDER, AND A. WARTGOW. 2015. Final report for USDA ecological site description state-and-transition models by disturbance response groups, Major Land Resource Area 25 Nevada. University of Nevada Reno, Nevada Agricultural Experiment Station Research Report 2015-02:572. Available at: <http://www.cabnr.unr.edu/resources/MLRA.aspx>. \* STRINGHAM, T.K., P. NOVAK-ECHENIQUE, D. SNYDER, S. PETERSON AND K. SNYDER. 2016. Disturbance Response Grouping of Ecological Sites Increases Utility of Ecological Sites and State-and-Transition Models for Landscape Planning in the Great Basin. *Rangelands* 38(6):371-378. Previous Unaddressed Comment on 2019 RMPA?: Yes

The DSEIS adequately addresses fragmentation within management areas on an individual scale. This is problematic because the management plans don't properly address fragmentation between management areas. This inadequacy is alarming from an ecological standpoint due to the likelihood of speciation.

Habitat Improvement Author: Pyke et al. Year: 2015 Title: Restoration handbook for sagebrush steppe ecosystems with emphasis on greater sage-grouse habitat-Part 1. Concepts for understanding and applying restoration: U.S. Geological Survey Circular 1416, 44 p. Implications: This report will help resource managers make decisions about where and how to conduct restoration treatments in former sagebrush ecosystems for the benefit of sagebrushobligate species like GRSG. Topics: broad-scale habitat characteristics, fire or fuel breaks, habitat restoration or reclamation, nonnative invasive plants. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement Significance: Prioritization of management Comments:

Habitat Improvement Author: Pyke et al. Year: 2015 Title: Restoration handbook for sagebrush steppe ecosystems with emphasis on greater sage-grouse habitat-Part 2. Landscape level restoration decisions: U.S. Geological Survey Circular 1418, 21 p Implications: This report and the decision tool that it describes will help resource managers make decisions for prioritizing landscapes for restoration work. Once priority landscapes are determined, managers can move to selecting sites for restoration and use Part 3 in the handbook series. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement Significance: Prioritization of management

Habitat Improvement Author: Pyke et al. Year: 2017 Title: Restoration handbook for sagebrush steppe ecosystems with emphasis on greater sage-grouse habitat-Part 3 . Site level restoration decisions: U.S.

Geological Survey Circular 1426, 62 p Implications: This report and the tool it describes will help resource managers make decisions that should enhance their success in restoring sagebrush ecosystems and thus GRS habitat at an individual site. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement Significance: Prioritization of management

The BLM made no meaningful effort to look at the habitat conditions and trends across sage grouse range in the DSEISs, despite this being identified as a major failing of the 2019 plans. Instead, the BLM touts the acres of vegetation "treatments" on the plans' cover pages, without acknowledging that some of these "treatments" are untested, unsuccessful, and may not result in actual sagebrush restoration for many decades, if ever. The mere fact that treatment has occurred does not indicate that the habitat has successfully been restored. In fact, habitat conditions and trends across the range show widespread degradation.

It is not sufficient to protect only sage-grouse breeding, nesting, and brood-rearing habitats; if sage-grouse cannot survive the winter due to degradation or industrialization of their winter habitats, populations will decline toward extirpation. PHMAs were designated on the basis of buffers around active lek sites, which encompass the breeding and nesting habitats used by grouse during spring and summer. But protecting wintering habitats is equally important to assuring the continued existence and ultimate recovery of the species, and these wintering habitats are frequently located outside the protective boundaries of designated Priority Habitats. BLM's analysis highlights the importance of protecting these habitats. Haak (2020, Attachment O) demonstrates that the 2019 plans are insufficiently protective of all sage-grouse habitats, and states, in her professional opinion: I was also concerned by BLM's failure to assess the conservation value of peripheral sage-grouse populations and habitat. For example, in discussing the impacts of the elimination of GHMA in Utah, BLM asserts that "there would be no significant effect of accelerating the impacts on the small populations in former GHMA[.]" See Utah FEIS at 4-21. This statement fails to consider that peripheral sage-grouse populations and habitats help ensure the species continues to exist by contributing to redundancy, representation, and resilience. See U.S. Fish and Wildlife Service, Greater Sage-grouse (*Centrocercus urophasianus*) Conservation Objectives: Final Report (Feb. 2013) ("COT" Report), at 12- 13. As explained above, recent studies have also emphasized the importance of the landscape outside of PHMA as stopover habitat for long-distance migrants and corridors to seasonal habitats (Newton et al. 2017; Crist et al. 2015) as well as pathways for genetic connectivity and dispersal from population centers to low population areas around the range margins (Cross et al. 2018; Heinrichs et al 2018; Row et al. 2018). These surrounding habitats are also important for the preservation of conservation options as environmental conditions change (Burkhalter et al. 2018). BLM's FEISs failed to consider these values provided by GHMA and other non-priority habitats. Haak's observation here applies equally to wintering habitats outside of the protected HMAs. The DSEISs do nothing to reconcile this inadequacy, but forthcoming iterations of the plans should identify wintering habitats, connectivity corridors, and marginal habitats (including habitats and populations in Washington and the Dakotas, which have basically been written off by BLM in these revisions). Cross et al. (2018) provide the genetic analysis of sage-grouse networks that demonstrate the relative importance of each sage-grouse population to the maintenance of resilient and viable populations over time. Row et al. (2018) provides spatial insights into maintaining functional connectivity and causal resistance. Ricca et al. (2018) also provides insights into the significance of management on species distribution, resilience, and resistance.



Retaining 7-inch residual grass height requirements in lands currently designated as PHMA and IHMA and increase grass-height requirement effectiveness by adding a requirement that this provision be applied each spring to all BLM grazing allotments;

### **F.3.16 Lek Buffers**

Kirol et al. (2020)<sup>17</sup> studied greater sage-grouse at six locations across Wyoming from 2008-2014, measuring the impacts to grouse of both fossil fuel energy and renewable energy. Kirol et al. found that ongoing surface disturbance from energy development within 8 km (4.97 miles) of a greater sage-grouse nest decreased the likelihood of nest success. Sage-grouse broods within 1 km (0.62 miles) of ongoing surface disturbance from energy development were less likely to survive than those further away. As ongoing disturbance increased, sage-grouse nests had an increasing rate of failure. Furthermore, female sage-grouse avoided habitat with higher levels of disturbance in favor of habitat with lower levels of disturbance. This means that current BLM greater sage-grouse nest buffers are too small to conserve grouse and implementing disturbance caps of 3-5% does not eliminate the negative impacts of ongoing disturbance on nest survival. While this paper is specific to leks in Wyoming, it should be used in each of the forthcoming SEISs as evidence of the inadequacies of current and proposed regulations.

The 2011 NTT Report and the 2013 COT Report did not receive adequate peer review and suffered from a number of substantive flaws including: ignoring substantial threats such to the Greater Sage Grouse such as predation in favor of unsupported conjectures regarding human impact; failure to account for natural population fluctuations due to weather patterns; not using the best available science, and were policy rather than science driven. These flawed reports suggested the adoption of equally flawed measures that became central to the 2015 planning effort including the designation of Sage Brush Focal Areas (SFAs) and the establishment of lek buffers. Rather than using the established land management tools, the SFA framework was formalized in the pronouncement of an October 27, 2014 memorandum from former FWS Director Dan Ashe entitled "Greater Sage-grouse: Additional Recommendations to Refine Land Use Allocations in Highly Important Landscapes". Similarly, the application of lek buffer distances was integrated into another document previously not available or included in the DEIS for public review: a U.S. Geological Survey (USGS) report entitled Conservation Buffer Distance Estimates for Greater Sage-grouse - a Review, USGS Open File Report 2014 1239. Both SFAs and lek buffer distances were allowed to evolve from the NTT and COT reports into the 2015 plans without receiving adequate review and comment and in place of utilizing existing conservation tools already available.

Improved Habitat Mapping and Assessment Author: Dahlgren et al. Year: 2016 Title: Evaluating vital rate contributions to greater sage-grouse population dynamics to inform conservation: *Ecosphere*, v. 7, no. 3, article e01249, 15 p., Implications: Lek counts reliably estimate changes in GRSG populations, and telemetry studies are useful for demographic monitoring. In combination, these two methods can be used to measure life-cycle dynamics. Results suggest that GRSG females can exploit varying environmental conditions and may respond to management actions, whereas nest survival is highly variable and more affected by natural environmental variation. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; Lek count and telemetry studies Significance: Improved methodology for populaion management

Improved Habitat Mapping and Assessment Author: Fregman et al. Year: 2016 Title: Male greater sage-grouse detectability on leks: *Journal of Wildlife Management*, v. 80, no. 2, p. 266-274. Implications:

Conducting sightability surveys to establish correction factors is recommended to avoid underestimation of regional GRSG abundance, particularly if vegetation and snow cover vary among leks. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique improvement; lek counts Significance: Sightability estimates are key to estimating population density or abundance from count data. Comments: Improves lek counting, outdates previous methods and anything that relied on previous standards

Improved Habitat Mapping and Assessment Author: Fregman et al. Year: 2017 Title: Male greater sage-grouse movements among leks: *Journal of Wildlife Management*, v. 81, no. 3, p. 498-508. Implications: The reported frequency of crossing between leks is higher than in previous estimates. As such, movements between leks may explain a substantial amount of variability in annual lek counts, reducing the ability of lek count data to accurately depict GRSG population abundance or trends. Lek counts done earlier in the spring are less likely than those done later (at peak attendance) to reflect population abundance, particularly in areas where male GRSG move to higher elevations as snowpack melts. Conducting lek counts during peak attendance and avoiding counts during days with precipitation, particularly at higher elevations, is recommended. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique improvement; lek counts Significance: Timing of lek counts is important to maximizing sighting of males at leks.

Improved Habitat Mapping and Assessment Author: Shyvers et al. Year: 2018 Title: Dual-frame lek surveys for estimating greater sage-grouse populations: *Journal of Wildlife Management*, v. 82, no. 8, p. 1689-1700. Implications: Study in northwestern Colorado. Authors report that, "We estimated that annual lek surveys captured an average of 45-74% of active leks and 43-78% of lekking males each year. Our results suggest that many active leks remain unknown and annual counts fail to account for a substantial, but variable, proportion of the number of active leks and lekking males in the population in any given year. Managers need to recognize this potential source of bias in lek-count data and, if possible, account for it in trend analyses and management efforts." Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; lek counts Significance: Important for estimating population density and trends in low density populations. Comments: Data used by CPW and BLM for RMP development for NW Colorado is obviously biased.

Improved Habitat Mapping and Assessment Author: Coates et al. Year: 2019 Title: Estimating sightability of Greater Sage-grouse at leks using an aerial infrared system and N-mixture models. *Wildlife Biology*, 2019: wlb.00552, p. 1-11. Implications: The authors suggest that ground-based lek surveys are likely to result in population estimates about 14% lower than true values, especially in areas with high sagebrush cover. Using aerial integrated infrared imaging system surveys resulted in greater sightability rates, however using repeated morning ground-based surveys or generalized correction values provided by the authors could improve GRSG population estimates derived from ground-based lek counts. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; lek counts Significance: New method for estimating lek attendance and therefore, population trends.

Improved Habitat Mapping and Assessment Author: Fregman et al. Year: 2019 Title: Weather conditions and date influence male sage grouse attendance rates at leks: *IBIS*, v. 161, no. 1, p. 35-49. Implications: Considering potential biases of attendance, detection can improve the performance of lek counts as indices of population abundance. Attendance here was strongly influenced by precipitation, consistent with other studies and supporting lek-count protocols that discourage counts during rain. Slight negative effects of wind observed here also support avoiding counts during high winds. Supersedes NTT: Yes

Supersedes COT: Yes Issue: Technique refinement; lek counts Significance: Don't count sage grouse in the rain.

Improved Habitat Mapping and Assessment Author: O'Donnell et al. Year: 2019 Title: Designing multi-scale hierarchical monitoring frameworks for wildlife to support management: a sage-grouse case study: *Ecosphere*, v. 10, no. 9, p. 1-34. Implications: The ability to cluster GRSG leks into nested, biologically meaningful lek clusters may aid researchers and managers in producing population trend estimates at different spatial scales and help them determine drivers of trends across scales. This information will be important for developing effective management actions. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; population trends Significance: Additional research required for evaluation for implementation

Improved Habitat Mapping and Assessment Author: Wann et al. Year: 2019 Title: Assessing lek attendance of male greater sage-grouse using fine-resolution gps data-implications for population monitoring of lek mating grouse: *Population Ecology*, v. 61, no. 2, p. 183-197., <https://doi.org/10.1002/1438-390X.1019>. Implications: Lek-switching occurred at a higher rate than previously thought. Therefore, the authors recommended that surveys of leks within 4 km of each other should be conducted on the same morning to reduce the chance of double counting males. Date-corrected daily lek counts using attendance probability can reliably estimate population sizes, allowing more leks to be monitored less frequently. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; lek counts Significance: Potentially resolves issue with males moving between multiple leks by counting simultaneously.

Ramey et al. (2018) reported that regional climatic variation, as indexed by the Pacific Decadal Oscillation (PDO), was an important positive predictor of density changes at both the local and population level, particularly in the most recent part of the time series when lek count data were of higher quality.

In essence, the local and population-level effects should be quantified by the relative change in abundance of sage grouse after controlling for intrinsic factors such as density-dependence and extrinsic factors such as climatic variation (Coates et al. 2018; Ramey et al. 2018). As described below, these methods include analysis of lek counts based on stage-based population dynamic models. The sage grouse abundance should be based on lek counts (Walsh et al. 2004) as this data is relatively inexpensive and non-intrusive to collect, has been collected historically via ground-based visual surveys for several decades in many areas and provides an index of population abundance (Monroe et al. 2016). In particular, the counts of male sage grouse should be corrected for sightability (Fremgen et al. 2016; Coates et al. 2019), seasonality (Wann et al. 2019) and where possible time of day to provide an estimate of the absolute male attendance at each lek in each year. Lek counts from ground based visual surveys can be supplemented by more extensive aerial infrared surveys (Gillette et al. 2013), provided they are also corrected for sightability (Coates et al. 2019).

The change in abundance due to human activity should be quantified in terms of the change in male lek attendance relative to what the attendance would have been in the absence of the activity. In order to estimate this term it is not enough to simply compare the lek attendance before the activity to the lek attendance after the activity. This is because lek attendance in sage grouse like other tetraonids (Kvasnes et al. 2010) undergoes large oscillations driven by density-dependence (i.e. population density feedbacks affect population growth rate) and regional climatic variation (i.e. inter-annual and multi-decadal variation

in large-scale regional weather patterns) (Ramey et al. 2018). In other words, we must be able to account for these two naturally interacting processes in any analysis of human influences. Without accounting for these, the result could be an activity with a negative impact appearing neutral or even beneficial if it was undertaken while the population was recovering from lowered densities due to suboptimal climatic conditions. Likewise, a downturn may be entirely due to natural processes, rather than the activity in question (e.g. a low ebb in the Wyoming sage grouse can be expected as part of a population cycle, based almost entirely on the natural processes).

In addition to accounting for temporal dependencies due to population fluctuations, the statistical models also need to account for spatial dependencies in the response of individual leks. In particular the effect of an activity is expected to decay by distance while reductions at one lek could lead to decreases or increases at neighbouring leks depending on whether depensation (i.e. decrease in local population density or number due to the loss of breeding adults) or compensation (i.e. displacement of breeding sage grouse to nearby, undisturbed leks) is occurring. The extent to which these mechanisms are operating and how best to model them remains an open question. However, this is an important question to answer because it is central to quantifying, the extent to which a locally-observed decrease in sage grouse density in a project area may, or may not be, contributing to an overall decrease in the carrying capacity of the larger, surrounding population, or the cumulative effects of multiple projects and activities on a population. In other words, the question of "how much is too much" development, relative to a desirable population threshold.

Depending on the scale, the most promising method(s) include statistical analyses that can either use other leks that are outside the zone of influence as controls and/or explicitly model density-dependence, climatic variation and other extrinsic factors (Ramey et al. 2018). Ideally they would do both. The resultant effect size should be expressed as the estimated n-fold change due to the activity with 95% confidence/credible intervals (Bradford et al. 2005). As described below, explicit models should be stage-based population dynamics models.

Excluding new primary, secondary, or high-activity roads within 1.9 miles of leks, and excluding all new road construction or location within 0.6 miles of leks (with no exceptions, waivers, or modifications)

The downward lek trends and population declines are worrisome; while sage-grouse are a cyclical species, the current downward trajectory is an anomaly.

Despite our extensive analysis and comments on the proposed changes in the 2019 RMPAs in regard to lek buffers, the DSEISs persist in maintaining the inadequate protections of the previous plans. We refer BLM to our previous comments - and extensive scientific evidence provided in literature - on this issue.

There have been a number of scientific studies demonstrating that lek buffers greater than the 0.25-mile lek buffers (e.g. authorized in the 2018 Idaho EIS for IHMA and GHMA, and also greater than the 0.6-mile buffers authorized for PHMA and SFA in the Idaho plan), are necessary to maintain current sage-grouse populations in the face of industrial development. No scientific study has ever recommended a lek buffer of 0.25 mile as an adequate conservation measure. The DSEISs don't provide any new or justifiable rationale for having weakened these standards in the FEIS or for rejecting the recommendations of an interagency team of sage-grouse experts from state and federal agencies who performed a comprehensive review of the scientific literature and recommended a 4-mile lek buffer for

siting industrial development in sage-grouse habitat (National Technical Team 2011), a prescription in greater accord with the science.

### **F.3.17 Livestock Grazing Management**

BLM fails to consider new science showing harms to sage-grouse habitat from livestock grazing and fails to consider that even under the more-restrictive 2015 Plans, few changes to livestock grazing to address sage-grouse needs have occurred. BLM is treating addressing harms to sage-grouse from livestock grazing as a paper exercise instead of taking the substantive actions needed to protect the species' habitat. BLM's failure to address grazing by implementing the 2015 Plans only confirms that those Plans do not go far enough to protect sage-grouse and the 2019 Plans and SDEISs only repeat and exacerbate this error. New scientific studies more definitively link the presence of livestock grazing with cheatgrass. Time-series data and results in Williamson et al. (2019) indicate that grazing corresponds with increased cheatgrass occurrence and prevalence regardless of variation in climate, topography, or community composition, and provide no support for the notion that contemporary grazing regimes or grazing in conjunction with fire can suppress cheatgrass. None of the BLM's DSEISs incorporate or interpret this potential impact of livestock grazing on sage- grouse habitat.

The BLM has indicated in its scoping materials for the planned grazing regulations revision that it intends to make significant changes in how NEPA will be applied to grazing authorizations. According to the documents provided, the BLM will be seeking to eliminate the requirement for notice, comment, protest, and appeal on a substantial number of authorizations. These might include permits for trailing and crossing of livestock and temporary permits for "targeted grazing," supposedly to reduce fuel loads and wildfire risk. Targeted grazing authorizations are likely to include livestock infrastructure including fencing, water tanks and wells all of which can have significant negative impacts to sage-grouse in addition the impacts of the grazing itself which is likely to segment habitat and create barriers to sage-grouse migration, breeding, nesting and brood rearing. The BLM must address the impacts of targeted grazing on sage-grouse and discuss how any new categorical exclusions proposed in the grazing regulations revision might impact sage-grouse habitat.

the revisions to MD LG 16 omit including into the alphabetical items in MD LG 16 the clarification made in the DSEIS relative to its reliance upon the COT and NTT Reports in Appendix S-I. Specifically, Appendix S-I allows revision of livestock management direction "to incorporate key components of the Governor's sage grouse plan into BLM Management Direction (MD)" so as to include: (a) removing the threshold and response requirement during livestock permit renewal; and (b) reiterating that grazing is guided by the C.F.R. 4100 Regulations. See DSEIS, Appendix S-I, at page APP-S-I-18. We support this approach, though the DSEIS erroneously fails to apply that approach in its revision of MD LG 16 and of MD LG 17 by not explicitly speaking to remove the threshold and response requirement during livestock permit renewal.

Grazing Author: Monroe et al. Year: 2017 Title: Patterns in greater sage-grouse population dynamics correspond with public grazing records at broad scales: Ecological Applications, v. 27, no. 4, p. 1096-1107, Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: High levels of grazing in this study represent intensities near maximum allowable levels defined by the Bureau of Land Management. Study findings did not suggest that reducing these grazing levels would benefit GRSG populations, but rather that grazing may have both positive and negative effects on GRSG, depending on timing and intensity. Study results suggest that broad-scale analyses are important to

capture the range of responses that wildlife can have to land-use and livestock management. These findings could also help guide sustainable livestock management decisions, such as delaying high-level grazing until after peak vegetation productivity, in similar habitats. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; grazing management Significance: Prioritization of management actions to improve grazing in GRSG habitat.

Grazing Author: Cutting et al. Year: 2019 Title: Maladaptive nest-site selection by a sagebrush dependent species in a grazing-modified landscape: *Journal of Environmental Management*, v. 236, no. Epub 2019, p. 622-630 Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: These findings suggest that certain sagebrush habitats may function as ecological traps, whereas others may be undervalued, especially in an actively grazed setting. Additional fencing in these locations may lower GRSG nest survival rates. Author Highlights, " Nest survival in preferred sagebrush type was one-fourth the rate in type avoided. Nest survival was four times higher when placed >100 m away from nearest fence. Timing of graze could best achieve herbaceous requirements for successful nesting. Fence modifications along with prioritization of sagebrush type are discussed." Issue: Grazing; mitigation Significance: Recommendations to avoid ecological traps in areas subject to grazing

Grazing Author: Runge et al. Year: 2019 Title: Unintended habitat loss on private land from grazing restrictions on public rangelands: *Journal of Applied Ecology*, v. 56, no. 1, p. 52-62. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: Restricting grazing on public lands could result in increased GRSG habitat loss on private land over the next 30 years. It is important to consider the connections between public land policy and private land use change. Policies that balance the need to conserve habitat on public lands with economic needs of ranchers are promising. Supersedes NTT: Yes Supersedes COT: Yes Issue: Grazing management Comments: Unintended consequences

Grazing Author: Taylor et al. Year: 2019 Title: Economic impact of sage grouse management on livestock grazing in the Western United States: *Western Economics Forum*, v. 17, no. 1, p. 98-114. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: Reducing or eliminating livestock grazing on federally protected lands recognized as GRSG habitat would create negative economic impacts on both a ranch-scale and regional-scale, and may create increased economic burdens for rural communities in western states. Issue: Grazing

In addition, the DSEISs inexplicably fail to consider closure of sage-grouse allotments upon receipt of voluntarily waived grazing permits. This action was identified within one of the alternatives in each of the 2015 plans, but not carried forward into the 2018 analyses or 2019 decisions. The interest in and need for grazing permit retirement has only grown since the earlier plans, but none of the DSEISs consider the action.

Our previous comments and protests have discussed the inadequacy of current rangeland health assessments to ensure the protection and restoration of sage-grouse habitat. The BLM, as a central component of the grazing regulations revision, appears to be advocating for moving from site-specific assessments of rangeland health on a 10-year timeline to larger scale assessments at the watershed or even RMP level which may only occur every 30 years or more. The BLM, therefore, must include in its current analysis a discussion about how any changes to scale and timeframe for rangeland health assessments will impact sage-grouse habitat management and the responsiveness of agency land managers to adjust grazing practices when standards are not met.

**F.3.18 Withdrawal Recommendation and SFAs (Sagebrush Focal Areas)**

Lack of consultation and coordination with state and local partners is a failure that plagued the 2015 land use plan development process throughout. As a result, the U.S. District Court for the District of Nevada held that BLM and USFS violated NEPA by failing to prepare a supplemental EIS to examine the SFA designations and allow for public comment. This failure underscores the process by which the overly restrictive 2015 plans were developed and the shortcomings that could have been avoided had the agencies deferred to state plans for Greater Sage Grouse conservation.

The Idaho District Court characterized the elimination of SFAs and "downgrading" these areas to Priority Habitat Management Areas (PHMAs) as a reduction in protection for the Greater Sage Grouse, and that in removing the SFAs, the final EISs for the revised plans "failed to identify any changes on the ground - or in the science - since the COT Report that had explained the need for the SFAs and designated those areas or the highest protection from energy development and other surface disturbance."<sup>13</sup> Here again the Court ignored the fundamental change that had occurred - the rescission of the discretionary 10-million-acre mineral withdrawal that the SFA designation was created to support in the first place. <sup>13</sup> *Western Watersheds Project et al v. Schneider et al*. Case No. CV-00083-BLM, 2019, at 11. (D. Idaho Oct. 16, 2019).

The lack of basis for the withdrawal, and the contrived SFA designation designed to support it, was fully demonstrated by the BLM's own conclusion that mining impacted less than 0.1 percent of the Sage Grouse population.<sup>14</sup> The DEIS explained that SFAs duplicate many protections already in place in PHMAs and do not provide appreciable benefit to the Greater Sage Grouse, including addressing the primary threats of wildfire and invasive species.<sup>15</sup> As discovered during the NEPA process commenced to facilitate the withdrawals, the purported threat to the Greater Sage Grouse as dictated by the FWS was infinitesimal compared to the overall acreage proposed to be withdrawn. The BLM DEIS noted: "The total amount of mining related disturbance in Sagebrush habitat under the No Action Alternative [no withdrawal] would be 9,554 acres . . . , or approximately one-tenth of 1 percent of the total withdrawn area."<sup>16</sup> (Emphasis added.) Indeed, the difference in acres that could be disturbed over 20 years between no withdrawal and a withdrawal of approximately 10 million acres was a mere 6,934 acres. Due to the compelling evidence related to the relatively small footprint of anticipated and foreseeable mining activities, on October 11, 2017, BLM allowed the two-year segregation period to expire by operation of law and cancelled the proposed SFA withdrawal.<sup>17</sup> The shortcomings of the SFA designation and lek buffers included in the 2015 land use plans and grounded in the NTT and COT reports are well documented in the administrative record, and the Idaho District court erred in finding that deviation from these mechanisms constituted a reduction in Greater Sage Grouse protection without adequate review. <sup>14</sup> *Sagebrush Focal Areas Withdrawal Environmental Impact Statement*, Idaho, Montana, Oregon, and Wyoming (Dec. 2016) at 4-71. <sup>15</sup> *Id.* <sup>16</sup> *Id.* <sup>17</sup> 82 Fed. Reg. 195, Oct. 11, 2017 at 47248.

Gold deposits like Gravel Creek (worth a gross \$3 billion and growing) and Doby George are extremely rare, costly, and difficult to find; the odds of finding another similarly promising deposit elsewhere are extremely remote. Although the withdrawal was cancelled as unnecessary (which was appropriate) the segregation of these lands effective September 24, 2015 created a significant cloud of uncertainty on the project and continued development and had a chilling effect on Western's ability to continue raising necessary funds for its development. This is yet another reason why the No Action alternative should not be adopted and the BLM should consider this effect on WEX and similarly-situated mining

companies with valid existing rights in the DSEIS and should consider clarifying and confirming that such analysis must occur prior to any proposed withdrawal (based on existing law and regulations to avoid such harm in the future) in the future. WEX strongly supports and urges the BLM to adopt the provisions in the Management Alignment Alternative that eliminate the SFAs, remove any reference to any potential withdrawal of lands from mineral entry and reject in totality the No Action Alternative the adoption of which would not comport with the law.

the proposal for a potential mineral withdrawal included in the 2015 GSG LUPA was just that and not a foregone conclusion that it would be completed. As WEX argued to the Nevada District Court, we believe it was a legal shortcoming that the 2015 LUPA SEIS did not include a mineral potential report before proposing the withdrawal in the SEIS of 10 million acres of land (and was improper segmentation of the necessary NEPA processes). Once the proper NEPA analysis including the mineral potential in the area and a proper socioeconomic analysis of the impacts of such a withdrawal, the decision was clear: "the proposal to withdraw 10 million acres was unreasonable in light of the data that showed that mining affected less than 0.1 percent of Greater Sage-Grouse-occupied range." See DSEIS, Sec. 4.5.2, p.4-42 (quoting the BLM's Notice of Cancellation of Withdrawal Application and Withdrawal Proposal).

**B. The Cancellation Of The Proposed SFA Withdrawal Necessitates Removal Of The SFA Designations**  
As previously mentioned, part of the additional management package that accompanied the designations of SFAs was the recommendation to withdraw approximately ten million acres from operation of the Mining Law. The recommendation to withdraw in the 2015 Amendments was put into action upon the issuance of the RODs/LUPAs. See 80 Fed. Reg. 57,635 (Sept. 24, 2015) (notifying the public of the proposed withdrawal of BLM and Forest Service lands identified as SFAs in Idaho, Montana, Nevada, Oregon, Utah, and Wyoming). This notice also began the two- year segregation period, which prohibited entry and location on those lands. When the 2016 DEIS for the proposed withdrawal was released, it was clear the withdrawal of approximately ten million acres was not necessary to protect the greater sage-grouse or its habitat. For instance, even if no withdrawal occurred only 9,554 acres of the approximately ten million acres proposed for withdrawal could be disturbed by mining over a 20-year period. DEIS at vii, 4-87 ("The total amount of mining related disturbance in sagebrush habitat under the No Action Alternative [i.e., no withdrawal] would be 9,554 acres ..., or approximately one-tenth of 1% of the total withdrawal area." (emphasis added)). In fact, the difference in acres that could be disturbed over 20 years between no withdrawal and the withdrawal of approximately ten million acres was only 6,934 acres

Although the SFAs and the lek buffers constituted substantial changes to the proposed action, no supplemental EIS was prepared to analyze them and the public was not provided an opportunity to offer input on their use as guiding elements of the 2015 land use plans. As a result, the 2015 plans did not reflect the best scientific information available to and used by the states that are home to the Greater Sage Grouse. Comments included in the SFA EIS Scoping Report and critiques by Western governors raised serious questions regarding the scientific integrity of the SFAs and their usefulness in the stated objective of Greater Sage Grouse conservation. Commenters also noted that portions of the SFAs were not suitable as Greater Sage Grouse habitat and that certain areas included within the designation are uninhabitable by the species due to past wildfire and lack of sagebrush ecosystems, facts which would have been obvious if BLM adequately assessed these lands on the ground in concert with state and local partners. Lack of consultation and coordination with state and local partners is



a failure that plagued the 2015 land use plan development process throughout. As a result, the U.S. District Court for the District of Nevada held that BLM and USFS violated NEPA by failing to prepare a supplemental EIS to examine the SFA designations and allow for public comment. This failure underscores the process by which the overly restrictive 2015 plans were developed and the shortcomings that could have been avoided had the agencies deferred to state plans for Greater Sage Grouse conservation. In addition to the procedural and scientific flaws of the SFA designation, SFAs were principally designed to support a 10-million-acre withdrawal of lands from location or entry under the General Mining Law of 1872 that was unjustified and which has since been rescinded. The Idaho District Court characterized the elimination of SFAs and "downgrading" these areas to Priority Habitat Management Areas (PHMAs) as a reduction in protection for the Greater Sage Grouse, and that in removing the SFAs, the final EISs for the revised plans "failed to identify any changes on the ground - or in the science - since the COT Report that had explained the need for the SFAs and designated those areas or the highest protection from energy development and other surface disturbance."<sup>13</sup> Here again the Court ignored the fundamental change that had occurred - the rescission of the discretionary 10-million-acre mineral withdrawal that the SFA designation was created to support in the first place.

The lack of basis for the withdrawal, and the contrived SFA designation designed to support it, was fully demonstrated by the BLM's own conclusion that mining impacted less than 0.1 percent of the Sage Grouse population.<sup>14</sup> The DEIS explained that SFAs duplicate many protections already in place in PHMAs and do not provide appreciable benefit to the Greater Sage Grouse, including addressing the primary threats of wildfire and invasive species.<sup>15</sup> As discovered during the NEPA process commenced to facilitate the withdrawals, the purported threat to the Greater Sage Grouse as dictated by the FWS was infinitesimal compared to the overall acreage proposed to be withdrawn. The BLM DEIS noted: "The total amount of mining related disturbance in Sagebrush habitat under the No Action Alternative [no withdrawal] would be 9,554 acres . . . , or approximately one-tenth of 1 percent of the total withdrawn area."<sup>16</sup> (Emphasis added.) Indeed, the difference in acres that could be disturbed over 20 years between no withdrawal and a withdrawal of approximately 10 million acres was a mere 6,934 acres. Due to the compelling evidence related to the relatively small footprint of anticipated and foreseeable mining activities, on October 11, 2017, BLM allowed the two-year segregation period to expire by operation of law and cancelled the proposed SFA withdrawal.<sup>17</sup> The shortcomings of the SFA designation and lek buffers included in the 2015 land use plans and grounded in the NTT and COT reports are well

documented in the administrative record, and the Idaho District court erred in finding that deviation from these mechanisms constituted a reduction in Greater Sage Grouse protection without adequate review.

### **F.3.19 Mitigation**

BLM must evaluate the impacts of not requiring compensatory mitigation and alternatives to address those impacts. To the extent BLM still considers removing the compensatory mitigation requirement and will rely on voluntary actions by operators and enforcing state requirements, the agency must consider the impacts of that change. Removing the compensatory mitigation requirement is a textbook example of a significant change that necessitates supplemental NEPA. 40 C.F.R. § 1502.9(c). Despite BLM's attempts to ignore the likely consequences, the loss of required mitigation that is enforced by BLM means that there is no consistent assurance mitigation will occur. The resulting loss of habitat must be analyzed, especially in light of the loss of population and habitat described above and in Exhibit 4 that

will compound these effects. BLM must consider alternatives that will address these increased threats to sage-grouse, such as increasing reliable protections from activities that damage habitat through measures like increasing protections for lands open to leasing. See, 40 C.F.R. §1502.14. BLM must conduct compliant supplemental NEPA to address the major effects of no longer requiring compensatory mitigation.

The State will work with the BLM to recommend, when appropriate, compensatory mitigation actions that create, restore, and/or protect functional habitat or habitat corridors to offset the impacts of unavoidable permanent disturbance to sage-grouse habitat. Generally, the State will recommend for every one acre of functional sage-grouse habitat permanently disturbed by project proponents, four acres of functional habitats or corridors created, restored, and/or preserved, as identified in the amended Utah Administrative Rule R634-3. Utah's compensatory mitigation ratio accounts for direct and indirect impacts that may result from permanent disturbance, differences in habitat quality, and uncertainty related to mitigation success. This ratio reduces project costs by simplifying the analysis of these factors, while also ensuring effective conservation outcomes.

The compensatory mitigation strategy contained in the Draft SEIS and the proposal to work with the State, the BLM, and the project proponents to analyze applicant-proposed or state-imposed compensatory mitigation to offset residual impacts is the best way to balance development and conservation in alignment with the State management plan.

I feel that compensatory mitigation is inadequate to mitigate for loss of Greater Sage-Grouse. You cannot compensate for the potential loss of a species like the Greater sage-Grouse monetarily. The new plan could significantly reduce the GRSG's chances of survival, and this is a tragic loss for all of us and future generations of Americans. I believe that the BLM has a Public Trust obligation to protect the Greater Sage-Grouse for all of us.

Supplemental Draft EISs should have been issued as required by NEPA when the BLM decided to eliminate mandatory compensatory mitigation. We are opposed to the elimination of mandatory compensatory mitigation, as mandatory compensatory mitigation is a cornerstone component contributing to the 2015 FWS determination that the GRSG is "not warranted" for listing under the ESA. An attempt to offer compensatory mitigation to development proponents as voluntary and regulated only under relevant State authorities both undermines the monumental collaborative conservation effort that resulted in the 2015 FWS determination and is likely to impose disadvantageous range wide impacts to GRSG. Further, the 2020 DSEIS does not appear to provide any substantive justification for eliminating mandatory compensatory mitigation.

Elimination of mandatory compensatory mitigation is likely to impose disadvantageous range wide impacts to GRSG by transferring compensatory mitigation authority to the State level. Consistent with the myriad of issues associated with the range wide cumulative impact analysis, "the states have no legal authority to dictate how federal lands are to be managed or to impose conditions like compensatory mitigation on federal land users" (DSEIS, C-172). Further pointing out the need for Federal involvement with regards to compensatory mitigation. GRSG occupy a geographic range composed of several states and they rely on habitat connectivity to persist. Imposing a state-led and therefore piecemeal compensatory mitigation policy is sure to result in range wide fragmentation of conservation efforts because compensatory mitigation policies are variable in degree of protection between states and also subject to change over time as political factors shift and economic reality varies. The 2020 DSEIS failed

to consider this concept and as a result, includes no substantive impact analysis or conclusionary justification regarding the potential benefits or detriments that such a policy modification may impose on GRSG across its range.

In addition, Section 4.13 Page 5-54 of the 2020 DSEIS presents language that suggests that there is not yet enough data regarding compensatory mitigation to provide a science-based assessment of compensatory mitigation "effectiveness or degree of benefit": "While the BLM has more than 90 RMPs, 9 strategies, and 45 agreements in active use that contain or address compensatory mitigation, the BLM has identified only limited implementation of compensatory mitigation consistent with the 2015 Greater Sage-Grouse Plans. Using data gathered in 2017, the BLM identified 13 Greater Sage-Grouse projects across 5 BLM states with a mandatory compensatory mitigation component or net gain standard implemented between October 2008 and June 2017.

In many cases, it is still too soon in the implementation of these compensatory mitigation actions to measure the effectiveness or degree of benefit each action provides." As the BLM acknowledges that the best available science shows that more information is required to provide a defensible conclusion regarding compensatory mitigation actions, it would be both irresponsible and unethical to modify the current compensatory mitigation policy until sufficient data has been collected to inform a formal NEPA analysis of the matter.

We maintain that BLM's position that it cannot require compensatory mitigation is unlawful. BLM's analysis is inaccurate and BLM has ample authority to require compensatory mitigation under FLPMA. First, IM 2019-018 relies on a Solicitor Memorandum M-37046, "Withdrawal of M-37039, "The Bureau of Land Management's Authority to Address Impacts of its Land Use Authorizations Through Mitigation." (June 30, 2017). Solicitor Memorandum M-37046 withdraws a previous Solicitor Opinion that confirmed BLM's authority to address land use authorizations through mitigation but did not conclude BLM did not have the subject authority; rather, it "attempted to answer an abstract question." In actuality, the direction in both IM 2019- 018 and the 2019 Amendments are arbitrary and capricious, and in violation of law.

To the extent BLM still considers removing the compensatory mitigation requirement and will rely on voluntary actions by operators and enforcing state requirements, the agency must consider the impacts of that change. Removing the compensatory mitigation requirement is a textbook example of a significant change that necessitates supplemental NEPA. 40 C.F.R. § 1502.9(c). Despite BLM's attempts to ignore the likely consequences, the loss of required mitigation that is enforced by BLM means that there is no consistent assurance mitigation will occur. The resulting loss of habitat must be analyzed, especially in light of the loss of population and habitat described above and in Exhibit 4 that will compound these effects. BLM must consider alternatives that will address these increased threats to sage-grouse, such as increasing reliable protections from activities that damage habitat through measures like increasing protections for lands open to leasing. See, 40 C.F.R. §1502.14. BLM must conduct compliant supplemental NEPA to address the major effects of no longer requiring compensatory mitigation. Recommendations: If BLM intends to proceed with a Supplemental EIS process, then BLM must address the flaws in the NEPA analysis connected with the 2019 Amendments, including the failures to fully assess the impacts of the changes to the 2015 Sage-grouse Plans and to consider an actual range of alternatives.

The revisions to the compensatory mitigation guidelines will likely prove to limit maintenance and/or restoration of habitat for sage-grouse. The new guidelines rely on existing policies to “fill in the blanks” when the BLM can’t. Reliance on mitigation banking may be the most economical solution for “achieving reparations”, but it is certainly not the most effective environmentally. Mitigation banking improves areas outside the area of concern, leaving the management area degraded. The no net loss concept embedded in conservation banking has proven to be, at best, modestly successful (Bull, J.W., Suttle, K.B., Gordon, A., Sing, N.J., Milner-Gulland, E.J., 2013). The implementation of a biodiversity offset by conservation banking walks a fine line between conservation and economic growth. Mitigation banking cannot be exchanged like currency to compensate for damages to the environment. Greater sage-grouse already suffer habitat loss due to climate change, suffering habitat loss due to anthropogenic, permitted events cannot be corrected indirectly by a mitigation banking system. Mitigation strategies concerning greater sage-grouse habitat areas should primarily be focused on ecological outcomes that directly correspond with greater sage-grouse populations. The mitigation banking strategy proposed by this plan is not sufficient in promoting the longevity of the species. The purpose of this EIS is to promote the conservation of sagebrush habitat for the greater sage-grouse species and to prevent the extinction of said species. The threshold of efficacy that conservation banking would have on a species bordering extinction is too small

Because priority habitat management areas (PHMAs) are discrete areas located throughout the range of sage-grouse, large-scale conservation strategies being pursued by BLM depend not only on maintaining suitable habitats within each priority area, but also in large part on maintaining the range-wide connectivity of populations among these priority areas. The loss of connectivity among sage-grouse population strongholds due to human-related or naturally occurring disturbance is a strong predictor of long-term population declines. BLM has a critical role in managing connectivity and other broad-scale issues. Yet, the agency's recent push towards project-specific evaluations and the elimination of its avoidance options (e.g., prioritization of oil and gas leasing outside of important sage-grouse habitats has been discontinued in practice by BLM [Instructional Memorandum 2018-026]) suggest that the BLM has no viable landscape-scale approach to managing impacts to sage-grouse or its habitats. Furthermore, the BLM currently is not requiring compensatory mitigation and has deferred to state plans. While deference to state authority and mitigation programs may work, we remain skeptical as to not only compliance but also effectiveness for achieving a no-net-loss standard. In other words, the lack of a broad perspective on management, restoration and mitigation will likely lead to continued degradation and loss of sage-grouse habitats as development in these habitats proceeds. The SEISs offer no analyses related to mitigation or restoration, which represents a fatal flaw in BLM's analysis of new information and circumstances.

IM No. 2018-093, however, does authorize voluntary compensatory mitigation by a project proponent. To ensure that compensatory mitigation is voluntary, the IM cautions that BLM must not explicitly or implicitly suggest that a project approval is contingent upon proposing a "voluntary" compensatory mitigation component, or that doing so would reverse or avoid an adverse finding. Importantly, the IM notes that "[e]ven if FLPMA authorizes the use of compensatory mitigation, it does not require project proponents to implement compensatory mitigation."<sup>21</sup> Accordingly, the IM concludes that BLM will not mandate compensatory mitigation as a condition of project authorizations unless required by law. As such, compensatory mitigation, the foundation for the "net conservation gain" standard applied across the 2015 plans adopted across the range of BLM GRSG planning area, has been renounced. Similarly, On July 30, 2018 FWS formally withdrew two significant mitigation policies of the previous Administration.

The first policy, issued on Nov. 6, 2017, related to ESA compensatory mitigation policy, was withdrawn by the Endangered and Threatened Wildlife and Plants; Endangered Species Act Compensatory Mitigation Policy.<sup>19</sup> The second, a Nov. 2016 policy, guided the Service on recommendations to mitigate impacts of activity of land and water developments on fish, wildlife, plants, and their habitats, was withdrawn by the FWS Mitigation Policy. The withdrawn policies were eleventh hour pronouncements by the previous Administration that imposed a net conservation gain standard as applied to matters particularly focused under the ESA, in addition to throughout FWS-related activities.

As justification for the policy revocation, FWS acknowledged serious concern that requiring mitigation for impacts unrelated to a project proponent's actions as potentially implicating federal constitutional concerns related to the Fifth amendment prohibition on takings.<sup>20</sup> Additionally, according to FWS, "[t]he ESA requires neither 'net conservation benefit' nor 'no net loss,' and [FWS] has not previously required a 'net benefit' nor 'no net loss' while implementing the ESA.<sup>21</sup> FWS recognized that, threaded between Sections 7 and 10 of ESA, "the applicant may do something less than fully minimize and mitigate the impacts of the take where to do more would not be practicable," while still advancing Section 7(a)(2) obligation to ensure that any federal activity is not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of habitat.<sup>22</sup> Accordingly, there is no legal basis to impose a "net conservation gain" standard in any way in the land use planning process. The Idaho District Court ignored BLM's IM and its well-founded interpretation of the law that FLMPA does not support mandatory compensatory mitigation and the Service's withdrawal of the policies on which net conservation gain was based. It is inappropriate to conclude that the rescission of unauthorized standards can serve as a degradation in species protection under the law. By extension, it is also inappropriate to conclude that the BLM violated NEPA by failing to analyze the impacts of not implementing standards it was not authorize to implement in the first place, and which had since been rescinded.

Another difference between past and current oil and gas development, particularly in the Pinedale Planning Area, has been the implementation of extensive mitigation measures designed to reduce overall impacts to sage grouse and enhance their habitat. Mitigation measures became notable with development of the Pinedale Anticline starting in 2000 (BLM 2000, 2008a) followed by the Jonah Drilling Infill Project (BLM 2006b) and culminating in the Pinedale Resource Management Plan Record of Decision (BLM 2008b). These measures have resulted in 183,608 ha of sage grouse habitat in the Pinedale Planning Area set aside by the BLM as unavailable to oil and gas development (BLM 2008b)

The DSEIS fails to include a fresh hard look at the removal of compensatory mitigation requirements from the 2019 plans. In order to properly assess the effects of this change from the 2015 plans, the BLM must first disclose an estimated amount of money set aside for compensatory mitigation over the life of the plan, then make educated estimates of how that money might be used to improve habitats (types of projects, acreage estimates), and then take a hard look at the population increases that such projects might be expected to generate, based on monitoring data from past compensatory mitigation projects. Please provide the information on projects funded, type of compensatory mitigation project funded, acres treated, and sage-grouse population gains (or losses) that occurred subsequent to compensatory mitigation projects in which BLM is a participating, funding, or observing member. Rangewide figures for acres treated and dollars spent in the past do not inform a "hard look" at the magnitude of the impacts of making compensatory mitigation optional (or leaving it up to the state, which amounts to the same thing since federal agencies cannot compel state agencies to require compensatory mitigation). BLM

asserts again in the DSEIS that vegetation treatments will offset the loss of federally-mandated compensatory mitigation, without acknowledging the past failures of such treatments or BLM's own acknowledgement that sage-grouse "did not benefit from, or were negatively affected by, prescribed fire and mechanical sagebrush removal." Oregon FEIS at 3-4. BLM also falsely claims that state mitigation programs will offset the loss of federal requirements. However, most states do not require compensatory mitigation at the same standard as the previous federal requirements. Many state programs are voluntary, narrow the circumstances in which the requirement applies, or reduce the standard by which habitat loss must be mitigated. Indeed, not all states even have their plans finalized yet. The BLM fails to disclose the potential implementation of these state mitigation plans but simultaneously fails to safeguard public lands by creating its own.

BLM also failed to acknowledge that it simultaneously amended its plans to allow operators to waive other restrictions-such as lek buffers and disturbance caps-if they "offset" impacts through state compensatory mitigation programs. See, e.g., UT 56 (MA-SSS-3B); CO 174-75 (NSO-2); ID 031; NVCA 215. As a result of these related changes, compensatory mitigation may actually facilitate habitat destruction under the 2019 Plan Amendments.

Instead of analyzing the impacts of compensatory mitigation removal, BLM punts analysis of effects to sage grouse habitats and populations in favor of vague assertions that "mitigation would continue." See, e.g. Idaho DSEIS at 4-28, Northwest Colorado DSEIS at 4-45. The closest the agency comes to a 'hard look' at mitigation effectiveness is the following: Anecdotally, the existing conservation credit systems, banks, and exchanges designed to offset impacts to Greater Sage-Grouse or its habitat have had mixed success. The BLM is aware of three mitigation banks (one commercial bank agreement in Wyoming and two single-user bank agreements with mining companies in Nevada) and one exchange system in Colorado specific to Greater Sage-Grouse currently in operation. However, the BLM does not have access to data or information that would further assess the relative benefit provided by these systems.

Furthermore, "it is speculative to assume the impacts from voluntary compensatory mitigation at the planning level without knowing the frequency with which project proponents would offer voluntary actions. The applicability and overall effectiveness of voluntary actions cannot be fully assessed until the project level when the specific location, design and impacts are known." See, e.g. Idaho DSEIS at 4-31; Wyoming DSEIS at 4-99; Northwest Colorado DSEIS at 4-47. Thus, instead of taking the legally required hard look at impacts of changing compensatory mitigation requirements, the best the BLM can muster is an admission that they have no idea. NEPA requires at least an informed estimate.

The BLM jettisoned the compensatory mitigation promised in the 2015 plans under the policy that BLM would only consider compensatory mitigation as a component of compliance with state mitigation plans, programs or authority, or when offered voluntarily. See, e.g. Idaho DSEIS at 2-3, Colorado DSEIS at 2-9. But nowhere do the plans take a comprehensive look at what the states' plans, programs or authorities are, nor the likelihood of voluntary mitigation by developers. Without this information, it is impossible to assess the overall mitigation in sage- grouse range, underscoring how destructive and uncertain these plans are.

The Idaho and Wyoming DSEISs do admit that the difference between "Net Conservation Gain" to "No Net Loss" has not been defined by BLM. Idaho DSEIS at 4-27; Wyoming DSEIS at 4-100. This is a very basic requirement of NEPA. See, e.g. *Or. Natural Desert Ass'n v. Rose*, 921 F.3d 1185, 1189-90 (9th Cir. 2019) (Interior Board of Land Appeals acted arbitrarily and capriciously where it changed the definition

of a "route" in a travel plan, but failed to explain "what led it to alter its earlier decision or why the new approach was more consistent with the text of the Steens Act"). Moreover, BLM's DSEISs are asserting that this change is not significant: "The BLM is not proposing any action that would preclude proponents from offering compensatory mitigation; it is clarifying the BLM's reliance on voluntary compensatory mitigation consistent with federal law." But there is a significant difference between requiring "net gain" and making any gains voluntary in terms of the "adequacy" of a regulatory mechanism. See, e.g., Idaho DSEIS at 4-34; Wyoming DSEIS at 4-102. One ensures that there is offset for habitat impacts and the other doesn't. The difference is greater than or equal to every developed/degraded acre. The forthcoming SEISs must admit and analyze this truth.

### **F.3.20 Modifying Waivers, Exceptions, and Modifications of Fluid Minerals**

Removing waivers, modifications, and exceptions from habitat protection standards, so that they will be rigorously and dependably applied;

### **F.3.21 Prioritization of Mineral Leasing**

Finally, BLM has not evaluated the impacts of its increased leasing and permitting in sage- grouse habitat. Since 2017 and this administration's abandonment of prioritizing leasing and development outside habitat, there has been a radical increase in leasing and permitting in sage- grouse habitat. See, Oil and Gas Development on Federal Lands and Sage-Grouse Habitats October 2015 to March 2019.<sup>5</sup> Since the beginning of this administration, more than 4 million acres of grouse habitat have been put up for lease and approximately 2.5 million acres have sold. As the court noted, "there is no indication" that the administration will proceed at any slower pace. *WWP v. Schneider*, 417 F.Supp.3d at 1334. Given this trend, BLM can and should evaluate the impact of ongoing leasing and permitting in habitat. <sup>5</sup> available at [https://www.audubon.org/sites/default/files/greater\\_sage-grouse\\_habitat\\_reportfinal\\_20190725.pdf](https://www.audubon.org/sites/default/files/greater_sage-grouse_habitat_reportfinal_20190725.pdf)

If the hard look at the impacts of eliminating mandatory compensatory mitigation was lacking in the FEIS, the impacts analysis on the impact of prioritizing oil and gas leasing and development outside sage grouse PHMA was completely absent. The DSEISs repeat these mistakes. Under the Obama administration, approximately 5 million acres of oil and gas leases nominated by the industry inside PHMA were pulled from the auction block under this provision. How many acres of PHMA would be abandoned as a result of leasing inside PHMA over the life of the plan amendment? To what degree would sage-grouse populations decrease as a result of leasing inside PHMA? The FEIS and the DSEIS are silent. Furthermore, BLM does not even attempt to address the elimination of prioritizing project-level development outside PHMA, which is required under the 2015 ARMPAs but eliminated under the 2018/2020 EISs.

### **F.3.22 Greater Sage-Grouse**

Analysis of GRSG population impacts from predation and hunting must be included and considered in the development of the final land use plans. The Counties urge BLM to coordinate with local governments and the U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service on these issues. In addition, any land use plans must recognize that GRSG populations respond to changes in weather. Wet or dry years are the biggest influence on populations apart from predation and hunting.

Support the development of recovery plans within 18 months of listing that includes clear objectives to reach for delisting to occur; for species already listed support the development of a recovery plan within 18 months of this document.

Require the petition of the immediate delisting of a species when population or recovery plan objectives have been met.

Support the development of local solutions (e.g., habitat management plans, conservation plans or conservation plans with assurances) to keep a species from being listed under ESA or as species of concern/species of special concern.

Include consideration of management activities on federal lands as part of the local solutions to keep a species from being listed under ESA or as a species of concern/species of special concern.

Additionally, BLM has just completed a Programmatic EIS for Fuel Breaks in the Great Basin that will guide BLM to "construct and maintain a system of up to 11,000 miles of strategically placed fuel breaks to control wildfires within a 223 million-acre area in portions of California, Idaho, Nevada, Oregon, Utah and Washington."4 As discussed in Exhibit 4, in the opinion of sage-grouse experts, this approach will require destruction of sage-grouse habitat and could result in substantial loss and/or degradation of sagebrush habitat. BLM must consider this new information when evaluating likely impacts to sage-grouse from the 2019 Amendments. 4 <https://www.blm.gov/press-release/interior-improves-strategies-combat-wildfires-across-223-million-acres-great-basin>

3.D. Mineral Withdrawal Simplot supports the continued exclusion of SFAs as stated in the DSEIS and the prior withdrawal of the application to designate approximately 10 million acres of public and National Forest system lands located within Idaho, Montana, Nevada, Oregon, Utah, and Wyoming as SFAs. In its 2010 finding, the FWS identified a number of specific threats to GRS in the Great Basin Region; including the widespread present and potential impacts of wildfire, the loss of native habitat to invasive species, and conifer encroachment. Mining was not identified as a primary threat. This is further supported in the DSEIS at page ES-1: "The BLM determined that the proposal to withdraw these areas was unreasonable in light of the data that showed that mining affected less than 0.1 percent of Greater Sage-Grouse across its occupied range." The DSEIS further clarifies at page 4-76 that: "In its 2016 SFA Withdrawal EIS, the BLM quantified the possible adverse effects from locatable mineral exploration and mining on the approximately 10 million acres of SFAs proposed for withdrawal, finding that they would be limited to approximately 9,000 acres rangewide of surface disturbance over 20 years, with approximately 0.58 percent of Greater Sage-Grouse male birds possibly affected per year. The other action alternatives evaluated in the 2016 SFA Withdrawal Draft EIS similarly demonstrated negligible benefit of the proposed withdrawal to Greater Sage-Grouse and its habitat."

Because the initial purpose behind the entire BLM Sage-Grouse RMP amendment process was conditioned upon the principal goal "to avoid a potential listing" under the Endangered Species Act (ESA), the 2020 Final SEIS needs to cure the failure of the 2015 and 2019 NEPA processes by evaluating the environmental impacts of the alternatives with respect to Sage-Grouse population status and trends. The Final SEIS needs to evaluate current population status and trends and needs to disclose how the various alternatives would impact future population trends which directly affect the purported risk that Greater Sage-Grouse may face "potential listing" under the ESA.



Sage-grouse population declines and habitat loss represent significant new environmental information that bears on the management actions established in the 2015 and 2019 sage-grouse RMP amendments. BLM must address these circumstances through supplements to the EISs used to inform those RMPs as prescribed in 40 CFR 1502.9(c)(1)(ii) of the National Environmental Policy Act (NEPA). Specifically, the regulations require agencies to: "prepare supplements to either draft or final environmental impact statements if there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." The Draft SEISs released February 11, 2020 do not reflect the reality of these new circumstances and provide no scientific justification for the majority of BLM management decisions given the current situation. Accordingly, BLM must expand the scope of these SEISs to address this new information and set of circumstances facing sage-grouse and sagebrush habitat.

The documents do present treatment and restoration acres, which are important, but there is essentially no mention of acres lost and how treated/restored acres might have offset that loss. Empirical metrics for habitat loss and acres of habitat that were mitigated and those that were not are fundamental to any meaningful "hard look" at environmental consequences. It is impossible to know exactly how much habitat has been gained or lost and what the trajectory for habitat and sage-grouse populations are without the full suite of metrics.

Furthermore, there is no mention as to whether habitat treatments and restoration were effective and, critically important, when or even if sage -grouse will ever occupy them, let alone successfully reproduce effectively in the future - the true metric of successful restoration. The temporal lag in treatment effectiveness should be accounted for in analyses and discussed in detail.

Idaho DSEIS at ES-1, Wyoming DSEIS at I-1; Northwest Colorado DSEIS at ES-1. It is also informative to note that during the course of this period of state management of sage-grouse, the once-commonplace large flocks were eliminated and the birds became so rare, and their habitats so badly impacted by human activities, that the U.S. Fish and Wildlife Service found the species 'warranted, but precluded' for listing under the Endangered Species Act. And population declines have continued, as noted elsewhere in these comments.

BLM did not consider these increased habitat protections in the 2019 plan amendments, which this SEIS incorporates by reference without significant changes. See, e.g., Idaho DSEIS at 2-17; Northwest Colorado DSEIS at ES-3. This SEIS does nothing to remedy the failure of BLM to make needed improvements in sage-grouse habitat protections,

Dr Braun is understandably alarmed; he has been concerned about the population trajectory of sage-grouse for decades. His analysis of recent trends merits a hard look and some real consideration. In his professional opinion: These recent trends add urgency...to ensure that remaining sage-grouse populations and their habitats are protected from further degradation and fragmentation, to the maximum extent possible. Natural events - including drought and wildfires - are largely beyond federal land managers' control, but will continue and likely be exacerbated by climate change into the foreseeable future. It is thus essential that human actions - over which we do have control - not be allowed to contribute further to sage-grouse declines. Braun Declaration at 12, Attachment M. Dr. Braun's insights here and in the rest of his declaration (attached at M) should be part of BLM's hard look at the proposed action and incorporated in future iterations of the SEISs.

BLM's various arguments that NTT should not apply because it does not factor in other policy considerations or BLM guidance is nothing more than a list of excuses. For instance, the existence of other BLM authorities governing designation of areas as unsuitable for coal mining does not preclude BLM from adopting NTT's suggestion that PHMAs should be designated as unsuitable, it only provides a process for doing so. *Id.* at F-3; See also 43 U.S.C. § 1712(a) ("Land use plans shall be developed for the public lands regardless of whether such lands previously have been classified, withdrawn, set aside, or otherwise designated for one or more uses."). And, BLM's emphasis on applying the "least restrictive constraints" on oil and gas leasing to achieve the resource protection objective ignores that constraints in State plans like Wyoming's and others are not achieving the resource protection objective of preserving sage-grouse, which is why stronger protections are necessary to prevent further population declines. *Id.* BLM's suggestion in responding to the NTT Report that policy considerations should dictate which sage-grouse protections are applied - not science - is the overarching reason why BLM's land-use plans are failing to adopt adequate protections for the sage-grouse.

### **F.3.23 Non-Greater-Sage-Grouse**

Global climate change has been caused largely by emissions from burning fossil fuels, so a public agency like the BLM can be on the forefront of reducing production of fossil fuels by denying oil and gas drilling leases. Livestock production also makes a major contribution to greenhouse gas emissions, with cattle being the largest portion (GAO 2006), so there is another opportunity to reduce GHG emissions. With climate's current unpredictability, all sage grouse habitat should be managed in a manner that addresses the possibility of a drought. Another example of the interconnection of all these factors is that climate change is causing wildfires to be hotter, windier, drier, and larger (Neary, 2019). BLM must include these stresses when considering the protection of public lands for its native biota.

Grazing Author: Smith et al. Year: 2018 Title: Effects of livestock grazing on nesting sage-grouse in central Montana: *Journal of Wildlife Management*, v. 82, no. 7, p. 1503-1515. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: Female sage grouse selected nest sites based on sagebrush cover and distance from roads, and nest failure was driven by precipitation. Data regarding livestock was inconclusive. The authors suggest that conservation of shrub cover and preventing additional habitat fragmentation by roads would benefit GRSG nesting habitat and nest success. Issue: Roads; livestock grazing Significance: Seasonal effects of weather on nest success; roads fragment habitat

The Utah DSEIS similarly relies mainly on the 2015 plan for its environmental baseline (UT DSEIS at 3-4 to 3-5), and provides only the same information on sage-grouse seasonal habitat and anthropogenic disturbance as the 2018 FEIS. UT DSEIS at 3-8 to 3-10. Wyoming's DSEIS relies on 2015 conditions as a baseline for most impacts, but updates fire through 2017. Wyoming DSEIS at 3-6. This lack of information overlooks the changes on the ground in the interim and fails to provide the requisite hard look at the impacts of the proposed action; each of the forthcoming SEISs should update the baseline against which they compare the impacts of the various alternatives.

Dr. Jack Connelly provided this assessment of sagebrush and vegetation manipulations efforts in 2019: 1. Further, sagebrush and vegetation manipulation efforts - including mechanized methods using aerator with seeding, harrow or chain with seeding, drill seeding, hand planting plugs, and aerial seeding - are generally harmful to sage-grouse populations, with only weak evidence (at best) suggesting some treatments might be helpful. 2. Despite this scientific information, the 2019 Idaho and Wyoming Plan

Amendments permit prescribed burns and other sagebrush treatments as acceptable vegetation management practices in sage-grouse habitat. The 2019 Idaho Plan Amendments specifically allows these sagebrush manipulation and eradication methods, noting "[w]here desirable perennial bunchgrasses or forbs are deficient in existing sagebrush stands, use appropriate mechanical, aerial, or other techniques to reestablish them (e.g., a Lawson aerator with seeding, harrow or chain with seeding, drill seeding, hand planting plugs, aerial seeding, or other appropriate techniques)." 3. BLM approved these vegetation treatment methods despite the fact that little evidence demonstrates benefits of mechanical treatments of sagebrush for sage-grouse. In my expert judgment, these practices will only continue to destroy or degrade sage-grouse habitat, with limited or no benefit to sage-grouse populations and habitat. 4. The adverse impacts flowing from BLM's vegetation treatment projects will be further exacerbated by BLM's plans for fuels management activities. According to the 2019 Idaho and Wyoming Plan Amendments, fuels management activities - including construction of firebreaks; prescribed fire; and mechanical, chemical and biological fuels management - are specifically exempted from any disturbance limitations in sage-grouse habitat. In fact, these fuels management treatments may occur within the lek buffers in key sage grouse habitat. 5. BLM's fuels treatment activities are inconsistent with the best available scientific information on sage-grouse habitat and populations, and BLM provides no sound scientific support for its actions. Instead, BLM outright misrepresents leading research on this topic... in an apparent effort to manufacture a scintilla of scientific evidence supporting its activities. For example, in the 2019 Wyoming Plan Amendments, BLM justifies a robust vegetation treatment regime by claiming that a desired condition for sage-grouse breeding and nesting habitat includes 5-25% sagebrush canopy cover... 6. Absent these gross mischaracterizations, BLM lacks any scientific evidence supporting its decision allowing 5% sagebrush cover as a "desired condition," and compelling evidence indicates 5% canopy coverage is far too low for sage-grouse nesting habitat. In my judgment, managing sagebrush landscapes for a 5% sagebrush cover will harm sage- grouse populations and habitat, under the guise of restoring or improving both. 7. Finally, in the 2019 Idaho Plan Amendments BLM reasonably limited mechanized anthropogenic disturbance in nesting habitat during the nesting season and in wintering habitat during the winter season. But BLM then emasculates the importance of this reasonable and necessary conservation measure by exempting fuels and vegetation treatments "specifically designed to improve or protect Greater Sage-Grouse habitat." BLM cites no scientific authority supporting this exemption, and in my experience any activity that disturbs nesting hens is likely to result in nest abandonment and/or increased nest predation. Thus, BLM must prohibit all mechanized anthropogenic disturbance in breeding and winter habitat during the breeding and winter season. (Internal citations omitted, entire declaration provided in Attachment N). Dr. Connelly's expert opinion on the matter should be heeded, and the forthcoming iterations of the SEIS should explain why BLM believes that its use of scientifically inadequate protections in sage-grouse habitat is sufficient.

### **F.3.24 Fluid Minerals**

The Center for Biological Diversity's Michael Saul also provided a revealing declaration in the preliminary injunction briefings. Attachment P. For example, Mr. Saul reviewed impacts in sage-grouse habitat that occurred between the 2019 Plan Amendments (in March) and his declaration (in June). He determined that BLM approved at least 5 oil and gas projects with 51 Applications to Drill (APDs) in Utah, 21 projects and 44 APDs in Wyoming, 1 project with 31 wells for oil and gas development in Colorado, and mining and destructive infrastructure projects in Idaho and Nevada. These were just some of the known impacts in designated sage-grouse habitat of the 2019 DSEISs prior to their injunction. The BLM must analyze and disclose the effects of these projects as the current environmental baseline and take a hard look at their impacts on sage-grouse habitat. The SEISs must discuss these and

the remaining data in Mr. Saul's declaration in forthcoming iterations in order to redress their failings under NEPA.

In 2019, a new report (Gardner, et al. 2019) analyzed oil and gas development on federal lands and sage-grouse habitats from the implementation of the 2015 plans through March 2019. This research demonstrated that drilling in designated sage-grouse habitat increased by 2.98 times between February 2017 and March 2019 compared with the October 2015 to January 2017 time frame. This was a rate higher than drilling on all public lands across all states during the same periods. This demonstrates that oil and gas development has shifted towards PHMA in all states since January 2017, following the removal of SFA restrictions and prioritizations due to BLM's abrupt cancellation of SFA designations. The data from Gardner, et al., should be analyzed and disclosed in any forthcoming environmental analyses completed pursuant to the BLM's plans.

BLM continues to omit numerous large-scale oil and gas developments in key sage- grouse habitat from its DSEIS analyses. These activities are occurring throughout the range of sage-grouse, including lands beyond those covered by the 2019 plan revisions. This includes all the states where sage-grouse presently occur or could recover, and across the land tenure. The failure to consider the current conditions and likely foreseeable future actions on Forest Service lands, state lands, and private lands is a serious omission. As discussed above, these impacts are significant, merit a hard look, and a discussion of each plan's impacts should include the cumulative effects of all the activities in the range.

The Nevada/CA and Wyoming DSEISs do not specify dates in their oil and gas Past leasing sections but do include a June 2018 lease sale in their Future Pending sections, so their leasing acreages are nearly two years out of date.<sup>26</sup> BLM in both states routinely offers thousands of acres of designated sage-grouse habitat management areas during oil and gas lease auctions. The NW Colorado DSEIS provides no oil and gas leasing acreage information in its cumulative effects summary at all, nor did BLM include this information in the NW Colorado 2018 FEIS. See NW Colorado DSEIS at App-2-1 to App-2-2, 2018 FEIS at App-2-1 to App-2-2. BLM did not even provide oil and gas leasing acreage in the 2015 NW Colorado FEIS, instead merely stating: "The BLM routinely offers land parcels for competitive oil and gas leasing to allow exploration and development of oil and gas resources for public sale. Continued leasing is necessary for oil and gas companies to seek new areas for oil and gas production or to develop previously inaccessible/uneconomical reserves." NW Colorado 2015 FEIS at 5-5. The continued omission of oil and gas leasing acreages demonstrates that BLM has never considered the actual quantity and physical location of oil and gas leasing in Colorado sage-grouse habitat as part of the cumulative effects NEPA analysis the agency was required to conduct for the NW Colorado grouse plans. <sup>26</sup> See Wyoming DSEIS at D-14

### **F.3.25 Fire and Fuels**

Wildland fires also continue to be an immediate and pervasive threat to sage-grouse, especially throughout western portions of the species' range. As discussed in our protest and in the attached sage-grouse scientists' letter, data indicates that fires on BLM lands are increasing, with 3 million acres burned in Idaho, Nevada and Utah. Once again, BLM should take into account the substantial losses of habitat and likely continued losses due to fire in evaluating the impacts of proposed changes. Additionally, BLM has just completed a Programmatic EIS for Fuel Breaks in the Great Basin that will guide BLM to "construct and maintain a system of up to 11,000 miles of strategically placed fuel breaks to control wildfires within a 223 million- acre area in portions of California, Idaho, Nevada, Oregon, Utah and

Washington."4 As discussed in Exhibit 4, in the opinion of sage-grouse experts, this approach will require destruction of sage-grouse habitat and could result in substantial loss and/or degradation of sagebrush habitat. BLM must consider this new information when evaluating likely impacts to sage-grouse from the 2019 Amendments. 4 <https://www.blm.gov/press-release/interior-improves-strategies-combat-wildfires-across-223-million-acres-great-basin>

Mitigation-Wildfire Author: Stenvoorden et al. Year: 2019 Title: The potential importance of unburned islands as refugia for the persistence of wildlife species in fire-prone ecosystems: Ecology and Evolution, DOI: 10.1002/ece3.5432. Implications: Population dynamics of leks located within fire perimeters are negatively impacted. Unburned islands play an important role as refugia, and maintaining unburned vegetation may be vital for the success of GRSG populations after a wildfire event. The recovery of natural vegetation postfire may also benefit GRSG populations. Supersedes NTT: Yes Supersedes COT: Yes Issue: Wildfire; fire suppression Significance: Prioritization of fire suppression to maintain unburned refugia and enhance post-wildfire restoration

Mitigation-Wildfire Author: Shinneman et al. Year: 2019 Title: The ecological uncertainty of wildfire fuel breaks: examples from the sagebrush steppe: Frontiers in Ecology and Environment, v. 17, no. 5, p. 279-289. Implications: To produce a robust cost-benefit analysis regarding fuel break effectiveness and ecological impacts, more research is needed. The authors suggest several specific research questions that could provide useful information to policy and decision-makers "to disentangle their ecological costs and benefits." Supersedes NTT: Yes Supersedes COT: Yes Issue: wildfire; fuel breaks Significance: Ecological cost benefit analysis of fuel breaks Comments: Ecological cost benefit analysis of fuel breaks

Mitigation-Wildfire Author: Foster et al. Year: 2019 Title: Greater sage-grouse vital rates after wildfire: Journal of Wildlife Management, v. 83, no. 1, p. 121-134. Implications: GRSG continued to use areas within the wildlife perimeter, but had lower nest and adult survival rates compared to other reported values for GRSG in the Great Basin. Apparent decreased nest site fidelity within the fire perimeter may relate to increased habitat fragmentation. Increased nest survival in the second year may relate to increased vegetation in the burned area. Findings suggest that fire suppression activities to maintain intact habitat patches may be a critical tool for managers of GRSG populations and habitat in landscapes prone to fire. Supersedes NTT: Yes Supersedes COT: Yes Issue: Wildfire; mitigation strategy Significance: Improved Wildfire firefighting strategy to benefit GRSG.

Mitigation-Wildfire Author: Shinneman et al. Year: 2018 Title: A conservation paradox in the great basin-altering sagebrush landscapes with fuel breaks to reduce habitat loss from wildfire: US Geological Survey, v. XXX, no. XXX, p. XXX\*Open File Report. Implications: The authors conclude that more research is needed to document fuel break effectiveness, effects on plant communities, and effect on wildlife. However, they suggest that installing fuel breaks in an effort to protect intact sagebrush habitat may provide long-term benefits to sagebrush-associated species, even if these benefits come at a cost to some individual species at local scales. Supersedes NTT: Yes Supersedes COT: Yes Issue: Wildfire; fuel breaks Significance: Supports the reality that historical habitat was not a vast sagebrush sea, but rather an ecosystem made up of sagebrush islands. Comments: Suggest additional review due to significance as a mitigation measure.

Mitigation-Wildfire Author: Foster et al. Year: 2018 Title: Potential effects of GPS transmitters on greater sage-grouse survival in a post-fire landscape: Wildlife Biology, v. 2018, no. 1, p. 1-5. Implications: Survival rates measured in this post-fire study were much lower than observed in other studies in the

Great Basin, though they did eventually increase to comparable levels (after the conclusion of this study). If the slightly lower survival rates of birds with GPS versus VHF devices observed in this study are confirmed (5% lower survival), they are of concern because of the increasing use of GPS units and the potential for effects of this magnitude to affect population growth rates. Findings from this study were limited by small sample sizes. Supersedes NTT: Yes Supersedes COT: Yes Issue: Post-fire study; GPS transmitters affect survival Significance: GPS transmitters reduce survival compared to VHF transmitters Comments: Authors appropriately recognize that the GPS may have biased the conclusions. As such, this study better informs future study designs

Mitigation-Wildfire Author: Ellsworth et al. Year: 2016 Title: Ecosystem resilience is evident 17 years after fire in Wyoming big sagebrush ecosystems: *Ecosphere*, v. 7, no. 12, article e01618, 12 p., <https://doi.org/10.1002/ecs2.1618>. Implications: Results demonstrate post-fire resilience of the xeric Wyoming big sagebrush system, possibly because of its high quality and presence of unburned patches within the fire perimeter. The conditions are representative of xeric Wyoming big sagebrush communities prior to the invasion of cheatgrass, where there were islands of sagebrush left after fire which helps the system recover from fire and provide habitat for GRSG. Controlled burning of some xeric sagebrush systems that are in good condition and dominated by natives may have benefits for ecosystem heterogeneity and herbaceous cover. Authors conclude, "Our results illustrate that management of all habitat components, including natural disturbance and a mosaic of successional stages, is important for persistent resilience and that suppression of all fires in the sagebrush steppe may create long-term losses of heterogeneity in good condition Wyoming big sagebrush ecosystems." Supersedes NTT: Yes Supersedes COT: Yes Issue: Wildfire; mitigation strategy Significance: Selective use of prescribed fire

Mitigation-Wildfire Author: Coates et al. Year: 2016 Title: Wildfire, climate, and invasive grass interactions negatively impact an indicator species by reshaping sagebrush ecosystems: *Proceedings of the National Academy of Sciences of the United States of America*, v. 113, no. 45, p. 12745-12750. Implications: The authors describe, "Using three decades of sage-grouse population count, wildfire, and climate data within a modeling framework that allowed for variable postfire recovery of sagebrush, we provide quantitative evidence that links long-term declines of sage-grouse to chronic effects of wildfire. Projected declines may be slowed or halted by targeting fire suppression in remaining areas of intact sagebrush with high densities of breeding sage-grouse." Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; targeted wildfire suppression Significance: Prioritization of fire suppression to minimize deleterious effects to GRSG Comments: Important preplanning strategy to reduce threat of wildfire.

Mitigation-Wildfire Author: Davis and Crawford Year: 2015 Title: Case study-Short-term response of greater sage- grouse habitats to wildfire in mountain big sagebrush communities: *Wildlife Society Bulletin*, v. 39, no. 1, p. 129-137. Implications: The authors sought to identify the short-term (<11 year) response of GRSG nesting and brood-rearing habitats to wildfire. In mountain big sagebrush communities where sagebrush is abundant, the understory is composed of adequate native perennial grasses and forbs, and invasive annual grasses are limited, prescribed burning may be a useful tool for improving GRSG nesting and brood-rearing habitat. The application of fire treatments in less mesic sagebrush communities with fewer forbs may not produce the desired results, which emphasizes that management decisions need to be made in light of existing conditions and documented GRSG seasonal habitat needs. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; prescribed fire

Significance: Selective use of prescribed fire to improve GRSG habitat. Comments: Supersedes NTT because fire treatments may benefit higher elevation mountain big sagebrush communities i.e. not a one-size-fits-all strategy.

Indeed, from 2016-2019 fires burned approximately 3 million acres of BLM administered lands in Idaho, Nevada and Utah alone, representing a 43% increase in annual acres burned on BLM lands in these states compared to the previous 4-year period (2012-15; data from the Great Basin Coordination Center). Also, the BLM estimates that more than 2 million acres of designated sage-grouse habitat management areas burned between 2015 and 2017 in Idaho, Nevada, Utah and Wyoming. Importantly, trends generated from 2004-2015 data suggest that wildfire rates are increasing, and the median annual area burned is projected to increase 5-11 times across several states in the range of sage-grouse over the next two decades. These trends coupled with other habitat losses from development (which remain poorly documented) and other perturbations simply cannot be ignored and must be addressed through these supplemental analyses.

Dr. Haak's analysis determined that "core areas in Wyoming, Idaho, and Nevada are particularly at risk, having experienced large wildfires and increasing threats from energy development in just over three years." Haak 2019 at 27, attached. In sum, the analysis found: Since there has been no overlap between lands impacted by wildfire and those now marked for oil and gas development, the impact from these two factors is additive. Range-wide nearly three million hectares (over 7,000,000 acres) of currently occupied habitat, including almost 1.6 million hectares (over 3,800,000 acres) of priority habitat, have had a change of status since adoption of the 2015 Plan. This represents 5% of the priority habitat as defined by the PACs. A significant loss in just three years. Haak at 29, Attachment O. This is exactly the type of analysis that BLM could have undertaken - but didn't - in the 2019 amendments in order to take a hard look at the current conditions and likely effects of its proposed action. The SEISs must discuss these and the remaining data in Dr. Haak's declaration and report on them in forthcoming iterations in order to redress their failings under NEPA.

### **F.3.26 Vegetation**

Improved Habitat Mapping and Assessment Author: Gibson et al. Year: 2016 Title: Evaluating vegetation effects on animal demographics-The role of plant phenology and sampling bias: Ecology and Evolution, v. 6, no. 11, p. 3621-3631. Implications: Statistical artifacts can confound interpretations of the importance of vegetation to GRSG nest survival. Researchers should consider the confounding effects of plant phenology when planning animal demography studies. The authors provide techniques for date corrections between hatching and nest-fate measurement. Supersedes NTT: Yes Issue: Technique refinement; nesting studies

Habitat Improvement Author: Lockyer et al. Year: 2015 Title: Nest-site selection and reproductive success of greater sage-grouse in a fire-affected habitat of northwestern Nevada: Journal of Wildlife Management, v. 79, no. 5, p. 785-797, Implications: Habitat management for all shrub species, rather than just sagebrush, may confer the greatest benefits to GRSG. Reproductive success of GRSG may be improved by maintaining perennial grasses and >40 percent shrub cover within 0.8 ha of nest sites. Cheatgrass control may also improve nest success. GRSG may benefit from postfire restoration that recovers shrubs and perennial grasses. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; habitat management Significance: Prioritization of management

Soil and soil biocrusts are the foundation of the sage steppe, providing many services to the plants which evolved with these crusts (Belnap 1994). The biocrusts are fragile, quickly broken under a cow hoof or tire, but when intact are more likely to exclude cheatgrass. Excluding livestock allows recovery (Zhang 2020, Ponzetti et al. 2007, Root et al. 2019, Reisner et al. 2013, Belnap et al., 1994). Soil disturbance increases cheatgrass which increases wildfire spread which increases cheatgrass. Limiting or removing causes of disturbance will allow soil and plants a chance to recover their original function.

Cheatgrass - All surface-disturbing activities tend to promote the spread of weeds (BLM 2005). In a 2006 Science review of dozens of published studies, the researchers observed that "native herbivores strongly suppressed, whereas exotic herbivores strongly enhanced, the relative abundance of exotic plants" (Parker et al. 2006). Cheatgrass is incompatible with or detrimental to all other renewable uses listed by FLPMA, uses such as "recreation, watershed, wildlife and fish, and natural scenic, scientific and historical values." 43 U.S.C. § 1702 (c). Yet by continuing grazing, drilling leases, treatments and other disturbances, the BLM insists on promoting cheatgrass, degrading sage steppe and habitat for sage grouse.

Since January 2017, BLM leased over 2.4 million acres and issued 3,570 drilling permits in sage-grouse habitat. Over decades, the activity under leases has actively removed and fragmented sage grouse habitat.

Habitat Improvement Author: Baxter et al. Year: 2017 Title: Baxter, J.J., Baxter, R.J., Dahlgren, D.K., and Larsen, R.T., 2017, Resource selection by greater sage-grouse reveals preference for mechanically-altered habitats: *Rangeland Ecology and Management*, v. 70, no. 4, p. 493-503. Implications: Dense patches of sagebrush were mechanically treated annually by using either a chain harrow or brushhog mower in treatment sites. An increase in forb cover after treatment was expected but not observed, potentially because of lower annual precipitation levels after treatment, competition with grasses, or a lag effect of treatment. A significant increase in use of habitat in and near (within 90 meters) treated mountain big sagebrush sites by brooding GRSG suggests that such treatments may be beneficial to GRSG. Issue: Technique refinement Significance: Habitat restoration Comments: Habitat improvement but Survival and recruitment were not assessed

Habitat Improvement Author: Carlisle et al. Year: 2018 Title: Nontarget effects on songbirds from habitat manipulation for greater sage-grouse: implications for the umbrella species concept: *Condor*, v. 120, no. 2, p. 439-455. Implications: The authors suggest that sagebrush mowing treatments intended to benefit GRSG, an ostensive umbrella species at a broad spatial scale, could have negative effects on co-occurring species at more localized scales, especially if mowing treatments are widespread. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement Significance: Prioritization of management actions; Unintended consequences Comments: The NTT, COT, and LUPs completely fail to take into account other species and can have negative impacts on other species at a local level. The one-size fits all, single species management approach has proven adverse effects to other species.

Other Mitigation Author: Wing and Messmer Year: 2016 Title: Impact of sagebrush nutrients and monoterpenes on greater sage-grouse vital rates: *Human-Wildlife Interactions*, v. 10, no. 2, p. 157-168. Implications: Study results confirmed the importance of black sagebrush as pre-nesting season forage and suggested that any forage selection related to monoterpenes may reflect some aspect of an individual monoterpene rather than the total concentration of all monoterpenes. Study results should be



interpreted cautiously because of the small sample size, single year, and single study site. Supersedes NTT: Yes Supersedes COT: Yes Issue: black sagebrush; GRSG forage

Mitigation-Restoration of Habitat - Pinyon-Juniper removal Author: Davies and Bates Year: 2019 Title: Longer-term evaluation of sagebrush restoration after juniper control and herbaceous vegetation trade-offs: *Rangeland Ecology & Management*, v. 72, no. 2, p. 260-265. Implications: Following juniper control in dense stands that lack sagebrush, mountain big sagebrush re-establishment is likely to be accelerated by seeding, whereas herbaceous vegetation cover may be reduced. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; pinion-juniper removal and sagebrush restoration

Mitigation-Restoration of Habitat - Pinyon-Juniper removal Author: Reinhardt et al. Year: 2017 Title: The authors conclude that the optimization framework and models used in this study illustrate an approach, increasingly available to land managers, which can augment or complement standard expert-based approaches to planning and prioritization. Such approaches could reduce planning and implementation time for landscape-scale conifer removal treatments. Topics: broad-scale habitat characteristics, conifer expansion, new geospatial data, habitat restoration or reclamation Implications: Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; conifer removal Significance: Prioritization of management Comments: Improved methodology

Mitigation-Restoration of Habitat - Pinyon-Juniper removal Author: Prochazka et al. Year: 2017 Title: Encounters with pinyon-juniper influence riskier movements in greater sage-grouse across the Great Basin: *Rangeland Ecology and Management*, v. 70, p. 39-49. Implications: The authors conclude that GRSG are negatively affected by pinyon-juniper encroachment because this habitat type stimulates faster, high-risk movements, such as flight, which likely attract visual predators. Further, the study quantifies age-specific GRSG mortality risk when individuals move through landscapes containing pinyon-juniper stands. Supersedes NTT: Yes Supersedes COT: Yes Issue: Pinion-juniper; predation risk Significance: Pinion-juniper; predation risk Comments: Cause and effect mechanism explaining predation risk

Mitigation-Restoration of Habitat - Pinyon-Juniper removal Author: Coates et al. Year: 2017 Title: Pinyon and juniper encroachment into sagebrush ecosystems impacts distribution and survival of greater sage-grouse: *Rangeland Ecology and Management*, v. 70, no. 1, p. 25-38. Implications: From the authors: "Collectively, these results provide clear evidence that local sage-grouse distributions and demographic rates are influenced by pinyon-juniper, especially in habitats with higher primary productivity but relatively low and seemingly benign tree cover. Such areas may function as ecological traps that convey attractive resources but adversely affect population vital rates. To increase sage-grouse survival, our model predictions support reducing actual pinyon-juniper cover as low as 1.5%, which is lower than the published target of 4.0%." Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; Improved standards for pinyon-juniper removal Significance: New threshold for pinion-juniper removal provided greater benefits to GRSG

Mitigation-Restoration of Habitat - Pinyon-Juniper removal Author: Farzan et al. Year: 2015 Title: Western juniper management-Assessing strategies for improving greater sage-grouse habitat and rangeland productivity: *Environmental Management*, v. 56, no. 3, p. 675-683. Implications: The study showed that juniper removal can benefit both GRSG and cattle forage production, but the benefits depend on site characteristics and how sites were selected. Sites chosen to maximize forage did not substantially benefit GRSG. Sites chosen for GRSG habitat did benefit forage production, but larger

habitat treatments had decreasing returns on investment. The benefits achieved for either goal were altered by agency coordination, budgetary constraints, and wildfire. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; pinyon-juniper removal Significance: Management can be prioritized to benefit GRSG habitat and cattle forage Comments: Management actions can have a dual purpose

Habitat Improvement Author: Ricca et al. Year: 2018 Title: A conservation planning tool for greater sage-grouse using indices of species distribution, resilience, and resistance: *Ecological Applications*, v. 28, no. 4, p. 878-896. Implications: The CPT could help resource managers evaluate potential costs and benefits of treatments in particular locations in order to facilitate restoration prioritization decisions across landscapes used by GRSG. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; habitat restoration Significance: Prioritization of management; new planning tool Comments: An improved planning tool. Also undermines the argument that habitats cannot be restored by recognizing the BLM prioritization process for restoring lands needs improvement. This tool can help with that.

Habitat Improvement Author: Gustafson et al. Year: 2018 Title: Using object-based image analysis to conduct high-resolution conifer extraction at regional spatial scales: *International Journal of Applied Earth Observation and Geoinformation*, v. 73, p. 148 - 155. Implications: The maps produced can help to inform land managers on where to target pinyon-juniper treatment in order to aid sagebrush restoration and GRSG conservation. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; habitat mapping; Pinion-juniper treatment Significance: Habitat mapping; habitat restoration Comments: Potential technique for offset mitigation

Habitat Improvement Author: Gustafson et al. Year: 2018 Title: Using object-based image analysis to conduct high-resolution conifer extraction at regional spatial scales: *International Journal of Applied Earth Observation and Geoinformation*, v. 73, p. 148 - 155. Implications: The maps produced can help to inform land managers on where to target pinyon-juniper treatment in order to aid sagebrush restoration and GRSG conservation. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement Significance: Prioritization of management actions; Unintended consequences Comments: The NTT, COT, and LUPs completely fail to take into account other species and can have negative impacts on other species at a local level. The one-size fits all, single species management approach has proven adverse effects to other species

The USFS has been providing the public with a monitoring report regarding the implementation of the 2015 ARMPAs and the extent to which it is affecting designated sage- grouse habitat on forest lands.<sup>12</sup> Table 5 in the 2019 report is particularly illustrative of rangewide conditions, but BLM's DSEISs do not contain any such tabulation of impacts an disturbance<sup>13</sup>(We note too that the Forest Service report offsets habitat destruction with "restoration" projects that are unproven and potentially damaging. See "Vegetation Treatments," below). <sup>12</sup>

[https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fseprd695213.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd695213.pdf) <sup>13</sup> Surface disturbance is defined according to the RMPA's parameters, which does not include livestock disturbance (i.e. areas of livestock concentration, miles of fencing, water structures, etc.). We disagree with this definition of surface disturbance and recognize that USFS is underestimating the impacts of authorized activities.

In terms of taking a hard look at the impacts of vegetation treatment, the DSEIS adds basically no new analysis to the analyses underlying the 2015 ARMPAs. See Idaho DSEIS at 4-28; NV/CA DSEIS at 4-3 to 4-10; 4-40 to 4-46; Wyoming DSEIS at 4-92; UT DSEIS at 4-41 to 4-67;

Having tallied these acreage figures, the BLM has shown that it has identified areas "treated in recent years," theoretically for sage-grouse habitat enhancement. But where is the hard look at the results of these treatments? Did viable sagebrush habitats meeting minimum sage-grouse habitat requirements result, and if so over how many acres? Did disturbed areas with little or no habitat value for sage-grouse result, and if so, where, and over how many acres? Did cheatgrass infestations increase on lands "treated" for habitat enhancement (or other) purposes, and if so, over how many acres? How many of these vegetation projects have also been designed to create supplementary forage for livestock? The DSEIS is silent on these questions, but the BLM is obligated to analyze and disclose this information to the public.

For example, we are concerned that juniper-removal projects in sage-grouse habitat may result in expansion of cheatgrass (Evans and Young 1985, Bates et al. 2005). This is particularly concerning where such projects involve mature juniper woodlands with little sagebrush understory. BLM has failed to adequately analyze the differences in impacts of invasive species resulting from juniper removal in stands of different densities and ages. Based on our review of the science, juniper removal (using hand-cutting and jackpot burning) in areas where junipers are sparse and young and sagebrush-grass understory is healthy (without a large component of cheatgrass) does not result in severe cheatgrass expansion when the area is protected from livestock grazing for two-plus years post-treatment, whereas projects that do not meet these criteria pose major cheatgrass risks and are likely to result in the further degradation, rather than restoration, of sage-grouse habitats.

BLM is also developing new categorical exclusions for pinyon-juniper treatments in sage-grouse habitat, one of which will allow for the clearcutting of pinyon and juniper trees over large areas up to 10,000 acres. Because these projects will be conducted under a categorical exclusion, there is likely to be very little analysis of long-term impacts to sage-grouse as a result of the associated disturbance to such large landscapes, increased human presence, and the potential increase in invasive plants such as cheatgrass. The BLM must analyze the potentially large increase in the number of projects that will be conducted and consider the cumulative impacts of the expected number of projects across such a substantial portion of sage-grouse habitat. The analysis must include a hard look at the potential negative side effects of these projects (e.g. increased fire occurrence through the spread of cheatgrass; See Fusco et. al. 2019b) and how they will impact sage-grouse habitat and populations in the longer term.

### **F.3.27 Guidance and Policy**

Local governments are charged with protecting the health, safety and welfare of their citizens and serve as custodians of vital information including the cultural, social, economic and historical data necessary to fully evaluate the effects of any proposed actions which must be considered in order to compile an accurate NEPA review. The Counties were therefore dismayed that the BLM did not involve said Counties in the development of this SEIS. As cooperating agencies, the Counties should be involved throughout the NEPA process, including the preparation of this SEIS which was made necessary thanks to the Winmill Decision. See 40 CFR § 1501.6 (regarding the involvement of cooperating agencies). BLM must thoroughly consider these plans and alternatives and coordinate with the Counties on the final land use plans.

All decisions to permanently close an area needs to be done only after a thorough public outreach process that includes engagement of all local government agencies affected. The same outreach and engagement should be required for the closure of any road or trail, primitive or otherwise, that has not been through a comprehensive travel management plan process.

Placing these multiple-use, foundation-level plans at the mercy of a single-policy agenda destroys their utility. Single purpose initiatives, such as sage-grouse conservation, should be pursued within the framework of existing resource management plans, rather than becoming the reason for their constant revision. In other words, policy initiatives should be subordinate to multiple-use management plans, rather than the plans existing at the mercy of each new policy initiative. The 2019 land use plans revisions sought to restore the planning process consistent with the multiple-use mandate, and discontinue the single-purpose planning model that defined the 2015 plans.

In addition to other resource values, FLPMA specifically directs BLM to manage public lands "in a manner that recognizes the Nation's need for domestic sources of minerals..." FLMPA Sec. 102(a)(12). Unfortunately, the multiple-use management objective and FLMPA's directive to manage lands in a manner that recognizes the Nation's need for minerals became an afterthought in the development of the 2015 land use plans as FWS continued to dictate management objectives for the stated purpose of Greater Sage Grouse conservation above all other land uses covered by the plans.

The failure to revise the plan amendments toward true conservation does not follow BLM's internal policies that mandate species protection. BLM Manual 6840 "provide[s] policy and guidance for the conservation of BLM special status species and the ecosystems upon which they depend on BLM-administered lands."<sup>3</sup> Its objective for species that are not currently listed under the Endangered Species Act (ESA) is to "initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA." *Id.* The BLM's State Director (the signatory of this Amendment) has the additional responsibility of "[e]nsuring that when BLM engages in the planning process, land use plans and subsequent implementation-level plans identify appropriate outcomes, strategies, restoration opportunities, use restrictions, and management actions necessary to conserve and/or recover listed species, as well as provisions for the conservation of Bureau sensitive species," and "[e]nsuring that land use and implementation plans fully address appropriate conservation of BLM special status species." The BLM SSP requires the agency to take action to prevent listing. <sup>3</sup>

[https://www.blm.gov/sites/blm.gov/files/uploads/mediacenter\\_blmpolicymanual6840.pdf](https://www.blm.gov/sites/blm.gov/files/uploads/mediacenter_blmpolicymanual6840.pdf)

### **F.3.28 Statutes and Regulations**

NEPA requires that agencies "prepare, circulate, and file a supplement to a statement in the same fashion (exclusive of scoping) as a draft and final statement unless alternative procedures are approved by the Council." 40 CFR § 1502.9(c)(4). Although the Draft EISs that supported the 2019 Amendments were issued for a 90-day comment period, BLM only issued this Draft SEIS for 45 days. While BLM extended the comment period for an additional 45 days on the date that the original comment period expired, this last minute action does not evidence good faith compliance with NEPA's requirements. We also note that BLM failed to conduct scoping as part of this supplemental NEPA process. Although scoping is not absolutely required when completing supplemental analysis, a scoping period is commonly offered during supplemental NEPA, especially when such supplemental analysis was in response to a court order. See, 40 CFR § 1502.9(c)(4); Notice of Availability of the Draft Amendment to the Approved

Resource Management Plan for the Miles City Field Office, Montana, and the Associated Supplemental Draft Environmental Impact Statement, 84 Fed. Reg. 22,516 (May 17, 2019); Notice of Availability for the Draft Supplemental Environmental Impact Statement and Potential Amendment for the Approved Resource Management Plan for the Buffalo Field Office, Wyoming, 84 Fed. Reg. 22,515 (May 17, 2019). The intent of scoping is to focus the analysis on significant issues and reasonable alternatives, to eliminate extraneous discussion, and to reduce the length of the EIS. By skipping this opportunity to solicit public input and influence the scope of supplemental analysis, BLM has further undermined this process.

The breadth of proposed regulatory changes currently being contemplated and finalized by the BLM demonstrate the absolute uncertainty of implementation of any aspect of the plans that is deferred to site-specific or future actions. Where BLM provides for management flexibility in implementation at the permitting or site-specific level, the SEISs must admit that the decision-making may be done outside of current levels and expectations of public participation and without in depth environmental analyses. The agency can't have it both ways: the ARMPAs can't rely on subsequent decision-making to implement the science and simultaneously be cutting the science out of subsequent decision-making.

**No Notice and Comment on Eleventh-Hour Changes to the 2015 Plans** In the last 60-90 days of the NEPA process on the 2015 Plans, DOI significantly altered their preferred alternative to include new regulatory measures relative to: GRSG "strongholds" or "focal areas"; the involvement of the USFWS and state wildlife agencies in granting waivers, modifications or exceptions to no surface occupancy areas ("NSOs"); so-called hard or soft triggers; and overall, a switch from managing lands to management of a species above all other considerations. The public, including the Counties, did not have an opportunity to review or comment on these significant eleventh-hour changes. Despite these significant flaws and issues, the agencies failed to revise the NW CO DEIS or the Reports. Given the importance federal law ascribes to the public's input with regard to rulemaking processes (see also 5 U.S.C. § 553, 40 C.F.R. § 1506.6, 40 C.F.R. § 1502.9(b); 40 CFR § 1503.1),<sup>18</sup> it is clear that the agency's failure not only to obtain public comments on the "eleventh hour" changes introduced in the 2015 BLM FEIS, but also to incorporate local guidance and input received throughout the 2015 Plans' NEPA process, has resulted in regulation and land management which both omits and overrides the public's input in violation of federal law. <sup>18</sup> See also, *Perez v. Mortg. Bankers Ass'n*, 135 S.Ct. 1199, 1203 (2015) ("An agency must consider and respond to significant comments received during the period for public comment.")

Caerus believes that any plan should recognize the Bureau of Land Management's ("BLM") statutory mandate to manage public lands to accomplish multiple-use and sustained yield and should also explicitly recognize the valid existing rights of leases acquired before the 2015 Plan was finalized.

Mentioned within the DEIS regarding FLPMA, Congress provided BLM with "discretion" and "authority" to manage public lands for multiple use and sustained yield. These terms need to be explained in detail further to define their purpose and state which direct authorities are able to be utilized in the multiple-use goal. Along with definitions, BLM contains "broad" responsibilities to manage public lands & resources similar to the Department of Interior (DOI) which has broad responsibilities to manage federal lands and resources.

Within ES.2, "By implementing these land use plan conservation measures and continuing to exercise its discretion to approve future project proposals under appropriate terms and conditions or deny them

where appropriate, the BLM can adequately protect Greater Sage-Grouse and its habitat while meeting its general obligation under FLPMA to manage public lands under principles of multiple use and sustained yield". Again, the terms of discretion and using words such as general does not portray the urgency and specific determination behind the BLM's missions and goals.

FLPMA specifically directs BLM to manage public lands "in a manner that recognizes the Nation's need for domestic sources of minerals..." FLPMA Sec. 102(a)(12). Unfortunately, the multiple-use management objective and FLPMA's directive to manage lands in a manner that recognizes the Nation's need for minerals became an afterthought in the development of the 2015 land use plans as FWS continued to dictate management objectives for the stated purpose of Greater Sage Grouse conservation above all other land uses covered by the plans. Placing these multiple-use, foundation-level plans at the mercy of a single-policy agenda destroys their utility. Single purpose initiatives, such as sage-grouse conservation, should be pursued within the framework of existing resource management plans, rather than becoming the reason for their constant revision. In other words, policy initiatives should be subordinate to multiple-use management plans, rather than the plans existing at the mercy of each new policy initiative. The 2019 land use plans revisions sought to restore the planning process consistent with the multiple-use mandate, and discontinue the single-purpose planning model that defined the 2015 plans.

the Idaho District Court found that discarding the "net conservation gain" standard and mandatory compensatory mitigation used in the 2015 plans, and which was central to FWS's not warranted decisions, eliminated protections without justification.<sup>18</sup> Despite this opinion, it has been well established that the net conservation gain standard and compelling mandatory compensatory mitigation is beyond the authority of the BLM under FLPMA. On July 24, 2018, BLM provided specific policy direction on the issue of compensatory mitigation through issuance of Instruction Memorandum (IM) No. 2018-093. Specifically, BLM directed that compensatory mitigation cannot be required as a condition for the use of public lands nor can BLM accept any monetary payment to mitigate the impacts of any proposed action. In all instances, BLM must refrain from authorizing any activity that causes unnecessary or undue degradation (UUD), pursuant to Section 302 of FLPMA. <sup>18</sup> *Western Watersheds Project et al v. Schneider et al*. Case No. CV-00083-BLM, 2019, at 12, 24. (D. Idaho Oct. 16, 2019).

FWS recognized that, threaded between Sections 7 and 10 of ESA, "the applicant may do something less than fully minimize and mitigate the impacts of the take where to do more would not be practicable," while still advancing Section 7(a)(2) obligation to ensure that any federal activity is not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of habitat.<sup>22</sup> Accordingly, there is no legal basis to impose a "net conservation gain" standard in any way in the land use planning process. <sup>22</sup> See *National Wildlife Federation v. Norton*, 306 F. Supp. 2d 920, 928 (E.D. Cal. 2004).

1. FLPMA has an over-arching non-degradation mandate.

<https://www.blm.gov/or/regulations/files/FLPMA.pdf> 2. Neither FLPMA nor the Taylor Grazing Act mandates any particular level or frequency of livestock grazing or even that any particular lands be used for livestock. 43 U.S.C. § 315-315(r)(2000) 3. FLPMA expressly authorizes the BLM to "totally eliminate" any of the enumerated "principal uses" 43 U.S.C. § 1712 (e) and, specifically, to discontinue grazing to devote public lands to a "public purpose." 43 U.S.C. § 1752 (b)(2),(g) 4. FLPMA's definition of multiple use calls for management that "takes into account the long term needs of future generations for

renewable and nonrenewable resources, to meet the present and future needs of the American people. 43 U.S.C. § 1702 (c) 5. FLPMA defines sustained yield as "the achievement and maintenance in perpetuity (my emphasis) of a high-level annual or regular periodic output of the various renewable resources of the public lands consistent with multiple use. 43 U.S.C. § 1702(h) 6. In its planning directives, FLPMA requires the BLM to give priority to the designation and protection of areas of critical environmental concern. 43 U.S.C. § 1702 (c). The ACECs should be based in science. 7. FLPMA requires "consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output." 43 U.S.C. § 1702 (c). For instance, only 1.9% of US beef comes from BLM public lands (Kuhn 2020), and BLM public lands grazing accounts for only 0.41% of U.S. livestock receipts (Department of Interior Fiscal Year 2012 Economic Report).

The Multiple-Use Sustained-Yield Act lists standards and guidelines for management of public lands: 16 U.S.C. § 1604(g) (2000) \* Suitability \* Inventory of renewable resources, including soil and water \* Consideration of economic and environmental aspects \* Providing for diversity of plants and animal communities based on the suitability of the specific area How has BLM management incorporated these standards and guidelines? Loss of sagebrush and its many dependent species is a major environmental concern, yet there is little evidence the BLM is serious about the conservation of this habitat, even with its many documents concerning sage grouse habitat. The BLM should insure evaluation of the effects of each management system so that it will not result in substantial and permanent impairment of the productivity of the land. The maintenance of viable ecosystems is essential to providing a sustained yield of all federal land uses. Multiple use and sustained yield cannot be separated.

Multiple use, as incorporated in existing law, is not synonymous with commodity extraction, but rather requires a balancing of commodity uses, noncommodity uses, and environmental protection (Hardt 1994). The purpose of this balancing exercise, according to the Interior Board of Land Appeals court, is to ensure that "all BLM decisions are in the public interest (National Wildlife Federation v. BLM Management. 140 IBLA 85. 101 1997). Maintaining sage grouse is in the public interest and is a noncommodity value on public land. Note: The Executive Summary for this DSEIS emphasizes the role of state agencies in the responsibility for sage grouse, but state agencies have little or no jurisdiction over the management of the ground, ie. habitat, which is the whole point of federal public land management documents like this one.

The BLM 2018 Public Land Statistics Report (online), reporting on the condition of a sample of 2665 riparian areas under its jurisdiction in Nevada, found: Proper Functional Condition - 33% Functional at Risk - 49% Non-functional - 17% Twenty years ago the BLM warned that a "large part of the Great Basin lies on the brink of ecological collapse," and the BLM attributed the "downward spiral of ecological conditions" on 75 million acres of public lands in the Great Basin to invasive plant species (primarily cheatgrass) and fire, and it related both fire and vegetative conditions to livestock grazing. (BLM 2000). Why does the BLM now ignore this causative relationship and the science supporting it?

We are in the midst of a national emergency around COVID-19, which is making it exceptionally difficult for people to participate in comment processes. Proceeding with lease sales would violate the public participation requirements of the Federal Land Policy and Management Act (FLPMA) and National Environmental Policy Act. In particular, FLPMA requires that BLM conduct land use planning processes "with public notice" and must provide "the public adequate notice and an opportunity to comment upon the formulation of standards and criteria for, and to participate in, the preparation and execution of

plans and programs for, and the management of, the public lands." 43 U.S.C. §§ 1712(a), 1739(e). NEPA requires that "environmental information is available to public officials and citizens before decisions are made and before actions are taken" and reiterates that "public scrutiny is essential to implementing NEPA." 40 C.F.R. § 1500.1(b). Further, NEPA obligates the BLM to "[m]ake diligent efforts to involve the public in preparing and implementing their NEPA procedures." 40 C.F.R. § 1506.6(a).

Moving forward with comment periods and decisions when the public is unable to properly participate violates the requirements of NEPA and FLPMA. BLM's public rooms are closed (making it difficult to conduct research), and state and local orders are encouraging people to stay at home and limiting travel. Notably, Oregon ranks 34th for broadband for internet access, I compounding the challenges with participating in this process. Broadband internet is particularly problematic in rural areas of the state, exacerbating the challenges of participation in areas likely to be affected by leasing and other activities authorized by the proposed amendments. I Ranking is based on the % of the population with access to +25 mbps wired broadband (see <https://broadbandnow.com/Colorado>).

Members of Congress, attorneys general, and state and local governments have submitted requests that the federal government pause or extend public comment periods for rulemaking efforts and other processes during the novel coronavirus pandemic.<sup>2</sup> Administrative actions and public comment periods for other federal agency actions are being suspended or extended for "to be determined" amounts of time due to the national emergency.<sup>3</sup> BLM should heed these many indications that it is not responsible to move forward with this process. <sup>2</sup> See, e.g., letter from fourteen House of Representatives Committee Chairs to Office of Management and Budget, Acting Director Russell Vought, submitted April 1, 2020: [https://www.eenews.net/assets/2020/04/02/document\\_gw\\_08.pdf](https://www.eenews.net/assets/2020/04/02/document_gw_08.pdf); letter from Senators Wyden, Merkley, and Udall to Secretary Bernhardt requesting a pause on comment periods, submitted April 3, 2020:

<https://www.wyden.senate.gov/imo/media/doc/040320%20Letter%20on%20DOI%20comment%20periods.pdf>; letter from state attorney generals to Office of Management and Budget, Acting Director Russell Vought, submitted March 31, 2020: [https://portal.ct.gov/-/media/AG/Press\\_Releases/2019/COVID-19-Rule-Delay-Letter---Final.pdf?la=en](https://portal.ct.gov/-/media/AG/Press_Releases/2019/COVID-19-Rule-Delay-Letter---Final.pdf?la=en); Letter from various state and local government organizations requesting a pause on all public comment and rulemaking processes, submitted March 20, 2020: <https://www.nga.org/letters-nga/state-and-local-government-organizations-look-for-pause-on-public-comments-on-rulemaking-processes/> <sup>3</sup> For example, DOI's Interior Board of Land Appeals extended all filing deadlines by 60 days in response to COVID-19; the Daniel Boone National Forest Supervisor suspended the public objection period for its planning effort in light of COVID-19; and the U.S. Forest Service extended a public comment period for the Nantahala and Pisgah forest plan revision with the length of time to be determined (available at: <https://www.fs.usda.gov/detail/nfsnc/home/?cid=stelprdb5397660>).

Although the Draft EISs that supported the 2019 Amendments were issued for a 90-day comment period, BLM only issued this Draft SEIS for 45 days. While BLM extended the comment period for an additional 45 days on the date that the original comment period expired, this last minute action does not evidence good faith compliance with NEPA's requirements.

We also note that BLM failed to conduct scoping as part of this supplemental NEPA process. Although scoping is not absolutely required when completing supplemental analysis, a scoping period is commonly offered during supplemental NEPA, especially when such supplemental analysis was in response to a



court order. See, 40 CFR § 1502.9(c)(4); Notice of Availability of the Draft Amendment to the Approved Resource Management Plan for the Miles City Field Office, Montana, and the Associated Supplemental Draft Environmental Impact Statement, 84 Fed. Reg. 22,516 (May 17, 2019); Notice of Availability for the Draft Supplemental Environmental Impact Statement and Potential Amendment for the Approved Resource Management Plan for the Buffalo Field Office, Wyoming, 84 Fed. Reg. 22,515 (May 17, 2019). The intent of scoping is to focus the analysis on significant issues and reasonable alternatives, to eliminate extraneous discussion, and to reduce the length of the EIS. By skipping this opportunity to solicit public input and influence the scope of supplemental analysis, BLM has further undermined this process.

The Richardson court clarified that providing members of the public with an opportunity to comment, does not fulfill the purposes of NEPA if further analysis was not provided, stating: "[a] public comment period is beneficial only to the extent the public has meaningful information on which to comment." 565 F.3d at 708. Commenters on the 2019 Plan Amendments raised concerns with BLM's reliance on previous analysis and incorporation by reference. BLM did not change its approach in the 2019 Amendments and did not do so in the Draft Supplemental EISs. Instead, as noted above, BLM states that it will determine after the comment period on the Draft Supplemental EISs if it should conduct any new analysis of alternatives or information. Recommendation: If BLM intends to proceed with a Supplemental EIS process, then BLM must provide sufficient opportunities for meaningful public engagement, including a 90-day comment period on a Draft Supplemental EIS.

As summarized above and by the BLM, the *WWP v. Schneider* court identified four significant failings in the BLM's NEPA analysis in the 2010 Plan Amendment. BLM failed to remedy these violations and still needs to do so. Since BLM did not address these flaws, which we raised repeatedly in our comments and protest on the 2019 Amendments, we incorporate those by reference and have attached our protest and overarching comments on the Draft Amendments for easy reference as Exhibits 1 and 2.

BLM must take a "hard look" at the environmental consequences of a proposed action, and the requisite environmental analysis "must be appropriate to the action in question." *Metcalf v. Daley*, 214 F.3d 1135, 1151 (9th Cir. 2000); *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348 (1989). The court found that BLM did not take the requisite hard look, noting its failure to respond to FWS and EPA concerns and finding "when the BLM substantially reduces protections for sage grouse contrary to the best science and the concerns of other agencies, there must be some analysis and justification - a hard look - in the NEPA documents." *WWP v. Schneider*, 417 F.Supp.3d at 1332. However, BLM did not conduct a new analysis to remedy this failure. Instead, BLM claims the "DSEIS also clarifies how the BLM considered comments, including those of other federal agencies and experts (including EPA), when developing its 2019 planning decisions." Oregon Draft SEIS, p. ES-3. Instead of addressing the need for an actual response in this Draft Supplemental EIS, BLM just notes that it "responded to each of EPA's comments and made corrections and/or changes in the 2018 FEISs" and states those responses "can be found in the administrative record." *Id.*

BLM removed the requirement for compensatory mitigation through the 2019 Amendments without providing an opportunity for public comment. As we have repeatedly pointed out and the court noted, "FWS relied on the mandatory compensatory mitigation provisions of the 2015 Plans to make its finding that an ESA listing was not warranted." *WWP v. Schneider*, 417 F.Supp.3d at 1333. The court found that "BLM's elimination of mandatory compensatory mitigation through the Final EISs appears to constitute

both a "substantial changes" to its proposed action and "significant new circumstances" under 40 C.F.R. § 1502.9(c), requiring that BLM have issued a supplemental draft EIS for public review and comment before finalizing changes." *WWP v. Schneider*, 417 F.Supp.3d at 1333. By refusing to disclose its Proposed Action until after all opportunity for comment has passed, an agency insulates its decision-making process from public scrutiny. Such a result renders NEPA's procedures meaningless." *State of Cal. v. Block*, 690 F.2d 753, 771 (9th Cir. 1982). Yet in the Draft Supplemental EIS, BLM implies that it would not consider the comments received or complete supplemental analysis on this topic, stating: This clarification simply aligns the 2018 Proposed Plan Amendment with BLM policy and the scope of compensatory mitigation authority expressly provided by FLPMA. Any analysis of compensatory mitigation relating to future projects is speculative at this level of land use planning; therefore, analysis of compensatory mitigation is more appropriate for future project-specific NEPA. Nevada Draft SEIS, p. 4-43 - 4-44.

In considering the argument that a net conservation gain standard for compensatory mitigation violated FLPMA, the court stated: The FEIS states that if actions by third parties result in habitat loss and degradation, even after applying avoidance and minimization measures, then compensatory mitigation projects will be used to provide a net conservation gain to the sage-grouse. The Agencies' goals to enhance, conserve, and restore sage-grouse habitat and to increase the abundance and distribution of the species, they argue, is best met by the net conservation gain strategy because it permits disturbances so long as habitat loss is both mitigated and counteracted through restorative projects. If anything, this strategy demonstrates that the Agencies allow some degradation to public land to occur for multiple use purposes, but that degradation caused to sage-grouse habitat on that land be counteracted. The Court fails to see how BLM's decision to implement this standard is arbitrary and capricious. Moreover, the Court cannot find that BLM did not consider all relevant factors in choosing this strategy... *Western Exploration, LLC v. U.S. Department of the Interior*, at 747. BLM's conclusions in IM 2019-018, cannot be supported by applicable law, as reviewed in Solicitor's Opinion M-37039 (Dec. 21, 2016) (attached and incorporated by reference as Exhibit 5). As detailed in M-37039, FLPMA and other applicable laws allow BLM to require compensatory mitigation. Taking the opposite approach based on a misreading of the law is both arbitrary and capricious and contrary to law, and moreover may violate FLPMA's requirement to avoid unnecessary or undue degradation. Abandoning compensatory mitigation as a tool to prevent habitat degradation would violate this requirement. As noted above, the unnecessary and undue degradation standard prohibits degradation beyond that which is avoidable through appropriate mitigation and reasonably available techniques. *TRCP*, 661 F.3d at 76-77; *Colo. Env. Coal*, 165 IBLA at 229. Offsite compensatory mitigation is a well-established, reasonable and appropriate tool that has long been used to limit damage to public lands. Refusing to use that tool fails to meet FLPMA's requirement that BLM avoid unnecessary or undue degradation.

Based on the weakened protections in the 2019 Amendments and the increased harm to sagebrush habitat related to wildfires and oil and gas development, the changes from the 2015 Sage-grouse Plans will affect numerous other plants and wildlife species, including those that are listed as threatened or endangered under the ESA. Since these are new risks of harm, arising out of BLM's changes in policy and amendments to the 2015 Plans, BLM cannot rely on findings from the 2015 ESA consultations. The ESA requires that BLM again undertake consultation with FWS under the ESA. Recommendation: If BLM intends to proceed with a Supplemental EIS process, then BLM must address the failure to consult under the ESA.

While issuing six Draft Supplemental EISs for comment, BLM has not actually undertaken a supplemental NEPA process. The agency has failed to provide a sufficient timeframe or structure for meaningful public input. Further, the environmental documents generally re-state (and often exactly re-state) the conclusions from the 2019 Amendments without conducting any additional analysis or taking into account new information and changed circumstances. BLM must thoroughly evaluate the real environmental effects of the 2019 Amendments. Because the 2019 Amendments undermine the key components of the 2015 Sage-grouse Plans that FWS relied on to justify finding the sage-grouse no longer warranted under the ESA, BLM must evaluate alternatives that will not jeopardize the survival of the species. In addition, BLM must consult with FWS regarding the impacts of the changes to the 2015 Sage-grouse Plans on species listed under the ESA.

Although the court in *WWP v. Schneider* held that BLM must consider impacts from the changes proposed in the 2019 Amendments, BLM glosses over these impacts in the Draft Supplemental EISs. For example, the Utah Draft Supplemental EIS states: At most, the prioritization objective could potentially result in temporarily deferring a parcel in PHMA from leasing to a later sale, but only in instances of large lease sales where staff capacity would be incapable of analyzing all the nominated parcels. Because the mineral leasing prioritization objective provides no certain or durable protection to PHMA, its removal would not increase threats, since the no surface occupancy stipulation is still in effect. Utah Draft SEIS, p. 4-52. Similarly, in the Northwest Colorado Draft Supplemental EIS, BLM acknowledges that the Management Alignment Alternative makes approximately 224,200 acres available for fluid mineral leasing that are closed under the No-Action Alternative. The Draft Supplemental EIS also acknowledges that "criteria for waivers, exceptions, and modifications in PHMA beyond 1 mile from active leks to allow for surface occupancy in cases where specific mitigation standards are met in consultation with CPW and/or it can be demonstrated that, due to topography, no impact on Greater Sage-Grouse or Greater Sage-Grouse habitat would occur," affecting these same acres. Northwest Colorado Draft SEIS, pp. 4-41 - 4-42. Nonetheless, BLM simply concludes, again: "Although the additional acres would be available to leasing, their impact on Greater Sage-Grouse would be similar to the No-Action Alternative" because "surface disturbance, fragmentation, and indirect habitat loss would not be expected to increase due to restrictions on surface disturbance." Northwest Colorado Draft SEIS, p. 4-42. In both situations, BLM concluded that there would be no increase in threats, although the new approaches are qualitatively different. The agency's conclusory statements eliminate the opportunity for rational decision-making; the decision is stated without explanation and does not allow for BLM or the public to be fully informed.

FLPMA unquestionably provides BLM with ample support for requiring compensatory mitigation, including its direction to manage public lands in a manner to ensure the protection of ecological and environmental values, preservation and protection of certain public lands in their natural condition, and provision of food and habitat for wildlife;<sup>6</sup> and to "manage the public lands under principles of multiple use and sustained yield".<sup>7</sup> The principles of multiple use and sustained yield pervade and underpin each of BLM's authorities under FLPMA, including the policies governing the Act,<sup>8</sup> the development of land use plans,<sup>9</sup> the authorization of specific projects,<sup>10</sup> and the granting of rights of way.<sup>11</sup> While FLPMA does not elevate certain uses over others, it does delegate discretion to the BLM to determine whether and how to develop or conserve resources, including whether to require enhancement of resources and values through means such as compensatory mitigation.<sup>12</sup> In sum, these statutory policies encompass the protection of environmental and ecological values on the public lands and the provision of food and habitat for fish and wildlife and are furthered by the implementation of the mitigation hierarchy, including

compensatory mitigation, to protect and preserve habitat for the sage grouse. 6 43 U.S.C. § 1701(a)(8). Among other things, public resources should be managed to "protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values" and "provide food and habitat for fish and wildlife". 7 43 U.S.C. § 1732(a). 8 43 U.S.C. § 1701(a)(7). 9 43 U.S.C. § 1712(c)(1). 10 43 U.S.C. § 1732(a). 11 43 U.S.C. § 1765(a)(i). 12 P. L. 94-579 (Oct. 21, 1976) (stating an intent "[t]o establish public land policy; to establish guidelines for its administration; to provide for the management, protection, development, and enhancement of the public lands; and for other purposes." (emphasis added)). Additional authority also exists for the use of the mitigation hierarchy in issuing project-specific authorizations. For example, project-specific authorizations must be "in accordance with the land use plans,"<sup>13</sup> so if the land use plans adopt the mitigation hierarchy or other mitigation principles for the sage grouse under the various authorities described above, the project authorization must follow those principles. Moreover, in issuing project-specific authorizations, BLM may attach "such terms and conditions" as are consistent with FLPMA and other applicable law.<sup>14</sup> This general authority also confers broad discretion on BLM to impose mitigation requirements on project applicants, including compensatory mitigation in appropriate circumstances.<sup>15</sup> 13 43 U.S.C. 1732(a). 14 43 U.S.C. § 1732(b). 15 BLM also has authority and/or obligations to ensure that all its operations protect natural resources and environmental quality, through statutes such as the Mineral Leasing Act of 1920, 30 U.S.C. 181 et seq.; see also *Independent Petroleum Assn. of America v. DeWitt*, 279 F.3d 1036 (D.C. Cir. 2002) (Act grants "rather sweeping authority" to BLM, or NEPA, 42 U.S.C. 4321; see also 40 C.F.R. § 1505.2(c), which requires consideration of mitigation alternatives where appropriate. In addition, BLM's authority under FLPMA is broader than that exercised by purely land use or regulatory agencies such as EPA or zoning boards, because BLM [has authority] to act as both a regulatory and as a proprietor. Accordingly, BLM can take action using all the tools provided by FLPMA for managing the public lands, including issuing regulations, developing land use plans, implementing land use plans or in permitting decisions. 43 U.S.C. §§ 1712(a), 1732(a), 1732(b). Finally, as a distinct authority, BLM also has the obligation to ensure that project-specific authorizations do not result in "undue or unnecessary degradation." FLPMA states that BLM "shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands."<sup>16</sup> A number of cases have found that BLM met its obligation to prevent unnecessary or undue degradation based, in part, on its imposition of compensatory mitigation. See e.g., *Theodore Roosevelt Conservation Partnership v. Salazar* ("TRCP"), 616 F.3d 497, 518 (D.C. Cir. 2010) (BLM decision to authorize up to 4,399 natural gas wells from 600 drilling pads did not result in "unnecessary or undue degradation" in light of substantial mitigation required from permittees, including prohibition of new development outside core area until comparable acreage in the core was restored to functional habitat, and a monitoring and mitigation fund of up to \$36 million); see also *Gardner v. United States Bureau of Land Management*, 638 F.3d 1217, 1222 (9th Cir. 2011) (FLPMA provides BLM "with a great deal of discretion in deciding how to achieve the objectives" of preventing "unnecessary or undue degradation of public lands.") 16 43 USC § 1732(b).

The FLPMA requires that BLM conduct land management based on multiple use and sustained yield so that their various resource values are utilized in the combination that will best meet the present and future needs of the American people and that balances diverse resource uses. 8 FLPMA's multiple use directive informs Secretarial Order (SO) 3349, issued on March 29, 2017, ordering agencies to reexamine practices "to better balance conservation strategies and policies with the equally legitimate need of creating jobs for hard-working American families." On June 7, 2017, the Secretary issued Secretarial Order 3353 which aimed to enhance cooperation among eleven western states and the BLM in managing Sage-grouse, created the Sage-grouse Technical Review team, and generated the six plan

amendments. The County worked with NACO and provided scoping comments, participated in multiple cooperating agency meetings and phone calls, commented on the Preliminary Draft EISs and Draft EIS, and participated in the Protest Process prior to the March 2019 signing of the Record of Decision.<sup>9</sup>

The Idaho District court granting the motion to preliminarily enjoin the 2019 plans relies in large part on the assumption that the 2015 plans were based on the sound science, specifically the findings and suggestions contained in the 2011 National Technical Team (NTT) and 2013 Conservation Technical Team (COT) Reports.<sup>11</sup> The Idaho District Court incorrectly assumed in its decision that the NTT and COT reports represent the best available science, and therefore, any deviation from these reports amounts to an unjustified reduction in protection for the Sage Grouse.<sup>12</sup> This reliance on the NTT and COT Reports is misplaced. <sup>11</sup> See *Western Watersheds Project et al v. Schneider et al*, Case No. CV-00083-BLM, 2019, at 11, 17. (D. Idaho Oct. 16, 2019). <sup>12</sup> *Id.* The 2011 NTT Report and the 2013 COT Report did not receive adequate peer review and suffered from a number of substantive flaws including: ignoring substantial threats such to the Greater Sage Grouse such as predation in favor of unsupported conjectures regarding human impact; failure to account for natural population fluctuations due to weather patterns; not using the best available science, and were policy rather than science driven. These flawed reports suggested the adoption of equally flawed measures that became central to the 2015 planning effort including the designation of Sage Brush Focal Areas (SFAs) and the establishment of lek buffers.

The Idaho District Court ignored BLM's IM and its well-founded interpretation of the law that FLPMA does not support mandatory compensatory mitigation and the Service's withdrawal of the policies on which net conservation gain was based. It is inappropriate to conclude that the rescission of unauthorized standards can serve as a degradation in species protection under the law. By extension, it is also inappropriate to conclude that the BLM violated NEPA by failing to analyze the impacts of not implementing standards it was not authorize to implement in the first place, and which had since been rescinded.

Single-Purpose Land Use Plans Violate FLPMA and NFMA Multiple Use Mandate BLM and USFS are charged with managing lands under their jurisdiction for multipleuse and sustained yield under the guiding principles of FLPMA and NFMA. BLM's multiple-use management objective states that: "The objective of resource management planning by the Bureau of Land Management is to maximize resource values for the public through a rational, consistently applied set of regulations and procedures which promote the concept of multiple use management and ensure participation by the public, state and local governments, Indian tribes and appropriate Federal agencies. Resource management plans are designed to guide and control future management actions and the development of subsequent, more detailed and limited scope plans for resources and uses." 43 CFR § 1601.0-2.

Statements in the DSEISs are revelatory in their admission that BLM hasn't actually changed anything from the 2018 FEIS, but the agency instead seeks to provide exculpatory evidence to overturn the court's decision. For example, the DSEIS's "Introduction to Chapter 4, Environmental Consequences," (Idaho at 4-1) states, "The purpose of this chapter is to describe to the decision-maker and the public the differences between the entire range of alternatives considered in 2018, including the 2018 Draft Plan (Management Alignment Alternative), the 2018 Proposed Plan Amendment, as well as the range of alternatives incorporated by reference from the 2015 plan amendments. It is meant to clarify that Greater Sage-Grouse management was comprehensively analyzed in 2018 through multiple NEPA and

planning processes." This assumes that the court's injunction simply missed something that was already in the 2018 plans rather than that the Court accurately identified the BLM's failure to properly analyze and disclose the effects of a range of alternatives in the 2018 plans. Simply, the DSEIS reads more like an excuse for the 2018 FEIS's inadequacies than any real attempt to remedy the inadequacies the litigation identified. This is not the purpose of NEPA.

FLPMA mandates that the Secretary of Interior "shall" take any action necessary to prevent "unnecessary or undue degradation" of public lands. Id. § 1732(b). FLPMA further provides that BLM public lands "shall" be managed "for multiple use and sustained yield." Id. § 1732(a). The definition of "multiple use" calls for "harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output." Id. § 1702(c) (emphasis added). Both the "non-impairment" and "unnecessary and undue degradation" provisions constrain BLM's discretion in adopting or revising its land use plans. This prohibition on permanent impairment of the environment in FLPMA's definition of multiple-use is unique and purposeful. Instead of using the definition of multiple-use from the Multiple-Use Sustained-Yield Act, as it did in enacting NFMA, Congress chose to weave this environmental protection mandate into FLPMA's multiple-use provisions. See H. R. Rep. No. 94-583, 94th Cong. 1st Sess. (Dec. 18, 1975). BLM's 2019 amendments violate these mandates by allowing unnecessary/undue degradation and permanent impairment of greater sage-grouse habitat and populations. As we explain in more detail below, recent population data and triggers demonstrate that the 2015 protections are not having the desired effect of recovering sage-grouse populations and habitats. In the face of this data demonstrating that the existing regulatory mechanisms are insufficient to sustain the sage-grouse species, it is clear that further weakening the plans will only hasten this species' decline toward extinction and permanently impair BLM's ability, should ESA listing be necessary, to later recover the species.

Under FLPMA, the BLM must "use a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences;" "consider the relative scarcity of the values involved and the availability of alternative means (including recycling) and sites for realization of those values;" and "weigh long-term benefits to the public against short-term benefits." 43 U.S.C. § 1712. The DSEISs do none of these things and instead seek to justify decisions to open public lands and sage-grouse habitat to more industrial and extractive uses, contrary to the science, and contrary to the broad interest in conserving the Sagebrush Sea and the numerous sensitive, imperiled, and rare species found there.

The current plans do not comport with the COT Report recommendations-which were themselves weakened due to political influence-instead representing the very minimum that is necessary for the agency to do. Since these proposed actions are inconsistent with the COT's recommendations, the 2019 plans fail to comply with FLPMA's overarching mandate.

For these and other reasons already outlined in the protests of 2019 and the comments of 2018, the BLM's DSEISs fail to reconcile the proposed actions with the mandates of FLPMA.

In *Western Watersheds Project v. Schneider*, 1:16-cv-083-BLM (D. Idaho), the court specifically addressed the fact that BLM issued six separate EISs in 2019 rather than provide one cumulative effects

analysis covering the broad, multi-state range of the sage-grouse. See Attachment A. The BLM persists in this error by issuing now six separate DSEISs.

As examples, reasonably foreseeable future actions that should be analyzed in the SEIS are the revisions underway to the CEQ NEPA rules and the BLM's grazing regulations. To the extent that any of the ARMPA provisions rely on future NEPA processes, the agency must admit the extent to which those NEPA processes may no longer be required. For example, the ARMPAs rely on assessments of habitat conditions and impacts of livestock grazing at the time of permit renewal and land health evaluation, but BLM is proposing to revise the processes of permit renewal and the spatial and temporal extent of land health evaluations.<sup>37</sup> Though BLM's plans here are not entirely clear, it is clear that changing the underlying management of grazing - the most widespread extractive use in sage-grouse habitat - will affect the authority and enforceability of the ARMPAs. <sup>37</sup> <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=renderDefaultPlanOrProjectSite&projectId=1500093>

The Council on Environmental Quality's proposed NEPA regulations could also reduce the level of environmental analysis performed for oil and gas lease sales, exploration, and development through encouraging greater use of Categorical Exclusions, as well as elimination of NEPA analysis for actions deemed to be "non-discretionary." The proposed regulations could also reduce the NEPA analysis that mining exploration and development currently undergoes, again related to elimination of NEPA analysis for "non-discretionary" actions. As a result, oil and gas and mining impacts to greater sage-grouse could occur without the level of NEPA scrutiny they currently require, which BLM must address in these SEISs

It is likely that there are additional regulatory changes with impacts to sage-grouse that BLM has not considered in these extremely brief and conclusory DSEISs. In taking the required hard look at the impacts of the Plans, BLM must fully consider all anticipated regulatory changes that could apply to sage-grouse habitats.

Also demonstrating the political purpose of the Plan revision process, BLM seems to argue that its plan to craft management of federal lands around state plans is required to comply with FLPMA. The EISs quote selectively (and incompletely) from FLPMA, claiming that FLPMA directs "BLM to develop its land use plans to 'be consistent with State and local plans to the maximum extent'" and to "resolve, 'to the extent practical, inconsistencies between Federal and non-Federal government plans.'" ID DSEIS at S-1-2 to S-1-3 (quoting 43 U.S.C. § 1712(c)(9)); and see Northwest Colorado DSEIS at App-3-2. These partial quotes mischaracterize BLM's responsibilities under FLPMA, which directs: In implementing this directive, the Secretary shall, to the extent he finds practical, keep apprised of State, local, and tribal land use plans; assure that consideration is given to those State, local, and tribal plans that are germane in the development of land use plans for public lands; assist in resolving, to the extent practical, inconsistencies between Federal and non-Federal Government plans...Land use plans of the Secretary under this section shall be consistent with State and local plans to the maximum extent he finds consistent with Federal law and the purposes of this Act.

BLM must only develop its land use plans to be consistent with State plans "to the extent...consistent with Federal law and the purposes of [FLPMA]" and must only resolve inconsistencies between Federal and non-Federal Government plans "to the extent practical." *Id.* As we have explained, repeatedly, in previous comments and Court filings, aligning BLM's approach with the States' is not "practical" or "consistent with Federal Law and the purposes of" FLPMA because it departs drastically from what the

best available science shows is necessary to protect sage-grouse. In 2015, both BLM and FWS determined that the alternatives favored by certain states did "not incorporate adequate regulatory mechanisms . . . to conserve, enhance, and restore [greater sage-grouse] and its habitat." BLM has provided no rational explanation for why it now believes that these weaker plans are suddenly adequate to conserve sage-grouse populations, nor has it consulted with the USFWS on this point. If the purpose of the sage-grouse plan amendments is to provide adequate habitat protections on Federal lands to prevent sage-grouse from needing protection under the ESA, BLM must implement the measures that science shows are required. Indeed, that State plans fail to require or implement those measures is exactly why federal action is necessary.

NEPA requires EISs to "[s]tate whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not." 40 CFR§ 1505.2. BLM has again violated this requirement. It is clear that many other means of protecting sage-grouse are available. BLM has a duty under NEPA to disclose these measures and its rationales for rejecting them.

The BLM has failed to consult with the Fish and Wildlife Service about the impacts of the proposed plan. The ESA requires that an agency must consult whenever an action "may affect" a listed species or its critical habitat. See 50 C.F.R. § 402.14(a). The sage-grouse plan revisions will affect millions of acres and hundreds of species' habitats, but the BLM failed to consult with FWS over the effects of the plan on any listed or proposed-to-be-listed endangered or threatened species. This violates Section 7 of the ESA and must be remedied before a new decision on the SEISs is issued. See also Pidot (2018) for an assessment of the 2015 and 2019 plans with regard to their adequacy under the ESA and Timmer et al. (2019) for a discussion of sage-grouse as an umbrella species for sagebrush songbirds.

## **F.4 WYOMING-SPECIFIC COMMENT EXCERPTS**

### **F.4.1 Purpose and Need**

As a non ESA listed species, any species management provisions should be initiated at the state level. The Bureau of Land Management (BLM) has overstepped their bounds by seeking to manage an unlisted wildlife species.

### **F.4.2 Issues**

I recommend that a workforce capacity and workload analysis be completed as part of the Environmental Analysis (or ROD) so some realistic timeframes can be developed and disclosed for implementing the sage-grouse conservation strategies. I also suggest that this is critical for assessing whether the proposed strategies and expected timeframes support the rationale behind the 2015 sage-grouse listing decision by the U.S. Fish and Wildlife Service. When I look at the huge and complicated workload associated with assessments (HAF), procedural hoops, and monitoring workload (to support adaptive management) under the proposed BLM and Wyoming sage-grouse strategy, I become doubtful of the capability of the current BLM workforce and partners to implement the proposed conservation measures in a timely manner and at a rate and scale that would slow or offset the continued degradation and decline of the greater sagebrush ecosystem. I'm hopeful that the BLM and Wyoming strategies will facilitate some local conservation successes and accomplishments for sage-grouse and sagebrush, but I also contend that these local successes through conservation partnerships will be far exceeded by the rate of continued decline in the broader sagebrush ecosystem and regional sage-grouse populations. I sincerely hope I am wrong in that assessment. To facilitate an informed public, I suggest the SEIS or ROD include a realistic discussion of the likelihood of having sufficient BLM and partner staffing to



implement the conservation strategy within a reasonable timeframe and at a meaningful and effective scale.

#### **F.4.3 Livestock Grazing Management**

The FWS's 2015 finding that listing of the GrSG was not warranted at that time stated that protections from infrastructure (such as range improvements) are more important in Wyoming than any other state due to high historical infrastructure impacts. The FWS also pointed to mandatory permit terms and conditions in livestock grazing permits, mandated prioritization of field checks from Sagebrush Focal Areas to PHMA to riparian areas, and "monitoring requirements and adaptive management that will ensure that the measures will be effective for the long term." Our review identified a number of changes from the 2015 Plan Amendment that would no longer be required. The Proposed Plan would eliminate requirements for: \* Terms and conditions in grazing permits regarding the actions needed to meet GrSG habitat objectives. \* Prioritizing field checks in PHMA, especially PHMA with riparian areas and wet meadows, to ensure compliance with permit terms and conditions. \* Incorporating into grazing permits specific management thresholds and defined responses based on habitat objectives for GrSG, and adjustment of rangeland use during the permit term according to those thresholds and defined responses when grazing is a significant factor in failing to meet LHS. \* Evaluation and modification, where necessary, of existing structural range improvements in GHMA. \* Evaluation of the specific risk to GrSG and its habitat posed by existing structural range improvements in PHMA. \* Grazing management to promote the production and availability of beneficial forbs during nesting (vs. only brooding), and to balance grazing between riparian and upland habitats (regarding the latter, we recommend resolving an inconsistency; page 4-96 states that the Proposed Amendment would emphasize balanced grazing between riparian areas and uplands, but the Proposed Amendment deletes this language). In addition, the Draft SEIS states that if it is determined that the current authorized livestock use is a significant causal factor in failing to achieve the wildlife/special status species standards, the BLM would address the achievement or progress toward achieving LHS and, if needed, GrSG habitat maintenance or improvement. Given that previously required mechanisms for addressing a failure to achieve LHS and GrSG objectives were eliminated in the Proposed Plan Amendment (per the bulleted list above), we recommend the Final SEIS explain the mechanisms BLM would utilize to adjust grazing practices to achieve or make progress toward achieving LHS in cases where livestock grazing is a significant causal factor in the failure to achieve LHS. We also recommend clarifying whether these mechanisms would operate during the permit term.

The Draft SEIS states that authorized uses in PHMA that incorporate habitat objectives for GrSG must develop desired conditions based on GrSG habitats present in the allotments. However, as indicated, the Proposed Plan Amendment removes the certainty that permits for livestock grazing will incorporate habitat objectives. Please clarify in the Final SEIS whether habitat objectives and associated desired conditions will be included in all permits within PHMA. We also recommend clarifying the difference between habitat objectives and desired conditions.

While not identified by BLM for revision, WSGA urges you to strike or amend MD LG 6. Decisions to clarify that decisions to authorize livestock grazing, in particular within grazing districts can and should be appropriately made only through the land use planning process or under the provisions of the Taylor Grazing Act.

The DSEIS repeats the claims of the FEIS's environmental impacts analysis of livestock, including the following sentence: "Within PHMA, livestock management would be implemented that would improve rangeland health over time, which would be beneficial to livestock and increase forage availability in PHMA." Wyoming DSEIS at 4-93. But no evidence is offered to support this claim, and without information about the implementation plans or practices, the DSEIS lacks a hard look. Similar to Idaho, our analysis indicates a large percentage of grazing allotments are not undergoing environmental analysis when the permits are renewed and therefore no changes to livestock grazing are being made even if the allotments are not meeting sage-grouse habitat standards or rangeland health standards. As of March 2020, 70.7% of allotments and 77.3% of permitted AUMs in Wyoming are being renewed under Section 402(c)(2) of FLPMA under the same terms and conditions as the existing grazing permit.

The Wyoming DSEIS admits that the BLM is working with the NRCS and the Sage- Grouse Initiative on a variety of efforts, including "working with livestock permittee and stakeholders on 'targeted grazing' to utilize grazing as a tool to create and maintain fuel breaks to manage the threats of wildfire and invasive species in or next to GRSG habitats; and working to develop 'outcome-based grazing' to provide greater flexibility for livestock permittees and land managers to meet habitat objectives as conditions on-the-ground change." Wyoming DSEIS at 1-2. This means that there is a high degree of uncertainty as to what the implementation of the plans will even be, making predictions of their effectiveness imprecise and unreliable. The cumulative effects analysis for all the plans should admit this uncertainty; to the extent that other plans incorporate these unquantifiable management proposals, the uncertainty is amplified.

Livestock Grazing Livestock are the only grazers on the range who are efficiently and effectively managed for stocking density and duration. Livestock grazing is a known, highly controllable factor that should be used as a tool to improve the diversity of plant communities, quality of cover and to reduce the risk of wildfires, among other habitat improvements. BLM should list and recognize the positive attributes that livestock grazing can provide.

We would encourage the BLM to look at all grazers and their impacts to the land. The Fish and Wildlife Service has recognized livestock grazing as not only compatible with Sage-grouse conservation, but also as not posing a major threat. Yet the BLM seems insistent on focusing conservation efforts solely on reducing livestock grazing activities. This is contrary to both their mission and the best available science. All grazers on the range should be held to their appropriate management level or management objective

BLM should adopt and recognize activities that are identified as de minimus under the Core Area Strategy; including animal husbandry activities and proper livestock grazing.

If a permit is voluntarily relinquished, it should be evaluated for reissuance. Furthermore, permits that are not currently being grazed should be evaluated for reissuance.

Range improvements are installed to improve the range. It would be contrary to your mission and your responsibility to effectively manage these lands to remove range improvements. It would be wiser to seek enhancements to existing improvements that expand their benefit to multiple species, including Sage-grouse (I.E. riparian area improvements to existing water structures) or to dedicate resources to installing more range improvements. We feel there are many instances where range improvement installations could improve range conditions and aid in achieving Land Health Standards.

Livestock grazing management on an allotment should only be adjusted once the BLM has collected the appropriate trend data, performed a Standards Determination, determined causal factor(s), and completed a Conformance Review. Livestock grazing is compatible with GRSG conservation and can have a positive impact on the species. In fact, in the 2015 non-warranted for listing decision, the U.S. Fish and Wildlife Service specifically recognized that livestock grazing is not a major threat to sage-grouse.

#### **F.4.4 Habitat Boundary/Habitat Management Area Designations**

We have also supported in our comments eliminating Sage-brush Focal Area's, removing the net conservation gain standard from all alternatives, and encouraging alignment with Wyoming Sage-Grouse Core and non-core area habitat boundary modifications (PHMA and GHMA under BLM management), which should be updated in a timely manner based on new or modified habitat information that has been approved by the State of Wyoming.

Oil and Gas (includes WY Core Areas) Author: Juliusson and Doherty Year: 2017 Title: Oil and gas development exposure and conservation scenarios for greater sage-grouse-Combining spatially explicit modeling with GIS visualization provides critical information for management decisions: Applied Geography, v. 80, p. 98-111. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; oil and gas development scenarios Significance: Likely highly influential paper used to predict oil and gas effects on GRSG. Comment: Additional review suggested.

Designating new PHMA areas in the Powder River Basin of Wyoming that include all areas of the highest sage-grouse density in the Basin;

Expanding current PHMA boundaries in Wyoming to encompass all lands within 5.3 miles of the leks that host 75% of the Wyoming sage-grouse population (see, e.g., Doherty et al. 2010), including known high-concentration areas in the Chokecherry, Atlantic Rim, and DKRW coal-to-liquids project areas, and newly identified high-density leks in the Adobe Town/Kinney Rim area;

Wyoming's DSEIS admits that there was a trigger surpassed due to fires in 2017, another met in 2018 due to fire, and in 2019, population triggers were tripped in the Jackson Hole Core Area. Wyoming DSEIS at 3-7. The DSEIS fail to address or reveal the outcomes of the Causal Factor Analyses or the adaptive management approaches, making it impossible to assess their efficacy.

In Wyoming, the BLM included "adjusting habitat management area designations to reflect best available science" among the issues it committed to address in the EIS. Wyoming DSEIS at 1-9. According to BLM, "PHMA are areas that meet some stage of the Greater Sage- Grouse life cycle requirements, based on best available science." Wyoming DSEIS at 1-7. Boundary changes and additions will be necessary to include all high-density, undeveloped sage- grouse habitats in PHMA, because the State of Wyoming's Sage Grouse Implementation Team deliberately excluded important conservation habitats that the energy industry wished to industrialize (most of which remain intact or relatively so today).

Yet the BLM does not consider this as an alternative in the Wyoming DSEIS, nor does the agency take a hard look at the comparative impacts of excluding these high-value habitats from PHMA, as under the 2015/2019 ARMPAs and the Management Alignment alternative, versus applying PHMA-level protections, as the best available science indicates they should receive.

Allowing for modification of habitat boundaries to maintain consistency with the EO provides for adaptive management and is consistent with COT objectives. For approximately two (2) years, the State of Wyoming and BLM were using different core area maps which created areas that were considered both PHMA and GHMA. As a result, industry experienced significant delays and confusion on both the project planning and APD level. Under the 2019 ARMPA, proposed habitat management area boundary adjustments will need to be approved and will only take effect after going through appropriate NEPA analysis.

#### **F.4.5 Adaptive Management**

The Proposed Plan Amendments include a provision (MD SSS 13) that the Adaptive Management Working Group would define a process to review and reverse adaptive management actions once the identified causal factor is resolved (e.g., returning to previous management once objectives of interim management strategy have been met). This provision is difficult to understand because returning to previous management would normally result in a return of the causal factor. We recommend either explaining why reversing adaptive management actions once adverse effects are resolved would not result in a return of the causal factor and its impacts or removing this provision from the Proposed Plan Amendment. We also recommend the Final SEIS include examples of the types of actions that would be taken when soft-trigger and hard-trigger deadlines are not met.

As noted in Appendix F, "The COT Report suggested development and implementation of adaptive management actions 'if the monitoring determines that current management actions are ineffective'." <sup>14</sup> In Wyoming, an extensive number of leks are monitored every year and the State's adaptive management plan is included in the EO. BLM's alignment with the State's adaptive management strategy is consistent with COT objectives.

#### **F.4.6 Mitigation**

We offer the following recommendations to more clearly identify the baseline benefits and effects associated with the 2015 Plan Amendment. This baseline will be useful in assessing the potential impact of proposed changes in the SEIS. The 2015 Plan Amendment committed to annual monitoring of plan implementation, habitat conditions, anthropogenic disturbance, connectivity, and trends in populations (the latter as determined by state wildlife agencies). In reviewing the SEIS, we did not find a summary of these annual monitoring results. We recommend including the monitoring results in the Final SEIS to strengthen this analysis and provide on-the-ground data to demonstrate the extent to which the 2015 Plan Amendment has been successful in meeting objectives. This would help to assess whether the proposed management changes would be likely to assist or detract from meeting GrSG objectives.

We recommend the Final SEIS describe how the State Mitigation Framework would be applied to BLM decisions and on BLM administered lands. The Proposed Plan Amendment states that the BLM will adopt the State Mitigation Framework "to the extent consistent with federal law, regulations, and policy". We recommend the Final SEIS specify any anticipated limits of federal law, regulation, and policy on BLM's ability to fully adopt the State Mitigation Framework. For example, BLM is operating under a recent policy position that it will not require compensatory mitigation unless such mitigation is legally mandated. It seems important to clarify whether this policy would limit application of the requirements in the State Mitigation Framework on BLM lands. We also recommend clarifying whether the State Mitigation Framework would apply to BLM-authorized actions that do not require a state permit. If the State Mitigation Framework does not apply when a state permit is not required, we recommend the

Final SEIS disclose what types of actions on BLM lands do not require a state permit and how prevalent those actions are. This information is important for understanding the regulatory certainty afforded by the Proposed Plan Amendment. To provide additional certainty, we also recommend the Proposed Plan Amendment require that BLM incorporate state-required or recommended mitigation into the BLM's decision (rather than only its decision-making process, per Management Decision MD SSS 4).

The Draft SEIS states that BLM will cooperate with the State of Wyoming to analyze applicant- proffered or state-imposed compensatory mitigation to offset residual impacts, though it is not clear if the state's framework requires a net conservation gain for all actions that do not avoid GrSG impacts in Priority Habitat Management Areas (PHMA) and associated habitats. The U.S. Fish & Wildlife Service's (FWS) 2014 Range-Wide Mitigation Framework for GrSG states that mitigation "[p]rograms that are structured with a goal of only no net loss ... are unlikely to positively influence the conservation status of the species" and that "a mitigation program for sage-grouse should address how impacts will be avoided and how a net conservation gain will be achieved by compensatory mitigation for unavoidable impacts to sage-grouse across all habitats." We recommend the Final SEIS disclose whether the State Mitigation Framework would require a net conservation gain to be achieved by compensatory mitigation for unavoidable GrSG impacts for all actions in PHMA on BLM-administered estate. If it would not, we recommend consulting with FWS to evaluate how this change would affect efforts to reverse the decline of GrSG in Wyoming and include that evaluation and any supporting scientific research and documentation in the Final SEIS.

Regarding the question of compensatory mitigation, BLM is legally limited in its ability to apply compensatory mitigation as a regulatory mechanism for addressing impacts and Wyoming already has a structure in place that has demonstrated its effectiveness. Campbell County continues to strongly advocate for BLM to defer to the Wyoming Compensatory Framework as it provides for regulatory certainty by applying appropriate mitigation measures beyond avoidance and minimization where necessary.

Regarding the question of compensatory mitigation, BLM is limited in its legal ability to apply compensatory mitigation as a regulatory mechanism for addressing impacts and Wyoming already has a structure in place that has demonstrated its effectiveness. WACD continues to strongly advocate for BLM to defer to the Wyoming Compensatory Framework as it provides for regulatory certainty by applying appropriate mitigation measures beyond avoidance and minimization where necessary.

Our review identified two apparent internal inconsistencies in the Draft SDEIS regarding mining in sagebrush focal areas (SFA) that we recommend be resolved. In the first, we note that Appendix D, Cumulative Effects Supporting Information, states that "[the] Proposed Plan does not propose changes to any decisions associated with locatable minerals, which were sufficiently analyzed [in] the existing plans." However, the Proposed Plan does include a substantive change; it no longer proposes to withdraw SFAs from location and entry under the General Mining Act of 1872 and so any GrSG conservation measures would be suggested to operators, not required (per the General Mining Law). We recommend including this proposed change in Table I, Appendix D, and further assessing, in the cumulative context, the effects to GrSG conservation of not withdrawing SFAs from locatable mineral development.

#### **F.4.7 Mineral Withdrawal**

In the second instance, the Draft SEIS states that the conservation benefits of a future withdrawal would be "minimal" as documented in the 2016 SFA Withdrawal Draft EIS; however, that 2016 EIS stated that the benefits would be "minor to moderate." Since the 2016 SFA Withdrawal EIS looked at the percent of habitat impacted over the entire GrSG SFA range, we recommend that the Final SEIS look at the mining-specific RFD for Wyoming to estimate the percent of SFAs in Wyoming that could be impacted by removing withdrawal from the Proposed Plan Amendment in order to determine, in consultation with FWS, whether the effects in Wyoming would be minor or moderate. As part of this analysis, we recommend the Final SEIS consider the impacts associated with no requirement for setbacks from GrSG habitat or other conservation measures by mining operations.

Decreasing allowable surface disturbance from 5% to 3% in Wyoming;

#### **F.4.8 Sage-Grouse**

In evaluating the monitoring results to-date, we recommend the Affected Environment chapter include the trends since 2015 in development and disturbances in GrSG habitat. Useful indicators of the effectiveness of the management decisions in BLM's 2015 Plan Amendment would include the following:

- \* A map of oil and gas lease parcels sold since 2015 that also depicts priority habitat management areas (PHMA) and general habitat management areas (GHMA), and a table showing the amount and percent of that acreage that has been leased inside vs. outside of each area since 2015;
- \* The percentages of PHMA, GHMA, winter concentration areas, and remaining linkage areas within the state that are currently under lease compared to those percentages in 2015;
- \* The amount and percentage of acreage disturbed within each habitat area since 2015 including: mineral development, miles of linear project disturbance (e.g.: installation of range structures, roads, pipelines and transmission lines), acres of prescribed fire and wildland fire, and corresponding effects of such disturbance to-date on habitat connectivity; and
- \* Whether and to what extent GrSG populations have increased or declined since 2015 within each habitat area. We recommend displaying these analyses at the state-wide scale for direct and indirect impacts and the range-wide scale for indirect and cumulative impacts.

#### **F.4.9 Non-Sage-Grouse**

In addition to the negative impacts on sage-grouse from pulse and press disturbances authorized under the caps, the environmental impact assessment in the SEIS needs to quantify and clearly display for each alternative the indirect impacts to sage grouse from the continued invasion and expansion of cheatgrass into sagebrush habitat at and from newly disturbed sites associated with energy development. These impacts should include the number, area and miles of new cheatgrass invasion and source (expansion) sites expected in the reasonably foreseeable future with the continuing expansion of the network of roads, infrastructure and habitat fragmentation resulting from energy development. This information is critical to facilitate informed public understanding that regional sage-grouse populations will likely continue to decline, albeit at slower rates under some alternatives, as sagebrush habitat becomes increasingly impacted by cheatgrass and fragmented by the ever-expanding network of roads and infrastructure across the sagebrush ecosystem.

There was no mention of Section 106 of the National Historic Preservation Act in the EIS, ROD, or other attached documents. There was little description or analysis of cultural resources (which does make sense based on the proposal at hand, but it was not explained directly). If this was covered in separate correspondence with the State Historic Preservation Office, or if a determination was made

that cultural compliance will be undertaken on a project-by-project basis, this should be appended or mentioned.

#### **F.4.10 Livestock Grazing**

For future NEPA analyses of allotment plans in PHMA, the Proposed Plan Amendment would only require one alternative in the NEPA document to include mechanisms to achieve GrSG goals and LHS. As we understand it, the Proposed Plan Amendment would not require that the NEPA decision document include those mechanisms. Since the BLM's LHS apply to all BLM rangeland, and GrSG objectives apply to all PHMAs, it seems that meeting those standards would be part of the "purpose and need" for the action of issuing or renewing livestock grazing permits in PHMA. We recommend that the Final SEIS include a requirement that all alternatives in NEPA analyses for livestock grazing permit issuances or renewals in PHMA include specific mechanisms to make adjustments during the permit term when livestock grazing is identified as a significant factor in the failure to meet habitat objectives and overlying LHS. The alternatives in the NEPA document could analyze a range of different approaches and mechanisms for achieving those standards and objectives.

#### **F.4.11 Fluid Minerals**

Oil and Gas (includes WY Core Areas) Author: Spence et al. Year: 2017 Title: Probability of lek collapse is lower inside sage-grouse core areas-Effectiveness of conservation policy for a landscape species: PLoS ONE, v. 12, no. 11, article e0185885, 15 p. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: The proportion of the male population within core areas and the observed decreased probability of lek collapse within core areas suggest that the core area policy is providing broad protection for GRSG in Wyoming. However, limitations on development near core areas may be needed to more effectively protect GRSG populations within core areas. From the authors, "Collectively, these data suggest that the Wyoming Core Area Strategy has benefited sagegrouse and sage-grouse habitat conservation; however, additional guidelines limiting development densities adjacent to Core Areas may be necessary to effectively protect Core Area populations." Issue: Mitigation; Wyoming Core Areas Significance: Another validation of the Core Area concept

We also recommend the Final SEIS analyze to what extent the BLM's previously determined areas of low, medium and high fluid mineral potential overlap with PHMA, GHMA, winter concentration areas, and remaining linkage areas. Along with this, we recommend calculating what percent of each habitat area has already been leased, and whether the remaining unleased areas have low, medium, or high mineral potential. Quantifying, and if possible, mapping this information would lead to a better understanding of the present and future risks to GrSG and where additional mitigation measures or restrictions may be needed.

The FWS's 2015 finding that listing of the GrSG was not warranted at that time relied, in part, on the 2015 Plan Amendment including either no or very limited waivers or modifications to No Surface Occupancy (NSO) lease stipulations, and exceptions only if it is determined that the project would not affect sage-grouse or would be beneficial compared to other options. We recommend the Final SEIS clarify whether exceptions, modifications and waivers in the Proposed Plan Amendment would or would not differ from those in the 2015 Plan Amendment.

To support the conclusion that restrictions included in the Proposed Plan Amendment would allow for conservation of the species by reversing the ongoing declines in GrSG, it may be helpful in the Final SEIS

to identify instances where oil and gas development with controls similar to those required in the Proposed Amendment have had no or negligible effect on nearby populations of GrSG in Wyoming or other states. We also recommend that BLM update the Cumulative Effects section to consider the effects from pending development associated with the Normally Pressurized Lance, Converse County, and Moneta Divide oil and gas development projects.

Oil and Gas (includes WY Core Areas) Author: Fedy et al. Year: 2015 Title: The influence of mitigation on sage-grouse habitat selection within an energy development field: PLoS ONE, v. 10, no. 4, article e0121603, 19 p., <https://doi.org/10.1371/journal.pone.0121603> Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: Mitigation efforts appeared to improve GRSG nesting habitat, but additional studies linking habitat changes to actual species fitness are needed to determine ultimate consequences of mitigation for GRSG populations. Issue: Oil & Gas Significance: Updated practices reduce impacts; habitat behavioral, or population effects; mitigation, WY Core Areas

Oil and Gas (includes WY Core Areas) Author: Rice et al. Year: 2016 Title: Seasonal habitat use by greater sage-grouse (*Centrocercus urophasianus*) on a landscape with low density oil and gas development: PLoS ONE, v. 11, no. 10, article e0165399, 20 p., Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: The authors concluded that studies of behavior prior to development occurring, such as this one, can provide resource managers with information that can be valuable when trying to site development to minimize effects on GRSG and their habitat, managing GRSG populations, and quantifying potential effects of development on GRSG populations. Conflicting findings regarding the effect of roads on breeding habitat when evaluated at local and landscape scales indicated that the spatial scale of analysis can have important and sometimes contradictory effects on model results; these findings also suggested that energy development in North Park may not currently be at a level that is affecting GRSG populations significantly. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; Oil and gas impact mapping Significance: Potential effect of updated O&G practices & reduced impacts Comments: Caveat: Potentially small sample size limits resolution or oil and gas impacts are less than expected.

Oil and Gas (includes WY Core Areas) Author: Ramey et al. Year: 2018 Title: Local and population-level responses of greater sage-grouse to oil and gas development and climatic variation in Wyoming: PEERJ, v. 2018, no. 6, p. e5417, <https://doi.org/10.7717/peerj.5417>. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: Hierarchical models were used to estimate the effects of the areal disturbance due to well pads as well as climatic variation on individual lek counts and Greater sage-grouse populations (management units) over 32 years. Modeling revealed that oil and gas had a strong negative effect on local-scale lek attendance within a 3.2 km radius around a well. Oil and gas was a weak predictor of population-scale changes, but appeared consistent with local-scale responses. The PDO was found to be a strong predictor of long-term population density fluctuations at local and population scales. Supersedes NTT: Yes Supersedes COT: Yes Issue: Climate (regional climatic variation); population fluctuations; oil & gas Significance: PDO was the major driver of population trends rather than oil and gas development Comment: Wildlife agencies need to account for the effects of regional climatic variation when managing sage-grouse populations

Oil and Gas (includes WY Core Areas) Author: Kirol et al. Year: 2015 Title: Mitigation effectiveness for improving nesting success of greater sage-grouse influenced by energy development: Wildlife Biology, v. 21, no. 2, p. 98-109. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from



each paper: Onsite mitigation of natural gas development improves nest success. Minimizing reservoirs appears to be the most effective mitigation measure because of reduced risk to West Nile virus and nest predators associated with water, including raccoons and skunks. Supersedes NTT: Yes Supersedes COT: Yes Issue: Oil & Gas mitigation Significance: Updated practices and onsite mitigation improved nest success

Oil and Gas (includes WY Core Areas) Author: Kirol et al. Year: 2015 Title: Identifying greater sage-grouse source and sink habitats for conservation planning in an energy development landscape: *Ecological Applications*, v. 25, no. 4, p. 968-990. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: Authors created Source-sink maps to evaluate effects of Atlantic Rim Project Area (ARPA), a developing coalbed natural gas field in south-central Wyoming. Source-sink maps from this study can inform future siting of energy infrastructure and potential mitigation actions. Maintenance of source habitat in proximity to energy developments may improve colonization of reclaimed sites following energy extraction. Methods to develop these maps are applicable to other species of concern. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; mapping and quantifying oil and gas demographic effects Significance: Prioritization of management. Likely a highly influential paper. Comment: Additional review suggested.

Oil and Gas (includes WY Core Areas) Author: Holloran et al. Year: 2015 Title: Winter habitat use of greater sage-grouse relative to activity levels at natural gas well pads: *Journal of Wildlife Management*, v. 79, no. 4, p. 630-640. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: Issue: Oil & Gas mitigation Significance: Updated practices (liquid gathering systems) reduce impacts

Oil and Gas (includes WY Core Areas) Author: Green et al. Year: 2017 Title: Investigating impacts of oil and gas development on greater sage-grouse: *Journal of Wildlife Management*, v. 81, no. 1, p. 46- 57. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: The authors compiled data on GRSG lek counts, well density, and the disturbance area of well pads across Wyoming for each year from 1980 to 2008. They analyzed these data, along with estimates of sagebrush cover and seasonal precipitation, at five spatial scales. Study results provide "further support for a negative effect of oil and gas developments on GRSG populations", and declines may become evident 1-4 years after development. Current regulations in Core Areas could limit GRSG losses from energy developments, but they may not promote GRSG recovery. Issue: Oil and gas impacts; Wyoming Core Area Significance: Another paper with Aldridge finding substantial current impacts contrary to others. Why does a paper published in 2017 only use data up to 2008? Comment: Caveat: Likely biased results due to use of old data (1980s and data collected prior to extensive mitigation and regulation. Only used seasonal precipitation which is a poor predictor of regional climate variation.

Oil and Gas (includes WY Core Areas) Author: Garman Year: 2017 Title: A simulation framework for assessing physical and wildlife impacts of oil and gas development scenarios in Southwestern Wyoming: *Environmental Modeling and Assessment*, v. 23, no. 1, p. 39-56., <https://doi.org/10.1007/s10666-017-9559-1>. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: Supersedes NTT: Yes Supersedes COT: Yes Issue: Oil and gas impact modeling Significance: New Oil and gas technology and improved practices reduce impacts compared to past; WY Core Areas Comment: A significant contribution deserving more attention.

Oil and Gas (includes WY Core Areas) Author: Gamo and Beck Year: 2017 Title: Effectiveness of Wyoming's sage-grouse core areas- Influences on energy development and male lek attendance: *Environmental Management*, v. 59, no. 2, p. 189-203. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: The authors sought to evaluate energy development and compare GRSg lek attendance in Core and non-Core Areas to inform assessment of the executive order's short-term effectiveness. : Results provide support for the Core Area designations effectively tempering development and contributing to population stability statewide and in MZ II. Despite implementation of the 2008 Executive Order for Sage-Grouse, GRSg populations in MZ I [Powder River Basin] appear vulnerable to further decline. Mitigation and changes in development rate may improve population numbers. Issue: Oil and gas; CorWyoming e Area Significance: "...results provide support for the effectiveness of Core Areas in maintaining sage-grouse populations in Wyoming, but also indicate the need for increased conservation actions to improve sage-grouse population response in (MZ) I." Comment: MZ I includes most if not all the Powder River Basin, which is not a good example of the Core Area Strategy, as much of the development occurred prior to its implementation.

Oil and Gas (includes WY Core Areas) Author: Fedy et al. Year: 2015 Title: Large-scale control site selection for population monitoring-An example assessing sage-grouse trends: *Wildlife Society Bulletin*, v. 39, no. 4, p. 700-712 Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: The authors demonstrated that GIS-based, large-scale control site selection can be used successfully for wildlife impact monitoring, and identified 129 control sites for the current study. Both control sites and affected sites in the Atlantic Rim Project Area (natural gas development) had similar trends and change-points in the cyclic trends of GRSg populations, suggesting they were tracking statewide trends and were not fundamentally different. No significant differences in population trends were observed between control and treatment sites. Supersedes NTT: Yes Supersedes COT: Yes Issue: Technique refinement; estimating population trends and impacts; oil and gas Significance: Significant in that that area affected by natural gas development tracked population trends in control site.

Oil and Gas (includes WY Core Areas) Author: Christiansen et al. Year: 2017 Title: Wyoming sage-grouse working groups-Lessons learned: *Human-Wildlife Interactions*, v. 11, no. 3, p. 274-286. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: This paper describes the history of Wyoming's local sage-grouse working groups, their role in Core Area planning, and discusses the effectiveness of local and statewide conservation efforts. Supersedes NTT: Yes Supersedes COT: Yes Issue: Wyoming Core Area concept; Oil and gas development Significance: Working group program history and effectiveness Comment: Important background

Oil and Gas (includes WY Core Areas) Author: Edmunds et al. Year: 2017 Title: Greater sage-grouse population trends across Wyoming: *Journal of Wildlife Management*, 16 p., <https://doi.org/10.1002/jwmg.21386>. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: Using data from Wyoming, the authors examined population trends at different spatial scales. While this is a refinement that could allow managers to focus efforts on small-scale populations, that are influencing large-scale trends, allowing for more efficient use of resources and for testing of management effectiveness (similar to Ramey et al. 2018), however, regional climate variation is only accounted for using a trend internal covariate). Additionally, it is significant that this paper had to issue an erratum because of a coding error that led to overestimates of population declines and misinterpretation of ? as a fixed term. Supersedes NTT: Yes Supersedes COT: Yes Issue: Population trends Significance: Potential Improved methodology, however, estimated declines do not seem to

match current observations. Cyclical population fluctuations noted. Comment: Caveat: Conclusions do not appear match revised results. (See review of paper, erratum, and supplemental materials). None the less, likely to be cited as evidence of population declines in WY due to Oil and gas

Oil and Gas (includes WY Core Areas) Author: Heinrichs et al. Year: 2019 Title: Influences of potential oil and gas development and future climate on sage-grouse declines and redistribution: Ecological Applications, v. 0, no. 0, article e01912, 16 p, <https://doi.org/10.1002/eap.1912>. Implications: Modified from USGS Annotated Bibliographies (2018, 2019) or from each paper: The authors modeled for low, medium, and high oil and gas development for the years 2012-2062, and climate changes to 2050 in southwest Wyoming. Authors state. "we projected oil and gas development footprints and climate-induced vegetation changes 50 years into the future. Using a time-series of planned oil and gas development and predicted climate-induced changes in vegetation, we recalculated habitat selection maps to dynamically modify future habitat quantity, quality, and configuration. .... The inclusion of movement and demographic responses to oil and gas infrastructure resulted in substantive changes in distribution and abundance when cumulated over several decades and throughout the regional population. When combined, additive development and climate-induced vegetation changes reduced abundance by up to half of the original size." "Our findings contribute to the growing number of studies suggesting oil and gas development has negative impacts on sage-grouse populations and suggest that current regulations may only be sufficient for limiting population declines but not for reversing these trends." Issue: Oil and gas impact modeling; climate change Significance: Likely to be cited as evidence against oil and gas despite improved technology, practices, and regulations. Comment: Caveat: mixed older error prone data with newer, higher quality data (1980-2008) such that impacts potentially overestimated. Unknown why data to 2018 was not used.

#### **F.4.12 Guidance and Policy**

The BLM must respond to comments provided by the Environmental Protection Agency ("EPA") that WWP weaponized in WWP v. BLM. The response must be detailed, explicit to EPA's comments, and developed in Appendix E. Currently, no changes to the analysis have been made from the 2018 FEIS to discuss EPA's comments. Response to EPA's comments from 2018 (and this DSEIS) can be used to respond and address to larger umbrella issues including, among other things, cumulative effects of the unique components of the 2019 ARMPA instead of a recitation of impacts created by the 2015 ARMAP. Attach. 3, Coalition Comments 2015-2020.

The DSEIS must be revised to show that the "net conservation gain" standard is not consistent with law - not merely inconsistent with policy. Judge Winmill's decision incorrectly presumes that the BLM has such authority but chooses to shirk that authority to be consistent with an energy dominance policy.

#### **F.5 FEDERAL AGENCY COMMENTS**

Comments from the EPA are summarized and responded to in Sections G.2.3, G.2.6, G.2.7, G.2.8, G.2.9, and G.2.11.

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