



DRAFT Supplemental Environmental Impact Statement, Greater Sage-Grouse 2020

2 Hard Looks, 2011-15 and 2017-19



143 alternatives
considered in **18 EISs**



2,313
people attended



48,023
total pages of NEPA analysis



54
public meetings



\$16.9 million
total cost



326
partners and
cooperators

Public Comments

8,512 unique scoping comments

15,885 substantive comments on draft EISs



Habitat Investments

Treatment and Restoration, 2013-19

\$294 million 2.7 million acres

2020, planned

\$37 million 316,000 acres



Another Hard Look, 2020

Colorado



United States Department of the Interior



BUREAU OF LAND MANAGEMENT
Colorado State Office
2850 Youngfield Street
Lakewood, Colorado 80215-7210

Dear Reader:

The Northwest Colorado Draft Supplemental Environmental Impact Statement (DSEIS) is available for your review and comment. The Bureau of Land Management (BLM) prepared this document in accordance with the National Environmental Policy Act of 1969, as amended, the Federal Land Policy and Management Act of 1976, as amended, implementing regulations, the BLM's Land Use Planning Handbook (H-1601-1), and other applicable law and policy.

The affected area includes the BLM Colorado Grand Junction, Kremmling, Little Snake, White River and Colorado River Valley field offices and encompasses approximately 3.9 million acres in 10 counties. Within this area, approximately 1.5 million acres are mapped as containing Greater Sage-Grouse habitat administered by the BLM, as well as approximately 2.2 million acres of BLM-administered subsurface federal mineral estate.

The Management Alignment Alternative has been identified in the DSEIS as the preferred alternative. Identification of the preferred alternative does not indicate any commitments on the part of the BLM regarding a final decision. In developing the Final Supplemental Environmental Impact Statement (SEIS), which is the next phase of the planning process, the decision maker may select various management actions from each of the alternatives analyzed in the DSEIS for the purpose of creating a management strategy that best meets the needs of the resources and values in this area under the BLM multiple use and sustained yield mandate.

The BLM encourages the public to review and provide comments on the DSEIS. The DSEIS is available on the project website at: [<https://goo.gl/kmLtwT>]. Hard copies are also available for public review at BLM offices within the planning area. Public comments will be accepted for forty-five (45) calendar days following the Environmental Protection Agency's publication of its Notice of Availability in the *Federal Register*. The BLM can best utilize your comments and resource information submissions if received within the review period.

Written comments may be submitted as follows (submittal of electronic comments is encouraged):

1. Written comments may be submitted electronically at: [<https://goo.gl/kmLtwT>].
2. Written comments may also be mailed directly, or delivered to, the BLM at:

Bureau of Land Management
Grand Junction Field Office
Attn: Sage-Grouse Coordinator
2815 H Road Junction
Grand Junction, Colorado 81506

To facilitate analysis of comments and information submitted, we encourage you to submit comments in an electronic format. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment - including your personal identifying information - may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

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

Sincerely,

A handwritten signature in blue ink, reading "Jamie E. Connell", with a long horizontal flourish extending to the right.

Jamie E. Connell
Colorado State Director
Bureau of Land Management

Northwest Colorado Greater Sage-Grouse Draft Supplemental Environmental Impact Statement

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

Abstract: This draft supplemental environmental impact statement (DSEIS) has been prepared by the United States Department of the Interior (DOI), Bureau of Land Management (BLM). The DSEIS describes and analyzes the eight alternatives considered during the 2015 and 2019 sage-grouse planning processes, BLM's consultation and coordination process with federal and state stakeholders, and the rigorous analysis completed to align BLM sage-grouse management with the State of Colorado'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 sage-grouse plans. The BLM has prepared this DSEIS 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 DSEIS, including any comments that the agency receives, will help the BLM determine whether its 2015 and 2019 land use planning and NEPA processes have sufficiently addressed 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 DSEIS 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.

Review Period: Comments on the Northwest Colorado Greater Sage-Grouse Draft Supplemental Environmental Impact Statement will be accepted for forty-five (45) calendar days following publication of the United States Environmental Protection Agency's Notice of Availability in the Federal Register

For further information, contact:

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One of the appendices, Appendix H, from the 2015 ROD/ARMPA was to be modified as part of the Management Alignment Alternative in the 2019 planning process. That appendix is included here with the same letter as the 2015 ROD/ARMPA.

H	Guidelines for Implementation and Adaptive Management
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ACRONYMS AND ABBREVIATIONS

Full Phrase

ACEC	area of critical environmental concern
ADH	all designated habitat
ARMPA	approved resource management plan amendment
BLM	Bureau of Land Management
BMP	best management practice
BSU	biologically significant unit
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
COT	Conservation Objectives Team
CPW	Colorado Parks and Wildlife
CX	Categorical Exclusion
DOI	US Department of the Interior
EIS	environmental impact statement
ESA	Endangered Species Act of 1973
FLPMA	Federal Land Policy and Management Act
GHMA	General Habitat Management Area
GIS	geographic information system
HAF	Habitat Assessment Framework
HMA	Habitat Management Area
IHMA	Important Habitat Management Area
IM	Instruction Memorandum
LCHMA	Linkage/Connectivity Habitat Management Area
LUP	Land Use Plan
LUPA	Land Use Plan Amendment
MOA	Memorandum of Agreement
MZ	management zone
NEPA	National Environmental Policy Act
NOA	Notice of Availability
NOI	Notice of Intent
NSO	no surface occupancy
NTT	National Technical Team
OHMA	Occupied Habitat Management Area
PHMA	Priority Habitat Management Area
RDF	required design feature
RMP	resource management plan

RMPA	resource management plan amendment
RNA	Research Natural Area
ROD	record of decision
ROW	right-of-way
SFA	sagebrush focal area
SGTF	Sage-Grouse Task Force
SO	Secretarial Order
US	United States
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
WAFWA	Western Association of Fish and Wildlife Agencies

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 Draft Supplemental Environmental Impact Statement (DSEIS) 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 DSEIS 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, and increase the amount of acres treated in every Fiscal Year. In Fiscal Year 2018 approximately 530,000 acres were treated and BLM is currently working on more detailed metrics and data for these acres treated. Also, in Fiscal Year 2017 the BLM treated approximately 480,000 acres, for an increase of almost 100,000 acres over 2016 accomplishments. The Fiscal Year 2017 treatments included 185,000 acres of conifer removal; 65,000 acres of fuel breaks; 125,000 acres with invasive species treatments; 10,000 acres of habitat protection; and restored habitat on 94,000 acres of uplands and another 600 acres of riparian habitat. In 2019 Colorado conducted habitat treatments on 17,000 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 this Draft Supplemental EIS (DSEIS), the BLM now seeks additional comment from the public on compensatory mitigation.

This DSEIS 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 DSEIS.

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 regulatory 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 3**). 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 DSEIS 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.

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 Colorado, (2) aligning with DOI and BLM policies issued since 2015, and (3) incorporating appropriate management flexibility and adaptation to better align with Colorado's conservation plan. The BLM achieved these goals while maintaining the vast 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 DSEIS 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 DSEIS, including any comments that the agency receives, 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 DSEIS 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 DSEIS

The items considered in this DSEIS 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 3**),

- 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 Reasonable 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 2.9 of the Proposed LUPA/Final EIS.

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Chapter I. Purpose of and Need for Action

I.1 INTRODUCTION

Greater Sage-Grouse (*Centrocercus urophasianus*) 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 BLM and United States (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 of 1973 (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 and increase the number of acres treated in every Fiscal Year. In Fiscal Year 2018 approximately 530,000 acres were treated and BLM is currently working on more detailed metrics and data for these acres treated. Also, in Fiscal Year 2017 the BLM treated approximately 480,000 acres, for an increase of almost 100,000 acres over 2016 accomplishments. The Fiscal Year 2017 treatments included 185,000 acres of conifer removal; 65,000 acres of fuel breaks; 125,000 acres with invasive species treatments; 10,000 acres of habitat protection; and restored habitat on 94,000 acres of uplands and another 600 acres of riparian habitat. In 2019 Colorado conducted habitat treatments on 17,000 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 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.

On March 29, 2017, the Secretary of the Interior issued Secretarial Order (SO) 3349, American Energy Independence. It ordered agencies in the DOI 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 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 US Geological Survey (USGS), to coordinate with the 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 Greater Sage-Grouse populations but may require modification to make the plans more consistent with the individual state plans and 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 Environment Impact Statements or Environmental Assessments.

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. 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 manage response

when the BLM determines that resource conditions no longer warrant those responses. In addition, the BLM recognizes 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 Management Alignment Alternative. Through this Draft Supplemental EIS (DSEIS), the BLM now seeks additional comment from the public on compensatory mitigation.

This DSEIS 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 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 DSEIS. The NTT and COT reports constituted starting points for the BLM to consider in at least one alternative to be considered through the NEPA and land use planning process. 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 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 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 regulatory 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 3**). 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.

In 2018, the Environmental Protection Agency (EPA) provided comments on the Draft RMPAs/EISs. Specifically, they provided five discreet comments on the Colorado 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, three comments on the Wyoming Draft RMPA/EIS, and six comments on the Oregon 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 DSEIS also clarifies how the BLM considered comments, including those of other federal agencies and experts, when developing its 2019 planning decisions (**Appendix I**).

I.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 Colorado, (2) aligning with DOI and BLM policies issued since 2015, and (3) incorporating appropriate management flexibility and adaptation to better align with Colorado's conservation plan. The BLM achieved these goals while maintaining the vast majority of 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 sage-grouse and its habitat while meeting its general obligation under FLPMA to manage public lands under principles of multiple use and sustained yield.

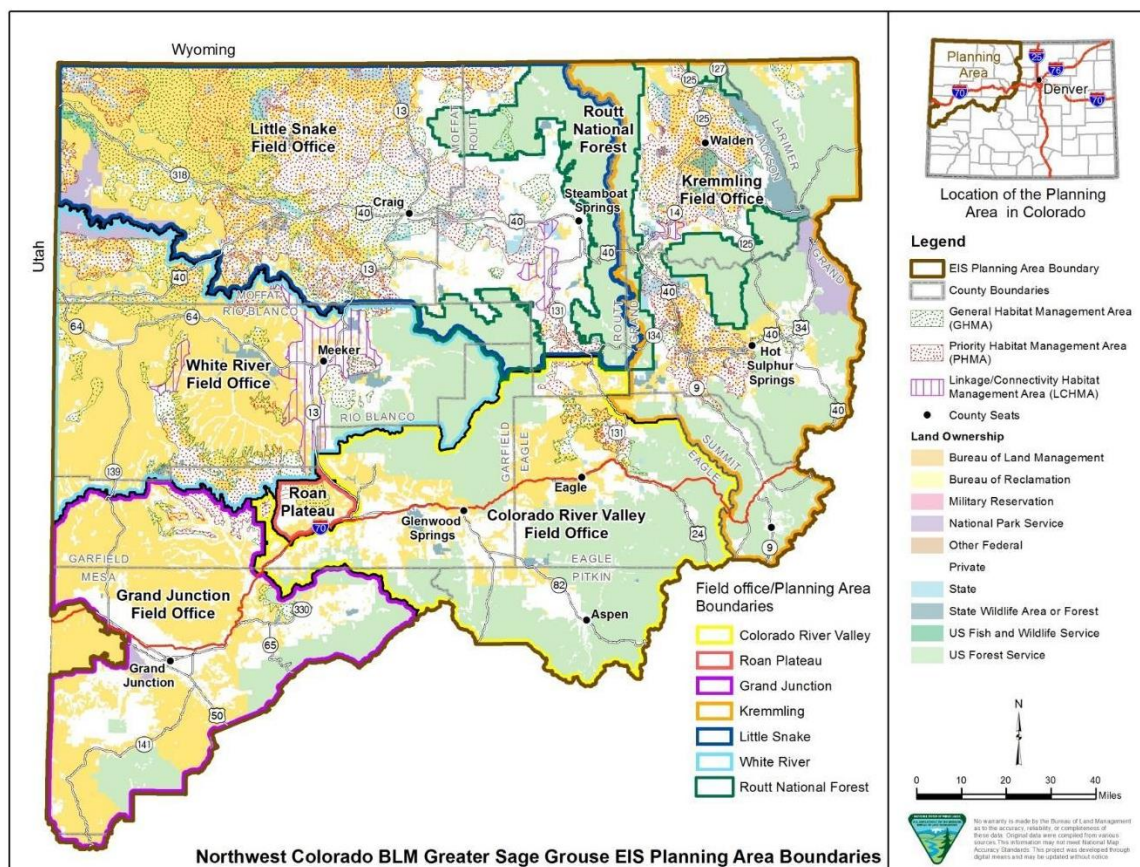
On October 16, 2019, the US District Court for the District of Idaho issued an order granting a motion for a preliminary injunction filed by Plaintiffs Western Watersheds Project, WildEarth Guardians, Center for Biological Diversity, and Prairie Hills Audubon Society. The court found that the Plaintiffs were likely to succeed on the merits of their claims that the BLM violated the National Environmental Policy Act (NEPA) when adopting the 2019 sage-grouse plans. The BLM has prepared this DSEIS 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 DSEIS, including any comments that the agency receives, will help the BLM determine whether its 2015 and 2019 land use planning and NEPA processes have sufficiently addressed 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 DSEIS 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 boundary includes all lands regardless of jurisdiction (see **Figure I-1**, Northwest Colorado Planning Area). **Table I-1** lists the number of surface acres that are administered by specific federal agencies, states, and local governments and lands that are privately owned in the planning area. The planning area includes other BLM-administered lands that are not allocated as habitat management areas for Greater Sage-Grouse. The 2019 plan amendment does not establish any additional management for these lands; they will continue to be managed according to the existing, underlying land use plan for the areas.

The decision area for this DSEIS is BLM-administered lands in Greater Sage-Grouse habitat management areas, including surface and split-estate lands with BLM federal subsurface mineral rights. Any decisions in this DSEIS apply only to BLM-administered lands, including split-estate lands in Greater Sage-Grouse habitat management areas (the decision area). These decisions are limited to providing land use planning direction specific to conserving Greater Sage-Grouse and its habitat.

Figure I-1
Northwest Colorado Planning Area



**Table I-1
Land Management in the Planning Area**

Surface Land Management	Total Surface Land Management Acres in Greater-Sage-Grouse Habitat^{1,2}
BLM	1,598,085
United States Department of Agriculture, Forest Service, Routt National Forest (Forest Service)	27,557
Private	2,042,458
USFWS	36,394
State	261,039
National Park Service	9,821
Local government	43,502
Total	4,018,858

¹Includes linkage connectivity habitat management areas

²Plan maintenance updated Greater Sage-Grouse habitat delineations on November 6, 2019 throughout the planning area. Acreage calculations are consistent with the plan maintenance action. More information on the plan maintenance is available on ePlanning at "http://bit.ly/sg_habitat".

Greater Sage-Grouse habitat on BLM-administered lands in the decision area consists of lands allocated as priority habitat management areas (PHMA), general habitat management areas (GHMA), and linkage/connectivity habitat management areas (LCHMA; see **Table I-2**), which are defined as follows:

- **PHMA**—BLM-administered lands identified as having the highest value to maintaining sustainable Greater Sage-Grouse populations. These are 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 concentration areas.
- **GHMA**—BLM-administered lands where some special management would apply to sustain Greater Sage-Grouse populations. These are areas of seasonal or year-round habitat outside of priority habitat.
- **LCHMA**—Areas that have been identified as broader regions of connectivity important to facilitate the movement of Greater Sage-Grouse and maintain ecological processes.

After the 2019 planning process and Record of Decision, Colorado Parks and Wildlife (CPW) proposed adjustments to the habitat boundary for Greater Sage-Grouse in Northwest Colorado. The BLM and its partners anticipated this kind of adjustment and allowed for management adaptation in the 2015 and 2019 Records of Decision. In November 2019, BLM Colorado assessed and adopted the habitat boundary adjustments through a plan maintenance action, consistent with our planning regulations. The revised habitat boundaries currently represent the best-known habitat delineations of Greater Sage-Grouse habitat in Colorado. All Greater Sage-Grouse habitat acreage estimates in this SDEIS were based on the updated habitat boundary delineations.

Collectively, PHMA, GHMA, and LCHMA are considered all-designated habitat (ADH). PHMA, GHMA, and LCHMA on BLM-administered lands in the decision area fall within 10 counties in northwest Colorado: Eagle, Garfield, Grand, Jackson, Larimer, Mesa, Moffat, Rio Blanco, Routt, and Summit (see **Table I-3**). The habitat management areas also span five BLM field offices: Colorado River Valley, Grand Junction, Kremmling, Little Snake, and White River (see **Table I-4**).

Table I-2
Acres of PHMA and GHMA in the Decision Area for
this DSEIS¹

Surface Land Management	PHMA	GHMA
BLM	718,097	782,620
Subsurface Management	PHMA	GHMA
BLM	1,001,311	1,021,554

¹Plan maintenance updated Greater Sage-Grouse habitat delineations on November 6, 2019 throughout the planning area. Acreage calculations are consistent with the plan maintenance action. More information on the plan maintenance is available on ePlanning at "http://bit.ly/sg_habitat".

Table I-3
Acres of Greater Sage-Grouse Habitat by County in
the Decision Area (BLM-Administered Lands Only)

County	2015 Record of Decision (ROD)/Approved Resource Management Plan Amendment (ARMPA)¹		
	PHMA	GHMA	Total
Eagle	23,359	13,633	36,992
Garfield	13,371	29,027	42,398
Grand	56,504	15,041	71,545
Jackson	102,060	36,419	138,479
Larimer	0	6,774	6,774
Mesa	0	4,426	4,426
Moffat	478,342	565,413	1,043,756
Rio Blanco	27,273	109,542	136,815
Routt	16,780	2,007	18,787
Summit	406	0	406
Total	718,097	782,620	1,500,717

¹Plan maintenance updated Greater Sage-Grouse habitat delineations on November 6, 2019 throughout the planning area. Acreage calculations are consistent with the plan maintenance action. More information on the plan maintenance is available on ePlanning at "http://bit.ly/sg_habitat".

Table I-4
Acres of Greater Sage-Grouse Habitat by BLM District/Field Office
in the Decision Area (BLM-Administered Surface Lands Only)¹

BLM Field Office	DSEIS		Total
	PHMA	GHMA	
Colorado River Valley Field Office	28,040	26,096	54,136
Grand Junction Field Office	2,316	11,145	13,462
Kremmling Field Office	158,971	58,576	217,547
Little Snake Field Office	441,991	497,907	939,898
White River Field Office	86,786	188,916	275,702

¹Plan maintenance updated Greater Sage-Grouse habitat delineations on November 6, 2019 throughout the planning area. Acreage calculations are consistent with the plan maintenance action. More information on the plan maintenance is available on ePlanning at "http://bit.ly/sg_habitat".

I.4 2019 ISSUES DEVELOPMENT

I.4.1 Issues and Related Resource Topics Identified Through Scoping

The BLM used internal, agency, and public scoping to identify issues to consider in the environmental analysis of this DSEIS. A summary of the scoping process from the 2019 planning process is presented in the Potential Amendments to Land Use Plans Regarding Greater Sage-Grouse Conservation Scoping Report (<https://goo.gl/FopNgW>).

When determining whether to retain an issue for more detailed analysis in this DSEIS, 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 developing 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 and other agencies.
- Whether there are potentially significant impacts on resources associated with the issue.

Ultimately, it is important for decision-makers and the public to understand the impacts that the alternatives would have on specific resources; therefore, the BLM uses resource topics as a heading in **Chapters 3 and 4** to indicate which resources would be affected by a management change.

The sections below lay out how issues raised during scoping for the 2018 Draft EIS, as well as related resource topics, are considered in this DSEIS. Generally, they fall into the following categories:

- Issues and related resource topics retained for further consideration in this DSEIS—These were issues raised during scoping for the 2018 Draft EIS that are retained and for which alternatives were developed to address the issues. In some cases, the resolutions in the alternatives were previously analyzed in the 2015 Final EIS. In other cases, additional analysis is needed in this DSEIS. Because the issues were analyzed under resource topics in 2015, the resource topics corresponding with those retained for further analysis are also considered. Just like issues, they may have been analyzed in the 2015 Final EIS for those decisions being included in this DSEIS.
- Clarification of decisions in the 2015 ROD/ARMPA—These are decisions or frameworks in the 2015 ROD/ARMPA that require clarification as to their application or implementation. No new analysis is required, as the intentions behind the decisions were analyzed in the 2015 Final EIS.
- Issues and resource topics not carried forward for additional consideration or analysis—These are the issues and resource topics brought up during scoping for the 2018 Draft EIS that were not carried forward in this DSEIS. While some of these issues were considered, they do not require additional analysis. This is because they were analyzed in the 2015 Final EIS, and no new information has been identified that would warrant further analysis. Others were not carried forward because they do not further the purpose of aligning with the State's conservation plan. Similar to issues, there are resource topics that are not retained for further analysis. This is because they are not affected by the changes proposed in **Chapter 2, Alternatives**; no new

information has been identified that would warrant further analysis; or the impact was analyzed in the 2015 Final EIS.

Issues and Related Resource Topics Retained for Further Consideration in this DSEIS

The issues identified in **Table I-5**, below, have been previously analyzed; however, based on the proposed changes, the resource topics and potential difference in impacts that may require additional analysis are as follows: Greater Sage-Grouse, fluid minerals, and socioeconomics. These resource topics, therefore, were carried forward for analysis.

Table I-5 identifies the corresponding resource topics to which the issues relate. The level of detail in the description of each resource topic and the impacts from implementing any of the alternatives are described in **Chapters 3** and **4**.

Table I-5
Issues and Related Resource Topics

Issues	Resource Topics Related to the Issues
Changing “No leasing within 1 mile of active leks” to “Open to leasing subject to No Surface Occupancy (NSO)”	Greater Sage-Grouse, fluid minerals, and socioeconomics
Modifying Waivers, Exceptions, and Modifications on NSO Stipulations <ul style="list-style-type: none"> • Change in the ability to achieve Greater Sage-Grouse conservation objectives • Change in requirements for the USFWS to approve waivers, exceptions, or modifications • Impact of oil and gas leasing on achieving Greater Sage-Grouse conservation outcomes • Flexibility in waivers, exceptions, and modifications, based on terrain and other considerations 	Greater Sage-Grouse, fluid minerals, and socioeconomics

Clarification of Planning Decisions in the 2015 ROD/ARMPA

The following issues with existing planning decisions were raised during scoping for the 2018 Draft EIS. These issues require clarification to the ARMPA language but do not require new analysis. The clarifying language for these planning decisions is displayed in this planning document to communicate how these issues are being addressed.

Clarifying the Use of Lek Buffers in Appendix B of the 2015 ROD/ARMPA

In order to clarify the intention of lek buffers and to better align with State efforts, **MD SSS-2** (Section 2.2.1, Special Status Species) from the 2015 ROD/RMPA is proposed to be modified as follows:

MD SSS-2: *In undertaking BLM management actions, and consistent with valid and existing rights and applicable law in authorizing third-party actions, the BLM will evaluate the lek buffer distances during project-specific NEPA analyses, in accordance with Appendix H (Guidelines for Implementation and Adaptive Management). Appendix B of the 2015 ROD/ARMPA will not be carried forward.*

Clarifying Mitigation Procedures in Appendix H of the ROD/ARMPA

The 2015 Northwest Colorado Greater Sage-Grouse RMPA/EIS included a management action for compensatory mitigation based upon the mitigation framework BLM incorporated into its plans in 2015.

However, following extensive review of FLPMA, existing regulations, orders, policies, and guidance, the BLM has determined 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 BLM-administered lands (Instruction Memorandum [IM] 2018-093, *Compensatory Mitigation*, July 24, 2018). Consistent with that determination, compensatory mitigation must be voluntary unless required by other applicable laws, but the BLM recognizes that state authorities may also require compensatory mitigation. The BLM will 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. However, 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 [IM] No. 2018-093, *Compensatory Mitigation*, July 24, 2018). During scoping for the 2018 Draft EIS, the State of Colorado recommended close coordination between the BLM and Colorado Parks and Wildlife when evaluating projects that have a potential to affect Greater Sage-Grouse or its habitat in order to ensure consistent application of the mitigation hierarchy. This includes compensatory mitigation programs required as part of a State permitting process, such as the Colorado Habitat Exchange and local conservation programs developed by local working groups.

To align this planning effort with the BLM's compensatory mitigation policy (IM 2018-093), the 2018 Proposed Plan Amendment clarifies 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. In accordance with the State's goals for managing Greater Sage-Grouse, the 2018 Proposed Plan Amendment modifies the net conservation gain standard for compensatory mitigation to clarify that the BLM will pursue a net conservation benefit as a broader planning goal and objective. This means that the BLM will continue to require avoidance, minimization, and other onsite mitigation 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. In fiscal year 2018, the BLM funded approximately \$29 million in sage-grouse management actions resulting in approximately 500,000 acres of treated sage-grouse habitat and expects to invest another \$17 million of habitat management projects in fiscal year 2019.

The BLM would 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 (including through payments to fund such work), would be considered only when: voluntarily offered by a proponent; or, when the appropriate state agency, through coordination with the BLM, determines a state regulation, policy, or program requires or recommends compensatory mitigation. The BLM commits to cooperating with the State to analyze applicant-proposed or state-required or recommended compensatory mitigation to offset residual impacts.

The BLM has determined that compensatory mitigation must be voluntary unless required by applicable law other than FLPMA, while recognizing 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 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.

Because this clarification simply aligns the 2018 Proposed Plan Amendment with BLM policy and the scope of compensatory mitigation authority expressly provided by FLPMA, and because any analysis of compensatory mitigation relating to future projects is speculative at this level of land use planning, analysis of compensatory mitigation is more appropriate for future project-specific NEPA. The BLM remains committed to achieving the planning-level management goals and objectives identified in this DSEIS by ensuring Greater Sage-Grouse habitat impacts are addressed through implementing mitigating actions consistent with the 2018 Proposed Plan Amendment.

To describe the coordination between the BLM and CPW and to identify the process for mitigation, **MD SSS-3** (Section 2.2.1, Special Status Species) from the 2015 ROD/ARMPA is proposed to be modified to:

MD SSS-3: *In all Greater Sage-Grouse habitat, 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 Colorado's Executive Order 2015-004 (May 15, 2015) including avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions.*

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 Colorado's Executive Order 2015-004 (May 15, 2015):

1. If the proponent has not already done so pursuant to Colorado Executive Order 2015-004, 2 CCR 404-1:1200 et seq. or other applicable law, policy or regulation, BLM will notify Colorado Parks and Wildlife to 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.
2. Incorporate state required or recommended mitigation into the BLM's NEPA and decision-making process, if the CPW determines that there are unacceptable residual impacts on Greater Sage-Grouse or its habitat and compensatory mitigation is required as a part of a State policy or authorization, or if a proponent voluntarily offers mitigation.
3. Analyze whether the compensatory mitigation:
 - achieves measurable outcomes for Greater Sage-Grouse habitat function that are at least equal to the lost or degraded values
 - 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
4. Verify that the project proponent has coordinated with the State of Colorado to ensure it complies with Executive Order 2015-004 and, when necessary, complies with 2 CCR 404-1:1200 et seq. or other applicable state law, policy or regulation relating to its proposal.
5. Through coordination with CPW, ensure mitigation outcomes are consistent with the State of Colorado's mitigation strategy and principles outlined in **Appendix H** (Guidelines for Implementation and Adaptive Management).

Modifying Habitat Management Areas (PHMA and GHMA)

As described in **Section 1.3**, Planning Area and Current Management, above, PHMA and GHMA are identified using a set of criteria by the CPW. The process for evaluating new information and modifying the habitat management areas is discussed in **Section 2.7**, Monitoring and Adaptive Management, and is further detailed in **Appendix H**, Guidelines for Implementation and Adaptive Management. While no impacts are associated specifically with the process for modification of habitat management areas, the decisions that apply to those habitat management areas may result in new impacts on resources listed in **Table 1-5**.

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 the 2018 Draft EIS. The issue was not carried forward for detailed analysis because the BLM does not manage species populations; the authority falls under the CPW's jurisdiction.

Because the issues listed below were analyzed under resource topics in the 2015 Final EIS, and no significant new information has emerged since the publication of that document, they do not require additional analysis in this DSEIS. The related resource topics are dismissed from additional analysis. The types of impacts on these resources are described in the range of alternatives in the 2015 Final EIS.

The impacts of implementing the alternatives in this DSEIS are within the range of alternatives previously analyzed; therefore, the following issues were not carried forward for additional analysis:

- Restrictions on rights-of-way (ROWs) and infrastructure
- Wind energy development in PHMA
- ROW avoidance in PHMA and GHMA
- Retention of lands identified as PHMA or GHMA in federal ownership
- Varying stipulations applied to oil, gas, and geothermal development
- Impacts of NSO stipulations on Greater Sage-Grouse habitat on non-BLM-administered land
- Mitigation for oil and gas development
- Prioritization of fluid mineral leases outside PHMA and GHMA
- Numerical noise limitations in PHMA
- Contribution of disturbance caps toward Greater Sage-Grouse conservation objectives
- Required design features (RDFs)
- Habitat objectives and ability to achieve rangeland health standards
- Vegetation treatments and wildfire response
- Adaptive management
- Habitat assessment framework
- Greater Sage-Grouse hunting
- Predator control

Resource Topics Not Carried Forward for Additional Analysis

Changing the management decision from “no leasing” to “open to leasing, subject to NSO” is expected to have a similar impact on the resources identified below, as described in Chapter 4, Section 4.5.2 of the 2015 Final EIS. Additionally, the rest of the changes being considered to the management of Greater Sage-Grouse in Colorado (modification of habitat management areas and providing clarification for

criteria that waivers, exceptions, and modifications are based on) are not land use plan-level decisions and would not result in additional impacts for analysis on the following resources:

- Soils
- Water
- Vegetation
- Special status species
- Fish and wildlife
- Wild horses and burros (if applicable)
- Cultural resources
- Paleontological resources
- Visual resources
- Wildland fire management
- Lands with wilderness characteristics
- Cave and karst resources
- Forestry
- Livestock grazing
- Recreation and visitor services
- Travel and transportation management
- Lands and realty
- Other energy and minerals (i.e., coal, oil shale, locatable minerals, mineral materials, and nonenergy leasable minerals)
- Special designations (i.e., areas of critical environmental concern, wilderness, wilderness study areas, wild and scenic rivers, and national trails)
- Environmental justice

I.5 ITEMS TO BE CLARIFIED IN THIS DSEIS

The items considered in this DSEIS 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 3**);
- 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;
- and an updated Reasonably Foreseeable Future Actions.

I.6 RELATIONSHIP TO OTHER POLICIES, PLANS, AND PROGRAMS

The BLM recognizes the importance of state and local plans. It will work to be consistent with or complementary to the management actions in these plans whenever possible.

I.6.1 State Plans

State plans considered during this planning effort are the following:

- Colorado Greater-Sage-Grouse Conservation Plan (2008)
- Middle Park Greater Sage-Grouse Conservation Plan (CPW 2001)
- Northern Eagle and Southern Routt Greater Sage-Grouse Conservation Plan (CPW 2004)
- North Park Greater Sage-Grouse Conservation Plan (CPW 2000)
- Northwestern Colorado Greater Sage-Grouse Conservation Plan (CPW 2008a)

- Parachute-Piceance-Roan Plateau Greater Sage-Grouse Conservation Plan (CPW 2008b)
- Parachute-Piceance-Roan Plateau Greater Sage-Grouse Work Group (CPW 2008c)

I.6.2 Local Plans

Local land use plans considered during this planning effort are the following:

- | | |
|---|--|
| • Eagle County Comprehensive Plan (Eagle County 2005) | • Larimer County Master Plan (Larimer County 1997) |
| • Garfield County Comprehensive Plan 2030 | • Mesa County Master Plan (Mesa County 2000) |
| • Garfield County Land Use Resolution (Garfield County 2008, revised 2013) | • Moffat County Land Use Plan (Moffat County 2001) |
| • Garfield County Greater Sage-Grouse Conservation Plan (Garfield County, revised 2014) | • Rio Blanco County Master Plan (Rio Blanco County 2011) |
| • Grand County Master Plan (Grand County 2011) | • Routt County Master Plan (Routt County 2003) |
| • Jackson County Master Plan (Jackson County 1998) | • Summit County General Plan (Summit County 2006) |

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, 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 Draft Supplemental EIS (DSEIS) 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).

Components of Alternatives

Goals are broad statements of desired outcomes and are not quantifiable or measurable. Objectives are specific measurable desired conditions or outcomes intended to meet goals. Goals and objectives can vary across alternatives, resulting in different allowable uses and management actions for some resources and resource uses.

Management actions and allowable uses are designed to achieve goals and objectives. Management actions are measures that guide day-to-day and future activities. Allowable uses delineate uses that are permitted, restricted, or prohibited, and may include stipulations or restrictions. Allowable uses also identify lands where specific uses are excluded to protect resource values, or where certain lands are open or closed in response to legislative, regulatory, or policy requirements. Implementation decisions are site-specific actions and are typically not addressed in RMPs.

2.2 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

2.2.1 Varying Constraints on Land Uses and Development Activities

During scoping, 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.¹ 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 States. Because the purpose and need for the BLM's action, building off of the 2015 ROD/ARMPA, is to

¹For example, the 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).

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 this planning effort.

The 2018 planning process did not revisit every issue that the BLM evaluated in 2015. Instead, the BLM addressed refinements to the 2015 ROD/ARMPA decisions, consistent with the BLM's purpose and need for action. Accordingly, this DSEIS has its foundation in the comprehensive 2015 and 2019 Final EISs and incorporates those documents by reference, including the entire range of alternatives evaluated through the 2015 planning process:

- Alternative A would have retained the current management goals, objectives, and direction specified in the existing BLM RMPs.
- Alternative B was based on the conservation measures developed by the National Technical Team (NTT) planning effort in Washington Office IM Number 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 process and NEPA by all BLM state and field offices that contain occupied Greater Sage-Grouse habitat. Most management actions included in Alternative B would be applied to PHMA.
- 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 limit commodity development in areas of occupied Greater Sage-Grouse habitat and would close or designate portions of the planning area to some land uses.
- Alternative D, which was identified as the Preferred Alternative in the Draft 2018 RMPA/EIS, balanced opportunities to use and develop the planning area and ensures protection of Greater Sage-Grouse habitat based on scoping comments and input from cooperating agencies involved in the alternatives development process. Protective measures would be applied to Greater Sage-Grouse habitat.
- The Proposed LUPA incorporated guidance from specific State Conservation strategies, as well as additional management based on the NTT 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 2015 ROD/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 partnered with the USGS to review the best available information published since January 2015, develop an annotated bibliography of the Greater Sage-Grouse science (Carter et al. 2018; see **Section 3.1**) and incorporated the information into this EIS. 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 4.24, Social and Economic Impacts), 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.

2.3 DESCRIPTION OF ALTERNATIVES FROM 2018

2.3.1 No-Action Alternative

Under the No-Action Alternative, the BLM would not have amended the RMPs amended by the Colorado Greater Sage-Grouse Resource Management Plan Amendment (2015 ROD/ARMPA). Greater Sage-Grouse habitat would have continued to be managed under current the 2015 ROD/ARMPA management direction. Goals and objectives for BLM-administered lands and federal mineral estate would not have changed. Allowable uses and restrictions pertaining to activities such as mineral leasing and development, recreation, lands and realty, and livestock grazing would have also remained the same.

2.3.2 Management Alignment Alternative

This alternative is derived from meeting with the State and cooperating agencies to align with the State conservation plan and to support conservation outcomes for Greater Sage-Grouse. The BLM continues to build upon the 2015 planning effort as envisioned in SO 3353 by collaborating with states and stakeholders to improve alignment 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. It would also provide the flexibility for the BLM to work with the State of Colorado on landscape-scale decisions, which would provide protections for Greater Sage-Grouse habitat while allowing reasonable development of other resources, in support of local communities and economies. **Table 2-5 in Section 2.5**, below, further specifies the proposed changes needed to address consistency between State and federal plans.

2.3.3 Proposed Plan Amendment

The Proposed Plan Amendment is based largely on the Management Alignment Alternative, which was identified in the May 2018 Draft RMPA/EIS, with modifications based on review of public comments received on the 2018 Draft RMPA/EIS. In addition, special expertise input and comments received from cooperating agencies and changes in BLM policy, and guidance were taken into consideration in its development. Key changes center on processes for coordination with the State of Colorado for management decisions associated with fluid minerals and Greater Sage-Grouse, including potential for compensatory mitigation when required by the State mitigation strategy.

2.3.4 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 3 tables illustrate the alternatives that the BLM considered during the 2019 land use planning effort. **Table 2-1** 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 2-2 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 2-3 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 2-3** is considerably longer than **Table 2-2** because the 2015 process addressed many more issues than the focused 2019 planning effort.

Table 2-1
Alternatives Considered during the 2019 Planning Process

Colorado Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description
<i>Alternatives Considered During the 2015 and 2019 Planning Processes</i>				
Northwest Colorado Greater Sage-Grouse Proposed LUPA/Final EIS	June 2015	Alternative A	Fully Analyzed	Alternative A would have retained the current management goals, objectives, and direction specified in the existing BLM RMPs.
Northwest Colorado Greater Sage-Grouse Proposed LUPA/Final EIS	June 2015	Alternative B	Fully Analyzed	Alternative B was based on the conservation measures developed by the National Technical Team (NTT) planning effort in Washington Office IM Number 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 process and NEPA by all BLM state and field offices that contain occupied Greater Sage-Grouse habitat. Most management actions included in Alternative B would be applied to PHMA.
Northwest Colorado Greater Sage-Grouse Proposed LUPA/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 limit commodity development in areas of occupied Greater Sage-Grouse habitat and would close or designate portions of the planning area to some land uses.
Northwest Colorado Greater Sage-Grouse Proposed LUPA/Final EIS	June 2015	Alternative D	Fully Analyzed	Alternative D, which was identified as the Preferred Alternative in the Draft EIS, balanced opportunities to use and develop the planning area and ensures protection of Greater Sage- Grouse habitat based on scoping comments and input from cooperating agencies involved in the alternatives development process. Protective measures would be applied to Greater Sage- Grouse habitat.
Northwest Colorado Greater Sage-Grouse Proposed LUPA/Final EIS	June 2015	BLM Proposed LUPA	Fully Analyzed	The Proposed LUPA incorporated guidance from specific State Conservation strategies, as well as additional management based on the NTT recommendations. This alternative emphasized management of Greater Sage-Grouse seasonal habitats and maintaining habitat connectivity to support population objectives.

Colorado Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description
Northwest Colorado Greater Sage-Grouse Proposed LUPA/Final EIS	June 2015	Area of Critical Environmental Concern Proposals Applied to All Designated Habitat	Considered; Not Analyzed in Detail	<p>Two public-proposed alternatives for designations of new ACECs/Zoological Areas were submitted to the BLM/Forest Service during the public scoping period:</p> <ul style="list-style-type: none"> • ADH would be an ACEC/Zoological Area • PHMA would be an ACEC/Zoological Area <p>The PHMA proposal was found to meet ACEC relevance and importance criteria by a team of BLM biologists and was carried forward under Alternative C. See Appendix J [of the 2015 Final EIS], Areas of Critical Environmental Concern Relevance and Importance Rationale, for the relevance and importance worksheet.</p> <p>The proposal to designate ADH as an ACEC did not meet relevance and importance criteria. Refer to Appendix J [of the 2015 Final EIS], Areas of Critical Environmental Concern Relevance and Importance Rationale, for the relevance and importance worksheet for GHMA and LCHMA.</p> <p>ACECs differ from other special designations, such as Wilderness Study Areas, in that designation by itself does not automatically prohibit or restrict other uses in the area.</p>

Colorado Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description
Northwest Colorado Greater Sage-Grouse Proposed LUPA/Final EIS	June 2015	Garfield County Alternative	Considered; Not Analyzed in Detail	<p>On March 21, 2013, Garfield County, Colorado, submitted their Greater Sage-Grouse Conservation Plan to the BLM. Garfield County formally requested that this alternative be included as the preferred alternative for the Garfield County portion of the Northwest Colorado Draft Greater Sage-Grouse LUPA/EIS. The alternative is presented in Appendix D of the Draft LUPA/EIS, Garfield County Greater Sage-Grouse Conservation Plan, but has not been analyzed as a separate alternative in detail primarily because it is contained within the existing range of alternatives and is not significantly distinguishable from those alternatives. The Garfield County alternative is more focused regarding “modeled suitable habitat” than Alternative A. The Garfield County alternative identifies a smaller amount of priority habitat but applies similar restrictions to the BLM/Forest Service preferred alternative (Alternative D).</p> <p>Garfield County’s effort was motivated by their observation that the Greater Sage-Grouse habitat in the county was “naturally fragmented” relative to the expanses of sagebrush-dominated rangeland further north. Figure 6 of the Garfield County alternative is noteworthy because it depicts the lands to be managed with specific conservation measures under the alternative. The natural fragmentation concept is supported by Figure 2-1 (in Appendix A, Figures [of the 2015 Final EIS]), which identifies ecological sites in PHMA that support stands of sagebrush. It is evident from this figure that the Greater Sage-Grouse in Garfield County and southern Rio Blanco County use sagebrush habitat that is relatively discontinuous.</p> <p>Garfield County’s valid observations, however, fail to allow for the connectivity of habitat necessary to maintain the Greater Sage-Grouse population. The Parachute-Piceance-Roan population in northwest Colorado is relatively small and isolated in the southernmost extent of the species’ range. Birds in this population have been documented to use atypical habitat, including sagebrush/mixed shrub communities where the mountain shrub component is greater than 10 percent (Apa 2010). PHMA mapped by CPW have incorporated known seasonal bird movements and habitat use within this population.</p>

Colorado Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description
Northwest Colorado Greater Sage-Grouse Proposed RMPA/Draft EIS	May 2018	No-Action Alternative	Fully Analyzed	Under the No-Action Alternative, the BLM would not amend current Greater Sage-Grouse management as described in the 2015 ROD/ARMPA. 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.
Northwest Colorado Greater Sage-Grouse Proposed RMPA/Draft EIS	May 2018	Management Alignment Alternative	Fully Analyzed	This alternative is derived from meeting with the State and cooperating agencies to align with the State conservation plan and to support conservation outcomes for Greater Sage-Grouse. The BLM continues to build upon the 2015 planning effort as envisioned in SO 3353 by collaborating with states and stakeholders to improve alignment between federal management plans and other plans and programs at the state level, while ensuring consistency with the BLM's multiple use mission.

Table 2-2, 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. The Management Alignment Alternative attempts to adjust the No-Action Alternative to bring it into alignment with the Colorado Governor’s Greater Sage-Grouse Plan, while maintaining the format and all parts of the 2015 ARMPA that were not specifically identified as issues.

Table 2-2
Detailed Comparison of 2019 Alternatives

Topic	2015 ARMPA Decision Number	No-Action Alternative <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	Management Alignment Alternative (Draft EIS Preferred Alternative) <i>Note: References to figures, tables, or appendices are those in the 2018 Draft RMPA/EIS.</i>	Proposed Plan <i>Note: References to figures, tables, or appendices are those in the 2019 ARMPA.</i>
Clarifying the Use of Lek Buffers				
Lek Buffers	MD SSS-2	In undertaking BLM management actions, and consistent with valid and existing right sand applicable law in authorizing third part actions, the BLM will apply the lek buffer distances identified in the US Geological Survey Report <i>Conservation Buffer Distance Estimates for Greater Sage-Grouse – A Review</i> in accordance with Appendix B [of the 2015 ROD/ARMPA].	In undertaking BLM management actions, and consistent with valid and existing rights and applicable law in authorizing third-party actions, the BLM will evaluate the lek buffer distances during project specific NEPA analyses, in accordance with Appendix H [of the 2018 Draft RMPA/EIS] (Guidelines for Implementation and Adaptive Management). Appendix B of the 2015 ROD/ARMPA will not be carried forward.	In undertaking BLM management actions, and consistent with valid and existing rights and applicable law in authorizing third-party actions, the BLM will evaluate the lek buffer distances during project-specific NEPA analyses, in accordance with Appendix H [of the 2019 ARMPA] (Guidelines for Implementation and Adaptive Management). Appendix B of the 2015 ROD/ARMPA will not be carried forward.
Clarifying Mitigation Procedures				
Mitigation	MD SSS-3	In all Greater Sage-Grouse-habitat, 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, 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	In all Greater Sage-Grouse habitat, in undertaking BLM management actions, and consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss or degradation, the BLM will require and ensure mitigation activities consistent with the recommendation of Colorado Parks and Wildlife. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions. If the BLM and Colorado Parks and Wildlife	In all Greater Sage-Grouse habitat, 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 Colorado’s Executive Order 2015-004 (May 15, 2015) including avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions. Accordingly, before authorizing third-party actions that result in habitat loss and

Topic	2015 ARMPA Decision Number	No-Action Alternative <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	Management Alignment Alternative (Draft EIS Preferred Alternative) <i>Note: References to figures, tables, or appendices are those in the 2018 Draft RMPA/EIS.</i>	Proposed Plan <i>Note: References to figures, tables, or appendices are those in the 2019 ARMPA.</i>
Mitigation (continued)	MD SSS-3 (continued)	for impacts by applying beneficial mitigation actions.	determine that there are unacceptable residual impacts on the Greater Sage-Grouse or its habitat, the BLM will require mitigation that provides a conservation uplift and achieves the outcome consistent with the principles outlined in Appendix H [of the 2018 Draft RMPA/EIS] (Guidelines for Implementation and Adaptive Management), consistent with the State of Colorado's Habitat Exchange and mitigation strategy.	degradation, the BLM will complete the following steps, in alignment with the Governor of Colorado's Executive Order 2015- 004 (May 15, 2015): <ol style="list-style-type: none"> 1. If the proponent has not already done so pursuant to Colorado Executive Order 2015-004, 2 CCR 404-1:1200 et seq. or other applicable law, policy or regulation, BLM will notify Colorado Parks and Wildlife to 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. 2. Incorporate state required or recommended mitigation into the BLM's NEPA and decision- making process, if the CPW determines that there are unacceptable residual impacts on Greater Sage-Grouse or its habitat and compensatory mitigation is required as a part of a State policy or authorization, or if a proponent voluntarily offers mitigation. 3. Analyze whether the compensatory mitigation: <ul style="list-style-type: none"> • achieves measurable outcomes for Greater Sage-Grouse habitat function that are at least equal to the lost or degraded values

Topic	2015 ARMPA Decision Number	No-Action Alternative <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	Management Alignment Alternative (Draft EIS Preferred Alternative) <i>Note: References to figures, tables, or appendices are those in the 2018 Draft RMPPA/EIS.</i>	Proposed Plan <i>Note: References to figures, tables, or appendices are those in the 2019 ARMPA.</i>
Mitigation (continued)	MD SSS-3 (continued)	(see above)	(see above)	<ul style="list-style-type: none"> 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 <p>4. Verify that the project proponent has coordinated with the State of Colorado to ensure it complies with Executive Order 2015-004 and, when necessary, complies with 2 CCR 404- 1:1200 et seq. or other applicable state law, policy or regulation relating to its proposal.</p> <p>5. Through coordination with CPW, ensure mitigation outcomes are consistent with the State of Colorado's mitigation strategy and principles outlined in Appendix H [of the 2019 ARMPA] (Guidelines for Implementation and Adaptive Management).</p>
Modifying Habitat Management Areas (PHMA and GHMA)				
Habitat Management Areas (HMAAs)	Chapter 4.3	Adjustments to PHMA or GHMA boundaries should be made if BLM biologists, in coordination with State of Colorado biologists and USFWS, determine, based on best available scientific information, that such changes would more accurately depict existing or potential Greater Sage-Grouse habitat. The appropriate planning process (i.e., plan maintenance or plan amendment/revision) would be used, as	The BLM relies on CPW's expertise and responsibility to manage wildlife and to provide habitat information on a multitude of species. CPW evaluates habitat boundaries for all species that they manage, including Greater Sage-Grouse, on a regular basis. If CPW determines, based on their regular evaluation, or on new information, that the Greater Sage-Grouse habitat area boundaries should be updated, the BLM would:	The BLM relies on CPW's expertise and responsibility to manage wildlife and to provide habitat information on a multitude of species. CPW evaluates habitat boundaries for all species that they manage, including Greater Sage-Grouse, on a regular basis. If CPW determines, based on their regular evaluation, or on new information, that the Greater Sage-Grouse habitat area boundaries should be updated, the BLM would:

Topic	2015 ARMPA Decision Number	No-Action Alternative <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	Management Alignment Alternative (Draft EIS Preferred Alternative) <i>Note: References to figures, tables, or appendices are those in the 2018 Draft RMPA/EIS.</i>	Proposed Plan <i>Note: References to figures, tables, or appendices are those in the 2019 ARMPA.</i>
Habitat Manage- ment Areas (HMAs) (continued)	Chapter 4.3 (continued)	determined on a case-by-case basis considering site-specific issues.	<ol style="list-style-type: none"> <li>1. Evaluate the proposed changes to determine if the modifications to habitat area boundaries would continue to allow the BLM to meet objectives of the Land Use Plan. The determination would include evaluation of the magnitude of the change and the ability of the BLM to effectively apply management decisions. If it is determined that the BLM can effectively apply management to the new habitat area boundaries and the Land Use Plan objectives would be met, the new habitat area boundaries would be adopted administratively. <li>2. If the BLM, in consultation with CPW, determines that additional management clarification is required to define whether proposed changes to habitat boundaries would continue to meet the goals and objectives of the 2015 NWCO Greater Sage-Grouse ARMPA/ROD, incorporation of the new habitat maps may need to be analyzed under a new NEPA process and incorporated through the appropriate planning process (i.e., plan maintenance or plan amendment). 	<ol style="list-style-type: none"> <li>1. Evaluate the proposed changes to determine if the modifications to habitat area boundaries would continue to allow the BLM to meet objectives of the Land Use Plan. The determination would include evaluation of the magnitude of the change and the ability of the BLM to effectively apply management decisions. If it is determined that the BLM can effectively apply management to the new habitat area boundaries and the Land Use Plan objectives would be met, the new habitat area boundaries would be adopted administratively. <li>2. If the BLM, in consultation with CPW, determines that additional management clarification is required to define whether proposed changes to habitat boundaries would continue to meet the goals and objectives of the 2015 NWCO Greater Sage-Grouse ARMPA/ROD, incorporation of the new habitat maps may need to be analyzed under a new NEPA process and incorporated through the appropriate planning process (i.e., plan maintenance or plan amendment).

Topic	2015 ARMPA Decision Number	No-Action Alternative <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	Management Alignment Alternative (Draft EIS Preferred Alternative) <i>Note: References to figures, tables, or appendices are those in the 2018 Draft RMPA/EIS.</i>	Proposed Plan <i>Note: References to figures, tables, or appendices are those in the 2019 ARMPA.</i>
Modifying Areas Closed to Fluid Minerals Leasing				
New Fluid Minerals Leasing within 1 Mile from Active Leks	MD MR-1	No new leasing 1 mile from active leks in ADH	<p>One (1) mile from active leks open to leasing subject to NSO-1.</p> <p>NSO-1: No surface occupancy. **Exceptions or modifications may be considered if, in consultation with the State of Colorado, it can be demonstrated that there is no impact on Greater Sage-Grouse based on one of the following:</p> <ul style="list-style-type: none"> • Topography/areas of non-habitat create an effective barrier to impacts • No additional impacts would be realized above those created by existing major infrastructure (for example, State Highway 13) • The exception or modification precludes or offsets greater potential impacts if the action were proposed on adjacent parcels (for example, due to landownership patterns) <p>Waiver: No waivers are authorized unless the area or resource mapped as possessing the attributes protected by the stipulation is determined during collaboration with the State of Colorado to lack those attributes or potential attributes. A 30-day public notice and comment period is required before waiver of a stipulation. Waivers would require BLM State Director approval.</p>	<p>One (1) mile from active leks open to leasing subject to NSO-1.</p> <p>NSO-1: No surface occupancy. **Exceptions or modifications may be considered if, in consultation with the State of Colorado, it can be demonstrated that there is no impact on Greater Sage-Grouse based on one of the following:</p> <ul style="list-style-type: none"> • Topography/areas of non-habitat create an effective barrier to impacts • No additional impacts would be realized above those created by existing major infrastructure (for example, State Highway 13) • The exception or modification precludes or offsets greater potential impacts if the action were proposed on adjacent parcels (for example, due to landownership patterns) <p>**In order to approve exceptions or modifications to this lease stipulation, the Authorized Officer must obtain: agreement, including written justification, between the BLM District Managers and CPW that the proposed action satisfies at least one of the criteria listed above.</p> <p>Waiver: No waivers are authorized unless the area or resource mapped as possessing the</p>

Topic	2015 ARMPA Decision Number	No-Action Alternative <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	Management Alignment Alternative (Draft EIS Preferred Alternative) <i>Note: References to figures, tables, or appendices are those in the 2018 Draft RMPA/EIS.</i>	Proposed Plan <i>Note: References to figures, tables, or appendices are those in the 2019 ARMPA.</i>
New Fluid Minerals Leasing within 1 Mile from Active Leaks (continued)	MD MR-1 (continued)	(see above)	(see above)	attributes protected by the stipulation is determined during collaboration with the State of Colorado to lack those attributes or potential attributes. A 30-day public notice and comment period is required before waiver of a stipulation. Waivers would require BLM State Director approval.
Including Waivers, Exceptions, and Modifications on NSO Stipulations				
Waivers, Exceptions, and Modification on NSO Stipulation in PHMA	MD MR-2	<p>No Surface Occupancy without waiver or modification in PHMA</p> <p>Waivers, modifications, and exceptions: No waivers or modifications to fluid mineral lease NSO stipulation will be granted. The BLM Authorized Officer may grant an exception to this NSO stipulation only where the proposed action:</p> <p>(i) Would not have direct, indirect, or cumulative effects on Greater Sage-Grouse or its habitat; or</p> <p>(ii) Is proposed to be undertaken as an alternative to a similar action occurring on a nearby parcel, and would provide a clear conservation gain to Greater Sage-Grouse.</p> <p>Exceptions based on conservation gain (ii) may only be considered in:</p> <p>(a) PHMA of mixed ownership where federal minerals underlie less than 50 percent of the total surface; or (b) areas</p>	<p>No Surface Occupancy (NSO-2) with waivers, exceptions, or modifications in PHMA.</p> <p>**Exception:</p> <p>In consultation with the State of Colorado, an exception to Greater Sage-Grouse NSO could be granted on a one-time basis (any occupancy must be removed within 1 year of approval) based on the following factors:</p> <p>I. It is determined, based on site-specific information (using tools such as the Habitat Assessment Framework, the Colorado Habitat Exchange Habitat Quantification Tool, or others), that the impacts anticipated by the proposed activity would be fully offset through compensatory mitigation developed in coordination with the State of Colorado that meets principles of compensatory mitigation including, but not limited to:</p> <ul style="list-style-type: none"> achieving measurable outcomes for Greater Sage-Grouse habitat 	<p>No Surface Occupancy (NSO-2) with waivers, exceptions, or modifications in PHMA. If, prior to development, the county in which the tract is located provides information indicating that an NSO stipulation can be excepted or modified based on a reasonable understanding of likely development because either of the criterion below would apply, the BLM would manage that lease accordingly <i>unless</i> the BLM determines, at the APD stage and in consultation with the State of Colorado, that neither of the exception criteria identified below is met.</p> <p>**Exception:</p> <p>The BLM will grant an exception in consultation with the State of Colorado, an exception to Greater Sage-Grouse NSO could be granted on a one-time basis (any occupancy must be removed within 1 year of approval) to NSO-2 after consulting with the State of Colorado, consistent with MD-SSS-3 and based on the following factors:</p>

Topic	2015 ARMPA Decision Number	No-Action Alternative <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	Management Alignment Alternative (Draft EIS Preferred Alternative) <i>Note: References to figures, tables, or appendices are those in the 2018 Draft RMPA/EIS.</i>	Proposed Plan <i>Note: References to figures, tables, or appendices are those in the 2019 ARMPA.</i>
Waivers, Exceptions, and Modification on NSO Stipulation in PHMA (continued)	MD MR-2 (continued)	<p>of BLM-administered lands where the proposed exception is an alternative to an action occurring on a nearby parcel subject to a valid federal fluid mineral lease existing as of the date of this RMP [revision or amendment].</p> <p>Exceptions based on conservation gain must also include measures, such as enforceable institutional controls and buffers, sufficient to allow the BLM to conclude that such benefits will endure for the duration of the proposed action's impacts.</p> <p>The BLM Authorized Officer may approve any exceptions to this lease stipulation only with the concurrence of the BLM State Director. The BLM Authorized Officer may not grant an exception unless the applicable state wildlife agency, USFWS, and BLM unanimously find that the proposed action satisfies (i) or (ii). A team of one field biologist or other Greater Sage-Grouse expert shall initially make such finding from each respective agency. In the event the initial finding is not unanimous, the finding may be elevated to the appropriate BLM State Director, USFWS State Ecological Services Director, and state wildlife agency head for final resolution. In the event their finding is not unanimous, the exception</p>	<p>function that are at least equal to the lost or degraded values</p> <ul style="list-style-type: none"> providing benefits that are in place for at least the duration of the impacts accounting for a level of risk that the mitigation action may fail or not persist for the full duration of the impact <p>and/or</p> <p>It is determined that there is no impact on Greater Sage-Grouse based on an evaluation of the proposed lease activities in relation to the site-specific terrain and habitat type. For example, in the vicinity of leks, local terrain features such as ridges and ravines may shield potential disruptive impacts from affecting nearby Greater Sage-Grouse habitat</p> <p>**Modification:</p> <p>In consultation with the State of Colorado, a modification (changes to the stipulation either temporarily or for the term of either part of or the entire lease) to Greater Sage-Grouse NSO-2 could be granted based on an analysis of the following factors:</p> <ol style="list-style-type: none"> It is determined, based on site-specific information (using tools such as the Habitat Assessment Framework, the Colorado Habitat Exchange Habitat Quantification Tool, or others), that the impacts anticipated by the proposed activity would be fully offset through compensatory mitigation developed in coordination with the State of Colorado 	<ol style="list-style-type: none"> It is determined that there is no impact on Greater Sage-Grouse based on an evaluation of the proposed lease activities in relation to the site-specific terrain and habitat type. For example, in the vicinity of leks, local terrain features such as ridges and ravines may shield potential disruptive impacts from affecting nearby Greater Sage-Grouse habitat <p>and/or</p> <p>It is determined, based on site-specific information (using tools such as the Habitat Assessment Framework, the Colorado Habitat Exchange Habitat Quantification Tool, or others), that the impacts anticipated by the proposed activity would be fully offset through compensatory mitigation developed in coordination with the State of Colorado (as a requirement of State policy or authorization or as offered voluntarily by leaseholder) that meets principles of compensatory mitigation including, but not limited to:</p> <ul style="list-style-type: none"> achieving measurable outcomes for Greater Sage-Grouse habitat function that are at least equal to the lost or degraded values providing benefits that are in place for at least the duration of the impacts accounting for a level of risk that the mitigation action may fail or not persist for the full duration of the impact

Topic	2015 ARMPA Decision Number	No-Action Alternative <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	Management Alignment Alternative (Draft EIS Preferred Alternative) <i>Note: References to figures, tables, or appendices are those in the 2018 Draft RMPA/EIS.</i>	Proposed Plan <i>Note: References to figures, tables, or appendices are those in the 2019 ARMPA.</i>
Waivers, Exceptions, and Modifica- tion on NSO Stipulation in PHMA (continued)	MD MR-2 (continued)	will not be granted. Approved exceptions will be made publicly available at least quarterly.	<p>that meets principles of compensatory mitigation including:</p> <ul style="list-style-type: none"> • achieving measurable outcomes for Greater Sage-Grouse habitat function that are at least equal to the lost or degraded values; • providing benefits that are in place for at least the duration of the impacts; • accounting for a level of risk that the mitigation action may fail or not persist for the full duration of the impact <p>and/or</p> <p>It is determined that there is no impact on Greater Sage-Grouse based on an evaluation of the proposed lease activities in relation to the site-specific terrain and habitat type. For example, in the vicinity of leks, local terrain features such as ridges and ravines may shield potential disruptive impacts from affecting nearby Greater Sage-Grouse habitat</p> <p>Waiver:</p> <p>No waivers are authorized unless the area or resource mapped as possessing the attributes protected by the stipulation is determined during collaboration with the State of Colorado to lack those attributes or potential attributes. A 30-day public notice and comment period is required before waiver of a stipulation. Waivers would require BLM State Director approval.</p>	<p>**Modification:</p> <p>The BLM will grant modifications in consultation with the State of Colorado, a modification (changes to the stipulation either temporarily or for the term of either part of the entire lease) to Greater Sage-Grouse NSO-2 after consultation with the State of Colorado, consistent with MD-SSS-3 and based on the following factors:</p> <ol style="list-style-type: none"> I. It is determined that there is no impact on Greater Sage-Grouse based on an evaluation of the proposed lease activities in relation to the site-specific terrain and habitat type. For example, in the vicinity of leks, local terrain features such as ridges and ravines may shield potential disruptive impacts from affecting nearby Greater Sage-Grouse habitat <p>and/or</p> <p>It is determined, based on site-specific information (using tools such as the Habitat Assessment Framework, the Colorado Habitat Exchange Habitat Quantification Tool, or others), that the impacts anticipated by the proposed activity would be fully offset through compensatory mitigation developed in coordination with the State of Colorado (as a requirement of State policy or authorization or as offered voluntarily by leaseholder) that meets principles of compensatory mitigation including:</p>

Topic	2015 ARMPA Decision Number	No-Action Alternative <i>Note: References to figures, tables, or appendices are those in the 2015 ROD/ARMPA.</i>	Management Alignment Alternative (Draft EIS Preferred Alternative) <i>Note: References to figures, tables, or appendices are those in the 2018 Draft RMPA/EIS.</i>	Proposed Plan <i>Note: References to figures, tables, or appendices are those in the 2019 ARMPA.</i>
Waivers, Exceptions, and Modifica- tion on NSO Stipulation in PHMA (continued)	MD MR-2 (continued)	(see above)	(see above)	<ul style="list-style-type: none"> • achieving measurable outcomes for Greater Sage-Grouse habitat function that are at least equal to the lost or degraded values; • providing benefits that are in place for at least the duration of the impacts; • accounting for a level of risk that the mitigation action may fail or not persist for the full duration of the impact <p><i>**In order to approve exceptions or modifications to this lease stipulation, the Authorized Officer must obtain agreement, including written justification, between the BLM District Manager and CPW that the proposed action satisfies at least one of the criteria listed above</i></p> <p>Waiver: No waivers are authorized unless the area or resource mapped as possessing the attributes protected by the stipulation is determined during collaboration with the State of Colorado to lack those attributes or potential attributes. A 30-day public notice and comment period is required before waiver of a stipulation. Waivers would require BLM State Director approval.</p>

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Table 2-3
Alternatives Analyzed in Detail during the 2015 Planning Effort and Incorporated into the 2019 Process

Table 2-3 is in two parts. Part I are the LUP Goals and Objectives by Alternative analyzed in 2015 and Part II are the Management Actions analyzed in 2015.

Part I: Goals and Objectives

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-GOAL-1: No similar goal	B-GOAL-1: Conserve, enhance, and restore the sagebrush ecosystem upon which Greater Sage-Grouse populations depend in an effort to maintain and/or increase their abundance and distribution, in cooperation with other conservation partners	C-GOAL-1: Same as Alternative B.	D-GOAL-1: Same as Alternative B.	E-GOAL-1: Same as Alternative B.
A-OBJ-1: No similar objective	B-OBJ-1: Maintain and enhance populations and distribution of Greater Sage-Grouse by protecting and improving sagebrush habitats and ecosystems that sustain Greater Sage-Grouse populations.	C-OBJ-1: Same as Alternative B.	D-OBJ-1: Same as Alternative B.	P-OBJ-1: Same as Alternative B.
A-OBJ-2: No similar objective	B-OBJ-2: Manage travel and transportation to 1) reduce mortality from vehicle collisions, 2) limit change in Greater Sage-Grouse behavior, 3) avoid, minimize, and compensate for habitat fragmentation, 4) limit the spread of noxious weeds, and 5) limit disruptive activity associated with human access.	C-OBJ-2: Same as Alternative B.	D-OBJ-2: Same as Alternative B.	P-OBJ-2: Same as Alternative B.
A-OBJ-3: No similar objective	B-OBJ-3: Manage Recreation to avoid activities that 1) disrupt Greater Sage-Grouse, 2) fragment Greater Sage-Grouse habitat, or 3) spread noxious weeds	C-OBJ-3: Same as Alternative B.	D-OBJ-3: Same as Alternative B.	P-OBJ-3: Same as Alternative B.
A-OBJ-4: No similar objective	B-OBJ-4: Manage the Lands and Realty program to avoid, minimize, and compensate for the loss of habitat and habitat connectivity through the authorizations of ROWs, land tenure adjustments, proposed land withdrawals, agreements with partners, and incentive programs.	C-OBJ-4: Same as Alternative B.	D-OBJ-4: Same as Alternative B.	P-OBJ-4: Same as Alternative B.
A-OBJ-5: No similar objective	B-OBJ-5: Greater Sage-Grouse objectives and well managed livestock operations are compatible because forage availability for livestock, and hiding cover for Greater Sage-Grouse, are both dependent on healthy plant communities. Agreements with partners that promote sustainable Greater Sage-Grouse populations concurrent with sustainable ranch operations offer long-term stability. In the context of sustainable range operations, manage the range program to 1) maintain or enhance vigorous and productive plant communities, 2) maintain residual herbaceous cover to reduce predation during Greater Sage-Grouse nesting and early brood-rearing, 3) avoid direct adverse impacts to Greater Sage-Grouse associated range project infrastructure and 4) employ grazing management strategies that avoid concentrating animals on key Greater Sage-Grouse habitats during key seasons.	C-OBJ-5: Same as Alternative B.	D-OBJ-5: Same as Alternative B.	P-OBJ-5: Same as Alternative B.
A-OBJ-6: No similar objective	B-OBJ-6: Manage wild horses in a manner designed to 1) avoid reductions in grass, forb, and shrub cover, and 2) avoid increasing unpalatable forbs and invasive plants such as cheatgrass.	C-OBJ-6: Same as Alternative B.	D-OBJ-6: Same as Alternative B.	P-OBJ-6: Same as Alternative B.
A-OBJ-7: No similar objective	B-OBJ-7: Manage fluid minerals to avoid, minimize, and compensate for 1) direct disturbance, displacement, or mortality of Greater Sage-Grouse, 2) direct loss of habitat, or loss of effective habitat through fragmentation, and 3) cumulative landscape-level impacts. 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 USC 226(p) and 43 CFR 3162.3-1(h).	C-OBJ-7: Same as Alternative B.	D-OBJ-7: Same as Alternative B.	P-OBJ-7: Same as Alternative B.
A-OBJ-8: No similar objective	B-OBJ-8: 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 Application for Permit to Drill for the lease to avoid and minimize impacts to Greater Sage-Grouse or its habitat and will ensure that the best information about Greater Sage-Grouse and its habitat informs and helps guide development of such federal leases.	C-OBJ-8: Same as Alternative B.	D-OBJ-8: Same as Alternative B.	P-OBJ-8: Same as Alternative B.
A-OBJ-9: No similar objective	B-OBJ-9: Manage solid mineral programs to avoid, minimize and mitigate adverse impacts to Greater Sage-Grouse habitat to the extent practical under the law and BLM/Forest Service jurisdiction.	C-OBJ-9: Same as Alternative B.	D-OBJ-9: Same as Alternative B.	P-OBJ-9: Same as Alternative B.
A-OBJ-10: No similar objective	B-OBJ-10: Utilize federal authority to protect Greater Sage-Grouse habitat on split estate lands to the extent provided by law.	C-OBJ-10: Same as Alternative B.	D-OBJ-10: Same as Alternative B.	P-OBJ-10: Same as Alternative B.
A-OBJ-11: No similar objective	B-OBJ-11: Manage the fuels program to avoid Greater Sage-Grouse habitat loss and restore damaged habitat.	C-OBJ-11: Same as Alternative B.	D-OBJ-11: Same as Alternative B.	P-OBJ-11: Same as Alternative B.
A-OBJ-12: No similar objective	B-OBJ-12: Manage fire to maintain and enhance large blocks of contiguous sagebrush.	C-OBJ-12: Same as Alternative B.	D-OBJ-12: Same as Alternative B.	P-OBJ-12: Same as Alternative B.
A-OBJ-13: No similar objective	B-OBJ-13: Use ESR to address post-wildfire threats to Greater Sage-Grouse habitat.	C-OBJ-13: Same as Alternative B.	D-OBJ-13: Same as Alternative B.	P-OBJ-13: Same as Alternative B.
A-OBJ-14: No similar objective	B-OBJ-14: (1) Use habitat restoration as a tool to create and/or maintain landscapes that benefit Greater Sage-Grouse; (2) Use Integrated Vegetation Management to control, suppress, and eradicate, where possible, noxious and invasive species per BLM Handbook H1740-2; and (3) In PHMA, the desired condition is to maintain a minimum of 70 percent of lands capable of producing sagebrush with 10 to 30 percent sagebrush canopy cover. The attributes necessary to sustain these habitats are described in Interpreting Indicators of Rangeland Health (BLM Technical Reference 1734-6).	C-OBJ-14: Same as Alternative B.	D-OBJ-14: Same as Alternative B.	P-OBJ-14: Same as Alternative B.

Pare II: Management Actions

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-TTM-1: No similar action.	B-TTM-1: (PHMA) Limit OHV travel to existing roads, primitive roads, and trails at a minimum.	C-TTM-1: Same as Alternative B.	D-TTM-1: Same as Alternative B.	P-TTM-1: Same as Alternative B. Special Zone Provision: Colorado MZ 13 – Manage the Wolford Mountain open OHV area.
A-TTM-2: No similar action.	B-TTM-2: (PHMA) Travel management should evaluate the need for permanent or seasonal road or area closures.	C-TTM-2: Same as Alternative B.	D-TTM-2: (ADH) Identify seasonal closure areas for Greater Sage-Grouse	P-TTM-2: (PHMA) Evaluate and consider permanent or seasonal road or area closures as needed to address a current threat.
A-TTM-3: No similar action.	B-TTM-3: (PHMA) Complete activity level travel plans within 5 years of the ROD. During activity level planning, where appropriate, designate routes with current administrative/agency purpose or need to administrative access only.	C-TTM-3: Same as Alternative B.	D-TTM-3: Same as Alternative B.	P-TTM-3: (PHMA) Complete activity level travel plans as soon as possible, subject to funding. During activity level planning, where appropriate, designate routes with current administrative/agency purpose or need to administrative access only.
A-TTM-4: No similar action.	B-TTM-4: (PHMA) Limit route construction 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	C-TTM-4: (ADH) Limit route construction 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. Mitigate any impacts with methods that have been demonstrated to be effective to offset the loss of Greater Sage-Grouse habitat.	D-TTM-4: (PHMA) Until completion of the relevant field office travel management plans, limit route construction to routes that will not adversely affect Greater Sage-Grouse populations due to habitat loss or disruptive activities.	P-TTM-4: PHMA) Complete activity level travel plans as soon as possible, subject to funding. Limit route construction to routes that will not adversely affect Greater Sage-Grouse populations due to habitat loss or disruptive activities.
A-TTM-5: No similar action.	B-TTM-5: (PHMA) Use existing roads or realignments as described above to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the absolute minimum standard necessary, and add the surface disturbance to the total disturbance in PHMA. If that disturbance exceeds 3 percent for that area, then evaluate and implement additional, effective mitigation necessary to offset the resulting loss of Greater Sage-Grouse habitat.	C-TTM-5: Same as Alternative B, using a 4-mile buffer from leks to determine road route.	D-TTM-5: (PHMA) Construct new roads to the appropriate Gold Book standard and add the surface disturbance to the total disturbance in PHMA. If anthropogenic disturbance as defined in Appendix E, Methodology for Calculating Disturbance Caps, [of the 2015 Final EIS] exceeds 5 percent for that Colorado MZ, then make additional, effective mitigation necessary to offset the resulting loss of Greater Sage-Grouse habitat. Disturbance Exception Criteria: Where data-based documentation is available to warrant a conclusion that Greater Sage-Grouse populations in the applicable Colorado MZ are healthy and stable at objective levels or increasing, and that the development will not adversely affect Greater Sage-Grouse populations due to habitat loss or disruptive activities, the Authorized Officer may authorize disturbance in excess of the 5 percent disturbance cap without requiring additional mitigation. In many cases, this exception will require project proponents to fund studies necessary to secure the “data-based documentation” requirement	P-TTM-5: (PHMA) Use existing roads or realignments whenever possible. If it is necessary to build a new road, and the use of existing roads would cause adverse impacts to Greater Sage-Grouse, construct new roads to the appropriate minimum Gold Book standard and add the surface disturbance to the total disturbance in PHMA if it meets the criteria in Appendix H, Guidelines for Implementation [of the 2015 Final EIS]. Construct no new roads if the biologically significant unit (Colorado populations) and proposed project analysis area (Colorado MZ) is over the 3 percent disturbance cap, unless there is an immediate health and safety need, or to support valid existing rights that cannot be avoided. Evaluate and implement additional, effective mitigation necessary to offset the resulting loss of Greater Sage-Grouse habitat.
A-TTM-6: No similar action.	B-TTM-6: (PHMA) Allow no upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity unless the upgrading would have minimal impact on Greater Sage-Grouse habitat, is necessary for motorist safety, or eliminates the need to construct a new road	C-TTM-6: (ADH) Allow no upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity unless it is necessary for motorist safety, or eliminates the need to construct a new road. Any impacts shall be mitigated with methods that have been demonstrated to be effective to offset the loss of Greater Sage-Grouse habitat.	D-TTM-6: (PHMA) Allow upgrades to existing routes after documenting that the upgrade will not adversely affect Greater Sage-Grouse populations due to habitat loss or disruptive activities.	P-TTM-6: Same as Alternative D.
A-TTM-7: No similar action.	B-TTM-7: (PHMA) Conduct restoration of roads, primitive roads and trails not designated in travel management plans. This also includes primitive route/roads that were not designated in WSAs and within lands with wilderness characteristics that have been selected for protection in previous LUPs	C-TTM-7: Same as Alternative B.	D-TTM-7: Same as Alternative B.	P-TTM-7: Same as Alternative B.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-TTM-8: No similar action.	B-TTM-8: (PHMA) When reseeding roads, primitive roads and trails, use appropriate seed mixes and consider the use of transplanted sagebrush.	C-TTM-8: (ADH) When reseeding closed roads, primitive roads and trails, use appropriate native seed mixes and require the use of transplanted sagebrush.	D-TTM-8: Same as Alternative B.	P-TTM-8: Same as Alternative B.
A-TTM-:** No similar action.	No similar action.	C-TTM-:** (ADH) Prohibit new road construction within 4 miles of active Greater Sage-Grouse leks, and avoid new road construction in occupied Greater Sage-Grouse habitat.	No similar action.	No similar action.
A-REC-I: No similar action.	B-REC-I: (PHMA) Only allow BLM SRPs and Forest Service Recreation SUAs in PHMA that have neutral or beneficial effects to PHMA.	C-REC-I: Same as Alternative B.	D-REC-I: (PHMA) Allow SRPs that will not adversely affect Greater Sage-Grouse populations due to habitat loss or disruptive activities.	P-REC-I: (PHMA) Do not allow SRPs/SUAs with the potential to adversely affect Greater Sage-Grouse or Greater Sage-Grouse habitat.
A-REC-:**: No similar action.	B-REC-:**: No similar action.	C-REC-:** (ADH) Seasonally prohibit camping and other non-OHV recreation within 4 miles of active Greater Sage-Grouse leks	D-REC-:**: No similar action.	P-REC-:**: No similar action.
A-LR-I: No similar action.	B-LR-I: (PHMA) Manage PHMA as exclusion areas for new BLM ROW or Forest Service SUA permits.	C-LR-I: (ADH) Occupied Greater Sage-Grouse habitat areas shall be exclusion areas for new ROWs permits.	D-LR-I: (PHMA) Manage PHMA as avoidance areas for new ROW permits.	P-LR-I: Manage areas within PHMA as avoidance areas for BLM ROW permits or Forest Service SUA permits. (See Special Stipulations applicable to Greater Sage-Grouse PHMA ROW Avoidance, Proposed LUPA.) Greater Sage-Grouse PHMA ROW Avoidance, Proposed LUPA. ROWs/SUAs may be issued after documenting that the ROWs/SUAs would not adversely affect Greater Sage-Grouse populations based on the following criteria: <ul style="list-style-type: none">• Location of proposed activities in relation to critical Greater Sage-Grouse habitat areas as identified by factors, including but not limited to, average male lek attendance and/or important seasonal habitat.• An evaluation of the potential threats from proposed activities that may affect the local population as compared to benefits that could be accomplished through compensatory or off-site mitigation (see Section 2.7.3, Regional Mitigation)• An evaluation of the proposed activities in relation to the site specific terrain and habitat features. For example, within 4 miles from a lek, local terrain features such as ridges and ravines may reduce the habitat importance, and shield nearby habitat from disruptive factors.
A-LR-2: No similar action.	B-LR-2: No similar action.	C-LR-2: No similar action.	D-LR-2: No similar action.	P-LR-2: Manage areas within GHMA as avoidance areas for BLM ROW permits or Forest Service SUA permits. (See Special Stipulations applicable to Greater Sage-Grouse PHMA ROW Avoidance, Proposed LUPA.)

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-LR-3: No similar action.	B-LR-3: No similar action.	C-LR-3: No similar action.	D-LR-3: No similar action.	<p>P-LR-3: No new roads or aboveground structures would be authorized within 1 mile of an active lek. Above-ground structures are defined as structures that are limited to: roads, fences, communication towers, and/or any structure that would provide perches. Above ground structures would only be authorized if:</p> <ol style="list-style-type: none"> 1) It is consistent with the overall objective of the RMP located on or above the surface of the ground, including but not Amendment; 2) The effect on Greater Sage-Grouse populations or habitat is nominal or incidental; 3) Allowing the exception prevents implementation of an alternative more detrimental to Greater Sage-Grouse or similar environmental concern, and; 4) Rigid adherence to the restriction would be the only reason for denying the action.
A-LR-4: No similar action.	B-LR4-: No similar action.	C-LR-4: No similar action.	D-LR-4: (PHMA) Manage PHMA as exclusion areas for large transmission lines (greater than 230 kilovolts, per guidance in BLM Instruction Memorandum 2013-118, Revised Implementation Guidance for the Interagency Transmission Memorandum of Understanding (BLM 2013b). Manage 68,000 acres as avoidance areas for large transmission lines (greater than 230 kilovolts).	<p>P-LR-4: PHMA and GHMA are designated as avoidance areas for high-voltage transmission line 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 LUPA, including the RDFs and avoidance criteria presented in this document. The BLM is currently processing applications for the TransWest and Energy Gateway South Transmission Line projects and the NEPA review for these projects is well underway. The BLM is analyzing Greater Sage-Grouse mitigation measures through these project's NEPA review processes.</p>
A-LR-5: No similar action.	B-LR-5: (PHMA) Subject to valid existing rights: where new ROWs or SUAs associated with valid existing rights are required, collocate new ROWs or SUAs within existing ROWs or SUAs or where it best minimizes Greater Sage-Grouse impacts. Use existing roads, or realignments as described above, to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the absolute minimum standard necessary, and add the surface disturbance to the total disturbance in PHMA. If that disturbance exceeds 3 percent for that area, then evaluate and implement additional effective mitigation to offset the resulting loss of Greater Sage-Grouse habitat.	C-LR-5: (ADH) Subject to valid existing rights: where new ROWs associated with valid existing rights are required, collocate new ROWs within existing ROWs or where it best minimizes Greater Sage-Grouse impacts. Use existing roads, or realignments as described above, to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the absolute minimum standard necessary, and add the surface disturbance to the total disturbance in PHMA. If that disturbance exceeds 3 percent for that area, then make additional mitigation that has been demonstrated to be effective to offset the resulting loss of Greater Sage-Grouse habitat.	D-LR-5: Greater Sage-Grouse PHMA ROW Avoidance, Alternative D. Areas identified as avoidance areas for new ROWs and for ROWs for large transmission lines (greater than 230 kilovolts) would be required to document that they would not adversely affect Greater Sage-Grouse populations due to habitat loss or disruptive activities. Any new projects within PHMA would be subject to the 5 percent disturbance cap as described in Appendix E, Methodology for Calculating Disturbance Caps [of the 2015 Final EIS]. (Refer to Appendix D, Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations.) Disturbance Exception Criteria: Where data-based documentation is available to warrant a conclusion that Greater Sage-Grouse populations in the applicable Colorado MZ are healthy and stable at objective levels or increasing, and that the development will not adversely affect Greater Sage-Grouse populations due to habitat loss or disruptive activities, the Authorized Officer may authorize disturbance in excess of the 5 percent disturbance cap with additional effective mitigation (i.e., above and beyond the mitigation necessary to ensure that the project remains neutral to Greater Sage-Grouse). In many cases, this exception will require project proponents to fund studies necessary to secure the “date-based documentation” requirement.	<p>P-LR-5: Any new projects within PHMA would be subject to the 3 percent disturbance cap as described in Appendix E, Methodology for Calculating Disturbance Caps [of the 2015 Final EIS]. If the 3 percent disturbance cap is exceeded in PHMA in any biologically significant unit (Colorado population) and proposed project analysis area (Colorado MZ), no new ROW would be authorized in PHMA within that Colorado MZ, unless site specific analysis documents no impact to Greater Sage-Grouse.</p>

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-LR-6: No similar action.	B-LR-6: No similar action.	C-LR-6: No similar action.	D-LR-6: No similar action.	P-LR-6: Prohibit surface occupancy and surface-disturbing activities associated with BLM ROW or Forest Service SUA permits within 4 miles from active leks during lekking, nesting, and early broodrearing (March 1 to July 15). (See Special Stipulations applicable to Greater Sage-Grouse PHMA ROW TL, Proposed LUPA).
A-LR-7: No similar action.	B-LR-7: (PHMA) Subject to valid existing rights: where new ROWs or SUAs associated with valid existing rights are required, collocate new ROWs or SUAs within existing ROWs or SUAs or where it best minimizes Greater Sage-Grouse impacts. Use existing roads, or realignments as described above, to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the absolute minimum standard necessary, and add the surface disturbance to the total disturbance in PHMA. If that disturbance exceeds 3 percent for that area, then evaluate and implement additional effective mitigation to offset the resulting loss of Greater Sage-Grouse habitat.	C-LR-7: (ADH) Subject to valid existing rights: where new ROWs associated with valid existing rights are required, collocate new ROWs within existing ROWs or where it best minimizes Greater Sage-Grouse impacts. Use existing roads, or realignments as described above, to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the absolute minimum standard necessary, and add the surface disturbance to the total disturbance in PHMA. If that disturbance exceeds 3 percent for that area, then make additional mitigation that has been demonstrated to be effective to offset the resulting loss of Greater Sage-Grouse habitat.	D-LR-7: (PHMA) Only issue ROWs after documenting that the ROWs will not adversely affect Greater Sage-Grouse populations due to habitat loss or disruptive activities (independent of disturbance cap) except where such limitation would make accessing valid existing rights impracticable. Construct new roads to the appropriate Gold Book standard and add the surface disturbance to the total disturbance in PHMA. If anthropogenic disturbance as defined in Appendix E, Methodology for Calculating Disturbance Caps [of the 2015 Final EIS], exceeds 5 percent for that Colorado MZ, then make additional, effective mitigation necessary to offset the resulting loss of Greater Sage-Grouse habitat.	P-LR-7: Construct new roads to the appropriate Gold Book standard and add the surface disturbance to the total disturbance in PHMA.
A-LR-8: No similar action.	B-LR-8: (PHMA) Evaluate and take advantage of opportunities to remove, bury, or modify existing power lines within Greater Sage-Grouse PHMA.	C-LR-8: Same as Alternative B.	D-LR-8: (PHMA) Where it is not possible to evaluate new or existing overhead facilities or where existing facilities cannot be removed, buried, or modified, require perch deterrents.	P-LR-8: In PHMA, or within 4 miles of an active lek, for ROW/SUA renewals, where existing facilities cannot be removed, buried or modified, require perch deterrents.
A-LR-9: No similar action.	B-LR-9: (PHMA) Where existing leases, ROWs or SUAs have had some level of development (e.g., road, fence, and well) and are no longer in use, reclaim the site by removing these features and restoring the habitat.	C-LR-9: Same as Alternative B.	D-LR-9: (PHMA) Reclaim and restore ROWs considering Greater Sage-Grouse habitat requirements.	P-LR-9: Same as Alternative D.
A-LR-10: No similar action.	B-LR-10: Relocate existing designated ROW corridors crossing Greater Sage-Grouse PHMA void of any authorized ROWs, outside of PHMA. If relocation is not possible, undesignate that entire corridor during the planning process (corridor would no longer exist).	C-LR-10: Same as Alternative B.	D-LR-10: (PHMA) Designate new ROW corridors in Greater Sage-Grouse PHMA only where there is a compelling reason to do so and location of the corridor within PHMA will not adversely affect Greater Sage-Grouse populations due to habitat loss or disruptive activities.	P-LR-10: Same as Alternative D.
A-LR-11: No similar action.	B-LR-11:	C-LR-11:	D-LR-11:	P-LR-11: (PHMA) Consider the likelihood of development of not-yet-constructed surface-disturbing activities- as defined in Table D.2 of the Monitoring Framework (Appendix D [of the 2015 Final EIS])- under valid existing rights prior to authorizing new projects in PHMA.
A-LR-11: No similar action.	B-LR-11: (PHMA) Retain public ownership of Greater Sage-Grouse PHMA. Consider exceptions where: There is mixed ownership, and land exchanges would allow for additional or more contiguous federal ownership patterns within the Greater Sage-Grouse PHMA.	C-LR-11: (PHMA) Retain public ownership of PHMA.	D-LR-11: Same as Alternative B.	P-LR-11: Same as Alternative B.
A-LR-12: No similar action.	B-LR-12: (PHMA) Under Greater Sage-Grouse PHMA with minority federal ownership, include an additional, effective mitigation agreement for any disposal of federal land. As a final preservation measure, consideration should be given to pursuing a permanent conservation easement.	C-LR-12: No similar action.	D-LR-12: (PHMA) In isolated federal parcels, allow disposal of tracts that are not capable of altering Greater Sage-Grouse populations (e.g., no leks).	P-LR-12: (PHMA) In isolated federal parcels, only allow tract disposals that are beneficial or neutral to long-term management of Greater Sage-Grouse populations.
A-LR-13: No similar action.	B-LR-13: No similar action.	C-LR-13: No similar action.	D-LR-13: No similar action.	P-LR-13: (GHMA) 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 LUPA, including, but not limited to, the LUPA objective to maintain or increase Greater Sage-Grouse abundance and distribution.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-LR-14: No similar action.	B-LR-14: (PHMA) Where suitable conservation actions cannot be achieved, seek to acquire state and private lands with intact subsurface mineral estate by donation, purchase or exchange in order to best conserve, enhance, or restore Greater Sage-Grouse habitat.	C-LR-14: (ADH) BLM and Forest Service will strive to acquire important private lands in BLM-designated ACECs and Forest Service Greater Sage-Grouse Special Areas. Acquisition will be prioritized over easements.	D-LR-14: (ADH) No similar action, but consider Greater Sage-Grouse habitat values in acquisitions. For example: Identify key Greater Sage-Grouse habitats on private or state land, adjacent to existing BLM/Forest Service land, where acquisition and protection by BLM/Forest Service could substantially benefit the local Greater Sage-Grouse population. This could be accomplished via purchase, exchange, or donation to satisfy mitigation requirements.	P-LR-14: Same as Alternative D.
A-LR-**: No similar action.	B-LR-**: (PHMA) Propose lands within Greater Sage-Grouse PHMA for mineral withdrawal.	C-LR-**: Same as Alternative B.	D-LR-**: No similar action.	P-LR-**: No similar action.
A-LR-**: No similar action.	B-LR-**: (PHMA) In PHMA, do not recommend withdrawal proposals not associated with mineral activity 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, manage the buffer area with Greater Sage-Grouse conservation measures.)	C-LR-**: (ADH) Do not approve withdrawal proposals not associated with mineral activity 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, manage the buffer area with Greater Sage-Grouse conservation measures that have been demonstrated to be effective.)	D-LR-**: No similar action.	P-LR-**: No similar action.
A-LR-**: No similar action.	B-LR-**: No similar action.	C-LR-**: (ADH) ROWs will be amended to require features that enhance Greater Sage-Grouse habitat security. (ADH) Existing designated corridors in BLM ACECs and Forest Service Special Areas may be accessed for maintenance.	D-LR-**: No similar action.	P-LR-**: No similar action.
A-RE-1: No similar action.	B-RE-1: No similar action.	C-RE-1: (ADH) Do not site wind energy development in occupied Greater Sage-Grouse habitat (Jones 2012).	D-RE-1: No similar action.	P-RE-1: (PHMA) Manage PHMA as exclusion areas for wind energy development.
A-RE-2: No similar action.	B-RE-2: No similar action.	C-RE-2: (ADH) Do not site wind energy development in occupied Greater Sage-Grouse habitat (Jones 2012).	D-RE-2: No similar action.	P-RE-2: (GHMA) Manage GHMA as avoidance areas for wind energy development.
A-RE-**: No similar action.	B-RE-**: No similar action.	C-RE-**: (ADH) Site wind energy development at least 5 miles from active Greater Sage-Grouse leks	D-RE-**: No similar action.	P-RE-**: No similar action.
A-RE-3: No similar action.	B-RE-3: No similar action.	C-RE-3: (ADH) Industrial solar projects will be prohibited in ACECs/Zoological Areas and occupied habitats.	D-RE-3: No similar action.	P-RE-3: (PHMA) Manage PHMA for industrial solar projects.
A-RE-4: No similar action.	B-RE-4: No similar action.	C-RE-4: (ADH) Industrial solar projects will be prohibited in ACECs/Zoological Areas and occupied habitats.	D-RE-4: No similar action.	P-RE-4: (GHMA) Manage GHMA as avoidance areas for industrial solar projects.
A-RM-1: No similar action.	B-RM-1: (PHMA) Within Greater Sage-Grouse PHMA, incorporate Greater Sage-Grouse habitat objectives and management considerations into all BLM and Forest Service grazing allotments through Allotment Management Plans or permit renewals and/or Forest Service Annual Operating Instructions	C-RM-1: Same as Alternative B.	D-RM-1: (ADH) Same as Alternative B, except apply to ADH.	P-RM-1: Same as Alternative D.
A-RM-2: No similar action.	B-RM-2: (ADH) 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.	C-RM-2: Same as Alternative B.	D-RM-2: Same as Alternative B.	P-RM-2: (ADH) Work cooperatively on integrated ranch planning within Greater Sage-Grouse habitat. Develop management strategies that are seamless with respect to actions on public and private lands within BLM and/or Forest Service grazing allotments
A-RM-3: No similar action.	B-RM-3: (PHMA) Prioritize completion of land health assessments (Forest Service may use other analyses) and processing grazing permits within Greater Sage-Grouse PHMA. Focus this process on allotments that have the best opportunities for conserving, enhancing or restoring habitat for Greater Sage-Grouse. Utilize BLM Ecological Site Descriptions (Forest Service may use other methods) to conduct land health assessments to determine if standards of range-land health are being met.	C-RM-3: Same as Alternative B.	D-RM-3: (ADH) Same as Alternative B, but apply to ADH. Consider Greater Sage-Grouse habitat requirements in conjunction with all resource values managed by the BLM, and give preference to Greater Sage-Grouse habitat unless site-specific circumstances warrant an exemption.	P-RM-3: (PHMA) 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 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.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-RM-4: No similar action.	B-RM-4: (ADH) Conduct land health assessments that include (at a minimum) indicators and measurements of vegetation structure/condition/ composition specific to achieving Greater Sage-Grouse habitat objectives (Doherty et al. 2011b). If local/state seasonal habitat objectives are not available, use Greater Sage-Grouse habitat recommendations from Connelly et al. 2000a and Hagen et al. 2007.	C-RM-4: Same as Alternative B	D-RM-4: Same as Alternative B	P-RM-4: Same as Alternative B
A-RM-5: No similar action.	B-RM-5: (PHMA) Develop specific objectives to conserve, enhance or restore PHMA based on BLM Ecological Site Descriptions (Forest Service may use other methods) and assessments (including within wetlands and riparian areas). 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 the permit renewal (Doherty et al. 2011b; Williams et al. 2011).	C-RM-5: No similar action.	D-RM-5: (ADH) Develop specific objectives – through NEPA analysis conducted in accordance with the permit/lease renewal process to conserve, enhance, or restore Greater Sage-Grouse habitat. Base benchmarks on Ecological Site/Range Site Descriptions. When existing on Ecological Site/Range Site Descriptions have not been developed, or are too general to serve adequately as benchmarks, identify and document local reference sites for areas of similar potential that exemplify achievement of Greater Sage-Grouse habitat objectives and use these sites as the benchmark reference. Establish measurable objectives related to Greater Sage-Grouse habitat from baseline monitoring data, ecological site descriptions, or land health assessments/evaluations.	P-RM-5: (ADH) Develop specific objectives – through NEPA analysis conducted in accordance with the permit/lease renewal process to conserve, enhance, or restore Greater Sage-Grouse habitat. Base benchmarks on Ecological Site/Range Site Descriptions. When existing on Ecological Site/Range Site Descriptions have not been developed, or are too general to serve adequately as benchmarks, identify and document local reference sites for areas of similar potential that exemplify achievement of Greater Sage-Grouse habitat objectives and use these sites as the benchmark reference. Establish measurable objectives related to Greater Sage-Grouse habitat from baseline monitoring data, ecological site descriptions, or land health assessments/evaluations, or other habitat and successional stage objectives
A-RM-6: No similar action.	B-RM-6: (ADH) Manage for vegetation composition and structure consistent with ecological site potential and within the reference state to achieve Greater Sage-Grouse seasonal habitat objectives.	C-RM-6: (ADH) Manage for vegetation composition and structure consistent with ecological site potential and within the reference state to achieve Greater Sage-Grouse habitat objectives.	D-RM-6: (ADH) Manage for vegetation composition and structure consistent with ecological site potential and within the reference state subject to successional stage objectives.	P-RM-6: (ADH) Manage for vegetation composition and structure consistent with ecological site potential and within the reference state subject to habitat objectives, including successional stages.
A-RM-7: No similar action.	B-RM-7: (ADH) Implement management actions (grazing decisions, Annual Operating Instructions [Forest Service only], Allotment Management Plan/Conservation Plan development, or other agreements) to modify grazing management to meet seasonal Greater Sage-Grouse habitat requirements (Connelly et al. 2011). Consider singly, or in combination, changes in: 1. Season or timing of use; 2. Numbers of livestock (includes temporary non-use or livestock removal); 3. Distribution of livestock use; 4. Intensity of use; and 5. Type of livestock (e.g., cattle, sheep, horse, llama, alpaca and goat) (Briske et al. 2011).	C-RM-7: (ADH) Implement management actions (grazing decisions, Allotment Management Plan/Conservation Plan development, or other plans or agreements) to modify grazing management to meet seasonal Greater Sage-Grouse habitat requirements (Connelly et al. 2011). Consider singly, or in combination, changes in: 1. Season, or timing, and/or frequency of livestock use; 2. Numbers/AUMs of livestock (includes temporary non-use or livestock removal); 3. Distribution of livestock use; 4. Intensity of livestock use; and 5. Type of livestock (e.g., cattle, sheep, horse, llama, alpaca and goat) (Briske et al. 2011)	D-RM-7: (ADH) Include terms and conditions on grazing permits and leases that assure plant growth requirements are met and residual forage remains available for Greater Sage-Grouse hiding cover. Specify as necessary: 1. Season or timing of use; 2. Numbers of livestock (include temporary nonuse or livestock removal); 3. Distributions of livestock use; 4. Intensity of use (utilization or stubble height objectives); 5. Kind of livestock (e.g., cattle, sheep, horse, llama, alpaca, and goat); 6. Class of livestock (e.g., yearlings versus cow/calf pairs).	P-RM-7: (ADH) Include terms and conditions on grazing permits and leases that address disruptive activities that affect Greater Sage-Grouse and assure plant growth requirements are met and residual forage remains available for Greater Sage-Grouse hiding cover. Specify as necessary: 1. Season or timing of use; 2. Numbers of livestock (include temporary nonuse or livestock removal); 3. Distributions of livestock use; 4. Intensity of use (utilization or stubble height objectives); 5. Kind of livestock (e.g., cattle, sheep, horse, llama, alpaca, and goat); 6. Class of livestock (e.g., yearlings versus cow/calf pairs); 7. Locations of bed grounds, sheep camps, trail routes, and the like.
A-RM-8: No similar action.	B-RM-8: (PHMA) During drought periods, prioritize evaluating effects of the drought in Greater Sage-Grouse PHMA relative to their needs for food and cover. Since there is a lag in vegetation recovery following drought (Thurow and Taylor 1999), ensure that post-drought management allows for vegetation recovery that meets Greater Sage-Grouse needs in Greater Sage-Grouse PHMA.	C-RM-8: (ADH) During drought periods, prioritize evaluating effects of drought in Greater Sage-Grouse habitat areas relative to their biological needs, as well as drought effects on ungrazed reference areas. Since there is a lag in vegetation recovery following drought (Thurow and Taylor 1999), 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.	D-RM-8: (ADH) Develop drought contingency plans at the appropriate landscape unit that provide for a consistent/appropriate BLM/Forest Service response. Plans should establish policy for addressing ongoing drought and post-drought recovery for Greater Sage-Grouse habitat objectives.	P-RM-8: Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-RM-9: No similar action.	B-RM-9: No similar action.	C-RM-9: No similar action.	D-RM-9: No similar action.	P-RM-9: The NEPA analysis for renewals and modifications of livestock grazing permits/leases that include lands within PHMA would include specific management thresholds based on Greater Sage-Grouse Habitat Objectives Table and Land Health Standards (43 CFR 4180.2) (Appendix K [of the 2015 Final EIS]) and defined responses that would allow the authorizing officer to make adjustments to livestock grazing without conducting additional NEPA.
A-RM-10: No similar action.	B-RM-10: No similar action.	C-RM-10: No similar action.	D-RM-10: No similar action.	P-RM-10: Allotments within PHMA, 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 could include monitoring for actual use, utilization, and use supervision.
A-RM-11: No similar action.	B-RM-11: (PHMA) Manage riparian areas and wet meadows for proper functioning condition or other similar methodology (Forest Service only) within Greater Sage-Grouse PHMA	C-RM-11: Same as Alternative B.	D-RM-11: Same as Alternative B, but apply to ADH.	P-RM-11: Same as Alternative D.
A-RM-12: No similar action.	B-RM-12: (ADH) Manage wet meadows to maintain a component of perennial forbs with diverse species richness relative to site potential (i.e., reference state) to facilitate broodrearing. Also conserve or enhance these wet meadow complexes to maintain or increase amount of edge and cover within that edge to minimize elevated mortality during the late brood-rearing period (Hagen et al. 2007; Kolada et al. 2009; Atamian et al. 2010).	C-RM-12: (ADH) Within Greater Sage-Grouse habitats, manage wet meadows to maintain a component of perennial forbs with diverse species richness and productivity relative to site potential (i.e., 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 conserve or enhance these wet meadow complexes to maintain or increase the amount of edge and cover within that edge to minimize elevated mortality during the late brood-rearing period (Hagen et al. 2007; Kolada et al. 2009; Atamian et al. 2010).	D-RM-12: (ADH) Within ADH, manage wet meadows to maintain diverse species richness, including a component of perennial forbs, relative to site potential (i.e., reference state).	P-RM-12: Same as Alternative D.
A-RM-13: No similar action.	B-RM-13: e (ADH) Where riparian areas and wet meadows meet proper functioning condition or meet standards using other similar methodology (Forest Service only), strive to attain reference state vegetation relative to the ecological site description. For example: Within Greater Sage-Grouse PHMA, reduce hot season grazing on riparian and meadow complexes to promote recovery or maintenance of appropriate vegetation and water quality. Utilize fencing/herding techniques or seasonal use or livestock distribution changes to reduce pressure on riparian or wet meadow vegetation used by Greater Sage-Grouse in the hot season (summer) (Aldridge and Brigham 2002; Crawford et al. 2004; Hagen et al. 2007).	C-RM-13: Same as Alternative B.	D-RM-13: (ADH) Establish permit/lease terms and conditions (Line 19) in conjunction with grazing strategies to ensure that the timing and level of utilization results in wet meadows with diverse species richness, including a component of perennial forbs, relative to site potential (i.e., reference state).	P-RM-13: Same as Alternative D.
A-RM-14: No similar action.	B-RM-14: e (PHMA) Authorize new water development for diversion from spring or seep source only when Greater Sage-Grouse PHMA would benefit from the development. This includes developing new water sources for livestock as part of an Allotment Management Plan/Conservation Plan to improve Greater Sage-Grouse habitat.	C-RM-14: (ADH) Authorize no new water developments for diversion from spring or seep sources within Greater Sage-Grouse habitat.	D-RM-14: (ADH) Authorize new water development only after determining that the project will not adversely impact Greater Sage-Grouse from habitat loss. Ensure that adequate long-term grazing management is in effect before authorizing water developments that may increase levels of use or change season of use. Give specific consideration to adjacent or downstream wetland habitat when a project entails a diversion from a spring or seep.	P-RM-14: Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-RM-15: No similar action.	B-RM-15: (PHMA) Analyze springs, seeps and associated pipelines to determine if modifications are necessary to maintain the continuity of the predevelopment riparian area within Greater Sage-Grouse PHMA. Make modifications where necessary, considering impacts to other water uses when such considerations are neutral or beneficial to Greater Sage-Grouse.	C-RM-15: (ADH) Analyze springs, seeps and associated water developments to determine if modifications are necessary to maintain the continuity of the predevelopment riparian area within Greater Sage-Grouse habitats. Make modifications where necessary, including dismantling water developments.	D-RM-15: (PHMA) Analyze springs, seeps and associated pipelines to determine if modifications are necessary to maintain the continuity of the predevelopment riparian area. If necessary to maintain Greater Sage-Grouse populations or reverse a downward population trend caused by habitat loss, modify or decommission the project to restore the applicable wetland habitat.	P-RM-15: (ADH) Analyze springs, seeps and associated pipelines to determine if modifications are necessary to maintain the continuity of the predevelopment riparian area. If necessary to maintain Greater Sage-Grouse populations or reverse a downward population trend caused by habitat loss, modify the project as necessary to restore the applicable wetland habitat.
A-RM-16: No similar action.	B-RM-16: (PHMA) Only allow treatments that conserve, enhance or restore Greater Sage-Grouse habitat (this includes treatments that benefit livestock as part of an Allotment Management Plan/Conservation Plan to improve Greater Sage-Grouse habitat).	C-RM-16: (ADH) Ensure that vegetation treatments create landscape patterns which most benefit Greater Sage-Grouse. Only allow treatments that are demonstrated to benefit Greater Sage-Grouse and retain sagebrush height and cover consistent with Greater Sage-Grouse habitat objectives (this includes treatments that benefit livestock as part of an Allotment Management Plan/Conservation Plan to improve Greater Sage-Grouse habitat).	D-RM-16: (PHMA–Sagebrush Ecosites) Retain in sagebrush habitat, for each Colorado MZ, a minimum of 70 percent of the ecological sites capable of supporting 12 percent canopy cover of Wyoming Sagebrush or 15 percent canopy cover of Mountain Sagebrush. Manage for a total disturbance cap of less than 30 percent, to include all loss of sagebrush from all causes including anthropogenic disturbance, wildfire, plowed field agriculture, and vegetation treatments. This cap is applied to PHMA that support sagebrush ecosites in the Colorado MZ. Sites capable of supporting sagebrush habitat will count against the cap until they have recovered to at least 12 percent canopy cover in Wyoming big sagebrush and 15 percent in mountain big sagebrush dominated areas (Bohne et al. 2007). Note: <ul style="list-style-type: none"> • Only mappable stands of cheatgrass and Pinyon/ Juniper encroachment will count against the disturbance cap. • Irrigated meadows do not count against the cap. • On a site-by-site basis, independent of cap management issues, do not allow treatments with the potential to adversely affect Greater Sage-Grouse populations. 	P-RM-16: (ADH) Manage for a habitat objective that is primarily sagebrush with a mosaic of seral stages and sagebrush in all age classes. On a site-by-site basis, do not allow treatments that would adversely affect Greater Sage-Grouse populations. See Appendix H, Guidelines for Implementation [of the 2015 Final EIS].
A-RM-17: No similar action.	B-RM-17: (PHMA) Evaluate the role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to Greater Sage-Grouse PHMA 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 PHMA, 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 the land health assessments (or other analyses [Forest Service only]) (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.	C-RM-17: (ADH) 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.	D-RM-17: Same as Alternative B.	P-RM-17: Same as Alternative B.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-RM-**: No similar action.	B-RM-**: No similar action.	C-RM-**: (ADH) Any vegetation treatment plan must 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 3 years before grazing returns. Continue monitoring for 5 years after livestock are returned to the area, and compare to treated, ungrazed exclosures, as well as untreated areas	D-RM-**: No similar action.	P-RM-**: No similar action.
A-RM-18: No similar action.	B-RM-18: (PHMA) Design any new structural range improvements and location of supplements (salt or protein blocks) to conserve, enhance, or restore Greater Sage-Grouse habitat through an improved grazing management system relative to Greater Sage-Grouse objectives. Structural range improvements, in this context, include but are not 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.	C-RM-18: (ADH) Avoid all new structural range developments in occupied Greater Sage-Grouse habitat unless independent peer-reviewed studies show that the range improvement structure benefits Greater Sage-Grouse. Salt and supplement will not be used within occupied habitat. Structural range developments, in this context, include but are not 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. Consider the comparative cost of changing grazing management instead of constructing additional range developments.	D-RM-18: (ADH) Design new range improvement projects to enhance livestock distribution and to control the timing and intensity of utilization. Examples of structural range improvement projects are cattle guards, fences, corrals, pipelines, troughs, storage tanks, windmills, ponds/reservoirs, solar panels, and spring developments. Include a plan to monitor and control invasive plant species following any related ground disturbance. Place mineral or salt supplements away from water sources and leks in locations that enhance livestock distribution.	P-RM-18: (ADH) Any vegetation treatment plan must 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 3 years before grazing returns. Continue monitoring for 5 years after livestock are returned to the area, and compare to treated, ungrazed exclosures, as well as untreated areas
A-RM-19: No similar action.	B-RM-19: e (PHMA) When developing or modifying water developments, use applicable PDFs or RDFs (see this table's PDFs/RDFs) to mitigate potential impacts from West Nile virus (Clark et al. 2006; Doherty 2007; Walker et al. 2007b; Walker and Naugle 2011).	C-RM-19: Same as Alternative B.	D-RM-19: (PHMA) Where conditions create the potential for impacts from West Nile virus, use PDFs/RDFs to mitigate the potential impacts. See Appendix I [of the 2015 Final EIS].	P-RM-19: (PHMA) Where conditions create the potential for impacts from West Nile virus from developments or modification of water developments, use PDFs/RDFs to mitigate the potential impacts. See Appendix I [of the 2015 Final EIS].
A-RM-20: No similar action.	B-RM-20: (PHMA) Evaluate existing structural range improvements and location of supplements (salt or protein blocks) to make sure they conserve, enhance or restore Greater Sage-Grouse habitat.	C-RM-20: Same as Alternative B.	D-RM-20: (PHMA) Evaluate existing structural range improvements to determine if modifications are necessary to maintain Greater Sage-Grouse populations or reverse a downward population trend caused by habitat loss. Modify, relocate, or remove projects as necessary. Place mineral and salt supplements away from water sources and leks in locations that enhance livestock distribution.	P-RM-20: Same as Alternative D.
A-RM-21: No similar action.	B-RM-21: (PHMA) To reduce outright Greater Sage-Grouse strikes and mortality, remove, modify or mark fences in high risk areas within Greater Sage-Grouse PHMA based on proximity to lek, lek size, and topography (Christiansen 2009; Stevens 2011).	C-RM-21: (ADH) Remove, modify or mark fences in areas of moderate or high risk of Greater Sage-Grouse strikes within Greater Sage-Grouse habitat based on proximity to lek, lek size, and topography (Christiansen 2009; Stevens 2011).	D-RM-21: (ADH) Mark fences in high risk areas (Christiansen 2009; Stevens 2011). (PHMA) Where marking fences does not reduce fence-related Greater Sage-Grouse mortality, modify fences. Where modification does not reduce Greater Sage-Grouse mortality and the fence-related mortality is sufficient to adversely affect Greater Sage-Grouse populations, remove fences.	P-RM-21: Same as Alternative D.
A-RM-22: No similar action.	B-RM-22: (PHMA) Monitor for and treat invasive species associated with existing range improvements (Gelbard and Belnap 2003; Bergquist et al. 2007).	C-RM-22: Same as Alternative B.	D-RM-22: Same as Alternative B, but apply to ADH.	P-RM-22: Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-RM-**: No similar action.	B-RM-**: No similar action.	C-RM-**: (ADH) Any vegetation treatment plan must 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 3 years before grazing returns. Continue monitoring for 5 years after livestock are returned to the area, and compare to treated, ungrazed exclosures, as well as untreated areas.	D-RM-**: No similar action.	P-RM-**: No similar action.
A-RM-23: No similar action.	B-RM-23: (ADH) Maintain retirement of grazing privileges as an option in PHMA when the current permittee is willing to retire grazing on all or part of an allotment. Analyze the impacts of no livestock use on wildfire and invasive species threats (Crawford et al. 2004) in evaluating retirement proposals. Planning direction note: Each planning effort will identify the specific allotment(s) where retirement of grazing privileges is potentially beneficial.	C-RM-233: Same as Alternative B. Planning direction note: In each planning process, identify grazing allotments where permanent retirement of grazing privileges would be potentially beneficial to Greater Sage-Grouse	D-RM-23: (ADH) When a permittee or lessee voluntarily relinquishes grazing preference, consider conversion of the allotment to a reserve allotment (grass bank) that will remain available for use on a temporary, nonrenewable basis for the benefit of Greater Sage-Grouse habitat. Authorize temporary nonrenewal permits in reserve allotments to meet resource objectives elsewhere such as rest or deferment due to fire.	P-RM-23: (ADH) 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 fuel breaks or reserve common allotments. When a permittee or lessee voluntarily relinquishes grazing preference, consider conversion of the allotment to a reserve common allotment that will remain available for use on a temporary, nonrenewable basis for the benefit of Greater Sage-Grouse habitat. Authorize temporary nonrenewal permits in reserve common allotments to meet resource objectives elsewhere such as rest or deferment due to fire or vegetation treatments. Temporary use of reserve common allotments would not be allowed due to drought or overuse of customary allotments.
A-RM-**: No similar action.	B-RM-**: No similar action.	C-RM-**: (ADH) Encourage partners to monitor effects of retiring grazing permits in Greater Sage-Grouse habitat.	D-RM-**: No similar action.	P-RM-**: No similar action.
A-WHB-1: No similar action.	B-WHB-1: (PHMA) Manage wild horse population levels within established appropriate management levels.	C-WHB-1: Same as Alternative B.	D-WHB-1: (ADH) Same as Alternative B, except apply to ADH.	P-WHB-1: Same as Alternative D.
A-WHB-2: No similar action.	B-WHB-2: (ADH) Prioritize gathers in Greater Sage-Grouse PHMA, unless removals are necessary in other areas to prevent catastrophic environmental issues, including herd health impacts.	C-WHB-2: Same as Alternative B.	D-WHB-2: (ADH) Same as Alternative B, but consider Greater Sage-Grouse habitat requirements in conjunction with all resource values managed by the BLM, and give preference to Greater Sage-Grouse habitat unless site-specific circumstances warrant an exemption.	P-WHB-2: Same as Alternative D.
A-WHB-3: No similar action.	B-WHB-3: (PHMA) Within PHMA, develop or amend BLM HMA Plans and Forest Service Wild Horse Territory Plans to incorporate Greater Sage-Grouse habitat objectives and management considerations for all BLM HMAs and Forest Service Wild Horse Territories.	C-WHB-3: Same as Alternative B.	D-WHB-3: Same as Alternative B. When developing HMA Plans, apply all appropriate conservation measures from the Range program, including, but not limited to utilization of forage and structural range improvements.	P-WHB-3: Same as Alternative D.
A-WHB-4: No similar action.	B-WHB-4: (PHMA) For all BLM HMAs and Forest Service Wild Horse Territories within PHMA, prioritize the evaluation of all appropriate management levels based on indicators that address vegetation structure/condition/ composition and measurements specific to achieving Greater Sage-Grouse habitat objectives	C-WHB-4: No similar action.	D-WHB-4: Same as Alternative B, but consider Greater Sage-Grouse habitat requirements in conjunction with all resource values managed by the BLM, and give preference to Greater Sage-Grouse habitat unless site-specific circumstances warrant an exemption.	P-WHB-4: Same as Alternative B.
A-WHB-5: No similar action.	B-WHB-5: (ADH) Coordinate with other resources (range, wildlife, and riparian) to conduct land health assessments to determine existing vegetation structure/condition/ composition within all BLM HMAs and Forest Service Wild Horse Territories.	C-WHB-5: Same as Alternative B.	D-WHB-5: Same as Alternative B.	P-WHB-5: Same as Alternative B.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-WHB-6: No similar action.	B-WHB-6: (PHMA) When conducting NEPA analysis for wild horse management activities, water developments or other rangeland improvements for wild horses in PHMA, address the direct and indirect effects to Greater Sage-Grouse populations and habitat. Implement any water developments or rangeland improvements using the criteria identified for domestic livestock identified above in PHMA.	C-WHB-6: Same as Alternative B.	D-WHB-6: Same as Alternative B.	P-WHB-6: Same as Alternative B.
A-MR-1: No similar action.	B-MR-1: (PHMA) Close Greater Sage-Grouse PHMA to fluid mineral leasing. Upon expiration or termination of existing leases, do not accept nominations/expressions of interest for parcels within priority areas.	C-MR-1: (ADH) Close occupied habitat areas to fluid mineral leasing. No new leases or permits will be issued. Upon expiration or termination of existing leases, do not accept nominations/expressions of interest for parcels within occupied habitat.	D-MR-1: Greater Sage-Grouse PHMA NSO-46d. Apply NSO stipulation for fluid mineral leasing in PHMA.	P-MR-1: No new leasing 1 mile from active leks in ADH (Blickley et al. 2012; Harju 2012).
A-MR-2: No similar action.	B-MR-2: No similar action.	C-MR-2: No similar action.	D-MR-2: Greater Sage-Grouse ADH NSO-46d. Apply NSO stipulation for fluid mineral leasing in ADH within a minimum distance of 0.6-mile from active leks.	P-MR-2: NSO without waiver or modification in PHMA.
A-MR-3: No similar action.	B-MR-3: No similar action.	C-MR-3: No similar action.	D-MR-3: Greater Sage-Grouse ADH TL-46d. Within ADH, prohibit surface occupancy within a minimum of 4 miles from active leks during lekking, nesting, and early brood-rearing.	P-MR-3: IN GHMA, and new leases would include TL stipulations to protect Greater Sage-Grouse and its habitat. The following stipulation would apply: Greater Sage-Grouse TL-46e: No activity associated with construction, drilling, or completions within 4 miles from active leks during lekking, nesting, and early brood-rearing (March 1 to July 15). Authorized Officer could grant an exception, modification, or waiver in consultation with the State of Colorado (Appendix D, Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations [of the 2015 Final EIS]).
A-MR-4: No similar action.	B-MR-4: No similar action.	C-MR-4: No similar action.	D-MR-4: Greater Sage-Grouse ADH NSO-46d. Apply NSO stipulation for fluid mineral leasing in ADH within a minimum distance of 0.6-mile from active leks	P-MR-4: NSO within 2 miles of active leks in GHMA.
A-MR-5: No similar action.	B-MR-5: Greater Sage-Grouse PHMA COA-47- 51b/c. The operator/lessee is required to conduct site-specific review of proposed projects prior to approval of Applications for Permit to drill. For leases within PHMA, the following COAs would apply: <ul style="list-style-type: none"> • If the lease is entirely within a PHMA, do not allow surface occupancy of any portion within 4 miles around the lek and limit permitted disturbances to one per section with no more than 3 percent surface disturbance in that section. • If the lease is entirely within a PHMA, do not allow surface occupancy of any portion within 4 miles around the lek and limit permitted disturbances to one per section with no more than 3 percent surface disturbance in that section. 	C-MR-5: Same as Alternative B.	D-MR-5: Ecological Sites that Support Sagebrush in PHMA CSU-46d. Surface disturbance within ecological sites that support sagebrush in PHMA would not exceed 5 percent within the corresponding Colorado MZ. See Appendix D [of the 2015 Final EIS], Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations and Appendix E [of the 2015 Final EIS], Methodology for Calculating Disturbance Caps.	P-MR-5: 3 percent disturbance cap in PHMA with disturbances limited to 1 disturbance per 640 acres density calculated by biologically significant unit (Colorado populations) and proposed project analysis area (Colorado MZ) would apply to new lease activities. The following LN would apply: Greater Sage-Grouse LN-46e: any lands leased in PHMA are subject to the restrictions of 1 disturbance per 640 acres calculated by biologically significant unit (Colorado population) and proposed project analysis area (Colorado MZ) to allow clustered development (Appendix D [of the 2015 Final EIS], Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations).

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-MR-6: No similar action.	B-MR-6: Greater Sage-Grouse PHMA COA-47- 51b/c. The operator/lessee is required to conduct site-specific review of proposed projects prior to approval of Applications for Permit to drill. For leases within PHMA, the following COAs would apply: <ul style="list-style-type: none"> • If the lease is entirely within a PHMA, do not allow surface occupancy of any portion within 4 miles around the lek and limit permitted disturbances to one per section with no more than 3 percent surface disturbance in that section. • If the lease is entirely within a PHMA, do not allow surface occupancy of any portion within 4 miles around the lek and limit permitted disturbances to one per section with no more than 3 percent surface disturbance in that section. 	C-MR-6: Same as Alternative B.	D-MR-6: No similar action.	P-MR-6: No new leasing in PHMA if disturbance cap exceeds 3 percent for the biologically significant unit (Colorado populations) and proposed project analysis area (Colorado MZ) or 1 disturbance per 640 acres is exceeded.
A-MR-7: No similar action.	B-MR-7: (PHMA) Allow geophysical exploration within Greater Sage-Grouse PHMA s to obtain information for existing federal fluid mineral leases or areas adjacent to state or fee lands within Greater Sage-Grouse PHMA. Allow geophysical operations only using helicopter-portable drilling, wheeled or tracked vehicles on existing roads, or other approved methods conducted in accordance with seasonal TLs and 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.	C-MR-7: (ADH) Allow geophysical exploration within occupied Greater Sage-Grouse habitat areas to obtain exploratory information for areas outside of and adjacent to occupied Greater Sage-Grouse habitat areas. Only allow geophysical operations by 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.	D-MR-7: Same as Alternative B.	P-MR-7: Same as Alternative B.
A-MR-8: No similar action.	B-MR-8: Greater Sage-Grouse PHMA COA-47- 51b/c. The operator/lessee is required to conduct site-specific review of proposed projects prior to approval of Applications for Permit to drill. For leases within PHMA, the following COAs would apply: <ul style="list-style-type: none"> • Preclude new surface occupancy on existing leases within PHMA. Greater Sage-Grouse PHMA COA55b. For leases that are not yet developed in PHMA, the proposed surface disturbance cannot exceed 3 percent within that Colorado MZ. (Refer to Appendix D [of the 2015 Final EIS], Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations.)	C-MR-8: (ADH) Apply the following conservation measures as COAs at the project and well permitting stages, and through LUP implementation decisions and upon completion of the environmental record of review (43 CFR 3162.5), include appropriate documentation of compliance with NEPA. In this process evaluate, among other things: 1. Whether the conservation measure is “reasonable” (43 CFR 3101.1-2) with the valid existing rights; and 2. Whether the action is in conformance with the approved LUP. Greater Sage-Grouse ADH COA-55c. For leases that are not yet developed in ADH, the purposed surface disturbance cannot exceed 3 percent for that entire Colorado MZ. (Refer to Appendix D [of the 2015 Final EIS], Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations.)	D-MR-8: Greater Sage-Grouse Ecological Sites that Support Sagebrush in PHMA COA-47-51d. Limit permitted disturbances to 5 percent in any Colorado MZ. (Refer to Appendix D, Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations.) Greater Sage-Grouse PHMA COA-55d. For leases that are not yet developed, the proposed surface disturbance cannot exceed 5 percent for ecological sites that support sagebrush in PHMA for that Colorado MZ. (Refer to Appendix D [of the 2015 Final EIS], Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations.)	P-MR-8: Within 1 mile of active leks, disturbance, disruptive activities and occupancy are precluded. If it is determined that this restriction would render the recovery of fluid minerals infeasible or uneconomic, considering the lease as a whole, or where development of existing leases requires that disturbance density exceeds 1 disturbance per 640 acres, and/or 3 percent disturbance cap, use the criteria below to site proposed lease activities to meet Greater Sage-Grouse habitat objectives and require mitigation as described in Appendix G [of the 2015 Final EIS] (Greater Sage-Grouse Mitigation Strategy).

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-MR-9: No similar action.	B-MR-9: Greater Sage-Grouse PHMA COA-47- 51b/c. The operator/lessee is required to conduct site-specific review of proposed projects prior to approval of Applications for Permit to drill. For leases within PHMA, the following COAs would apply: <ul style="list-style-type: none">• If the lease is entirely within a PHMA, do not allow surface occupancy of any portion within 4 miles around the lek and limit permitted disturbances to one per section with no more than 3 percent surface disturbance in that section.• If the entire lease is within the 4-mile lek perimeter, limit permitted disturbances to one per section with no more than 3 percent surface disturbance in that section. Require any development to be placed at the most distal part of the lease	C-MR-9: Same as Alternative B.	D-MR-9: Greater Sage-Grouse PHMA COA-47- 51d. Prohibit surface occupancy or disturbance within 4 miles of a lek during lekking, nesting, and early brood-rearing.	P-MR-9: In PHMA and within 4 miles of an active lek, the criteria below would be applied to guide development of the lease or unit that would result in the fewest impacts possible to Greater Sage-Grouse. Criteria*: <ul style="list-style-type: none">• Location of proposed lease activities in relation to critical Greater Sage-Grouse habitat areas as identified by factors, including but not limited to, average male lek attendance and/or important seasonal habitat.• An evaluation of the potential threats from proposed lease activities that may affect the local population as compared to benefits that could be accomplished through compensatory or off-site mitigation (Section 2.6.3, Regional Mitigation)• An evaluation of the proposed lease activities, including design features, in relation to the site specific terrain and habitat features. For example, within 4 miles from a lek, local terrain features such as ridges and ravines may reduce the habitat importance, and shield nearby habitat from disruptive factors. This is particularly likely in Colorado MZ 17, which has an atypical Greater Sage-Grouse habitat – featuring benches with Greater Sage-Grouse habitat interspersed with steep ravines. To authorize an activity based on the criteria above, the environmental record of review must show no significant direct disturbance, displacement, or mortality of Greater Sage-Grouse.
A-MR-10: No similar action.	B-MR-10: Greater Sage-Grouse PHMA COA52b/d. Apply a seasonal restriction on exploratory drilling in PHMA to prohibit surface-disturbing activities during the lekking, nesting and early brood-rearing season. (Refer to Appendix D [of the 2015 Final EIS], Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations.)	C-MR-10: Greater Sage-Grouse ADH COA-52c. Apply a seasonal restriction on exploratory drilling that prohibits surface-disturbing activities during the lekking, nesting, and early brood-rearing season in ADH. This seasonal restriction shall also apply to related activities that are disruptive to Greater Sage-Grouse, including vehicle traffic and other human presence. (Refer to Appendix D [of the 2015 Final EIS], Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations.)	D-MR-10: Same as Alternative B.	P-MR-10: Based on site-specific conditions, prohibit construction, drilling and completion within PHMA within 4 miles of a lek during lekking, nesting, and early brood-rearing (March 1 to July 15). In consultation with the State of Colorado, this TL may be adjusted based on application of the criteria below.
A-MR-11: No similar action.	B-MR-11: Is Greater Sage-Grouse PHMA Notice to Lessees-54b/c. For leases within PHMA, complete Master Development Plans in lieu of single-well Applications for Permit to Drill processing for all but wildcat wells. (Refer to Appendix D [of the 2015 Final EIS], Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations.)	C-MR-11: Same as Alternative B.	D-MR-11: Greater Sage-Grouse PHMA Notice to Lessees-54d. Within PHMA, complete Master Development Plans instead of single-well Applications for Permit to Drill for all but exploratory wells. (Refer to Appendix D [of the 2015 Final EIS], Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations.)	P-MR-11: Greater Sage-Grouse PHMA Notice to Lessees-54e. Within PHMA, operators would be encouraged to complete Master Development Plans in consultation with the State of Colorado, instead of single well Applications for Permit to Drill for all but exploratory wells. (Refer to Appendix D [of the 2015 Final EIS], Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations.)
A-MR-12: No similar action.	B-MR-12: (PHMA) When necessary, conduct additional, effective mitigation in 1) Greater Sage-Grouse PHMA or—less preferably—2) GHMA (dependent upon the area specific ability to increase Greater Sage-Grouse populations).	C-MR-12: (ADH) When necessary, conduct additional, effective mitigation in occupied habitat (dependent upon the area specific ability to increase Greater Sage-Grouse populations).	D-MR-12: Same as Alternative B.	P-MR-12: (PHMA) When necessary, conduct effective mitigation in 1) Greater Sage-Grouse PHMA or—less preferably—2) GHMA (dependent upon the area specific ability to increase Greater Sage-Grouse populations and in consultation with the State of Colorado).

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-MR-13: No similar action.	B-MR-13: (PHMA) Conduct additional, effective mitigation first within the same population area where the impact is realized, and if not possible then conduct mitigation within the same Colorado MZ as the impact, per 2006 WAFWA Strategy (p. 2-17)	C-MR-13: (ADH) Conduct additional, effective mitigation first within the same population area where the impact is realized, and if not possible then conduct mitigation within the same Colorado MZ as the impact, per 2006 WAFWA Strategy (p. 2-17).	D-MR-13: Same as Alternative B.	P-MR-13: (PHMA) Conduct effective mitigation first within the same Colorado MZ where the impact is realized, and if not possible then conduct mitigation within the same population as the impact, or in other Colorado Greater Sage-Grouse populations, in consultation with the State of Colorado.
A-MR-**: No similar action.	B-MR-**: Greater Sage-Grouse PHMA Notice to Lessees-58b/c. Require unitization when deemed necessary for proper development and operation of an area to minimize adverse impacts to Greater Sage-Grouse. (Refer to Appendix D [of the 2015 Final EIS], Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations.)	C-MR-**: Same as Alternative B.	D-MR-**: Greater Sage-Grouse PHMA Notice to Lessees-58d. Encourage unitization within Colorado MZs when necessary for proper development and operation of an area or to facilitate more orderly (i.e., phased and/or clustered) development as a means of minimizing adverse impacts to Greater Sage-Grouse. (Refer to Appendix D [of the 2015 Final EIS], Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations.)	P-MR-**: No Similar Action.
A-MR-**: No similar action.	B-MR-**: (PHMA) Identify areas where acquisitions (including subsurface mineral rights) or conservation easements would benefit Greater Sage-Grouse.	C-MR-**: Same as Alternative B.	D-MR-**: No Similar Action.	P-MR-**: No Similar Action.
A-MR-14: No similar action.	B-MR-14: (ADH) 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. 2000a; Hagen et al. 2007) that would result in full restoration of the lands to the condition it was found prior to disturbance. Base the reclamation costs on the assumption that contractors for the BLM and Forest Service will perform the work.	C-MR-14: Same as Alternative B.	D-MR-14: Same as Alternative B.	P-MR-14: Same as Alternative B.
A-MR-**: No similar action.	B-MR-**: No similar action.	C-MR-**: (ADH) Prohibit the construction of evaporation or infiltration reservoirs to hold coalbed methane wastewater.	D-MR-**: No similar action.	P-MR-**: No similar action.
A-MR-**: No similar action.	B-MR-**: No similar action.	C-MR-**: (ADH) Agencies will explore options to amend, cancel, or buy out leases in ACECs/Zoological Areas and occupied habitats.	D-MR-**: No similar action.	P-MR-**: No similar action.
A-MR-**: No similar action.	B-MR-**: No similar action.	C-MR-**: (ADH) Include conditions that require relinquishment of leases/authorizations if doing so will: 1) mitigate the impact of a proposed development, or 2) mitigate the unanticipated impacts of an approved development.	D-MR-**: No similar action.	P-MR-**: No similar action.
A-MR-**: No similar action.	B-MR-**: No similar action.	C-MR-**: (ADH) No waivers will be issued.	D-MR-**: No similar action.	P-MR-**: No similar action.
A-MR-**: No similar action.	B-MR-**: No similar action.	C-MR-**: (ADH) Any oil, gas, geothermal activity will be conducted to maximize avoidance of impacts, based on evolving scientific knowledge of impacts.	D-MR-**: No similar action.	P-MR-**: No similar action.
A-MR-**: No similar action.	B-MR-**: (PHMA) Recommend withdrawal from mineral entry based on risk to the Greater Sage-Grouse and its habitat from conflicting locatable mineral potential and development.	C-MR-**: Same as Alternative B.	D-MR-**: No similar action.	P-MR-**: No similar action.
A-MR-**: No similar action.	B-MR-**: (PHMA) Make any existing claims within the withdrawal area subject to validity exams or buy out. Include claims that have been subsequently determined to be null and void in the proposed withdrawal.	C-MR-**: Same as Alternative B.	D-MR-**: (PHMA) In accordance with 43 CFR 3809.100, require validity exams for mining claims within withdrawn areas.	P-MR-**: No similar action.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-MR-15: No similar action.	B-MR-15: (PHMA) In plans of operations required prior to any proposed surface disturbing activities, include the following: • Additional effective mitigation in perpetuity for conservation (in accordance with existing policy, BLM Washington Office Instruction Memorandum 2013- 142). For example, purchase private land and mineral rights or severed subsurface mineral rights within the priority area and deed to US Government.	C-MR-15: Same as Alternative B.	D-MR-15: (PHMA) In plans of operations required prior to any proposed surface disturbing activities include as appropriate effective mitigation for conservation in accordance with existing policy (BLM Washington Office Instruction Memorandum 2013-142).	P-MR-15: Same as Alternative D.
A-MR-16: No similar action.	B-MR-16: Consider seasonal restrictions if deemed effective	C-MR-16: Same as Alternative B.	D-MR-16: (PHMA) Where applicable to prevent unnecessary or undue degradation, apply seasonal restrictions if deemed necessary.	P-MR-16: Same as Alternative D.
A-MR-17: No similar action.	B-MR-17: (PHMA) Close PHMA to mineral material sales.	C-MR-17: Same as Alternative B.	D-MR-17: (PHMA) Consider allowing existing mineral material sale sites to continue operations. Consider allowing expansion of existing mineral material sales sites. Where practicable, limit permitted disturbances, as defined in Appendix E [of the 2015 Final EIS], Methodology for Calculating Disturbance Caps, to 5 percent in any Colorado MZ. Where disturbance exceeds 5 percent in any Colorado MZ make additional, effective mitigation necessary to offset the resulting loss of Greater Sage-Grouse habitat. Disturbance Cap Exception Criteria: Where data-based documentation is available to warrant a conclusion that Greater Sage-Grouse populations in the applicable Colorado Greater Sage-Grouse MZ are healthy and stable at objective levels or increasing, and that the development will not adversely affect Greater Sage-Grouse populations due to habitat loss or disruptive activities, the Authorized Officer may authorize disturbance in excess of the 5 percent disturbance cap without requiring additional mitigation. In many cases, this exception will require project proponents to fund studies necessary to secure the “data-based documentation” requirement	P-MR-17: (PHMA) Close PHMA to new mineral material sales. However, these areas would remain open to free use permits and the expansion of existing active pits, only if the following criteria are met: • The activity is within the biologically significant unit and the project area disturbance cap; • The activity is subject to the provisions set forth in the mitigation strategy (Appendix G [of the 2015 Final EIS]); • All applicable required/preferred design features are applied; and, [if applicable] the activity is permissible under the regional screening criteria (Appendix H [of the 2015 Final EIS], Guidelines for Implementation).
A-MR-18: No similar action.	B-MR-18: (PHMA) Restore salable mineral pits no longer in use to meet Greater Sage-Grouse habitat conservation objectives.	C-MR-18: Same as Alternative B.	D-MR-18: (ADH) Restore salable mineral pits no longer in use to meet Greater Sage-Grouse habitat conservation objectives. Require reclamation/restoration of Greater Sage-Grouse habitat as a viable long-term goal to improve the Greater Sage-Grouse habitat. (Appendix G [of the 2015 Final EIS], Surface Reclamation Plan, of the Draft LUPA/EIS includes guidelines for reclamation in ecological sites that support sagebrush.)	P-MR-18: Same as Alternative D.
A-MR-19: No similar action.	B-MR-19: (PHMA) Close PHMA to nonenergy leasable mineral leasing. This includes not permitting any new leases to expand an existing mine.	C-MR-19: Same as Alternative B.	D-MR-19:	P-MR-19: New nonenergy mineral leases: No new nonenergy mineral leasing in PHMA.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-MR-20: No similar action.	B-MR-20: (PHMA) Close PHMA to nonenergy leasable mineral leasing. This includes not permitting any new leases to expand an existing mine.	C-MR-20: Same as Alternative B.	D-MR-20: (PHMA) Consider allowing expansion of existing nonenergy mineral leases. Where practicable, limit permitted disturbances, as defined in Appendix E [of the 2015 Final EIS], Methodology for Calculating Disturbance Caps, to 5 percent in any Colorado MZ. Where disturbance exceeds 5 percent in any Colorado MZ make additional, effective mitigation necessary to offset the resulting loss of Greater Sage-Grouse habitat. Disturbance Cap Exception Criteria: Where data-based documentation is available to warrant a conclusion that Greater Sage-Grouse populations in the applicable Colorado Greater Sage-Grouse MZ are healthy and stable at objective levels or increasing, and that the development will not adversely affect Greater Sage-Grouse populations due to habitat loss or disruptive activities, the Authorized Officer may authorize disturbance in excess of the 5 percent disturbance cap without requiring additional mitigation. In many cases, this exception will require project proponents to fund studies necessary to secure the “data-based documentation” requirement.	P-MR-20: Existing nonenergy mineral leases: Apply the following conservation measures as COAs where applicable and feasible: Preclude new surface occupancy on existing leases within 1 mile of active leks (Blickley et al. 2012; Harju 2012). If the lease is entirely within 1 mile of an active lek, require any development to be placed in the area of the lease least harmful to sage- grouse based on vegetation, topography, or other habitat features (Appendix D [of the 2015 Final EIS], Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations). Preclude new surface disturbance on existing leases within 2 miles of active leks within PHMA. If the lease is entirely within 2 miles of an active lek, require any development to be placed in the area of the lease least harmful to sage- grouse based on vegetation, topography, or other habitat features (Appendix D [of the 2015 Final EIS], Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations). Limit permitted disturbances to 1 disturbance per 640 acres average across the landscape in PHMA. Disturbances may not exceed 3 percent in PHMA in any biologically significant unit (Colorado populations) and proposed project analysis area (Colorado MZ). Greater Sage-Grouse TL-47-51 – Based on site-specific conditions, prohibit surface occupancy or disturbance within PHMA within 4 miles of a lek during lekking, nesting, and early brood-rearing (March 1 to July 15).
A-MR-21: No similar action.	B-MR-21: (PHMA) Where the federal government owns the mineral estate and the surface is in nonfederal ownership, apply the conservation measures applied to public lands.	C-MR-21: Same as Alternative B.	D-MR-21: (PHMA) Where the federal government owns the mineral estate and the surface is in nonfederal ownership, apply conservation measures to the developer (lessee) of the mineral as allowable.	P-MR-21: (PHMA/GHMA) Where the federal government owns the mineral estate in PHMA and GHMA, and the surface is in nonfederal ownership, apply the same stipulations, COAs, and/or conservation measures and RDFs/PDFs 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.
A-MR-22: No similar action.	B-MR-22: (PHMA) Where the federal government owns the surface, and the mineral estate is in non-federal ownership, apply appropriate Fluid Mineral PDFs to surface development.	C-MR-22: Same as Alternative B.	D-MR-22: (PHMA) Where the federal government owns the surface, and the mineral estate is in non-federal ownership, apply appropriate PDFs to surface development.	P-MR-22: (PHMA/GHMA) Where the federal government owns the surface and the mineral estate is in nonfederal ownership in PHMA and GHMA, apply appropriate surface use COAs, stipulations, and mineral RDFs/PDFs 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	BLM Proposed LUPA
A-MR-23: No similar action.	B-MR-23: (ADH) Apply minimization of surface-disturbing or disruptive activities (including operations and maintenance) where needed to reduce the impacts of human activities on important seasonal Greater Sage-Grouse habitats. Apply these measures during activity level planning. Use additional effective mitigation to offset impacts as appropriate (determined by local options/needs).	C-MR-23: Same as Alternative B.	D-MR-23: (ADH) Existing Coal Leases: During the term of the lease, encourage the lessee to voluntarily follow PDFs (Appendix I [of the 2015 Final EIS], Required Design Features, Preferred Design Features, and Suggested Design Features) to reduce and mitigate any adverse impacts to Greater Sage-Grouse.	P-MR-23: (ADH) Existing Coal Leases: During the term of the lease, encourage the lessee to voluntarily follow PDFs (Appendix I [of the 2015 Final EIS], Required Design Features, Preferred Design Features, and Suggested Design Features) to reduce and mitigate any adverse impacts to Greater Sage-Grouse. 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). To authorize expansion of existing leases, the environmental record of review must show no significant direct disturbance, displacement, or mortality of Greater Sage-Grouse based on the criteria below: <ul style="list-style-type: none"> • Critical Greater Sage-Grouse habitat areas as identified by factors, including but not limited to, average male lek attendance and/or important seasonal habitat. • An evaluation of the threats affecting the local population as compared to benefits that could be accomplished through compensatory or off-site mitigation (see Section 2.7.3, Regional Mitigation) • An evaluation of terrain and habitat features. For example, within 4 miles from a lek, local terrain features such as ridges and ravines may reduce the habitat importance, and shield nearby habitat from disruptive factors.
A-MR-24: No similar action.	B-MR-24: (PHMA) Surface mines: Find unsuitable all surface mining of coal under the criteria set forth in 43 CFR 3461.5.	C-MR-24: Same as Alternative B.	D-MR-24: (ADH) New Surface coal mine Leases: Apply the requirements of 43 CFR 3461 to determine unsuitability. Find unsuitable all surface mining of coal under the criteria set forth in 43 CFR 3461.5 to ensure that the specific Lek instance or reference is adequately addressed. Where practicable, limit permitted disturbances as defined in Appendix E [of the 2015 Final EIS], Methodology for Calculating Disturbance Caps, to 5 percent in any Colorado MZ. Where disturbance exceeds 5 percent in any Colorado MZ make additional, effective mitigation necessary to offset the resulting loss of Greater Sage-Grouse habitat. Disturbance Cap Exception Criteria: Where data-based documentation is available to warrant a conclusion that Greater Sage-Grouse populations in the applicable Colorado Greater Sage-Grouse MZ are healthy and stable at objective levels or increasing, and that the development will not adversely affect Greater Sage-Grouse populations due to habitat loss or disruptive activities, the Authorized Officer may authorize disturbance in excess of the 5 percent disturbance cap without requiring additional mitigation. In many cases, this exception will require project proponents to fund studies necessary to secure the “data-based documentation” requirement.	P-MR-24: (PHMA) No new surface coal mine leases would be allowed in PHMA. At the time an application for a new coal lease or lease modification is submitted to the BLM, the BLM would 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).

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-MR-25: No similar action.	B-MR-25: (PHMA) Sub-surface Mining: Grant no new mining leases unless all surface disturbances (appurtenant facilities) are placed outside of the Greater Sage-Grouse PHMA. In Greater Sage-Grouse PHMA, place any new appurtenant facilities outside of PHMA. Where new appurtenant facilities associated with the existing lease cannot be located outside the Greater Sage-Grouse PHMA, collocate new facilities within existing disturbed areas. If this is not possible, then build any new appurtenant facilities to the absolute minimum standard necessary.	C-MR-25: Same as Alternative B.	D-MR-25: (ADH) New Underground Coal Mines Leases: Grant no new mining leases unless all surface disturbances (appurtenant facilities) are placed outside of the Greater Sage-Grouse PHMA [43 CFR 3461.1 (a) and (b)]. Also see Part 3460: Environment, Subpart 3461: Federal Lands Review: Unsuitability for Mining, 3461.1. Where practicable, limit permitted disturbances as defined in Appendix E [of the 2015 Final EIS], Methodology for Calculating Disturbance Caps, to 5 percent in any Colorado MZ. Where disturbance exceeds 5 percent in any Colorado MZ make additional, effective mitigation necessary to offset the resulting loss of Greater Sage-Grouse habitat. Disturbance Cap Exception Criteria: Where data-based documentation is available to warrant a conclusion that Greater Sage-Grouse populations in the applicable Colorado Greater Sage-Grouse MZ are healthy and stable at objective levels or increasing, and that the development will not adversely affect Greater Sage-Grouse populations due to habitat loss or disruptive activities, the Authorized Officer may authorize disturbance in excess of the 5 percent disturbance cap without requiring additional mitigation. In many cases, this exception will require project proponents to fund studies necessary to secure the “data-based documentation” requirement.	P-MR-25: New Underground Coal Mine Leases would be subject to: Special Stipulations: <ul style="list-style-type: none"> • All surface disturbances will be placed more than 2 miles from active leks. • No surface disturbance on remainder of PHMA subject to the following conditions: If, after consultation with the State of Colorado, and in consideration of the following criteria, there is no significant direct disturbance, displacement, or mortality of Greater Sage-Grouse or impact to Greater Sage-Grouse habitat; (List criteria) • 3 percent disturbance cap in PHMA with disturbances limited to 1 disturbance per 640 acres density calculated by biologically significant unit (Colorado population) and proposed project analysis area (Colorado MZ) would apply to new lease activities. • No new leasing in PHMA if disturbance cap exceeds 3 percent for the biologically significant unit (Colorado population) and proposed project analysis area (Colorado MZ) or 1 disturbance per 640 acres is exceeded.
A-MR-26: No similar action.	B-MR-26: No similar action.	C-MR-26: No similar action.	D-MR-26: (ADH) Underground mining exemption criteria for new leases: 1. Federal lands with coal deposits that would be mined by underground mining methods shall not be assessed as unsuitable where there would be no surface coal mining operations, as defined in 43 CFR 3400.0-5 (mm) of this title, on any lease, if issued. 2. Where underground mining will include surface operations and surface impacts on federal lands to which a criterion applies, the lands shall be assessed as unsuitable unless the surface management agency find that a relevant exception or exemption applies. See 43 CFR 3461.1(b). Where practicable, limit permitted disturbances as defined in Appendix E [of the 2015 Final EIS], Methodology for Calculating Disturbance Caps, to 5 percent in any Colorado MZ. Where disturbance exceeds 5 percent in any Colorado MZ make additional, effective mitigation necessary to offset the resulting loss of Greater Sage-Grouse habitat.	P-MR-26: Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-MR-27: No similar action.	B-MR-27: No similar action.	C-MR-27: No similar action.	<p>D-MR-27: (PHMA) See 43 CFR 3461.4 (a) and (b) Exploration. Authorized exploration activities may be conducted only if the Authorized Officer reviews any application for an exploration license on such lands to ensure that any exploration does not harm any value for which the area has been assessed as unsuitable and determines that the exploration will not adversely affect Greater Sage-Grouse populations due to habitat loss or disruptive activities or that the impact can be fully mitigated. Where practicable, limit permitted disturbances as defined in Appendix E [of the 2015 Final EIS], Methodology for Calculating Disturbance Caps, to 5 percent in any Colorado MZ. Where disturbance exceeds 5 percent in any Colorado MZ make additional, effective mitigation necessary to offset the resulting loss of Greater Sage-Grouse habitat. Disturbance Cap Exception Criteria: Where data-based documentation is available to warrant a conclusion that Greater Sage-Grouse populations in the applicable Colorado Greater Sage-Grouse MZ are healthy and stable at objective levels or increasing, and that the development will not adversely affect Greater Sage-Grouse populations due to habitat loss or disruptive activities, the Authorized Officer may authorize disturbance in excess of the 5 percent disturbance cap without requiring additional mitigation. In many cases, this exception will require project proponents to fund studies necessary to secure the “data-based documentation” requirement.</p>	<p>P-MR-27: (PHMA) See 43 CFR 3461.4 (a) and (b) Exploration. Authorized exploration activities may be conducted only if the Authorized Officer reviews any application for an exploration license on such lands to ensure that any exploration does not harm any value for which the area has been assessed as unsuitable and determines that the exploration will not adversely affect Greater Sage-Grouse populations due to habitat loss or disruptive activities or that the impact can be fully mitigated. Where practicable, limit permitted disturbances as defined in Appendix E [of the 2015 Final EIS], Methodology for Calculating Disturbance Caps, to 3 percent in PHMA any Colorado MZ. Where disturbance exceeds 3 percent in any Colorado MZ and proposed project analysis area make additional, effective mitigation necessary to offset the resulting loss of Greater Sage-Grouse habitat.</p>
A-MR-28: No similar action.	B-MR-28: No similar action.	C-MR-28: No similar action.	<p>D-MR-28: (PHMA) Underground mining – lease renewals:</p> <ul style="list-style-type: none"> • Require that all surface mining appurtenant facilities for underground mining be located outside of PHMA (unless the lessee establishes that that such location is not technically feasible). • If surface mining facilities must be located in PHMA, require the facilities be located in areas of existing disturbance and to have the smallest footprint possible utilizing design strategies to minimize disturbance such as those identified in the PDF section of this table. • Apply as conditions of lease renewal all appropriate conservation measures, PDFs, and mitigation designed to avoid, minimize impacts to Greater Sage-Grouse. (ADH) Surface mining – lease renewals/ readjustments: Apply as conditions of lease renewal all appropriate conservation measures, PDFs, and mitigation designed to avoid, minimize impacts to Greater Sage-Grouse. 	P-MR-28: Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-MR-29: No similar action.	B-MR-29: No similar action.	C-MR-29: No similar action.	D-MR-29: (ADH) Recommend or require as appropriate during all relevant points of the coal leasing and authorization process, minimization of surface disturbing or disrupting activities (including operations and maintenance) where needed to reduce the impacts of human activities on important seasonal Greater Sage-Grouse habitats. Apply these measures during activity level planning (jurisdiction is managed by the State.) The Office of Surface Mining or a delegated State Regulatory authority under the Surface Mining Control and Reclamation Act of 1977authorizes surface disturbance activities of active coal mining operations on federal mineral estate. The BLM/Forest Service coordinates with the Surface Mining Control and Reclamation Act of 1977regulatory authority in overseeing coal leasing and permitting on federal lands. The resource recovery and protection plan for which BLM/Forest Service recommends approval to the Secretary integrates the reclamation plan recommended by the Surface Mining Control and Reclamation Act of 1977regulatory authority for active coal mines on federal mineral estate. Approval of coal mining plans on lands containing leased federal coal is reserved to the Secretary of the Interior. 30 CFR 740.4. BLM and Forest Service issue coal leases and exploration licenses for right of entry to promote development of minerals on federal lands. See the following in regards to BLM exploration: 43 CFR 3461.4. Exploration. States with delegated authority on federal lands from the Office of Surface Mining may have their own Greater Sage-Grouse guidance in association with state wildlife agencies and such guidance may differ from state to state.	P-MR-29: Same as Alternative D.
A-MR-30: No similar action.	B-MR-30: No similar action.	C-MR-30: No similar action.	D-MR-30: (ADH) (a) Assessment of any area as unsuitable for all or certain stipulated methods of coal mining operations pursuant to Section 522 of the Surface Mining Control and Reclamation Act of 1977 (30 USC 1272) and the regulations of this subpart does not prohibit exploration of such area under 43 CFR 3410 and 43 CFR 3480. 43 CFR 3461.4(a)	P-MR-30: Same as Alternative D.
A-MR-31: No similar action.	B-MR-31: No similar action.	C-MR-31: No similar action.	D-MR-31: (ADH) (b) An application for an exploration license on any lands assessed as unsuitable for all or certain stipulated methods of coal mining shall be reviewed by the BLM/Forest Service to ensure that exploration does not harm any value for which the area has been assessed as unsuitable. 43 CFR 3461.4(b)	P-MR-31: Same as Alternative D.
A-FIRE-I: No similar action.	B- FIRE-I: (PHMA) In Greater Sage-Grouse PHMA, prioritize suppression, immediately after life and property, to conserve the habitat. See Appendix O [of the 2015 Final EIS], Greater Sage-Grouse Wildfire and Invasive Species Habitat Assessment.	C- FIRE-I: Same as Alternative B.	D- FIRE-I: (PHMA) Prioritize suppression immediately after firefighter and public safety. Consider Greater Sage-Grouse habitat requirements in conjunction with all resource values managed by the BLM and Forest Service, and give preference to Greater Sage-Grouse habitat unless site-specific circumstances warrant an exemption. See Appendix O [of the 2015 Final EIS], Greater Sage-Grouse Wildfire and Invasive Species Habitat Assessment.	P- FIRE-I: (PHMA) Prioritize suppression immediately after firefighter and public safety. Consider Greater Sage-Grouse habitat requirements commensurate with all resource values at risk managed by the BLM and Forest Service. See Appendix O [of the 2015 Final EIS], Greater Sage-Grouse Wildfire and Invasive Species Habitat Assessment.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-FIRE-2: No similar action.	B- FIRE-2: (GHMA) In GHMA, prioritize suppression where wildfires threaten PHMA. See Appendix O [of the 2015 Final EIS], Greater Sage-Grouse Wildfire and Invasive Species Habitat Assessment.	C- FIRE-2: No similar action.	D- FIRE-2: (GHMA) Prioritize suppression immediately after firefighter and public safety. Consider Greater Sage-Grouse habitat requirements in conjunction with all resource values managed by the BLM and Forest Service, and give preference to Greater Sage-Grouse habitat unless site-specific circumstances warrant an exemption. See Appendix O [of the 2015 Final EIS], Greater Sage-Grouse Wildfire and Invasive Species Habitat Assessment.	P- FIRE-2: (GHMA) Prioritize suppression immediately after firefighter and public safety. Consider Greater Sage-Grouse habitat requirements commensurate with all resource values at risk managed by the BLM and Forest Service. See Appendix O [of the 2015 Final EIS], Greater Sage-Grouse Wildfire and Invasive Species Habitat Assessment.
A-FIRE-3: No similar action.	B- FIRE-3: No similar action.	C- FIRE-3: No similar action.	D- FIRE-3: No similar action.	P- FIRE-3: In PHMA and GHMA, temporary closures would be considered in accordance with 43 CFR subpart 8364; 43 CFR subpart 8351, 43 CFR subpart 6302; 43 CFR subpart 8341.
A-FIRE-4: No similar action.	B- FIRE-4: (PHMA) Do not reduce sagebrush canopy cover to less than 15 percent (Connelly et al. 2000a; Hagen et al. 2007) unless a fuels management objective requires additional reduction in sagebrush cover to meet strategic protection of Greater Sage-Grouse PHMA and conserve habitat quality for the species. Closely evaluate the benefits of the fuel breaks against the additional loss of sagebrush cover in the future NEPA process.	C- FIRE-4: (ADH) Design and implement fuels treatments with an emphasis on protecting existing sagebrush ecosystems. Do not reduce sagebrush canopy cover to less than 15 percent (Connelly et al. 2000a; Hagen et al. 2007) unless a fuels management objective requires additional reduction in sagebrush cover to meet strategic protection of occupied Greater Sage-Grouse habitat and conserve habitat quality for the species. Closely evaluate the benefits of the fuel break against the additional loss of sagebrush cover in the environmental assessment process.	D- FIRE-4: (PHMA) Do not reduce sagebrush canopy cover to less than 15 percent (Connelly et al. 2000a; Hagen et al. 2007) unless a vegetation management objective requires additional reduction in sagebrush cover to meet strategic protection of Greater Sage-Grouse PHMA and conserve habitat quality for the species.	P- FIRE-4: (PHMA) Do not reduce sagebrush canopy cover to less than 15 percent (Connelly et al. 2000a; Hagen et al. 2007) in a project area unless a vegetation management objective requires additional reduction in sagebrush cover to meet strategic protection of Greater Sage-Grouse PHMA and conserve habitat quality for the species, in consultation with the State of Colorado.
A-FIRE-5: No similar action.	B- FIRE-5: (PHMA) Apply appropriate seasonal restrictions for implementing fuels management treatments according to the type of seasonal habitats present in a priority area.	C- FIRE-5: (ADH) Apply appropriate seasonal restrictions for implementing fuels management treatments according to the type of seasonal habitats present.	D- FIRE-5: (PHMA) Apply appropriate seasonal restrictions for implementing vegetation management treatments according to the type of seasonal habitats present in a Colorado MZ.	P- FIRE-5: Same as Alternative D.
A-FIRE-6: No similar action.	B- FIRE-6: (PHMA) Allow no treatments in known winter range unless the treatments are designed to strategically reduce wildfire risk around or in the winter range and will maintain winter range habitat quality.	C- FIRE-6: (ADH) Allow no fuels treatments in known winter range unless the treatments are designed to strategically reduce wildfire risk around or in the winter range and will maintain winter range habitat quality.	D- FIRE-6: (ADH) Retain in sagebrush habitat, for each Colorado MZ, a minimum of 70 percent of the ecological sites capable of supporting 12 percent canopy cover of Wyoming Sagebrush or 15 percent canopy cover of Mountain Sagebrush. Manage for a total disturbance cap of less than 30 percent, to include all loss of sagebrush from all causes including anthropogenic disturbance, wildfire, plowed field agriculture, and vegetation treatments. This cap is applied to ADH in the entire Colorado MZ. Sites capable of supporting sagebrush habitat will count against the cap until they have recovered to at least 12 percent canopy cover in Wyoming big sagebrush and 15 percent in mountain big sagebrush dominated areas (Bohne et al., 2007). Note: <ul style="list-style-type: none"> • Only mappable stands of cheatgrass and Pinyon/ Juniper encroachment will count against the disturbance cap. • Irrigated meadows do not count against the cap. • On a site-by-site basis, independent of cap management issues, do not allow treatments with the potential to adversely affect Greater Sage-Grouse populations. 	P- FIRE-6: (PHMA) Allow no treatments in known winter range unless the treatments are designed to strategically reduce wildfire risk around or in the winter range and will maintain winter range habitat quality, unless in consultation with the State of Colorado it is deemed necessary to reduce risk to life and property.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-FIRE-7: No similar action.	B- FIRE-7: (PHMA) Do not use fire to treat sagebrush in less than 12-inch precipitation zones (e.g., Wyoming big sagebrush or other xeric sagebrush species) (Connelly et al. 2000a; Hagen et al. 2007; Beck et al. 2009). 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 fuels breaks that would disrupt fuel continuity or enhance land health could be considered where cheatgrass is a very minor component in the understory (Brown 1982).	C- FIRE-7: (ADH) Do not use fire to treat sagebrush in less than 12-inch precipitation zones Wyoming big sagebrush or other xeric sagebrush species) (Connelly et al. 2000a; Hagen et al. 2007; Beck et al. 2009). 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 (Brown 1982).	D- FIRE-7: (ADH) Do not use fire to treat sagebrush in less than 12-inch precipitation zones (e.g., Wyoming big sagebrush or other xeric sagebrush species) (Connelly et al. 2000a; Hagen et al. 2007; Beck et al. 2009). 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 or natural ignition fire for fuels breaks that would disrupt fuel continuity or enhance land health could be considered where cheatgrass is a very minor component in the understory (Brown 1982).	P- FIRE-7: (ADH) Do not use fire to treat sagebrush in less than 12-inch precipitation zones (e.g., Wyoming big sagebrush or other xeric sagebrush species) (Connelly et al. 2000a; Hagen et al. 2007; Beck et al. 2009). 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 or natural ignition fire for fuels breaks that would disrupt fuel continuity or enhance land health could be considered where cheatgrass is deemed a minor threat. If prescribed fire is used in Greater Sage-Grouse habitat, the NEPA analysis for the burn plan will address: <ul style="list-style-type: none">• why alternative techniques were not selected as viable options;• how Greater Sage-Grouse goals and objectives would be met by its use;• how the COT report objectives would be addressed and met; a risk assessment to address how potential threats to Greater Sage-Grouse habitat would be minimized. 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 PHMA (e.g., creating 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, or being used as a component with other treatment methods to combat annual grasses and restore native plant communities). 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.
A-FIRE-8: No similar action.	B- FIRE-8: (PHMA) Monitor and control invasive vegetation post-treatment.	C- FIRE-8: No similar action.	D- FIRE-8: (ADH) Same as Alternative B, except apply to ADH.	P- FIRE-8: Same as Alternative D.
A-FIRE-9: No similar action.	B- FIRE-9: (PHMA) Require use of native plant seeds for fuels management treatment based on availability, adaptation (site potential), probability for success (Richards et al. 1998). Where probability of success or native seed availability is low, nonnative seeds may be used as long as they meet Greater Sage-Grouse habitat objectives (Pyke 2011).	C- FIRE-9: No similar action.	D- FIRE-9: (ADH) Require use of native plant seeds for vegetation treatments based on availability, adaptation (site potential), probability for success (Richards et al. 1998), and the vegetation management objectives for the area covered by the treatment. Where probability of success or native seed availability is low, use species that meet soil stability and hydrologic function objectives as well as vegetation and Greater Sage-Grouse habitat objectives (Pyke 2011).	P- FIRE-9: Same as Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-FIRE-10: No similar action.	B- FIRE-10: (PHMA) Design post fuels 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 horse management, travel management, and other uses to achieve and maintain the desired condition of ESR projects to benefit Greater Sage-Grouse (Eiswerth and Shonkwiler 2006).	C- FIRE-10: (ADH) Design post fuels management projects to ensure long-term persistence of seeded or pre-treatment native plants, including sagebrush. This may 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 (Eiswerth and Shonkwiler 2006). Lands will be managed to be in the good or better ecological condition to help minimize adverse impacts of fire. Any fuels treatments will focus on interfaces with human habitation or significant existing disturbances.	D- FIRE-10: Same as Alternative B.	P- FIRE-10: Same as Alternative B.
A-FIRE-11: No similar action.	B- FIRE-11: (PHMA) Design fuels management projects in PHMA to strategically and effectively reduce wildfire threats in the greatest area. This may require fuels treatments implemented in a more linear versus block design (Launchbaugh et al. 2007).	C- FIRE-11: No similar action.	D- FIRE-11: (ADH) Design vegetation treatments in Greater Sage-Grouse habitats to strategically facilitate firefighter safety, reduce wildfire threats, and extreme fire behavior. 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).	P- FIRE-11: Same as Alternative D.
A-FIRE-12: No similar action.	B- FIRE-12: (PHMA) During fuels 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 to native perennial grasses. consistent with the objectives and conservation measures of the grazing section.	C- FIRE-12: No similar action.	D- FIRE-12: Same as Alternative B, except apply to ADH.	P- FIRE-12: Same as Alternative D.
A-FIRE-13: No similar action.	B- FIRE-13: (ADH) Prioritize native seed allocation 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 ESR (BLM) and/or Burn Area Emergency Rehabilitation (Forest Service) projects outside of Greater Sage-Grouse PHMA to those inside it. Use of native plant seeds for ESR or Burn Area Emergency Rehabilitation seedings is required based on availability, adaptation (site potential), and probability of success (Richards et al. 1998). Where probability of success or native seed availability is low, nonnative seeds may be used as long as they meet Greater Sage-Grouse habitat conservation objectives (Pyke 2011). Reestablishment of appropriate sagebrush species/subspecies and important understory plants, relative to site potential, shall be the highest priority for rehabilitation efforts.	C- FIRE-13: Same as Alternative B.	D- FIRE-13: (ADH) Require use of native plant seeds for vegetation treatments based on availability, adaptation (site potential), probability for success (Richards et al. 1998), and the vegetation management objectives for the area covered by the treatment. Where probability of success or native seed availability is low, use species that meet soil stability and hydrologic function objectives as well as vegetation and Greater Sage-Grouse habitat objectives (Pyke 2011).	P- FIRE-13: (ADH) Require use of native plant seeds that are beneficial for Greater Sage-Grouse for vegetation treatments based on availability, adaptation (site potential), probability for success (Richards et al. 1998), and the vegetation management objectives for the area covered by the treatment. Where attempts to use native seeds have failed, or native seed availability is low, use species that meet soil stability and hydrologic function objectives as well as vegetation and Greater Sage-Grouse habitat objectives (Pyke 2011).
A-FIRE-14: No similar action.	B- FIRE-14: (ADH) Design post-fire ESR and Burn Area Emergency Rehabilitation 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 horse management, travel management, and other uses to achieve and maintain the desired condition of ESR and Burn Area Emergency Rehabilitation projects to benefit Greater Sage-Grouse (Eiswerth	C- FIRE-14: Same as Alternative B.	D- FIRE-14: Same as Alternative B.	P- FIRE-14: Same as Alternative B.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-FIRE-15: No similar action.	B- FIRE-15: (PHMA) Rest treated areas from grazing for two full growing seasons unless vegetation recovery dictates otherwise (Wyoming Game and Fish Department 2011).	C- FIRE-15: No similar action.	D- FIRE-15: (ADH) Same as Alternative B, except apply to ADH.	P- FIRE-15: Same as Alternative D.
A-FIRE-:**: No similar action.	B- FIRE-:**: (ADH) Consider potential changes in climate (Miller et al. 2011) when proposing restoration seedings when using native plants. Consider collection from the warmer component of the species' current range when selecting native species (Kramer and Havens 2009).	C- FIRE-:**: Same as Alternative B.	D- FIRE-:**: No similar action.	P- FIRE-:**: No similar action.
A-FIRE-:**: No similar action.	B- FIRE-:**: No similar action.	C- FIRE-:**: (ADH) Establish and strengthen networks with seed growers to assure availability of native seed for ESR projects.	D- FIRE-:**: No similar action.	P- FIRE-:**: No similar action.
A-FIRE-:**: No similar action.	B- FIRE-:**: No similar action.	C- FIRE-:**: (ADH) Post fire recovery must include establishing adequately sized exclosures (free of livestock grazing) that can be used to assess recovery.	D- FIRE-:**: No similar action.	P- FIRE-:**: No similar action.
A-FIRE-:**: No similar action.	B- FIRE-:**: No similar action.	C- FIRE-:**: (ADH) Mowing of grass will be used in any fuel break fuels reduction project (roadsides or other areas).	D- FIRE-:**: No similar action.	P- FIRE-:**: No similar action.
A-VEG-1: No similar action.	B-VEG-1: (ADH) Prioritize implementation of restoration projects based on environmental variables that improve chances for project success in areas most likely to benefit Greater Sage-Grouse (Meinke et al. 2009). Prioritize restoration treatments and monitoring in seasonal habitats that are thought to be limiting Greater Sage-Grouse distribution and/or abundance.	C-VEG-1: (ADH) Prioritize implementation of restoration projects based on environmental variables that improve chances for project success in areas most likely to benefit Greater Sage-Grouse (Meinke et al. 2009). Prioritize restoration 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)	D-VEG-1: (ADH) When planning restoration treatments in Greater Sage-Grouse habitat, identify seasonal habitat availability and prioritize treatments in areas that are thought to be limiting Greater Sage-Grouse distribution and/or abundance, in accordance with the Prioritization section of the narrative for Alternative D.	P-VEG-1: Same as Alternative D
A-VEG-2: No similar action.	B-VEG-2: (PHMA) Include Greater Sage-Grouse habitat parameters as defined by Connelly et al. (2000b), Hagen et al. (2007) or if available, State Greater Sage-Grouse Conservation plans and appropriate local information in habitat restoration objectives. Make meeting these objectives within Greater Sage-Grouse PHMA areas a high restoration priority	C-VEG-2: (ADH) Include Greater Sage-Grouse habitat objectives in habitat restoration projects. Make meeting these objectives within occupied Greater Sage-Grouse habitat the highest restoration priority.	D-VEG-2: Same as Alternative B.	P-VEG-2: Same as Alternative B.
A-VEG-3: No similar action.	B-VEG-3: (PHMA) Require the use of native seeds for restoration based on availability, adaption (ecological site potential, and probability of success (Richards et al. 1998). Where probability of success or adapted seed availability is low, nonnative seeds may be used as long as they support Greater Sage-Grouse habitat objectives.	C-VEG-3: Same as Alternative B.	D-VEG-3: (ADH) Require use of native plant seeds for vegetation treatments based on availability, adaptation (site potential), probability for success (Richards et al. 1998), and the vegetation management objectives for the area covered by the treatment. Where probability of success or native seed availability is low, use species that meet soil stability and hydrologic function objectives as well as vegetation and Greater Sage-Grouse habitat objectives (Pyke 2011).	P-VEG-3: (ADH) Require use of native plant seeds that are beneficial for Greater Sage-Grouse, for vegetation treatments based on availability, adaptation (site potential), probability for success (Richards et al. 1998), and the vegetation management objectives for the area covered by the treatment. Where probability of success or native seed availability is low, use species that meet soil stability and hydrologic function objectives as well as vegetation and Greater Sage-Grouse habitat objectives (Pyke 2011).
A-VEG-4: No similar action.	B-VEG-4: (PHMA) Design post restoration 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 horse management, travel management, and other uses, to achieve and maintain the desired condition of ESR projects to benefit Greater Sage-Grouse (Eiswerth and Shonkwiler 2006).	C-VEG-4: Same as Alternative B.	D-VEG-4: Same as Alternative B.	P-VEG-4: Same as Alternative B.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-VEG-5: No similar action.	B-VEG-5: (ADH) Restore native (or desirable) plants and create landscape patterns which most benefit Greater Sage-Grouse.	C-VEG-5: (ADH) Exotic seedlings will be rehabbed, interseeded, restored to recover sagebrush in areas to expand occupied habitats.	D-VEG-5: (ADH) Retain in sagebrush habitat, for each Colorado MZ, a minimum of 70 percent of the ecological sites capable of supporting 12 percent canopy cover of Wyoming Sagebrush or 15 percent canopy cover of Mountain Sagebrush. Manage for a total disturbance cap of less than 30 percent, to include all loss of sagebrush from all causes including anthropogenic disturbance, wildfire, plowed field agriculture, and vegetation treatments. This cap is applied to ADH in the entire Colorado MZ. Sites capable of supporting sagebrush habitat will count against the cap until they have recovered to at least 12 percent canopy cover in Wyoming big sagebrush and 15 percent in mountain big sagebrush dominated areas (Bohne et al., 2007). Note: <ul style="list-style-type: none">• Only mappable stands of cheatgrass and Pinyon/ Juniper encroachment will count against the disturbance cap.• Irrigated meadows do not count against the cap.• On a site-by-site basis, independent of cap management issues, do not allow treatments with the potential to adversely affect Greater Sage-Grouse populations.	P-VEG-5: (ADH) Manage for a habitat objective that is primarily sagebrush with a mosaic of seral stages and sagebrush in all age classes. On a site-by-site basis, do not allow treatments that would adversely affect Greater Sage-Grouse populations. Remove conifers encroaching into sagebrush habitats. 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 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. See Appendix H [of the 2015 Final EIS], Guidelines for Implementation.
A-VEG-6: No similar action.	B-VEG-6: (ADH) Make reestablishment of sagebrush and desirable understory plant cover (relative to ecological site potential) the highest priority for restoration efforts.	C-VEG-6: No similar action.	D-VEG-6: Same as Alternative B, but consider Greater Sage-Grouse habitat requirements in conjunction with all resource values managed by the BLM/Forest Service, and give preference to Greater Sage-Grouse habitat unless site specific circumstances warrant an exemption.	P-VEG-6: Same as Alternative D.
A-VEG-7: No similar action.	B-VEG-7: (ADH) In fire prone areas where sagebrush seed is required for Greater Sage-Grouse habitat restoration, consider establishing seed harvest areas that are managed for seed production (Armstrong 2007) and are a priority for protection from outside disturbances.	C-VEG-7: Same as Alternative B.	D-VEG-7: Same as Alternative B. Work with local plant material centers and/or groups to establish seed harvest areas and local seed stocks.	P-VEG-7: (ADH) Authorize local sagebrush seed collection to support local restoration efforts.
A-VEG-8: No similar action.	B-VEG-8: No similar action.	C-VEG-8: No similar action.	D-VEG-8: No similar action.	P-VEG-8: (ADH) Treat areas that contain Bromus tectorum and other invasive or noxious species to minimize competition and favor establishment of desired species.
A-VEG-8: No similar action.	B-VEG-8: No similar action.	C-VEG-8: No similar action.	D-VEG-8: No similar action.	P-VEG-8: Remove conifers encroaching into sagebrush habitats, in a manner than 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 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. See Appendix H [of the 2015 Final EIS], Guidelines for Implementation and Adaptive Management.
A-VEG-**: No similar action.	B-VEG-**: No similar action.	C-VEG-**: (ADH) Composition, function, and structure of native vegetation communities will be consistent with the reference state of the appropriate Ecological Site Description and will provide for healthy, resilient, and recovering Greater Sage-Grouse habitat components.	D-VEG-**: No similar action.	P-VEG-**: No similar action.
A-VEG-**: No similar action.	B-VEG-**: No similar action.	C-VEG-**: (ADH) Avoid sagebrush reduction/treatments to increase livestock or big game forage in occupied habitat and include plans to restore high quality habitat in areas with invasive species	D-VEG-**: No similar action.	P-VEG-**: No similar action.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
A-VEG-**: No similar action.	B-VEG-**: No similar action.	C-VEG-**: (ADH) Ensure that soil cover and native herbaceous plants are at their Ecological Site Description potential to help protect against invasive plants	D-VEG-**: No similar action.	P-VEG-**: No similar action.
A-ACEC-**: No similar action.	B-ACEC-**: No similar action.	C-ACEC-**: (PHMA) Designate all PHMA as the Greater Sage-Grouse Habitat ACEC/Zoological Area.	D-ACEC-**: No similar action.	P-ACEC-**: No similar action.

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2.4 COMPARATIVE SUMMARY OF ALTERNATIVES

This section summarizes and compares the No-Action Alternative, Management Alignment Alternative, and the Proposed Plan. **Table 2-4** provides a summary of the differences among the alternatives.

Table 2-4
Comparative Summary of Alternatives

Decision Topic	No-Action Alternative	Management Alignment Alternative and Proposed Plan
Fluid Mineral Leasing		
NSO	PHMA: 718,100 acres	PHMA: 718,100 acres
Closed	224,200 acres	0 acres
Waivers, exceptions, and modifications for NSO stipulations in PHMA	No waivers or modifications; Exceptions granted based on criteria and only with USFWS approval	Includes criterion for waivers, exceptions, and modifications

2.5 COMPARISON OF ALTERNATIVES

Table 2-5 shows the actions from the 2015 ARMPA that are being considered for change in this plan, including the Proposed Plan/Final EIS. The decision number from the 2015 ARMPA is included.

2.6 DEVELOPMENT OF THE 2018 PROPOSED PLAN AMENDMENT

The 2018 Proposed Plan Amendment represents the BLM's proposed approach for meeting the purpose and need. The 2018 Draft RMPA/EIS was issued for a 90-day public review and comment in May 2018. The BLM assessed and considered public comments during the public review period of the 2018 Draft RMPA/EIS. The BLM has crafted the 2018 Proposed Plan Amendment, largely based on the Preferred Alternative (Management Alignment Alternative), which was identified in the May 2018 Draft RMPA/EIS, with modifications based on review of public comments received on the 2018 Draft RMPA/EIS. In addition, special expertise input and comments received from cooperating agencies helped shape the Proposed Plan Amendment. Changes in BLM policy and guidance were taken into consideration in its development.

Key changes between the Preferred Alternative and the Proposed Plan include a description of the process for approval of waivers, exceptions, and modifications for NSO stipulations in PHMA. This change satisfies a concern from the State of Colorado, county governments, and a number of public comments to make the process for granting waivers, exceptions, or modifications transparent, predictable, and repeatable across field offices.

Additionally, the BLM received comments regarding BLM IM No. 2018-093, *Compensatory Mitigation*, issued on July 24, 2018, which outlines BLM policy regarding compensatory mitigation. In that policy, the BLM determined 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 BLM-administered lands. To support the State of Colorado's management goals, as outlined in the Management Alignment Alternative, while complying with the compensatory mitigation policy, mitigation goals and objectives were further clarified (SSS-3, Section 1.5.2, *Clarification of Planning Decisions in the 2015 ROD/ARMPA*). The clarification allows the State of Colorado to manage the species under its authority on a landscape scale using its policy for compensatory mitigation. Therefore, consistent with

**Table 2-5
Comparison of Alternatives**

Topic	No-Action Alternative/2015 RMPA Decision Number	Management Alignment Alternative (Draft EIS Preferred Alternative)	Proposed Plan
New Fluid Minerals Leasing within 1 Mile from Active Leaks	No new leasing 1 mile from active leaks in ADH/MD MR-1	<p>One (1) mile from active leaks open to leasing subject to NSO-1.</p> <p>NSO-1: No surface occupancy. **Exceptions or modifications may be considered if, in consultation with the State of Colorado, it can be demonstrated that there is no impact on Greater Sage-Grouse based on one of the following:</p> <ul style="list-style-type: none"> • Topography/areas of non-habitat create an effective barrier to impacts • No additional impacts would be realized above those created by existing major infrastructure (for example, State Highway 13) • The exception or modification precludes or offsets greater potential impacts if the action were proposed on adjacent parcels (for example, due to landownership patterns) <p>Waiver: No waivers are authorized unless the area or resource mapped as possessing the attributes protected by the stipulation is determined during collaboration with the State of Colorado to lack those attributes or potential attributes. A 30-day public notice and comment period is required before waiver of a stipulation. Waivers would require BLM State Director approval.</p>	<p>One (1) mile from active leaks open to leasing subject to NSO-1.</p> <p>NSO-1: **Exceptions or modifications may be considered if, in consultation with the State of Colorado, it can be demonstrated that there is no impact on Greater Sage-Grouse based on one of the following:</p> <ul style="list-style-type: none"> • Topography/areas of non-habitat create an effective barrier to impacts • No additional impacts would be realized above those created by existing major infrastructure (for example, State Highway 13) • The exception or modification precludes or offsets greater potential impacts if the action were proposed on adjacent parcels (for example, due to landownership patterns) <p><i>**In order to approve exceptions or modifications to this lease stipulation, the Authorized Officer must obtain: agreement, including written justification, between the BLM District Managers and CPW that the proposed action satisfies at least one of the criteria listed above.</i></p> <p>Waiver: No waivers are authorized unless the area or resource mapped as possessing the attributes protected by the stipulation is determined during collaboration with the State of Colorado to lack those attributes or potential attributes. A 30-day public notice and comment period is required before waiver of a stipulation. Waivers would require BLM State Director approval.</p>

Topic	No-Action Alternative/2015 RMPA Decision Number	Management Alignment Alternative (Draft EIS Preferred Alternative)	Proposed Plan
Waivers, Exceptions, and Modification on NSO Stipulation in PHMA	<p>No Surface Occupancy without waiver or modification in PHMA/MD MR-2</p> <p>Waivers, modifications, and exceptions: No waivers or modifications to fluid mineral lease NSO stipulation will be granted. The BLM Authorized Officer may grant an exception to this NSO stipulation only where the proposed action:</p> <p>(i) Would not have direct, indirect, or cumulative effects on Greater Sage-Grouse or its habitat; or</p> <p>(ii) Is proposed to be undertaken as an alternative to a similar action occurring on a nearby parcel, and would provide a clear conservation gain to Greater Sage-Grouse.</p> <p>Exceptions based on conservation gain (ii) may only be considered in:</p> <p>(a) PHMA of mixed ownership where federal minerals underlie less than 50 percent of the total surface; or</p> <p>(b) areas of BLM-administered lands where the proposed exception is an alternative to an action occurring on a nearby parcel subject to a valid federal fluid mineral lease existing as of the date of this RMP [revision or amendment].</p> <p>Exceptions based on conservation gain must also include measures, such as enforceable institutional controls and buffers, sufficient to</p>	<p>No Surface Occupancy (NSO-2) with waivers, exceptions, or modifications in PHMA.</p> <p>**Exception: In consultation with the State of Colorado, an exception to Greater Sage-Grouse NSO could be granted on a one-time basis (any occupancy must be removed within 1 year of approval) based on the following factors:</p> <ol style="list-style-type: none"> It is determined, based on site-specific information (using tools such as the Habitat Assessment Framework, the Colorado Habitat Exchange Habitat Quantification Tool, or others), that the impacts anticipated by the proposed activity would be fully offset through compensatory mitigation developed in coordination with the State of Colorado that meets principles of compensatory mitigation including, but not limited to: <ul style="list-style-type: none"> achieving measurable outcomes for Greater Sage-Grouse habitat function that are at least equal to the lost or degraded values providing benefits that are in place for at least the duration of the impacts accounting for a level of risk that the mitigation action may fail or not persist for the full duration of the impact It is determined that there is no impact on Greater Sage-Grouse based on an evaluation of the proposed lease activities in relation to the site-specific terrain and habitat type. For example, in the vicinity of leks, local terrain features such as ridges and ravines may shield potential disruptive impacts from affecting nearby Greater Sage-Grouse habitat 	<p>No Surface Occupancy (NSO-2) with waivers, exceptions, or modifications in PHMA. If, prior to development, the county in which the tract is located provides information indicating that an NSO stipulation can be excepted or modified based on a reasonable understanding of likely development because either of the criterion below would apply, the BLM would manage that lease accordingly <i>unless</i> the BLM determines, at the APD stage and in consultation with the State of Colorado, that neither of the exception criteria identified below is met.</p> <p>**Exception: The BLM will grant an exception (any occupancy must be removed within 1 year of approval) to NSO-2 after consulting with the State of Colorado, consistent with MD-SSS-3 and based on the following factors:</p> <ol style="list-style-type: none"> It is determined that there is no impact on Greater Sage-Grouse based on an evaluation of the proposed lease activities in relation to the site-specific terrain and habitat type. For example, in the vicinity of leks, local terrain features such as ridges and ravines may shield potential disruptive impacts from affecting nearby Greater Sage-Grouse habitat It is determined, based on site-specific information (using tools such as the Habitat Assessment Framework, the Colorado Habitat Exchange Habitat Quantification Tool, or others), that the impacts anticipated by the proposed activity would be fully offset through compensatory mitigation developed in coordination with the State of Colorado (as a requirement of State policy or authorization or as offered voluntarily by leaseholder) that

Topic	No-Action Alternative/2015 RMPA Decision Number	Management Alignment Alternative (Draft EIS Preferred Alternative)	Proposed Plan
Waivers, Exceptions, and Modification on NSO Stipulation in PHMA (continued)	<p>allow the BLM to conclude that such benefits will endure for the duration of the proposed action's impacts.</p> <ul style="list-style-type: none"> The BLM Authorized Officer may approve any exceptions to this lease stipulation only with the concurrence of the BLM State Director. The BLM Authorized Officer may not grant an exception unless the applicable state wildlife agency, USFWS, and BLM unanimously find that the proposed action satisfies (i) or (ii). A team of one field biologist or other Greater Sage-Grouse expert shall initially make such finding from each respective agency. In the event the initial finding is not unanimous, the finding may be elevated to the appropriate BLM State Director, USFWS State Ecological Services Director, and state wildlife agency head for final resolution. In the event their finding is not unanimous, the exception will not be granted. Approved exceptions will be made publicly available at least quarterly. 	<p>**Modification:</p> <p>In consultation with the State of Colorado, a modification (changes to the stipulation either temporarily or for the term of either part of or the entire lease) to Greater Sage-Grouse NSO-2 could be granted based on an analysis of the following factors:</p> <ol style="list-style-type: none"> It is determined, based on site-specific information (using tools such as the Habitat Assessment Framework, the Colorado Habitat Exchange Habitat Quantification Tool, or others), that the impacts anticipated by the proposed activity would be fully offset through compensatory mitigation developed in coordination with the State of Colorado that meets principles of compensatory mitigation including: <ul style="list-style-type: none"> achieving measurable outcomes for Greater Sage-Grouse habitat function that are at least equal to the lost or degraded values; providing benefits that are in place for at least the duration of the impacts; accounting for a level of risk that the mitigation action may fail or not persist for the full duration of the impact <p>and/or</p> <ol style="list-style-type: none"> It is determined that there is no impact on Greater Sage-Grouse based on an evaluation of the proposed lease activities in relation to the site-specific terrain and habitat type. For example, in the vicinity of leks, local terrain features such as ridges and ravines may shield potential disruptive impacts from affecting nearby Greater Sage-Grouse habitat 	<p>meets principles of compensatory mitigation including, but not limited to:</p> <ul style="list-style-type: none"> achieving measurable outcomes for Greater Sage-Grouse habitat function that are at least equal to the lost or degraded values providing benefits that are in place for at least the duration of the impacts accounting for a level of risk that the mitigation action may fail or not persist for the full duration of the impact <p>**Modification:</p> <p>The BLM will grant modifications (changes to the stipulation either temporarily or for the term of either part of the entire lease) to NSO-2 after consultation with the State of Colorado, consistent with MD-SSS-3 and based on the following factors:</p> <ol style="list-style-type: none"> It is determined that there is no impact on Greater Sage-Grouse based on an evaluation of the proposed lease activities in relation to the site-specific terrain and habitat type. For example, in the vicinity of leks, local terrain features such as ridges and ravines may shield potential disruptive impacts from affecting nearby Greater Sage-Grouse habitat <p>or</p> <ol style="list-style-type: none"> It is determined, based on site-specific information (using tools such as the Habitat Assessment Framework, the Colorado Habitat Exchange Habitat Quantification Tool, or others), that the impacts anticipated by the proposed activity would be fully offset through compensatory mitigation developed in coordination with the State of Colorado (as a requirement of State policy or authorization or as offered voluntarily by leaseholder) that meets principles of compensatory mitigation including:

Topic	No-Action Alternative/2015 RMPA Decision Number	Management Alignment Alternative (Draft EIS Preferred Alternative)	Proposed Plan
Waivers, Exceptions, and Modification on NSO Stipulation in PHMA (continued)	(see above)	<p>Waiver: No waivers are authorized unless the area or resource mapped as possessing the attributes protected by the stipulation is determined during collaboration with the State of Colorado to lack those attributes or potential attributes. A 30-day public notice and comment period is required before waiver of a stipulation. Waivers would require BLM State Director approval.</p>	<ul style="list-style-type: none"> • achieving measurable outcomes for Greater Sage-Grouse habitat function that are at least equal to the lost or degraded values; • providing benefits that are in place for at least the duration of the impacts; • accounting for a level of risk that the mitigation action may fail or not persist for the full duration of the impact <p><i>**In order to approve exceptions or modifications to this lease stipulation, the Authorized Officer must obtain agreement, including written justification, between the BLM District Manager and CPW that the proposed action satisfies at least one of the criteria listed above</i></p> <p>Waiver: No waivers are authorized unless the area or resource mapped as possessing the attributes protected by the stipulation is determined during collaboration with the State of Colorado to lack those attributes or potential attributes. A 30-day public notice and comment period is required before waiver of a stipulation. Waivers would require BLM State Director approval.</p>

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. The *Colorado Greater Sage-Grouse Conservation Plan* is available online here:

<https://cpw.state.co.us/learn/Pages/GreaterSagegrouseConservationPlan2.aspx>.

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 the 2018 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.

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 requirement of or recommendation 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 DSEIS. 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 BLM will 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. In cases where waivers, exceptions, or modification may be granted for projects with a residual impact, voluntary compensatory mitigation consistent with the State’s management goals can be one mechanism by which a proponent achieves the RMPA goals, objectives, and waiver, exception, or modification criteria. When a proponent volunteers compensatory mitigation as their chosen approach to address residual impacts, the BLM can incorporate those actions into the rationale used to grant a waiver, exception, or modification. The final decision to grant a waiver, exception, or modification will be based, in part, on criteria consistent with the State’s Greater Sage-Grouse management plans and policies.

The BLM responded to all substantive comments received on the 2018 Draft RMPA/Draft EIS (**Appendix I**). In preparing responses to comments, the BLM referenced responses based on similar comments.

Coordinating with the State and Counties

The BLM recognizes that Greater Sage-Grouse is a State-managed species, and, in accordance with 43 CFR 24.3(a), that State authority regarding fish and resident wildlife guides how the BLM cooperates with the State in the absence of specific, overriding federal law. Further, the BLM recognizes that state governments have established fish and wildlife agencies that are charged with the responsibility and mandate to implement state statutes for effective, appropriate, and efficient conservation and management of fish and resident wildlife species. Accordingly, the BLM has coordinated with the State to

develop a memorandum of agreement (MOA) to guide the application of the mitigation hierarchy and compensatory mitigation actions for future project authorizations in Greater Sage-Grouse habitat on BLM-administered lands.

The MOA describes the State's policies, authorities, and programs for Greater Sage-Grouse conservation and the process regarding how the BLM will 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 will 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 will notify the State to 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 also recognizes the important role played by County governments in managing Greater Sage-Grouse habitat in Northwest Colorado. Under the Proposed Plan, the BLM would coordinate with counties in Northwest Colorado on proposed land uses in Greater Sage-Grouse habitat within the County's jurisdiction, including when BLM determines whether to grant any waivers, exceptions, or modifications relating to fluid mineral leasing. The county may identify parcels prior to leasing which they determine meet the criteria for exceptions or modifications to the NSO stipulation as described in the RMP. If BLM and CPW determine that the criteria have been met, the parcels may be offered with the conditional exception or modification, pursuant to applicable criteria, and identified in the lease sale notice.

Counties should continue to engage with BLM as Cooperating Agencies on implementation-level actions, such as the development of existing fluid mineral leases in PHMA, and provide input to BLM and CPW to determine whether to grant any waivers, exceptions, or modifications for NSO stipulations. When evaluating the application of NSO stipulations to project proposals, the BLM would consider County government recommendations for waivers, exceptions and modifications consistent with RMP criteria. The BLM would discuss any such recommendation with the State of Colorado consistent with the management actions described in **Table 2-5**.

2.7 MONITORING AND ADAPTIVE MANAGEMENT

Plan evaluation is the process by which the plan and monitoring data are reviewed to determine if management goals and objectives are being met and if management direction is sound. Land use plan evaluations determine if decisions are being implemented, if mitigation measures are satisfactory, if there are significant changes in the related plans of other entities, if there are new data of significance to the plan, and if decisions should be amended or revised.

Chapter I (Section 1.3, Planning Area and Current Management) describes the decision area as those lands allocated as PHMA and GHMA and includes a definition of PHMA and GHMA. During plan evaluation, areas designated as PHMA and GHMA can be modified based on an adaptive management process, including an evaluation of data by CPW in consultation with BLM management as described in **Appendix H (Guidelines for Implementation and Adaptive Management)**. Monitoring data gathered

over time are examined and used to draw conclusions on whether management actions are meeting stated objectives, and if not, why not. Conclusions are then used to make recommendations on whether to continue current management or to identify what changes need to be made in management practices to meet objectives.

The BLM will use land use plan evaluations to determine if the decisions in the 2015 ROD/ARMPA, supported by the accompanying NEPA analysis, are still valid in light of new information and monitoring data. Evaluations will follow the protocols established by the BLM Land Use Planning Handbook (H-1601-I) or other appropriate guidance in effect at the time the evaluation is initiated.

The 2015 ROD/ARMPA also includes an adaptive management strategy that includes soft and hard triggers and responses. These triggers are not specific to any particular project but identify habitat and population factors. Soft triggers represent an indication that management changes may be needed at the implementation level to address habitat or population losses. If a soft trigger were tripped during the life of the plans, the BLM's response may be to apply more conservative or restrictive conservation measures or to identify habitat improvement projects to mitigate for the specific cause in the decline of populations or habitats, with consideration of local knowledge and conditions. These adjustments will be made to preclude tripping a "hard" trigger (which signals more severe habitat loss or population declines). Hard triggers represent a threshold indicating that immediate action is necessary to stop a severe deviation from Greater Sage-Grouse conservation objectives set forth in the ARMPA. More information regarding the ARMPA's adaptive management strategy can be found in **Appendix H**.

Chapter 3. Affected Environment

3.1 INTRODUCTION

The purpose of this chapter is to describe the existing biological, physical, and socioeconomic characteristics of the planning area, including human uses that could be affected by implementing the alternatives described in **Chapter 2**. The affected environment provides the context for assessing the potential impacts described in **Chapter 4**. The resource topics in this chapter reflect those that are identified in **Table I-1** as corresponding to an issue carried forward for detailed analysis in the 2015 (Table 3.1) 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 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. The BLM acknowledges that there have been changes to the landscape since 2015; however, because this analysis covers approximately 1,649,500 acres of BLM-administered lands and approximately 2,137,700 acres of federal mineral estate, the data collected consistently across the range indicate that the extent of these changes is relatively minimal. For example, BLM monitoring data collected and analyzed annually at the biologically significant unit (BSU) scale, as outlined in the Greater Sage-Grouse Monitoring Framework (Appendix D of the 2015 ROD/ARMPA), indicate that there has been a less than 1 percent range-wide overall increase in estimated disturbance from 2015 through 2017. Moreover, there has been an overall decrease of less than 1 percent range-wide from 2012 through 2015 in sagebrush availability in PHMA within BSUs.

The estimates of habitat management areas burned in 2016 and 2017 indicate a sharp increase in potential habitat availability loss, compared with previous fire seasons; however, the acres lost do not necessarily affect monitored PHMA and GHMA in BSUs. For this reason, burned acres are most influential at scales below which the environmental analysis would be conducted.

Based on available information, including the USGS reports described below, the BLM has concluded that the existing condition is not substantially different from that of 2015; therefore, the data and information presented in the 2015 Final EIS are incorporated into this DSEIS.

Actions that have been authorized since the 2015 plan were consistent with the 2015 Final EIS. The BLM would continue to implement the decisions in the 2015 plan unless those decisions are amended.

Acreage figures and other numbers were approximated using geographic information system (GIS) technology; they do not reflect exact measurements or precise calculations.

USGS Reports

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)¹ and a report that synthesizes and outlines the potential management implications of this new science (Hanser et al. 2018).²

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:

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

Multiscale 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).

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 range-wide 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).

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.

¹Internet website <https://doi.org/10.3133/ofr20181008>

²Internet website <https://doi.org/10.3133/ofr20181017>

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 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).

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).

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. Conifer removal benefited Greater Sage-Grouse through increased female survival and nest and brood success. Treatment method and site potential can affect post-treatment vegetation characteristics. Sagebrush manipulation treatments seemed to benefit Greater Sage-Grouse populations and brood-rearing habitat availability, but benefits may be limited to areas with high sagebrush cover at higher elevations and in mountain big sagebrush (*A. tridentata vaseyana*) communities. Studies indicate that Greater Sage-Grouse populations did not benefit from, or were negatively affected by, prescribed fire and mechanical sagebrush removal (Hanser et al. 2018, p. 3).

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 also 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).

3.2 RESOURCES AFFECTED

In accordance with **Chapter 1, Section 1.4.1**, the following resources may have potentially significant impacts based on the actions considered in **Chapter 2, Table 3-1**, below, provides the location of baseline information in the 2015 Final EIS.

Table 3-1
Affected Environment Incorporated by Reference

Resource Topic	Location of Baseline Information
Greater Sage-Grouse	Chapter 3, Section 3.3 (Special Status Species), page 3-33 (BLM 2015)
	Additional information regarding Greater Sage-Grouse since 2015 is included in Section 3.3.1 of this chapter.
Fluid Minerals	Chapter 3, Section 3.7 (Minerals [Leasable]), page 3-116 (BLM 2015).
Socioeconomics	Chapter 3, Section 3.24 (Social and Economic Conditions [Including Environmental Justice]), page 3-247 (BLM 2015)

3.3 CHANGES TO AFFECTED ENVIRONMENT SINCE 2015

3.3.1 Greater Sage-Grouse

Greater Sage-Grouse monitoring is performed annually by CPW. Chapter 3, Section 3.3 of the 2015 Final EIS includes population monitoring methods and a discussion of the trend of Greater Sage-Grouse numbers by population in Colorado. **Table 3-2**, below, represents high male lek counts for each of the six Colorado populations, from 2014 to 2017. This represents the population numbers since the 2015 Final EIS.

Table 3-2
3-year Average of High Male Count

Population	2014	2015	2016	2017
Northwest	2,335	3,193	4,258	4,613
Parachute-Piceance-Roan	183	199	219	185
Meeker-White River	6	6	5	4
No. Eagle/So. Routt	100	107	112	104
North park	812	904	1,080	1,127
Middle Park	263	303	326	327
Total Males	3,700	4,714	6,000	6,359

BLM Colorado 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.

3.3.2 Fluid Minerals

The 2015 Final EIS included potential scenarios for oil and gas development based on reasonably foreseeable development and actual wells drilled. It analyzed both high and low scenarios across alternatives over 20 years (see **Table 3-3**, below).

For any development and production that may occur under this DSEIS, the Management Alignment Alternative would be within the range analyzed in the 2015 Final EIS scenarios and the economic impact analysis.

**Table 3-3
Oil and Gas Well Numbers**

Alternative	Low Scenario	High Scenario
	<i>Federal Minerals, All Surface</i>	
Alternative A—Wells Drilled	9,406	18,230
Alternative A—Wells Completed	8,936	17,052
Alternative B—Wells Drilled	8,882	16,422
Alternative B—Wells Completed	8,438	15,448
Alternative C—Wells Drilled	8,808	12,893
Alternative C – Wells Completed	8,368	12,164
Alternative D – Wells Drilled	8,882	17,326
Alternative D—Wells Completed	8,438	16,250
Proposed LUPA—Wells Drilled	8,756	17,200
Proposed LUPA—Well Completed	8,318	16,132

Source: BLM 2015 Final EIS Table N.17

Between 2010 and 2016, there was a relatively steep decline in oil and gas prices that caused a downturn in the number of active oil and gas drilling rigs across the United States, including in Colorado. For instance, the Colorado crude oil first purchase price (dollars per barrel) was \$90.10 in 2013 and dropped to a low of \$37.81 in 2016 (US Energy Information Administration 2018a). Similarly, the Henry Hub natural gas spot price (dollars per million Btu) saw a high of \$4.37 in 2014 and a low of \$2.52 in 2016 (US Energy Information Administration 2018b).

Drilling activity in Colorado rose from less than 40 active drilling rigs in 2010 to fewer than 80 active drilling rigs in 2012. Then there was a decline in the number of rigs in 2013 and another rise of close to 80 active drilling rigs at the end of 2014 (Colorado Oil and Gas Conservation Commission 2017).

Starting in 2015 there was a large decrease in the number of active drilling rigs, reaching a low of fewer than 20 active drilling rigs in 2016 (Colorado Oil and Gas Conservation Commission 2017). **Table 3-4**, below, below represents approved applications for permit to drill and wells spud by field office from 2014 to the present.

Table 3-4
Applications for Permit to Drill and Wells Spud: 2014–Present

APDS approved (federal minerals)

	2014	2015	2016	2017	2018 partial	
KFO	4	3	0	4	0	11
LSFO	3	0	4	1	0	8
WRFO	206	81	45	10	0	342
Silt	147	205	26	157	82	617
GJFO	23	39	25	23	24	134
Total						1112

Spuds (federal APDs)

KFO and LSFO	5	3	4	0	3	15
WRFO	49	30	5	0	0	84
Silt	94	73	51	62	76	356
GJFO	12	15	17	26	9	79
Total						534

3.3.3 Socioeconomics

The socioeconomic study area for this DSEIS are the ten Colorado counties that make up the Northwest Colorado sub-region: Eagle, Garfield, Grand, Jackson, Larimer, Mesa, Moffat, Rio Blanco, Routt, and Summit. This is slightly different from the primary socioeconomic study area used in the 2015 Final EIS. In that EIS, the primary socioeconomic study area contained only eight counties: Eagle, Garfield, Grand, Jackson, Mesa, Moffat, Rio Blanco, and Routt. The rationale was because each of these eight counties contains considerable amounts of PHMA or GHMA. Larimer and Summit Counties also have Greater Sage-Grouse habitat in the Northwest Colorado sub-region but were excluded from the primary socioeconomic study area because they have considerably less habitat than other counties (less than 10,000 acres) and they are not considered important service areas for the remaining counties. In the case of Larimer County, it would have considerably altered the data presented for the primary socioeconomic study area. This is because of the size of the county's population and economy; however, Larimer and Summit Counties and three counties outside of Colorado (Uintah County, Utah, and Carbon County and Sweetwater County, Wyoming) were included in the secondary socioeconomic study area.

Although the 2015 Final EIS had two socioeconomic study areas, due to the limited nature of the proposed action, this DSEIS is focused on providing updates on the ten county Northwest Colorado sub-region, as discussed above. The 2015 Final EIS analysis regarding social and economic conditions, including environmental justice, nonmarket values, and other social values, is still pertinent; therefore, this update focuses on key demographic and economic changes that have occurred from 2010 through 2016 generally associated with oil and gas development.

As discussed in the 2015 Final EIS, many of the counties within the socioeconomic study area have historical connections to mining, quarrying, and oil and gas extraction and are still influenced by the oil and gas industry. All of the socioeconomic study area counties except for Larimer County, have seen fluctuations in mining, including oil and gas extraction jobs over the years, resulting in fewer jobs in 2016

than in 2010 (Bureau of Economic Analysis 2017), likely reflecting the changes in number of active drilling rigs in the region.

Some of the counties within the socioeconomic study area have adjusted to these fluctuations in the oil and gas industry better than other counties. For example, both Garfield and Mesa Counties saw sizable decreases in mining, including oil and gas industry jobs (by 1,088 and 863 jobs, respectively) between 2010 and 2016 but overall increases in total employment (by 3,166 and 3,366 jobs, respectively) for that same time period (Bureau of Economic Analysis 2017).

While most of the socioeconomic study area counties saw increases in total employment between 2010 and 2016, Jackson, Moffat, and Rio Blanco Counties saw decreases in total employment for that period (Bureau of Economic Analysis 2017). Although these three counties also saw drops in mining, including oil and gas jobs during that period, other industry job reductions also contributed to the decrease in total employment (Bureau of Economic Analysis 2017).

Resident population is often influenced by the economic conditions of an area; when jobs are available there is often in-migration and when jobs are scarce out-migration. While for most of the counties in the socioeconomic study area the number of residents increased from 2010 to 2016, Jackson, Moffat, and Rio Blanco Counties saw a decrease in population (**Table 3-5**). This mirrors the reduction in total employment that occurred in those three counties and reflects the cumulative out-migration of residents that occurred from 2010 to 2016 (US Census Bureau 2017b).

Table 3-5
Population Estimates as of July 1, 2010 through 2016

County	2010	2011	2012	2013	2014	2015	2016
Colorado	5,048,644	5,118,360	5,189,867	5,267,603	5,349,648	5,448,819	5,540,545
Eagle County	52,081	51,751	51,942	52,379	52,815	53,346	53,989
Garfield County	56,096	55,964	56,709	56,914	57,195	57,768	58,887
Grand County	14,782	14,543	14,147	14,254	14,461	14,580	15,008
Jackson County	1,385	1,380	1,347	1,355	1,395	1,352	1,357
Larimer County	300,523	305,267	310,965	316,605	324,709	333,869	339,993
Mesa County	146,486	147,172	147,471	147,372	147,502	148,401	150,083
Moffat County	13,812	13,424	13,164	13,099	12,899	12,899	13,109
Rio Blanco County	6,668	6,782	6,796	6,740	6,660	6,548	6,545
Routt County	23,447	23,257	23,285	23,587	24,054	24,325	24,648
Summit County	28,065	27,972	28,223	28,653	29,205	29,892	30,374

Source: US Census Bureau 2017a

Mineral rights can be owned by private individuals, corporations, Indian tribes, or by local, state, or federal governments. Typically, companies specializing in the development and extraction of oil and gas lease the mineral rights for a particular parcel from the owner of the mineral rights. Federal oil and gas leases are generally issued for 10 years unless drilling activities result in one or more producing wells. Once production has begun on a federal lease, the lease is considered to be held by production and the lessee is required to make royalty payments to the federal government. The leasing and development of these minerals supports local employment and income and generates public revenue for surrounding communities.

Leasing mineral rights for the development of federal minerals generates public revenue through the bonus bids paid at competitive lease auctions and annual rents collected on leased parcels not held by production. Nominated parcels approved for oil and gas leasing are offered by the BLM at a minimum bid rate of \$2.00 per acre at the competitive lease sale. In addition to bonus bids, lessees are required to pay rent annually until production begins on the leased parcel or until the lease expires. These rent payments are equal to \$1.50 an acre for the first five years and \$2.00 an acre for the second five years of the lease.

A portion of the revenues collected by the federal government is distributed to the state and county in which the oil and gas was produced. The amount that is distributed is determined by the federal authority, under which the federal minerals are being managed. Forty-nine percent of federal revenue associated with oil and gas from public domain lands are distributed to the state; 25 percent of royalties and revenues associated with oil and gas development from Bankhead-Jones lands are distributed to counties of production. Distribution of federal royalties and leasing revenues to the state for oil and gas development on other federal acquired lands differs, based on the authority associated with those lands.

Allocation and distribution of Colorado's share of federal mineral lease revenues is based on Colorado statutes. In general, federal mineral lease revenue for the State of Colorado is allocated to the State Education Fund (to fund K-12 education), the Colorado Water Conservation Board, and the Higher Education Capital Fund. Alternatively, they are distributed directly to local school districts where the revenue originates or those districts where energy employees and their children reside.

Forty percent of all federal mineral lease rent and royalty receipts are sent to the Colorado Department of Local Affairs. It then distributes half of the total amount received to a grant program, designed to provide assistance with offsetting community impacts due to mining. The remaining half goes directly to the counties and municipalities where the federal mineral lease revenue originates or to those where energy employees reside.

Additionally, federal oil and gas production in Colorado is subject to production taxes or royalties. The federal oil and gas royalties on production from public domain minerals equal 12.5 percent of the value of production (43 Code of Federal Regulations [CFR] 3103.3.1). Royalties are a larger contributor to federal revenues returned to the state than rent and bonus bids.

Local governments in Colorado also collect ad valorem taxes on the value of mineral production. The state government levies a severance tax, and the Colorado Oil and Gas Conservation Commission assesses a quarterly conservation levy on oil and gas companies. Local tax rates vary, and administration of all these taxes and levies includes various exemptions.

A study by the University of Colorado Leeds School of Business (Wobbekind and Lewandoski 2015) showed that in 2014, the effective tax rates statewide on the value of oil and gas production, after all exemptions allowed by laws and regulations, amounted to 2.8 percent for ad valorem taxes, 2.1 percent for state severance taxes, and 0.1 percent for Colorado Oil and Gas Conservation Commission levies. Additional fluid mineral-related revenues include state and local sales taxes on goods and services purchased by operators, personal income taxes on earnings, business income taxes, and property taxes on land, equipment, and facilities.

While revenues associated with federal oil and gas development and production are often seen as favorable, oil and gas development and production also may create adverse social and economic impacts.

As discussed in the 2015 Final EIS, development and production may result in environmental impacts, demands on physical infrastructure and public services, increased traffic, “boom and bust” economic cycles, and other impacts that have adverse economic and social effects. For instance, development may create new demands on public services, such as road maintenance and emergency services.

Development may create a large influx of employees and new residents that can overwhelm community services, impact housing availability and prices, and affect community cohesion. These types of impacts have been observed in areas that have seen large and rapid development of oil and gas resources (James and Aadland 2011; Weber 2012; Brown 2014; Ratledge and Zachary 2017).

In addition, oil and gas development can impact nonmarket values, for example, by reducing the enjoyment some people experience from undeveloped open space or by compromising ecosystem services, such as the role of intact ecosystems in maintaining water quality.

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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 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 1-5** 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 planning area
- Literature reviews
- Information provided by experts in the BLM, other agencies, cooperating agencies, interest groups, and concerned citizens

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 were made during the 2019 planning process 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 each alternative, as described in **Chapter 2**.

The following general assumptions apply to the analysis in the 2018 Final EIS; 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 RMP-level decisions in this RMPA would be subject to further environmental review, including that under NEPA.

- Direct and indirect impacts of implementing the RMPA would primarily occur on BLM-administered lands in the planning area.
- 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.
- GIS data have been used in developing acreage calculations and to generate the figures in **Chapters 1–4**. Calculations depend on the quality and availability of data. Acreage figures and other numbers are approximate projections for comparison and analysis only; readers should not infer that they reflect exact measurements or precise calculations. In the absence of quantitative data, best professional judgment was used. Impacts were sometimes described using ranges of potential impacts, or they were described qualitatively, when appropriate.

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 northwest Colorado; 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 DSEIS.

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 for a particular alternative on a specific resource are generally compared with the status quo or baseline for that resource; to properly and meaningfully evaluate the impacts under each alternative, its expected impacts should be measured against those projected to occur under the No-Action Alternative. This alternative is the baseline for

comparing the alternatives with one another. This is because it represents what is anticipated to occur should the RMPAs not take place.

Irreversible and irretrievable commitment of resources is discussed in **Section 4.9**, Irreversible and Irretrievable Commitment of Resources. 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.

4.3.1 Impacts of the 2018 Final EIS No-Action Alternative

The impacts of the 2018 Final EIS No-Action Alternative, or current management, were analyzed as the Proposed Plan in the 2015 Final EIS, and 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.

Table 4-1, below, shows where information on the impacts of the No-Action Alternative can be found.

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

Decision Topic	Related Resource Topic	Location of Impact Analysis in 2015 Final EIS
No leasing	Greater Sage-Grouse	Chapter 4, Section 4.5 (Special Status Species), Direct and Indirect Impacts on Greater Sage-Grouse, Impacts from Fluid Minerals Management on Greater Sage-Grouse, page 4-89
	Fluid minerals	Chapter 4, Section 4.9 (Minerals – Leasable), Direct and Indirect Impacts on Fluid Minerals, page 4-234
	Socioeconomics	Chapter 4, 4.25 (Social and Economic Impacts including Environmental Justice), page 4-585
NSO without waivers, exceptions, or modifications	Greater Sage-Grouse	Chapter 4, Section 4.5 (Special Status Species), Direct and Indirect Impacts on Greater Sage-Grouse, Impacts from Fluid Minerals Management on Greater Sage-Grouse, page 4-89
	Fluid minerals	Chapter 4, Section 4.9 (Minerals – Leasable), Direct and Indirect Impacts on Fluid Minerals, page 4-234
	Socioeconomics	Chapter 4, 4.25 (Social and Economic Impacts including Environmental Justice), page 4-585

4.3.2 Impacts of the 2018 Final EIS Management Alignment Alternative

Table 4-2, below, summarizes if and how decisions in the 2018 Final EIS Management Alignment Alternative were considered in the 2015 Final EIS. Issues needing further analysis are analyzed under the resource headings in this chapter.

Table 4-2
Consideration of Management Alignment Alternative in 2015 Final EIS

Plan Alignment Decision	Considered in 2015?
Within 1 mile of a lek – open to leasing subject to NSO.	<p>Open to Leasing subject to NSO was analyzed under Alternative D - Greater Sage-Grouse PHMA NSO-46d as part of Open to Leasing subject to NSO (applied to all PHMA).</p> <p>The sections below provide specific analysis of the anticipated changes in the impacts on those resources listed in Sections 4.5–4.7 from implementing the Management Alignment Alternative – from “closed to leasing within one mile of active leks” to Open to leasing subject to NSO (restrictive WEMs) <i>within one mile of active leks</i>.</p>
NSO with waivers, exceptions, or modifications	<p>Open to Leasing subject to NSO was analyzed under Alternative D - Greater Sage-Grouse PHMA NSO-46d as part of Open to Leasing subject to NSO (applied to all PHMA). The analysis included very strict exception criteria and no waivers or modifications.</p> <p>The sections below provide specific analysis of the anticipated changes in the impacts on those resources listed in Sections 4.5–4.7 from implementing the Management Alignment Alternative – replacing very strict exception criteria (requiring consensus with the USFWS, BLM, and CPW) and no waivers or modifications to Colorado-specific criteria as defined in Appendix G – Stipulations Applicable to Fluid Minerals.</p>

This table is a summary of the environmental consequences of the 2015 alternatives that were incorporated by reference into the 2019 planning effort and considered throughout the process. **Table 4-3** presents a comparison summary of impacts from management actions proposed for the alternatives considered in 2015.

Table 4-3
Summary of Environmental Consequences from Alternatives Considered in the 2015 Proposed LUPA/Final EIS

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
Terrestrial Wildlife				
Alternative A provides the least amount of protection for terrestrial wildlife in the planning area. Alternative A puts very few restrictions on development, which could result in the most modification of the landscape, and consequently, the most impacts on terrestrial wildlife. Alternative A would have the least potential to result in concentration of development in other habitats that do not support Greater Sage-Grouse.	Alternative B provides a greater level of protection for terrestrial wildlife than Alternative A, but it would provide a lower level of protection than Alternative C. Alternative B also has a greater potential for development to occur outside of PHMA which would have a greater impact on terrestrial wildlife in those areas.	Alternative C would provide the most protection for terrestrial wildlife. However, Alternative C would have a greater potential for development to occur outside of ADH, which would have a greater impact on terrestrial wildlife in those areas. The most restrictions would be placed on development under Alternative C, which would afford the most protection for terrestrial wildlife.	Alternative D would provide more protection for terrestrial wildlife than Alternative A, but it would provide less protection overall than Alternatives B and C. More flexibility for development is built into Alternative D, which could result in higher levels of development than Alternatives B and C.	The Proposed LUPA would provide slightly greater protections for terrestrial wildlife to those described under Alternative D, due to less flexibility for development and greater restrictions on development in Greater Sage-Grouse PHMA and GHMA.
Aquatic Wildlife, Including Special Status Fish and Aquatic Species				
Alternative A provides the least amount of protection for aquatic wildlife in the planning area. Alternative A puts very few restrictions on development, which could result in the most modification of the landscape, and consequently, the most impacts on aquatic wildlife.	Alternative B provides a greater level of protection for aquatic wildlife than Alternative A, but it would provide a lower level of protection than Alternative C.	Alternative C would provide the most protection for aquatic wildlife. The most restrictions would be placed on development, which would afford the most protection for aquatic wildlife.	Alternative D would provide more protection for aquatic wildlife than Alternative A, but it would provide less protection than Alternatives B and C. More flexibility for development is built into Alternative D, which could result in higher levels of development than Alternatives B and C.	The Proposed LUPA would provide slightly greater protections for aquatic wildlife to those described under Alternative D, due to less flexibility for development and greater restrictions on surface-disturbing activities.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
Special Status Terrestrial Wildlife				
Alternative A provides the least amount of protection for special status terrestrial wildlife in the planning area. It puts very few restrictions on development, which could result in the most modification of the landscape, and consequently, the most special status terrestrial wildlife.	Alternative B provides a greater level of protection for special status terrestrial wildlife than Alternative A but would provide a lower level of protection than Alternative C.	Alternative C would provide the most protection for special status terrestrial wildlife. The most restrictions would be placed on development under Alternative C, which would afford the most protection for special status terrestrial wildlife.	Alternative D would provide more protection for special status terrestrial wildlife than Alternative A but would provide less protection than Alternatives B and C. More flexibility for development is built into Alternative D, which could result in higher levels of development than Alternatives B and C.	The Proposed LUPA has greater restrictions than Alternative D, including no leasing within 1 mile of active leks. The impacts on special status species under the Proposed LUPA are less than under Alternatives A and D and would be similar to those under Alternatives B and C.
Special Status Plant Species				
Alternative A would rely on existing LUPs, without emphasizing Greater Sage-Grouse habitat protections. This alternative would not specifically increase protections of sagebrush habitats, which might result in greater development pressures near special status plants growing in sagebrush habitats. On the other hand, it might result in lower development pressures near special status plants in other habitats and fewer negative impacts on those species.	Alternative B provides a greater level of protection for sagebrush habitats than Alternatives A or D and would reduce development pressures near special status plants growing in sagebrush habitats. However, it would increase development pressures and associated potential negative impacts for special status plants in other habitat types.	Alternative C would provide the most protection for sagebrush habitats, and the least development pressures near special status plants in sagebrush habitats. It would also result in the greatest shift of development pressures to other habitat types, with greater potential negative impacts on these other special status plant species.	Alternative D would provide more protection for sagebrush habitats than Alternative A but less protection than Alternatives B or C. It would provide intermediate protections between those of Alternative A and Alternative B for sagebrush habitats and for special status plants growing in these habitats. Conversely, its potential negative impacts on special status plants growing in other habitat types would also be intermediate between Alternative A and Alternative B.	The Proposed LUPA would provide greater protections for special status plant species than Alternatives A and D, but slightly less protection than Alternatives B and C. For those negative impacts on plants growing in non-sagebrush habitats, the Proposed LUPA would have fewer impacts than Alternatives B and C but more than Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
Lands and Realty				
Under Alternative A, the five BLM field offices and the Forest Service use a combination of stipulations on ROWs. These stipulations would be used to manage lands and realty to avoid or minimize adverse impacts on other resources or resource uses, including Greater Sage-Grouse. Under Alternative A, approximately 6.5 percent of Greater Sage-Grouse habitat is protected by ROW exclusion or avoidance, which is the fewest restrictions on development. Alternative A has the fewest impacts on the lands and realty program.	Alternative B would limit development and surface disturbance in PHMA through ROW exclusion or avoidance on approximately 95 percent of Greater Sage-Grouse habitat. Because of this, fewer acres would be available for land use authorizations, which would have a far greater impact on the lands and realty program than would Alternative A.	Alternative C would limit development and surface disturbance through ROW exclusion on 100 percent of Greater Sage-Grouse habitat and would have the greatest impact on the lands and realty program. No BLM-administered or National Forest System lands within Greater Sage-Grouse habitat would be available for land use authorizations without restrictions.	Alternative D would limit development and surface disturbance in areas capable of supporting sagebrush from identifying ROW avoidance areas on approximately 53 percent of Greater Sage-Grouse habitat. This alternative would have greater impacts on the lands and realty program than Alternative A but fewer impacts than Alternatives B and C.	The Proposed LUPA would have greater impacts on the lands and realty program than Alternatives A and D but fewer impacts than Alternatives B and C.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
Vegetation				
Alternative A provides the least amount of protection for vegetation communities in the planning area. Alternative A puts very few restrictions on development, which could result in the most modification of the landscape and consequently the most impacts on vegetation.	Alternative B provides a greater level of protection for vegetation than Alternative A, but it would provide a lower level of protection than Alternative C. Under Alternative B, reestablishment of sagebrush and desirable understory plant cover would be the highest priority for restoration in ADH. Impacts on vegetation under Alternative B would provide a higher level of protection for vegetation than Alternative A through restrictions on surface-disturbing activities. However, Alternative B would provide less flexibility in implementing vegetation treatments that are outside of PHMA.	Alternative C would provide the most protection for vegetation. The most restrictions would be placed on surface-disturbing activities and development. Under Alternative C, treatments in occupied Greater Sage-Grouse habitats would be avoided. Other areas outside of Greater Sage-Grouse habitat would be a lower priority for restoration under Alternative C.	Alternative D would provide more protection through restrictions on surface-disturbing activities for vegetation than Alternative A but would provide less protection than Alternatives B and C. More flexibility for development is built into Alternative D for other resources. Alternative D would allow treatments in Greater Sage-Grouse habitat that maintain a minimum level of cover. This would allow treatments in Greater Sage-Grouse habitat that would benefit other species that depend on sagebrush habitats.	The Proposed LUPA would provide more protections through restrictions on surface-disturbing activities for vegetation than Alternatives A and D, but it would provide less protection than Alternatives B and C.
Wildland Fire Ecology and Management				
Overall, this alternative provides the least level of restriction and impacts on wildland fire management. The current spectrum of fire management opportunities would still be available for use.	This alternative is moderately restrictive in that there are some actions that would be in PHMA, but the remaining habitat areas have few restrictions to wildland fire management.	This alternative is the most restrictive to wildland fire management, as all of the restrictions apply to ADH, and there is no flexibility to use opportunities during the course of managing a wildland fire or in the development of a vegetation treatment.	This alternative is more restrictive than Alternative B as it is applied to AHD and not just PHMA. However, this alternative is less restrictive to wildland fire management than Alternative C in that the level of impacts would be the same, but it allows for increased flexibility of how wildland fires and fuels are managed.	Proposed LUPA—Impacts on wildland fire ecology and management from the Proposed LUPA would be greater than Alternatives A and D but less than Alternatives B and C.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
Fluid Leasable Minerals				
<p>Under current management, the five field offices use a combination of management (e.g., closed to leasing), lease stipulations (NSO, CSU, and TL), and project-specific COAs to manage fluid mineral leasing and development. These management measures are a way to avoid or minimize adverse impacts on other resources and resource uses, especially sensitive resources, such as Greater Sage-Grouse and its habitat.</p> <p>The LSFO, which published its current RMP in 2011, has identified 7,000 acres of unleased minerals in Greater Sage-Grouse habitat as closed to leasing for fluid minerals. The WRFO, which published its current plan in 1997, has identified 4,700 acres of Greater Sage-Grouse habitat as closed to leasing. For other high potential areas for oil and gas in these field offices and for the three remaining field offices with older plans (CRVFO, GJFO, and KFO), protections for Greater Sage-Grouse and its habitats consist of lease stipulations and, especially, COAs applied under the BLM and Forest Service's regulatory authority.</p>	<p>Under Alternative B, the 447,000 acres of unleased fluid minerals in areas with high potential for oil and gas and in areas of PHMA would be closed to leasing. Additional measures under Alternative B would apply to currently leased lands, with the objective of greatly reducing the amount and density of surface disturbance. The total area affected—estimated at 616,100 acres of existing leases—would be subject to reducing well pad density to 1 per 640 acres instead of the current typical density in some parts of the planning area of 4 per 640 acres. The actual impact could vary substantially, depending on site-specific geology, directional drilling technology, economics, other applicable surface-use constraints, and the degree to which the leases are already developed. Other constraints on fluid minerals under Alternative B are restrictions on new, realigned, or upgraded roads in PHMA and a requirement for PHMA lands to be managed as ROW exclusion areas. Although these measures would not preclude new leasing per se, they could</p>	<p>Under Alternative C, 733,600 acres of currently unleased fluid minerals in areas with high potential for oil and gas and in ADH would be closed to leasing.</p> <p>Additional measures under Alternative C would apply to currently leased lands with the objective of greatly reducing the amount and density of surface disturbance. The total area affected—more than 1.01 million acres of existing leases—would be subject to a 75 percent reduction in well pad density, to 1 per 640 acres. The actual impact could vary substantially, depending on site-specific geology, directional drilling technology, economics, other applicable surface-use constraints, and the degree to which the leases are already developed. This is a 63 percent greater loss of future wells due to reduction in pad density than under Alternative B.</p> <p>Other constraints on fluid minerals under Alternative C include restrictions on new, realigned, or upgraded roads in ADH and a requirement</p>	<p>This alternative generally gives the BLM and Forest Service more flexibility in decisions about issuing new leases and approving additional development of existing leases. For example, PHMA would not be closed to leasing but could be leased with an NSO stipulation, with exception criteria. In addition, any approved projects would be subject to a 5 percent disturbance cap instead of a 3 percent disturbance cap. Greater flexibility in applying constraints on development includes measures related to travel management and lands (ROW) actions.</p> <p>These and other measures for which greater flexibility is available under Alternative D make it less subject to such wholesale reductions in the amount of future development as in Alternatives B and C. However, it is not possible to quantify the reductions because the flexibility built into this alternative would be highly variable, depending on site-specific</p>	<p>Under this alternative, management would be similar to Alternative D with the additional restrictions of a 3 percent disturbance cap and no leasing within 1 mile of active leks. Impacts on fluid minerals would therefore be greater under this alternative than Alternatives A and D, but slightly less than Alternative B and C.</p>

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
<p>In terms of total fluid mineral estate within the planning area, 100,200 acres are closed to fluid mineral leasing under current RMPs. This represents 7.7 percent of the total of currently unleased fluid minerals in the 21 Colorado MZs. In addition, 298,000 acres of leased or unleased lands in the 21 MZs are protected with NSO stipulations, and 24,200 acres are managed as ROW exclusion areas. Both of these restrictions prohibit surface-disturbing and long-term surface occupancy. Although these restrictions are mostly related to resources and uses other than Greater Sage-Grouse, and while they relate to surface use without precluding leasing of the underlying fluid minerals, their combined 522,200 acres represent 7.8 percent of the 4.15 million acres of all lands within the Colorado MZs.</p>	<p>make access to new or existing leases difficult or potentially impossible by prohibiting use of BLM and Forest Service surface lands to access the leases. While the impact on the amount of future development cannot be calculated because of the many variables affecting a given site or project—for example, availability of alternative access across private lands or across non-PHMA areas—it is noteworthy that an estimated 1.25 million acres of federal mineral estate in the planning area would come under the road restrictions under this alternative; 631,700 acres would come under the requirement for ROW exclusion areas. These are potentially substantial impediments to future development, even if they do not result in a de facto constraint on leasing. Constraints associated with the other resources and uses analyzed above would generally have only a minor impact on future leasing of federal fluid minerals and additional development of existing leases.</p>	<p>for ADH as ROW exclusion areas. Although these measures would not preclude new leasing per se, they could make access to new or existing leases difficult or potentially impossible by prohibiting use of BLM and Forest Service surface lands to access the leases.</p> <p>Although the impact on the amount of future development cannot be calculated because of the many variables affecting a given site or project (e.g., availability of alternative access across private lands or across non-PHMA areas), it is noteworthy that an estimated 1.34 million acres of federal mineral estate in the planning area would come under the road restrictions and would be managed as ROW exclusion areas. These are potentially substantial impediments to future development, even if they do not result in a de facto constraint on leasing.</p> <p>The constraints summarized above are in addition to limits based on the 3 percent disturbance cap applicable to a number of activities under this alternative. Three of the</p>	<p>and project-specific conditions. Furthermore, while the 5 percent disturbance cap is less restrictive than the 3 percent cap of Alternatives B and C, 1 of the 21 MZs is already above that amount, another is at 4.6 percent, and 4 more are nearly halfway to 5 percent with the current level of development.</p> <p>Although the impacts under this alternative are not easily quantified, the large areas across which they would apply indicates that even these less onerous restrictions would result in significantly greater protections for Greater Sage-Grouse and significantly fewer and lesser adverse impacts than under Alternative A.</p>	<p>(see above)</p>

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
(see above)	<p>The 3 percent disturbance cap applicable to a variety of potential ground- disturbing activities under Alternative B could be the determinative measure, notwithstanding the various other constraints summarized above. For example, while anthropogenic disturbance accounts for only 86,400 acres (2 percent) of the 4.1 million acres of federal lands within the 21 Colorado MZs, that total is two-thirds of the way toward the 3 percent disturbance cap. Indeed, 3 of the 21 zones are already above the 3 percent cap, and 10 more are more than halfway to that level of disturbance.</p> <p>Based on the above, Alternative B would have significantly greater impacts on fluid minerals than Alternative A.</p>	<p>21 MZs already above that threshold, and 10 more zones are more than halfway to that cap.</p> <p>Based on the above, Alternative C would have significantly greater impacts of fluid minerals than Alternative B.</p>	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
Coal				
<p>Under current management, the field offices use a combination of leasing terms and conditions and project-specific COAs to manage coal leasing and development. The goal is to avoid or minimize adverse impacts on other resources and resource uses, especially sensitive resources such as Greater Sage-Grouse and its habitat. The LSFO and WRFO contain existing leases, while these and the KFO include substantial areas of unleased lands potentially suitable for leasing: 264,200 acres in PHMA and 254,500 acres in GHMA. Existing leases include 5,300 acres in GHMA in the WRFO. Existing leases in the LSFO for underground mines are 1,600 acres in PHMA and 4,100 acres in GHMA.</p>	<p>Under Alternative B, field offices would find unsuitable all leasing for surface coal mining in PHMA using the criteria set forth in 43 CFR, Part 3461.5. This would close all PHMA to future surface coal mining, affecting 264,200 acres of potentially developable coal in the planning area. This is 51 percent of the combined 518,700 acres of potentially developable coal.</p> <p>Additional measures under Alternative B would apply to currently leased and unleased coal resources, with the objective of reducing the amount of surface disturbance. The total area affected could significantly reduce access to coal resources or could increase the cost of accessing and developing the resource. The actual impact cannot be quantified and could vary substantially. This would depend on site-specific geology, mining technology, economics, other applicable surface-use constraints, and the availability of private surface or unaffected federal surface in the vicinity.</p>	<p>Under Alternative C, field offices would also find unsuitable all leasing for surface mining of coal in PHMA, using the criteria set forth in 43 CFR, Part 3461.5. As with Alternative B, this would close all PHMA to future surface mining of coal, affecting 264,200 acres of potentially developable coal in the planning area. This is 51 percent of the combined 518,600 acres of potentially developable coal.</p> <p>The measures under Alternative B would also apply to currently leased and unleased coal resources to reduce the amount surface disturbance, significantly reducing access to coal resources or increasing the cost of accessing and developing the resource. The actual impact cannot be quantified and could vary substantially, depending on site-specific geology, mining technology, economics, other applicable surface-use constraints, and the availability of private surface or unaffected federal surface in the vicinity.</p>	<p>Under this alternative, the requirement to find all coal resources unsuitable for future leasing is replaced with a requirement of a finding of unsuitability when Greater Sage-Grouse cannot be adequately protected. In addition, the BLM and Forest Service would have greater flexibility in approving projects with adequate design and mitigation, subject to a 5 percent disturbance cap. At present, 1 of the 21 MZs is already above that amount, and 5 more are approaching it.</p> <p>Because of this greater flexibility for approving projects, it is not possible to quantify the degree to which the restrictions would be applied absent site- specific and project-specific information. However, because of the large areas across which the restrictions on coal under Alternative D would be applied, impacts on coal leasing and development would be significantly greater than under</p>	<p>Impacts would be similar to those described above for Alternative D. However, additional restrictions on land use and other authorizations would be included under the Proposed LUPA, as follows:</p> <ul style="list-style-type: none"> • Managing both PHMA and GHMA as avoidance areas • Prohibiting aboveground structures within 1 mile of active leks • Restricting surface disturbance to 3 percent in PHMA <p>Impacts on coal would be similar to those described for Alternative D, with slightly greater impacts on the coal program for all indicators described below, due to increased restrictions on disturbance and disruptive activities.</p>

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
(see above)	<p>Other constraints on coal under Alternative B include restrictions on new, realigned, or upgraded roads in PHMA and a requirement for PHMA lands as ROW exclusion areas. Although these measures would not preclude new leasing or development per se, they could make access to new or existing leases difficult or potentially impossible by prohibiting use of BLM and Forest Service surface lands to access coal leases. While the impact on the amount of future development cannot be meaningfully calculated because of the many variables affecting a given site or project (e.g., availability of alternative access across private lands or across non-PHMA areas) more than half a million acres of coal resource in the planning area would come under the road restrictions, as well as the requirement for ROW exclusion areas. These are potentially substantial impediments to future development, even if they do not result in a de facto constraint on leasing.</p> <p>Constraints associated with the other resources and uses</p>	<p>Also, as under Alternative B, this alternative includes restrictions on new, realigned, or upgraded roads in PHMA and a requirement for PHMA lands as ROW exclusion areas. This could make access to new or existing leases difficult or potentially impossible by prohibiting use of BLM-administered and National Forest System surface lands to access coal leases. These are potentially substantial impediments to future development, even if they do not result in a de facto constraint on leasing. Constraints associated with the other resources and uses analyzed above would generally have only a minor impact on future leasing of federal coal resources.</p> <p>Based on the above, Alternative C would have approximately the same impacts on coal leasing and development as under Alternative B but greater than under Alternative.</p>	<p>Alternative A but significantly less than under Alternatives B and C.</p> <p>Proposed LUPA—Impacts would be similar to those described above for Alternative D. However, additional restrictions on land use and other authorizations would be included under the Proposed LUPA, as follows:</p> <ul style="list-style-type: none"> • Managing both PHMA and GHMA as avoidance areas • Prohibiting aboveground structures within 1 mile of active leks • Restricting surface disturbance to 3 percent in PHMA <p>Impacts on coal would be similar to those described for Alternative D, with slightly greater impacts on the coal program for all indicators described below, due to increased restrictions on disturbance and disruptive activities.</p>	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
(see above)	<p>analyzed above would generally have only a minor impact on future leasing of federal coal resources. The 3 percent disturbance cap applicable to a variety of potential ground- disturbing activities under Alternative B could be the determinative measure, notwithstanding the various other constraints summarized above. For example, while anthropogenic disturbance accounts for only 86,400 acres (2 percent) of the 4.1 million acres of federal lands in the 21 Colorado MZs, that total is two- thirds of the way toward the 3 percent disturbance cap. Indeed, 3 of the 21 zones are already above the 3 percent cap, and 10 more are more than halfway to that amount of disturbance. By its nature, surface coal mining is much more consumptive of surface lands than many other types of resource developments, such as oil and gas.</p> <p>Based on the above, Alternative B would have significantly greater impacts on coal resources than Alternative A.</p>	(see above)	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
Locatable Minerals				
Alternative A would have the fewest restrictions on availability and access and would have the least impact on locatable minerals.	Alternative B would have greater impacts on locatable minerals than Alternative A because more acres would be unavailable to mineral entry and greater restrictions would result in reduced efficiency and increased cost of developing the locatable mineral resource.	For the most part, impacts from Alternative C would be similar to those under Alternative B, with more restrictions on access due to travel management and realty restrictions.	Alternative D would have more impacts on locatable minerals than Alternative A but fewer than Alternatives B and C.	The Proposed LUPA would have more impacts on locatable minerals than Alternative A but fewer than Alternatives B and C.
Minerals (Salable)				
Alternative A would have the fewest restrictions on availability and access and the least impact on salable minerals.	Alternative B would have greater impacts on salable minerals than Alternative A because more acres would be unavailable for mineral material disposal sites. Moreover, greater restrictions would result in reduced efficiency and increased cost of developing the salable minerals.	For the most part, impacts from Alternative C would be similar to those of Alternative B, with more restrictions on access due to travel management and realty restrictions.	Alternative D would have more impacts on salable minerals than Alternative A but fewer than Alternatives B and C.	Proposed LUPA—Impacts on salable minerals under the Proposed LUPA would be similar to those for Alternative B.
Travel Management				
The degree of impact would be lowest under Alternative A because of fewer land use restrictions for the protection of Greater Sage-Grouse.	Alternative B would have slightly more restriction, and therefore slightly greater impact, than Alternative A.	Alternative C would result in the greatest level of impact on transportation and access.	Alternative D would have slightly less restriction, and therefore slightly less impact, than Alternative B.	The Proposed LUPA has similar impacts on travel management as those for Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
Recreation				
Alternative A places the fewest restrictions on development and allows for the most modification of the landscape. Consequently, it would provide the most opportunities for recreation access, especially for motorized and mechanized modes of travel. However, it would also reduce the naturalness and remoteness attributes of the physical setting for all types of recreation. Impacts would vary, based on each area's prescribed recreation management objectives and the nature of any development or surface disturbance. Recreation opportunities requiring less remote or natural settings would benefit, while more primitive backcountry opportunities would likely be diminished.	Alternative B would limit development and surface disturbance in Greater Sage-Grouse habitat and would have more beneficial impacts for primitive backcountry recreation than Alternative A. It would allow fewer opportunities than Alternative A for recreation that depends on road and trail development.	Alternative C has the fewest areas available for surface-disturbing activities and so would have impacts similar to those described for Alternative B; however, Alternative C would have greater benefit to primitive recreation settings and greater detriment to developed recreation.	Alternative D would have impacts similar to Alternative B but with more potential for road and trail development and the associated recreation activities, experiences and outcomes.	Impacts from the proposed action would be similar to those described for Alternative D, with slightly fewer impacts overall due to greater restrictions on ground disturbance and disruption.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
Range Management				
Alternative A would provide the most flexibility in management, the fewest impacts on forage availability, and the fewest restrictions on development of range improvements, which would benefit range management.	Alternative B would provide less flexibility than Alternatives A and D but would provide more flexibility than Alternative C for range management. Alternative B would put more restrictions on developing range improvements than Alternatives A and D but fewer restrictions than Alternative C, which could impact the range program.	Alternative C would close ADH to livestock grazing and would cause the need for additional infrastructure to implement that closure. Impacts on the range management program are greatest under Alternative C.	Alternative D would provide more flexibility in management than Alternatives B and C but less flexibility than Alternative A. Impacts on forage availability under this alternative are greater than Alternative A but are less than Alternatives B and C.	The Proposed LUPA would provide slightly less flexibility than Alternative D but greater flexibility than Alternatives B and C. Impacts on forage availability are greater than Alternative A but less than Alternatives B and C.
Wild Horse Management				
Alternative A provides the most opportunity for development and land uses. It puts very few restrictions on development, which could result in the most development and human activity on the landscape and, consequently, the most impacts on wild horses. Alternative A would provide the most flexibility in managing wild horses.	Alternative B provides a greater level of protection for wild horses than Alternative A but less protection than Alternative C. Alternative B would also prioritize wild horse gathers in PHMA, which could negatively impact herd areas and HMAs that are not within habitat and could hamstring flexibility in managing wild horses.	Alternative C would place the most restrictions on development, recreation, and travel and transportation. It would benefit horses the most due to an expected decrease in human activity and therefore a decrease in disruptions to wild horses.	Alternative D would be more beneficial for wild horses than Alternative A but less beneficial than Alternatives B and C. More flexibility for development is built into Alternative D, which could result in higher levels of development and associated disruption of horses than Alternatives B and C.	Proposed LUPA—Impacts from the Proposed LUPA on wild horse management are similar to those for Alternative D.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
Special Designations - ACEC and Zoological Areas				
<p>Alternative A would recognize all of the existing ACEC designations, but no new ACECs are proposed. Alternative A puts very few restrictions on surface uses. This could result in the most modification of the landscape and consequently the most impacts on those ACECs with the following characteristics:</p> <ul style="list-style-type: none"> Do not already have strict restrictions on travel management (e.g., East Douglas Creek) Are not managed as ROW exclusion areas (i.e., Anvil Points, Blue Hill, East Fork of Parachute Creek, Kremmling Cretaceous Ammonite, North Park Natural Area, White River Riparian, and East Douglas ACEC) Have NSO stipulations (i.e., Blue Hill, White River Riparian, and East Douglas Creek) 	<p>Alternative B would recognize all of the existing ACEC designations, but no new ACECs are proposed. Alternative B provides a greater level of protection for ACECs than Alternative A since additional restrictions would be in place to protect Greater Sage-Grouse habitat. However, Alternative B would provide a lower level of protection than Alternative C. Both Alternatives B and C would prioritize management of Greater Sage-Grouse. This could result in indirect negative impacts on the relevant and important values in the ACECs, especially for those values that do not occur within sagebrush communities.</p> <p>New route construction would be limited within seven of the ACECs (8,300 acres). The Kremmling Cretaceous Ammonite, North Park Natural Area, and a portion of the East Douglas Creek ACEC would receive increased protection and would be managed as ROW exclusion areas. Grazing permittees could voluntarily retire grazing privileges. This could provide benefits to</p>	<p>Alternative C would recognize all of the existing ACECs. Approximately 11,200 acres of PHMA are within an existing ACEC: Bull Gulch, Kremmling Cretaceous Ammonite, North Park Natural Area, Irish Canyon, Moosehead Mountain, East Douglas Creek, or South Cathedral Bluffs. Greater Sage-Grouse habitat would be added to the other reasons for designating those ACECs. The remaining 912,000 acres of PHMA would become the Greater Sage-Grouse habitat ACEC. Alternative C would provide the most protection to the largest area; however, due to the focus on Greater Sage-Grouse habitat without regard for other resources, Alternative C is also the most likely to cause resource conflicts and impacts on some relevant and important values within ACECs.</p> <p>New route construction would be limited within 16 of the ACECs (32,900 acres) but it is possible that restrictions on road development in Greater Sage-Grouse habitat would result in routing roads through non-sagebrush</p>	<p>Alternative D would recognize all of the existing ACEC designations, but no new ACECs are proposed. Alternative D would provide more protection for ACECs than Alternative A but would provide less protection than Alternatives B and C.</p> <p>Alternative D acknowledges the BLM and Forest Service multiple-use mandate and considers Greater Sage-Grouse habitat requirements in conjunction with all other resource values. Rather than a 3 percent cap on surface disturbance (which would include new route construction), Alternative D would allow up to 5 percent surface disturbance within a MZ. Both PHMA and GHMA would be managed as avoidance areas. This would still provide an increase in protection compared to Alternative A for the Kremmling Cretaceous Ammonite, North Park Natural Area, Anvil Points, and East Fort of Parachute Creek ACECs.</p>	<p>Impacts on ACECs are similar to those under Alternative D for all resources. There would be slightly greater protection due to increased restriction on human disturbance under the Proposed LUPA.</p>

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
(see above)	<p>ACECs if those areas were retired, but this benefit would not be localized.</p> <p>Alternative B would authorize new water developments only from seeps or springs in PHMA if they would benefit Greater Sage-Grouse. This could negatively influence other important values outside of PHMA if there were inadequate distribution of livestock due to the constraints of available water. Alternative B would close approximately 7,700 acres within five ACECs to fluid mineral leasing. PHMA would be a priority for fire suppression, as well as any areas within GHMA where a fire could threaten PHMA. While this could benefit the ACECs that contain Greater Sage-Grouse habitat, it could result in irreparable damage to other ACECs; this would be the case if firefighting resources were diverted to suppress fires within Greater Sage-Grouse habitat regardless of other irreplaceable resources that may be at risk. Additionally, native seed allocation would be prioritized for use within Greater Sage-Grouse habitats, which could limit the</p>	<p>habitat, particularly within the Trapper/Northwater Creek, East Fork Parachute Creek, Yanks Gulch/Upper Greasewood Creek, and Deer Gulch ACECs.</p> <p>Alternative C would provide increased protection for approximately 16,700 acres within 10 ACECs since these areas would be managed as ROW exclusion areas. However, this could result in more pressure to place ROWs within areas outside of Greater Sage-Grouse habitat that are managed as avoidance areas (e.g., East Douglas and White River Riparian ACECs). Grazing would be excluded within the seven ACECs that contain PHMA, which would be an increase in protection for those areas. Restrictions on range improvements, such as fences and the location of water developments and supplements, could negatively affect ACECs. They would do this by hampering the ability to construct exclosures to protect sensitive resources and also by reducing the effectiveness of grazing management systems.</p>	<p>Similar to Alternative B, Alternative D would allow grazing permittees to voluntarily retire grazing privileges; however, under Alternative D these areas could be used as grass banks, which could benefit numerous ACECs that require rest due to fire, reclamation, or habitat treatments. In contrast to Alternative C, Alternative D would allow range improvements to enhance livestock distribution and to manage utilization for the benefit of other resources, in addition to Greater Sage-Grouse.</p> <p>Rather than close areas to fluid mineral leasing, Alternative D would manage PHMA with NSO stipulations. This is very similar to Alternative A, given the extent of ACECs that are currently managed with NSO stipulations. Similar to Alternatives B and C, Alternative D would prioritize fire suppression within Greater Sage-Grouse habitat; however, it would also allow for exemptions, which would allow the BLM and Forest Service to focus on</p>	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
(see above)	availability of seed to be used in special status plant habitats.	Alternative C would close 25,500 acres to fluid mineral leasing within 12 ACECs; however, those areas that are not within Greater Sage-Grouse habitat would remain open for leasing and may experience increased development pressure. Alternative C is similar to Alternative B in regard to Greater Sage-Grouse habitat receiving priority for fire suppression resources and native seed allocation.	protecting other important resources in addition to Greater Sage-Grouse habitat. Alternative D would also allow the use of other species in reclamation, so long as they met Greater Sage-Grouse habitat objectives. This would afford the BLM and Forest Service the ability to prioritize use of native seeds in other areas when native seed is in short supply (e.g., habitat for listed plant species).	(see above)
Special Designations – Wilderness Study Areas				
Alternative A puts very few restrictions on surface uses, which could result in the most indirect impacts on WSAs due to the most modification of the landscape. However, the proposed management decisions would not replace existing decisions that are more restrictive, and the nonimpairment standards for WSAs would be strictly adhered unless Congress released the WSAs from wilderness study.	Alternative B would put more restrictions on development than Alternative A, which would have an overall beneficial effect on WSAs.	Alternative C puts the most restrictions on development. This alternative would have the most beneficial impacts on WSAs.	Alternative D would put more restrictions on development than Alternative A but fewer than Alternatives B and C. This alternative would have a beneficial effect on WSAs, but it would be less of a beneficial effect than Alternatives B and C.	Impacts from the Proposed LUPA are similar to those for Alternative D. There would be slightly greater benefits to WSAs due to increased restrictions on disturbance and disruption in PHMA and PGMAs.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
Special Designations – Wild and Scenic Rivers				
<p>Alternative A has greater adverse impacts from travel and transportation and habitat restoration because more areas are open to cross-country travel and restoration is not prioritized. These management actions would negatively impact most associated outstandingly remarkable values, including wildlife, scenic, fish, botanical, and biodiversity.</p> <p>Alternative A would see greater beneficial impacts from recreation, lands and realty, and fuels management because those segments which contained the recreational outstandingly remarkable value would most likely benefit from recreation and lands and realty actions which allow for more options for development. Management actions associated with fuels management could benefit botanical and biodiversity outstandingly remarkable values because there would be the most potential for short-term vegetation disturbance, which would allow for long-term vegetation regrowth.</p>	<p>Alternative B would likely result in greater adverse impacts from recreation because restricting SRPs would negatively impact the recreational outstandingly remarkable value. Alternative B would also likely result in greater beneficial impacts from the potential PHMA ACEC because most associated outstandingly remarkable values such as botanical and biodiversity would benefit.</p>	<p>Alternative C would have greater impacts on wild and scenic rivers from restrictions on recreation. Restrictions on land use authorizations would benefit wild and scenic rivers by reducing potential impacts on outstandingly remarkable values. Alternative C would have greater beneficial impacts on wild and scenic rivers from travel and transportation from restrictions on route construction and upgrades. These restrictions would benefit wild and scenic rivers by reducing potential impacts on outstandingly remarkable values.</p>	<p>Alternative D would have fewer restrictions on surface-disturbing activities that could impact outstandingly remarkable values than Alternative B and C, but would have more restrictions than Alternative A. Restrictions on recreation use would be less under Alternative D than under Alternatives B and C.</p>	<p>Proposed LUPA—Overall impacts on Wild and Scenic Rivers from the Proposed LUPA are slightly greater than Alternative B and less than Alternative D.</p>

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
Special Designations – National Trails and Byways				
Management under Alternative A would continue with the current conditions and existing plans and would have the least restrictions on changes that may occur across the landscape which could impact national trails and byways. National trails and byways often are designated to provide opportunities for activities such as recreation and education dependent on physical settings. With fewer protections for landscapes within national trail and byway corridors, experiences could also be diminished.	Under Alternative B, management would provide a greater level of protection for the landscape, which would benefit existing or future national trail and byway corridors. Under this alternative, there would be greater benefits and fewer impacts than under Alternatives A and D, but fewer benefits than under Alternative C.	Management under Alternative C would provide the greatest level of protection for the landscape, which would benefit existing or future national trail and byway corridors. Under this alternative there would be greater benefits and fewer impacts than under Alternatives A, B, and D.	Under Alternative D, management would provide protections for the landscape that would benefit existing or future national trail and byway corridors while allowing greater flexibility for managing multiple resources. Under this alternative, there would be greater benefits and fewer impacts than Alternatives A, but fewer benefits than under Alternatives B and C.	Under the Proposed LUPA, impacts would be similar to those under Alternative D, with slightly greater benefits to national trails and byways due to increased restrictions on surface disturbance.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
Soil and Water Resources				
Under Alternative A, soil and water would be the most adversely impacted of all four alternatives. This is because no additional stipulations and caps on surface disturbance would be introduced under this alternative.	Under Alternative B, the BLM and Forest Service would institute a 3 percent cap on surface disturbance. This would limit surface-disturbing activities, which have an adverse impact on soil and water. Also, compared to Alternative A, Alternative B would reduce impacts on soil and water by restrictions on existing surface-disturbing activities, a closure to new oil and gas leasing in PHMA, and proposed mineral withdrawals. In some cases, these actions may shift development to areas outside of PHMA, with subsequent impacts on soil and water in those areas.	BLM and Forest Service management under Alternative C would be the most protective of soil and water. Under this alternative, the BLM and Forest Service would eliminate livestock grazing in the planning area, which would yield beneficial impacts over time on soil and water. The BLM and Forest Service would institute a 3 percent disturbance cap under Alternative C, which would cover a larger area than Alternative B. Thus, this alternative would protect soil and water over a larger area as well. In some cases, these actions may shift development to areas outside of PHMA, with subsequent impacts on soil and water in those areas.	BLM and Forest Service management under Alternative D would be less protective than Alternatives B and C but more protective than Alternative A. The BLM and Forest Service would institute a 5 percent disturbance cap in PHMA under Alternative D, which would allow for more development than Alternatives B and C. The resulting shift in development discussed above for Alternatives B and C would be less pronounced under Alternative D.	Impacts on soil and water from the Proposed LUPA would be similar to those described under Alternative D, with additional protections due to increased restrictions on disturbance in PHMA.
Air Quality				

None of the alternatives analyzed in this EIS is statistically better or worse with respect to impacts on air quality. The changes in each alternative's RFD are relatively minor, which produces a result that suggests air quality is not a primary driver for decision-making.

As previously stated, the various alternatives have different capacities to concentrate development in the future; however, the extent of such concentration would be highly dependent on the temporal or incremental changes to the disturbance caps in relation to the mineral potential of any leased lands. The management actions that would be implemented to effectively manage the caps are not known at this time; there is no way of predicting how oil and gas could be corralled within or beyond the RMP lifetimes to analyze specific impacts on air quality from such concentrations. Regardless, all future projects would be analyzed, based on the actual development proposals, to ensure that air quality is adequately protected and fully considers all contemporaneous development at appropriate scales.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
Climate Change				
Impacts on Greater Sage-Grouse (and all other resources) from climate change would be the same under each of the alternatives. Climate change is a global phenomenon that affects resources at the local level.				
Assessing climate change impacts is difficult due to the uncertainty of what the climate may actually be in the future. If greenhouse gas emissions remain at current levels, temperatures could increase by as much as 10° Fahrenheit by the end of the century (National Fish, Wildlife and Plants Climate Adaptation Partnership 2012). If these changes were to occur, it could have profound impacts on Greater Sage-Grouse within the planning area.				
Vulnerability of resources from climate change is based on exposure, sensitivity, and the adaptive capacity of the resource (Glick et al. 2011). Exposure is the nature and degree to which a resource is exposed to climate variations. Sensitivity is the degree to which a resource is affected, either adversely or beneficially, by climate change. Adaptive capacity is the ability of a resource to adjust to climate change, including climate variability and climate extremes, to take advantage of opportunities, or to cope with the consequences. With each of these factors there is always some uncertainty.				
The main impacts of climate change on Greater Sage-Grouse would be the possibility of loss of sagebrush vegetation communities. It is likely that local extirpations of Greater Sage-Grouse could occur as vegetation communities change from shrublands to either grasslands or woodlands.				
The Colorado Plateau Rapid Ecological Assessment Report (Bryce et al. 2012) indicated that under climate change scenarios, intermountain basins big sagebrush plant communities were at a relatively high risk of being impacted. A loss of sagebrush communities due to climate change would directly impact Greater Sage-Grouse. Compounding this issue is that the planning area is at the southern edge of the range for Greater Sage-Grouse, and species at the edge of their range are typically at a higher risk. If plant communities shift north in latitude, it is possible that local populations of Greater Sage-Grouse could be extirpated by the end of the century due to habitat loss attributed to climate change.				
Visual Resources				
Alternative A provides the least amount of protection for visual resources. It puts very few restrictions on development, which could result in the most modification of the landscape, and consequently, the most impacts on visual resources.	Alternative B provides a greater level of protection for visual resources than Alternative A but would provide a lower level of protection than Alternative C.	Alternative C would provide the most protection for visual resources. The most restrictions would be placed on development under Alternative C, which would afford the most protection for visual resources.	Alternative D would provide more protection for visual resources than Alternative A but would provide less protection than Alternatives B and C. More flexibility for development is built into Alternative D, which could result in higher levels of development and associated surface disturbance than Alternatives B and C.	The Proposed LUPA would be similar to Alternative D, with slightly greater protections for visual resources. This is due to increased restrictions on surface disturbance in PHMA (3 percent cap on disturbance).

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
Lands With Wilderness Characteristics				
Alternative A provides the least protection for lands with wilderness characteristics in the planning area. Alternative A puts very few restrictions on development, which could result in the most modification of the landscape and, consequently, the most impacts on lands with wilderness characteristics.	Alternative B provides a greater level of protection for lands with wilderness characteristics than Alternative A but would provide a lower level of protection than Alternative C.	Alternative C would provide the most protection for lands with wilderness characteristics. The most restrictions would be placed on development under Alternative C, which would afford the most protection for lands with wilderness characteristics.	Alternative D would provide more protection for lands with wilderness characteristics than Alternative A but would provide less protection than Alternatives B and C. More flexibility for development is built into Alternative D, which could result in higher levels of development than Alternatives B and C.	The Proposed LUPA has impacts similar to Alternative D, with additional protections for Lands with Wilderness Characteristics. This is due to additional restrictions on surface disturbance in PHMA (3 percent disturbance cap).
Soundscapes				
Impacts on soundscapes are the greatest under this alternative since it would allow the most opportunity for human activities.	Impacts on soundscapes under Alternative B are fewer than under Alternative A since it would allow fewer opportunities for human activities.	Impacts on soundscapes are the fewest under this alternative since it would allow the fewest opportunities for human activities.	Impacts on soundscapes are greater than under Alternatives B and C but fewer than Alternative A.	Proposed LUPA—Impacts on soundscapes are slightly greater than Alternatives B and C but less than Alternatives A and D.

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
Cultural Resources				
<p>Alternative A (current management) is generally the least protective for cultural resources of the alternatives. Current management of cultural resources follows federal laws, regulations, and guidelines to manage and protect significant resources from adverse impacts. These laws and regulations operate outside of management actions, so cultural resources would still be protected and managed to prevent adverse impacts to avoid, minimize, or mitigate any adverse effects on historic properties the extent possible.</p> <p>This alternative provides some limited restrictions of activities or uses within Greater Sage-Grouse habitat, which in turn provides some additional protection for cultural resources. Adverse impacts may continue to the degree they occur today through changes in all six cultural resource indicators: vandalism and collection, scientific knowledge, site setting, Native American traditional uses, ground disturbance, and natural causes. Areas open to OHV travel, land exchanges, ROWs, resource development, livestock grazing, or new construction could</p>	<p>Under Alternative B, decisions to retain public land and restrictions to permitted activities generally benefit cultural resources. Examples are livestock grazing, recreation SRPs, ROWs, SUAs, power lines, mineral withdrawal, fluid mineral leasing, solid mineral development, and other activities that would limit or reduce disturbance in Greater Sage-Grouse habitat. Limiting motorized travel to existing roads under this alternative is beneficial to some cultural resources in that limitations could reduce vandalism by reducing access to distant sites.</p> <p>In general, restrictions on various uses to increase or protect Greater Sage-Grouse habitat typically reduces vandalism, ground disturbance, and natural disturbances on sites. This happens by reducing access while preserving site settings and traditional uses by tribes. Restricting uses for Greater Sage-Grouse habitat may also reduce new scientific knowledge that results from the inventories required before project development.</p>	<p>Alternative C is the most restrictive. Various aspects include making PHMA a Greater Sage-Grouse habitat ACEC, making all habitat a grazing exclusion area, making occupied habitat exclusion areas for new ROWs, and withdrawing habitat from mineral entry. The overall impact would be to protect cultural resources within Greater Sage-Grouse habitat. However, this alternative would cause the most impacts outside of Greater Sage-Grouse habitat, as development would be pushed into these areas.</p> <p>Additionally, certain actions, such as forcing new roads to be constructed around a 4-mile buffer from leks and avoiding construction in occupied habitat, may cause roads to be longer in distance; in such a case, more areas would be exposed to ground disturbance, erosion, and public impacts.</p> <p>Such actions as ROW exclusions, withdrawal from mineral entry, and retention of BLM-administered and National Forest System lands are all actions that are</p>	<p>Alternatives A and B have roughly comparable levels of potential adverse impacts. Implementation of Alternative D would result in comparable adverse impacts on cultural resources and values of importance to Native Americans, when compared to Alternatives B and C.</p>	<p>Impacts from the Proposed LUPA are similar to those under Alternative D, with greater protections overall for cultural resources. This is due to additional restrictions on surface disturbance in PHMA (3 percent disturbance cap).</p>

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
adversely impact cultural resources because it allows greater land use activity in areas where there are potentially significant sites. Some benefits to allowing more land use activities are an increase in land inventoried for cultural resources and increased knowledge of cultural resources in the area.	<p>Potentially adverse impacts on cultural resources under Alternative B include allowing land exchanges to create more contiguous habitat. This is because lands and resources removed from federal ownership would no longer be protected by cultural resource laws. However, that impact would be mitigated by the fact that lands removed from federal ownership would be inventoried and impacts on significant cultural resources minimized.</p> <p>Additionally, this alternative places no restrictions on solar facility development for Greater Sage-Grouse habitat or active leks. If solar and wind facilities were developed under this alternative, vandalism and ground disturbance to cultural resources could occur. However, additional scientific knowledge would also be gained during the inventory of those projects.</p> <p>Some cultural resources in areas crossed by roads may see additional vandalism through unauthorized collection and increased ground disturbance through</p>	<p>beneficial to minimizing activity in areas of cultural resources and keeping cultural resources under federal protection. Potential negative impacts are from such actions as seasonally prohibiting camping and nonmotorized recreation within 4 miles of active leks. This could cause these activities, which are normally dispersed, to be concentrated in other areas and potentially cause vandalism and illegal collection there.</p> <p>Alternative C would restrict gains in scientific knowledge within Greater Sage-Grouse habitat by decreasing the industry development in the habitat. However, this would most likely shift development and the associated potential increase in scientific knowledge outside of PHMA. Alternative C would beneficially protect site settings within Greater Sage-Grouse habitat, but impacts would again likely shift outside of habitat as development is pushed there.</p> <p>Also, restoration of such areas as former mineral material sale areas and routes</p>	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
(see above)	road use. The decision to not upgrade roads may increase natural disturbance from road erosion. If some routes are closed to public access, some access routes used by tribes for traditional practices could be impacted if they are not identified in consultation. Limiting activities on public lands for Greater Sage-Grouse habitat might move those actions to other areas, which could increase overall use in areas that are not sage parks and may possess higher potential for cultural sites.	no longer in use could improve previously impacted site settings by restoring the landscape to its original look and feeling. Alternative C would limit development and travel the most, which would decrease impacts on Native American traditional use sites by preserving areas and keeping disturbance to a minimum; however, this might make it more difficult for tribes to access areas they use traditionally. Restrictions to various uses to increase or protect Greater Sage-Grouse habitat would reduce ground disturbance and subsequent acceleration of natural processes to cultural resources but would likely push these impacts onto other areas.	(see above)	(see above)
Paleontological Resources				
With this being the no action, or status quo, alternative, all resource management actions would continue as they are. Ultimately, Alternative A has the fewest restrictions imposed on resource management related to protection of Greater Sage-Grouse. In respect to the general impacts described above, this alternative offers the least protection from vandalism/collection, could increase scientific knowledge,	This alternative would provide more surface protections than Alternatives A and D but less than C. Impacts from natural processes, ground disturbance, vandalism, and theft would be less than the impacts of Alternatives A and D but more than impacts from Alternative C. New scientifically significant discoveries could be less frequent than under Alternatives A and D but	Alternative C is the most restrictive. Various aspects include making all PHMA a Greater Sage-Grouse habitat ACEC, making all habitat a grazing exclusion area, making occupied habitat exclusion areas for new ROWs and withdrawals of habitat from mineral entry. The overall impact would be protection of paleontological resources within Greater Sage-Grouse habitat. However, this	Alternatives A and B have roughly comparable levels of potential adverse impacts. Implementation of Alternative D would result in comparable adverse impacts on paleontological resources, when compared to Alternatives B and C.	Impacts from the Proposed LUPA are similar to those under Alternative D, with slightly greater protections overall for paleontological resources. This is due to additional restrictions on surface disturbance in PHMA (3 percent disturbance cap).

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
and offers the least protection from ground disturbance and natural processes. However, there are some resources that would have little to no impact change on paleontological resources, including salable and locatable minerals.	more frequent than with Alternative C. This is due to less required paleontological surveys and less surface disturbance associated with various types of surface-disturbing projects.	<p>alternative would cause the most impacts outside of Greater Sage-Grouse habitat, as development would be pushed into these areas. Additionally, certain actions, such as forcing new roads to be constructed around a 4-mile buffer from leks and avoiding construction in occupied habitat, may cause roads to be longer, where more areas would be exposed to ground disturbance, erosion, and public impacts.</p> <p>Such actions as ROW exclusions, withdrawal from mineral entry, and retention of BLM-administered and National Forest System lands are all beneficial to minimizing activity in areas of paleontological resources and keeping paleontological resources under federal protection. Potential negative impacts come from such actions as seasonally prohibiting camping and nonmotorized recreation within 4 miles of active leks, which may cause these activities, which are normally dispersed, to concentrate in other areas and potentially cause vandalism and illegal collection there.</p>	(see above)	(see above)

Alternative A	Alternative B	Alternative C	Alternative D	BLM Proposed LUPA
(see above)	(see above)	Alternative C would restrict gains in scientific knowledge within Greater Sage-Grouse habitat by decreasing the amount of industry development in habitat. However, this would most likely shift development and the associated potential increase in scientific knowledge outside of PHMA. Restrictions to various uses to increase or protect Greater Sage-Grouse habitat reduce ground disturbance and the subsequent acceleration of natural processes to paleontological resources, but they may likely push these impacts on other areas.	(see above)	(see above)
Special Status Species				
Greater Sage-Grouse in PHMA, GHMA, and LCHMA				
Acreages cited under Alternative A include all acres currently identified and designated in existing LUPs. There is no identified PHMA, GHMA, or LCHMA associated with this alternative.	Acreage values for Alternatives B, C, and D include only identified Greater Sage-Grouse habitats classified as PHMA, GHMA, or LCHMA (ADH).			

Table 4-4
Comparison of Alleviated Threats to Greater Sage-Grouse in Northwest Colorado by Alternative in the 2015 Proposed LUPA/Final EIS

Resource/Resource Use	Alternative A	Alternative B	Alternative C	Alternative D	Proposed LUPA
Oil and Gas Development*					
Unleased Fluid Minerals					
Areas closed to fluid mineral leasing (acres)	100,200 Existing acres closed to fluid mineral leasing (mostly WSAs).	1,347,400 No new areas would be leased in PHMA.	2,473,000 No new areas would be leased in ADH.	100,200 No new areas would be closed to leasing. No surface occupancy would be allowed in PHMA.	324,400 acres within 1 mile of active leks would be closed to leasing.
Areas open to mineral leasing with NSO stipulation (acres)	365,000 Various stipulations apply, but most are not specific to Greater Sage-Grouse or Greater Sage-Grouse habitat.	365,000 PHMA would be closed to new fluid mineral leasing.	365,000 ADH would be closed to new fluid mineral leasing.	1,510,600 No surface occupancy would be allowed in PHMA. No exceptions to NSO would be granted within 0.6- miles of active leks in ADH. If exceptions, modifications, or waivers are granted, additional stipulations may apply.	1,550,400 No surface occupancy would be allowed in PHMA. No modifications or waivers. Exceptions subject to criteria described in Table 2.4 [of the 2015 Proposed LUPA/Final EIS]. No Surface Occupancy within 2 miles of active leks in GHMA.

Resource/Resource Use	Alternative A	Alternative B	Alternative C	Alternative D	Proposed LUPA
Leased Fluid Minerals					
Restrictions on surface disturbance for leased fluid minerals	<p>Low level of protection for Greater Sage-Grouse in ADH.</p> <p>Various stipulations apply, but most are not specific to Greater Sage-Grouse or Greater Sage-Grouse habitat.</p>	<p>High level of protection for Greater Sage-Grouse in PHMA.</p> <p>Apply 4-mile NSO around leks in PHMA and limit disturbances to 1 per section with no more than 3 percent disturbance in that section.</p>	<p>Highest level of protection for Greater Sage-Grouse in ADH.</p> <p>Apply 4-mile NSO around leks in PHMA and limit disturbances to 1 per section with no more than 3 percent disturbance in that section.</p>	<p>High level of protection for Greater Sage-Grouse in PHMA.</p> <p>Apply a TL/CSU in PHMA that would prohibit surface occupancy or disturbance within 4 miles of a lek during lekking and early brood-rearing. Limit permitted disturbance to 5 percent in any Colorado MZ.</p>	<p>High level of protection for Greater Sage-Grouse in PHMA.</p> <p>No leasing 1 mile from active leks in all occupied Greater Sage-Grouse habitat. Apply NSO stipulation to PHMA. Apply a TL/CSU in PHMA that would prohibit surface occupancy or disturbance within 4 miles of active leks during lekking and early brood-rearing. Limit permitted disturbances to 3 percent in PHMA in any Colorado MZ.</p>
Summary of Impacts on Greater Sage-Grouse from Oil and Gas Development	<p>Alternatives B, C, and D and the Proposed LUPA close PHMA to surface occupancy, which responds to the need (identified in the Conservation Objectives Team Report, April 2013) to stop population decline and habitat loss by eliminating activities known to negatively impact Greater Sage-Grouse and its habitats through reduction in the threat of habitat loss, degradation and fragmentation. Each action alternative closes Greater Sage-Grouse habitat—the greater number of acres the greater reduction in potential activities known to negatively impact Greater Sage-Grouse and Greater Sage-Grouse habitat.</p> <p>The action alternatives are also in agreement with the following conservation measures identified in the Conservation Objectives Team Report specific to energy development:</p>				<p>The Proposed LUPA provides the additional protection of closing areas within 1 mile of active leks to leasing for fluid minerals.</p>
<p>1. Avoid energy development in priority areas for conservation (Doherty et al. 2010). Identify areas where leasing is not acceptable, or not acceptable without stipulations for surface occupancy that maintains Greater Sage-Grouse habitats.</p> <p>2. If avoidance is not possible within priority areas for conservation due to preexisting valid rights, adjacent development or split estate issues, development should only occur in nonhabitat areas, including all appurtenant structures, with an adequate buffer that is sufficient to preclude impacts on Greater Sage-Grouse habitat from noise and other human activities.</p>					

Resource/Resource Use	Alternative A	Alternative B	Alternative C	Alternative D	Proposed LUPA
Infrastructure*/Anthropogenic					
ROW avoidance areas (acres)	82,000 Various areas managed as ROW avoidance, but most are not specific to protect Greater Sage-Grouse and Greater Sage-Grouse habitat.	58,500 No new acres of avoidance since PHMA would be an exclusion area.	0 No new acres of avoidance since ADH would be an exclusion area.	968,300 Specific criteria would have to be met in order to permit disturbances. For example, projects must demonstrate that Greater Sage-Grouse populations are stable or increasing at objective levels in that Colorado MZ and disturbances would be capped at 5 percent.	1,081,700 Specific criteria would have to be met in order to allow ROWs in avoidance areas. Subject to 3 percent disturbance in PHMA.
ROW exclusion areas (acres); per BLM LUP Handbook, no exceptions permitted	24,200 Various ROW exclusion areas designated, but most are not specific to protect Greater Sage-Grouse and Greater Sage-Grouse habitat.	934,100 PHMA would be a ROW exclusion area.	1,744,100 ADH would be a ROW exclusion area.	24,200 No new exclusion areas for general ROWs identified.	0

Resource/Resource Use	Alternative A	Alternative B	Alternative C	Alternative D	Proposed LUPA
Avoidance areas for large transmission lines (greater than 100 kilovolts; acres)	No avoidance areas for large transmission lines identified.	No avoidance areas for large transmission lines identified.	No avoidance areas for large transmission lines identified.	66,000 Parcels identified as avoidance areas for large transmission lines. Specific criteria would have to be met in order to permit disturbances. For example, projects must demonstrate that Greater Sage-Grouse populations are stable or increasing at objective levels in that Colorado MZ and disturbances would be capped at 5 percent.	1,751,600 All of PHMA and GHMA are avoidance for large transmission lines, with the exception of pending projects, as detailed in Table 2.8 [of the 2015 Proposed LUPA/Final EIS].
Exclusion areas for large transmission lines (greater than 230 kilovolts; acres); per BLM LUP Handbook, no exceptions permitted	No exclusion areas for large transmission lines identified.	All ROWs would be excluded in PHMA.	All ROWs would be excluded in ADH.	873,300 PHMA, except areas identified as avoidance for large transmission lines would be exclusion area for large transmission lines.	0
Travel management open/closed/limited areas respectively	202,600/52,600/ 1,484,700 Various restrictions on route construction and upgrades, but most are not specific to protect Greater Sage-Grouse and Greater Sage-Grouse habitat.	202,600/42,500/ 923,200 Restrictions on route construction and upgrades would be applied to PHMA.	202,600/42,500/ 923,200 Restrictions on route construction and upgrades would be applied to ADH and would include a 4- mile buffer from leks.	202,600/42,500/ 923,200 Construction and upgrades of routes would be subject to 5 percent disturbance cap.	202,600/42,500/ 923,200 Construction and upgrades of routes would be subject to a 3 percent disturbance cap in PHMA.

Resource/Resource Use	Alternative A	Alternative B	Alternative C	Alternative D	Proposed LUPA
Summary of Impacts on Greater Sage-Grouse from Infrastructure	Alternatives B, C, and D and the Proposed LUPA close PHMA to surface occupancy, which responds to the need (identified in the Conservation Objectives Team Report, April 2013) to stop population decline and habitat loss by eliminating activities known to negatively impact Greater Sage-Grouse and its habitats through reduction in the threat of habitat loss, degradation and fragmentation. Each action alternative closes Greater Sage-Grouse habitat—the greater number of acres the greater reduction in potential activities known to negatively impact Greater Sage-Grouse and Greater Sage-Grouse habitat. The action alternatives are in agreement with the following conservation objectives/options identified in the Conservation Objectives Team Report specific to infrastructure: 1. Avoid development of infrastructure within priority areas for conservation (objective). 2. Avoid construction of these features in Greater Sage-Grouse habitat, both within and outside of priority areas for conservation (option). 3. Restrictions limiting use of roads should be enforced (option). Alternative A, in general has the least protections for Greater Sage-Grouse and Greater Sage-Grouse habitat from development of infrastructure. Alternative B would have more restrictions on route construction and upgrades, as well as ROWs than Alternative A and D, but would have fewer than Alternative C. See page 4-79 for a complete summary of impacts from lands and realty on Greater Sage-Grouse. See page 4-77 for a complete summary of impacts from travel management on Greater Sage-Grouse.				-
Agriculture/Urbanization*					
Areas identified for disposal	Various parcels identified for disposal for consolidation of management without regard for Greater Sage-Grouse habitat.	Under all action alternatives (including the Proposed LUPA), Greater Sage-Grouse habitat would NOT be identified for disposal, unless consolidation of ownership would benefit Greater Sage-Grouse or Greater Sage-Grouse habitat.			-
Areas identified for acquisition	No parcels identified in existing plans for acquisition.	Seek to acquire state and private lands with intact subsurface mineral estate by donation, purchase or exchange in order to best conserve, enhance or restore Greater Sage-Grouse habitat.	Strive to acquire Greater Sage-Grouse habitat in ADH.	Consider Greater Sage-Grouse habitat values in acquisitions in ADH.	Consider Greater Sage-Grouse habitat values in acquisitions in ADH.

Resource/Resource Use	Alternative A	Alternative B	Alternative C	Alternative D	Proposed LUPA
Summary of Impacts on Greater Sage-Grouse from Agriculture and Urbanization	Across all action alternatives (including the Proposed LUPA), the BLM and Forest Service would take advantage of opportunities to consolidate Greater Sage-Grouse habitat. Although agriculture and urbanization have been identified as threats in northwest Colorado, the BLM and Forest Service has limited management authority over those types of activities. The Colorado Department of Natural Resources' Colorado Greater Sage-Grouse Conservation Plan: The Colorado Package (Appendix N) Department of Natural Resources' Colorado Greater Sage-Grouse Conservation Plan: The Colorado Package (Appendix N) identifies those actions included in the conservation strategy in the 2008 Greater Sage Grouse Conservation Plan. The Colorado Department of Natural Resources Package includes a list of those actions (including actions tied to agriculture and urbanization) and their associated responsible parties, implementation and effectiveness to date. The action alternatives are in agreement with the following conservation objectives/options identified in the Conservation Objectives Team Report specific to infrastructure: <div><div>1.</div><div>Limit urban and exurban development in Greater Sage-Grouse habitats and maintain intact native sagebrush plant communities (objective).</div></div> <div><div>2.</div><div>Acquire and manage Greater Sage-Grouse habitat to maintain intact ecosystems (option).</div></div> See page 4-79 for a complete analysis of land tenure on Greater Sage-Grouse.				-
Conifer Invasion*					
Areas prioritized for vegetation treatments	Few restrictions on habitat restoration actions, with the most potential for vegetation disturbance. There would be no prioritization of habitat restoration in Greater Sage-Grouse habitat.	Across all action alternatives (including the Proposed LUPA), treatments would be prioritized to consider Greater Sage-Grouse habitat requirements.			-
Grazing					
Areas closed to livestock grazing (acres)	No areas identified as closed to livestock grazing.	No areas identified as closed to livestock grazing.	1,744,100 BLM-administered and National Forest System lands within ADH would be closed to livestock grazing.	No areas identified as closed to livestock grazing.	No areas identified as closed to livestock grazing.

Resource/Resource Use	Alternative A	Alternative B	Alternative C	Alternative D	Proposed LUPA
Areas available for livestock grazing (acres)	BLM-administered and National Forest System lands within the planning area would be available for livestock grazing.	1,702,500 BLM-administered and National Forest System lands within ADH would be available for livestock grazing.	No areas would be available for livestock grazing on BLM-administered and National Forest System lands within ADH.	1,702,500 BLM-administered and National Forest System lands within ADH would be available for livestock grazing.	1,702,500
Wild horse and burro management	Gathers prioritized without consideration of Greater Sage-Grouse habitat requirements.	Prioritize HMAs for gathers that are within PHMA.	Prioritize HMAs for gathers that are within PHMA.	Greater Sage-Grouse habitat requirements would be considered with other resource values when prioritizing gathers.	Greater Sage-Grouse habitat requirements would be considered with other resource values when prioritizing gathers.
Summary of Impacts on Greater Sage-Grouse from Grazing	<p>Greater Sage-Grouse habitat considerations within livestock grazing allotments and wild horse management areas would be similar across all action alternatives. Range improvements are more restricted under Alternative B than under Alternative D and the Proposed LUPA. Under Alternative C, the potential for increased fencing in order to prevent trespass exists. Under Alternative A, grazing would be managed to achieve the standards of rangeland health. Consequently in most scenarios, Greater Sage-Grouse habitat requirements would be addressed. However in some localized situations a lack of focus on Greater Sage-Grouse-specific issues would result in adverse impacts. The most specific concern is the potential for project infrastructure up to within 0.25-mile of leks that could cause fragmentation, raptor perches, and inappropriate fence locations and designs.</p> <p>Alternative B puts specific focus on Greater Sage-Grouse habitat requirements in PHMA to preclude adverse impacts with regard to both the livestock themselves and project infrastructure. Because Alternative C closes ADH to grazing, adverse issues on public lands would be precluded, but actions taken on private land to compensate for loss of public grazing might affect Greater Sage-Grouse habitat and could be substantial (for example, volumes of fencing would likely be constructed to hold livestock on private lands). Alternative D and the Proposed LUPA would apply the specific focus on Greater Sage-Grouse habitat described for Alternative B to ADH. For additional detail on impacts from range management, see the impacts from range management on Greater Sage-Grouse section, beginning on page 4-85. For additional detail on impacts from wild horse management, see the impacts from wild horse management on Greater Sage-Grouse sections, beginning on page 4-88.</p>				See paragraph at left.

Resource/Resource Use	Alternative A	Alternative B	Alternative C	Alternative D	Proposed LUPA
Invasive Species					
Weed control priority areas	Analysis of the impacts from weeds on Greater Sage-Grouse were considered in the impacts on Greater Sage-Grouse section, including, under the impacts from lands and realty on Greater Sage-Grouse, impacts from fluid minerals on Greater Sage-Grouse and impacts from wildfire suppression, fuels management and fire rehabilitation sections. However, weed infestations are not considered a top threat in northwest Colorado by the Conservation Objectives Team Report (USFWS 2013).				-
Wildfire					
Suppression priority areas	Analyses of the impacts from wildfire suppression on Greater Sage-Grouse were considered in the impacts on Greater Sage-Grouse section, in the impacts from wildfire suppression, fuels management and fire rehabilitation section. However, wildfire suppression was not considered a top threat in northwest Colorado by the Conservation Objectives Team Report (USFWS 2013).				-
Disease					
Although impacts from West Nile Virus to Greater Sage-Grouse are considered in the analysis, the vast majority of Greater Sage-Grouse habitat in northwest Colorado exists at elevations above where West Nile virus is commonly found (Naugle et al. 2005). See RDFs, PDFs, and SDFs for a description of features designed to reduce the threat of West Nile Virus (Appendix I, Required Design Features, Preferred Design Features, and Suggested Design Features).				-	
Coal Mining					
Areas identified as unsuitable for coal mining	Various areas found unsuitable for coal mining, but few tied specifically to protection of Greater Sage-Grouse habitat.	Under Alternatives B and C, the BLM and Forest Service would find PHMA unsuitable for surface mining. The BLM and Forest Service would grant no new sub-surface mining leases unless all facilities could be located outside of PHMA.		Under Alternative D, the BLM would apply the unsuitability criteria to ADH for surface mining. The BLM would grant no new sub-surface mining leases unless all facilities could be located outside of ADH. Any disturbances associated with coal mining would be subject to the 5 percent disturbance cap.	Under the Proposed LUPA, the BLM would apply the unsuitability criteria to ADH for surface mining. It would grant no new subsurface mining leases unless all facilities could be located outside of ADH. Any disturbances associated with coal mining would be subject to the 3 percent disturbance cap.
Weather					
There is no resource program in an LUP for addressing this threat to Greater Sage-Grouse and its habitat.					-
Predation					
See RDFs and SDFs for Lands and Realty and Minerals for a description of features designed to reduce the threat of predation (Appendix I, Required Design Features, Preferred Design Features, and Suggested Design Features).				-	

Resource/Resource Use	Alternative A	Alternative B	Alternative C	Alternative D	Proposed LUPA
Prescribed Fire					
Areas suitable for prescribed fire use	Treatments considered on a case- by-case basis, and not prioritized specific to Greater Sage-Grouse habitat.	No treatments would be allowed in known winter range in PHMA, unless treatment is designed to strategically reduce wildfire risk around or in winter range and would maintain winter habitat range quality.	No treatments would be allowed in known winter range in ADH, unless treatment is designed to strategically reduce wildfire risk around or in winter range and would maintain winter habitat range quality.	Performance-based objectives, which include canopy cover, would be used when considering treatments in ADH (70/30 sagebrush thresholds).	Performance-based objectives, which include canopy cover, would be used when considering treatments in ADH (70/30 sagebrush thresholds).
Water Development					
Identify number, type, and location of range water developments	Although impacts from West Nile Virus to Greater Sage-Grouse are considered in the analysis, the vast majority of Greater Sage-Grouse habitat in northwest Colorado exists at elevations above where West Nile virus is commonly found (Naugle et al. 2005). See RDFs, PDFs, and SDFs for a description of features designed to reduce the threat of West Nile Virus (Appendix I, Required Design Features, Preferred Design Features, and Suggested Design Features).				-
Hard Rock Mining					
Locatable Minerals	Various areas recommended for withdrawal/currently withdrawn (mostly special designations). May be some overlap with Greater Sage-Grouse habitat.	Alternatives B and C would propose a withdrawal from locatable mineral entry in PHMA. Existing claims in PHMA would be subject to validity exams.		No new proposed withdrawal from locatable mineral entry. Validity exams, per 43 CFR 3809.100, would be required in PHMA in currently withdrawn areas.	Validity exams, per 43 CFR 3809.100, would be required in PHMA in currently withdrawn areas.
Salable Minerals/Mineral Materials	Various areas closed to mineral material sales. May be some overlap with Greater Sage-Grouse habitat.	Under Alternatives B and C, PHMA would be closed to mineral material sales.		Existing mineral material sales sites could continue and potentially expand in PHMA, subject to mitigation and the 5 percent disturbance cap in the Colorado MZs.	Under the Proposed LUPA, PHMA would be closed to mineral material sales.
Summary of Impacts on Greater Sage-Grouse from Hard Rock Mining	Effective mitigation for existing mining claims and mineral material sites is similar across all action alternatives. See the impacts from locatable minerals on Greater Sage-Grouse section (page 4-100) and the impacts from salable minerals section to Greater Sage-Grouse section (page 4-102) for a complete analysis.				-

Resource/Resource Use	Alternative A	Alternative B	Alternative C	Alternative D	Proposed LUPA
Hunting					
There is no resource program in an LUP for addressing this threat to Greater Sage-Grouse and its habitat.				-	-
Climate Change					
There is no resource program in an LUP for addressing this threat to Greater Sage-Grouse and its habitat. However, the BLM Standards for Public Land Health and Guidelines for Livestock Grazing Management in Colorado include provisions for altering grazing management practices in response to drought conditions. In addition, several programs have contingency plans for management during drought conditions.					-
Contaminants					
There are no management actions in this LUPA for addressing this threat to Greater Sage-Grouse and its habitat. Regulations applied to mineral development and Appendix I, Required Design Features, Preferred Design Features, and Suggested Design Features, include requirements and design features to prevent the potential threat of contaminants.					-

Source: BLM 2013a

4.4 INCOMPLETE OR UNAVAILABLE INFORMATION

The Council on Environmental Quality (CEQ) established implementing regulations for NEPA, requiring that a federal agency identify relevant information that may be incomplete or unavailable for evaluating reasonably foreseeable significant adverse impacts in an EIS (40 CFR 1502.22). If the information is essential to a reasoned choice among alternatives, it must be included or addressed in an EIS, unless the cost of obtaining such information is exorbitant. Knowledge and information is, and would always be, incomplete, particularly with infinitely complex ecosystems considered at various scales.

The best available information pertinent to the decisions to be made was used in developing the 2019 RMPA. The BLM has made a considerable effort to acquire and convert resource data into digital format for use in the 2019 RMPA, both from the BLM and from outside sources.

Under the FLPMA, the inventory of public land resources is ongoing and continuously updated; however, certain information was unavailable for use in developing the 2019 RMPA. This was because inventories either had not been conducted or were not complete.

Some of the major types of data that are incomplete or unavailable are the following:

- Comprehensive planning area-wide inventory of wildlife and special status species occurrence and condition
- Site-specific surveys of cultural and paleontological resources

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, including commodity prices, and responses in similar areas, are used for environmental impacts where data are limited.

For these resources, estimates were made concerning their number, type, and significance, based on previous surveys and existing knowledge.

In addition, some impacts could not be quantified, given the proposed management actions. Where there was this gap, impacts were projected in qualitative terms or, in some instances, were described as unknown. Subsequent site-specific, project-level analyses would provide the opportunity to collect and examine site-specific inventory data to determine appropriate application of LUP-level guidance. In addition, the BLM and other agencies in the planning area continue to update and refine information used to implement this plan.

4.5 IMPACTS ON GREATER SAGE-GROUSE

4.5.1 Management Alignment Alternative

The indicators used in the 2015 Final EIS to analyze impacts on Greater Sage-Grouse were:

- Direct Habitat Loss/Fragmentation/Indirect Habitat Loss or Avoidance
- Habitat Fragmentation and Alteration
- Indirect Habitat Loss and Avoidance

The Management Alignment Alternative would open approximately 224,200 acres for fluid mineral leasing that are closed under the No-Action Alternative. The 224,200 acres would be open for fluid

mineral leasing subject to an NSO stipulation. Although the additional acres would be available to leasing, their impact on Greater Sage-Grouse would be similar to the No-Action Alternative. This is because surface disturbance, fragmentation, and indirect habitat loss would not be expected to increase due to restrictions on surface disturbance.

The Management Alignment Alternative also amends the 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.

Better coordination with the State of Colorado 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.

4.5.2 Proposed Plan

The impacts from the proposed plan on Greater Sage-Grouse are expected to be the same as described above in **Section 4.5.1**.

4.6 IMPACTS ON FLUID MINERALS

4.6.1 Management Alignment Alternative

Under the Management Alignment Alternative, approximately 224,200 acres that are closed to fluid mineral leasing under the No-Action Alternative would be open for fluid mineral leasing subject to NSO stipulations, as discussed in **Table 2-2**. Opening the 224,200 acres for fluid mineral leasing means that there is the potential for revenue generation associated with leasing, developing, and producing the federal fluid minerals as discussed in **Section 3.3.2**; however, it is unknown when or if the 224,200 acres will actually be leased and/or developed.

As discussed in the 2015 Final EIS (see **Table 4-1** for location of relevant analysis incorporated by reference), approximately 34 percent of the federal mineral estate in PHMA is currently unleased, including approximately 29 percent with high potential for oil and gas. There are numerous considerations that operators take into account before acquiring and developing leases, including market value of the commodity being produced (oil, natural gas, or associated hydrocarbons), operational costs, ease of access to lease minerals, practicality of necessary infrastructure such as roads and pipelines, and technological capabilities. As a result, it is difficult to predict if these changes to availability of leases and increased flexibility of the WEMs would lead to additional oil and gas development or a varied approach to the same level of development.

4.6.2 Proposed Plan

The impacts from the proposed plan on Greater Sage-Grouse are expected to be the same as described above in **Section 4.6.1**.

4.7 IMPACTS ON SOCIOECONOMICS

4.7.1 Management Alignment Alternative

As discussed in **Section 3.3.3**, given the uncertainty of whether the 224,200 acres will be leased and developed, it is assumed that any development and production that may occur under the Management Alignment Alternative would be within the range analyzed for the social and economic impacts in the

2015 Final EIS. While it is uncertain whether the 224,200 acres proposed to be open to fluid mineral leasing under the Management Alignment Alternative will be leased and developed, the opportunity for them to be leased provides for the potential economic activity associated with leasing and development (for example, revenues, jobs, and labor income) to occur, which would not occur under the No-Action Alternative for these acres. The social and economic effects associated with management actions related to Greater Sage-Grouse within the planning area discussed in the 2015 Final EIS include qualitative and quantitative discussions on:

- Direct economic activity dependent on BLM-administered and National Forest System land and resource management
 - Qualitative assessment of the volume of economic activity dependent on BLM- administered and National Forest System lands and resources
 - Indirect impacts could be changes in economic activity.
- Overall employment, earnings, output, and earnings per job associated with economic activities affected by management alternatives
 - Dollar value of output, earnings, and earnings per job; number of jobs
 - Indirect impacts would include changes in the number of jobs.
- Tax revenues and payments to states and counties
 - Dollar value of tax revenues
 - Indirect impacts would include changes in tax revenues.
- Dollar value of consumer surplus associated with recreation activities; qualitative assessment of the “non-use” values attributable to Greater Sage-Grouse populations and ranching activity
 - Indirect impacts would include changes in nonmarket values.
- Qualitative assessment of the potential increase or decrease in population
 - Indirect impacts would include changes in population, housing, and public services
- Qualitative assessment of local availability of housing and public services
 - Consistency with county land use plans
 - Indirect impacts would include changes in availability of housing and public services.
- Qualitative assessment of consistency with county land use plans
 - Interest groups and communities of place
- Qualitative assessment of alignment with interest group objectives and community livelihoods
 - Environmental justice
 - Disproportionately high and adverse human health and environmental impacts

Although social and economic conditions, including market forces in the oil and gas industry, have changed, the results provided in the 2015 Final EIS provide a reference point for understanding how revenues and economic activity associated with oil and gas development and production could look under different scenarios and alternatives. The pace and level of oil and gas leasing, development, and production would drive the amount of associated economic activity that occurs as well as the amount of revenues generated and disbursed back to the State of Colorado.

4.7.2 Proposed Plan

The impacts from the proposed plan on Greater Sage-Grouse are expected to be the same as described above in **Section 4.7.1**.

4.8 CUMULATIVE EFFECTS

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 future 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 Proposed RMPA/Final 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.

The BLM has determined 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. Consistent with that determination and with BLM IM 2018-093, *Compensatory Mitigation*, the Proposed Plan Amendment clarifies how voluntary compensatory mitigation or a state-imposed mitigation requirement should be considered in the management of Greater Sage-Grouse habitat. This clarification simply aligns the 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. In other words, it is speculative to assume the impacts from voluntary compensatory mitigation at the planning level without knowing the frequency with which project proponents will proffer 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.

However, the effects of the changes to compensatory mitigation in the Proposed Plan will be nominal, in part, because the BLM will continue to ensure consistency of its actions and authorizations with the land use planning level goals and objectives of the Proposed Plans. The implementation of compensatory mitigation actions will be directed by MOAs that describe how the BLM will align with State authorities and incorporated in the appropriate NEPA analysis subsequent to the Proposed Plan 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 1.4 million acres of Greater Sage-Grouse habitat range-wide over the past 5 years. In the federal government's fiscal year 2018 specifically, the BLM funded approximately \$29 million in Greater Sage-Grouse management actions resulting in approximately 500,000 acres of treated habitat. The BLM expects to invest nearly \$17 million in fiscal year 2019 through the implementation of habitat management projects.

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, 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.

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 will 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 will 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 will encompass multiple larger scales, from areas as large as the WAFWA MZ to the scale of this DSEIS. Effectiveness data used for these larger-scale evaluations will include all lands in the area of interest, regardless of surface management, and will help inform where finer-scale evaluations are needed.

Currently, the 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.

This DSEIS incorporates by reference the analysis in the 2015 Final EIS and the 2016 SFA 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 Draft EIS evaluated the cumulative impacts associated with the No-Action Alternative in this DSEIS. The DSEIS's impacts are effectively within the range of effects analyzed by the 2015 and 2016 EISs. The 2015 Final EIS is quite recent, and the BLM has determined that conditions in the Northwestern Colorado Sub-region have not changed significantly based, in part, on the USGS science review (see **Chapter 3**), as well 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 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 EISs regarding reasonably foreseeable future 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 EIS 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 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 and Management Alignment (2018 Proposed Plan Amendment) alternatives 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 WAFWA 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 Endangered Species Act (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 Sage-grouse Task Force team (SGTF), 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 on Greater Sage-Grouse and its habitats. In 2015, in its listing decision, USFWS found that the Greater Sage-Grouse was not in danger of extinction now or in the foreseeable future throughout all or a significant portion of its range and that the species no longer warranted listing under the ESA. At the time of that decision, USFWS acknowledged the RMP requirements that compensatory mitigation achieve a net gain standard. BLM has determined 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.

Consistent with that determination and with BLM IM 2018-093, the 2018 Proposed Plan Amendment clarifies how voluntary compensatory mitigation should be considered in the management of Greater Sage- Grouse habitat.

In all Greater Sage-Grouse habitat, in undertaking BLM management actions, and in authorizing third-party actions that result in habitat loss and degradation, the BLM would require and ensure both mitigation and management actions that achieve the planning-level management goals and objectives identified in this Proposed RMPA/Final EIS including achieving conservation by means of mitigation in combination with other management actions; however, it is speculative to assume the impacts from voluntary compensatory mitigation at cumulative levels across MZs. While BLM is not proposing any action that would preclude proponents from offering compensatory mitigation, the BLM is uncertain as to the likelihood of such actions occurring. The applicability and overall effectiveness of voluntary actions cannot be fully assessed until the project level when the project location, design and impacts are known.

However, it is speculative to assume the impacts from voluntary compensatory mitigation at cumulative level across management zones. While BLM is not proposing any action that would preclude proponents from offering compensatory mitigation, the BLM is uncertain as to the likelihood of such actions occurring. The applicability and overall effectiveness of voluntary actions cannot be fully assessed until the project level when the project location, design and impacts are known.

The BLM would continue plan effectiveness monitoring, which would provide the data needed to evaluate BLM actions and the associated mitigation toward reaching the goals and objectives set forth in the 2019 Proposed RMPA/Final EISs. Effectiveness monitoring methods would encompass multiple larger scales, from areas as large as the WAFWA MZs to the scale of this DSEIS. Effectiveness data used for these larger-scale evaluations would include all lands in the area of interest, regardless of surface ownership/management, and would help inform where finer-scale evaluations are needed, such as population areas smaller than an RMP.

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 2018 planning process. These data were carried forward as the alternative allocation decision data. The BLM was also provided 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 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 4.8.1** and **Table 1** in **Appendix 2** 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 Colorado. See Colorado's WAFWA management zone analysis in **Section 4.8.4** below. This analysis uses WAFWA Management Zones. Colorado's WAFWA Zone analysis included Zones II/VII that include Wyoming, Colorado, Utah, Montana, and Idaho (Figure 4-1).

This DSEIS incorporates by reference the analysis in the 2015 Final EIS. The 2015 Final EIS comprehensively analyzed the cumulative impacts associated with the planning decisions under consideration in that process, including the impacts associated with the alternative approved in the 2015 ROD. Only those affected resources identified in **Chapters 1** and **3** and listed in **Table 1-5** were carried forward for analysis.

Table 4-5, below, indicates the location in the 2015 Final EIS with the detailed cumulative effects analysis for those topics carried forward in the alternatives, including the proposed plan, in this DSEIS.

4.8.1 Range-wide Cumulative Effects Analysis – Greater Sage-Grouse

The 2015 ARMPA is the No-Action Alternative in this DSEIS and was part of the cumulative impact analysis for Greater Sage-Grouse at the WAFWA zone scale in the 2015 Final EIS (see **Table 4.3**).

Additionally, the cumulative impacts anticipated from the Management Alignment Alternative and the Proposed Plan presented in this DSEIS 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 Colorado 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 (2018 Proposed Plan Amendment) Alternatives at scales beyond the individual planning areas associated with the 2019 amendment process. The analysis focuses on the relevant changes in habitat delineations and allocation decisions each BLM state office is proposing and how those

Figure 4-I – Cumulative Effects Analysis Extent, Sage-Grouse Management Zones and Populations

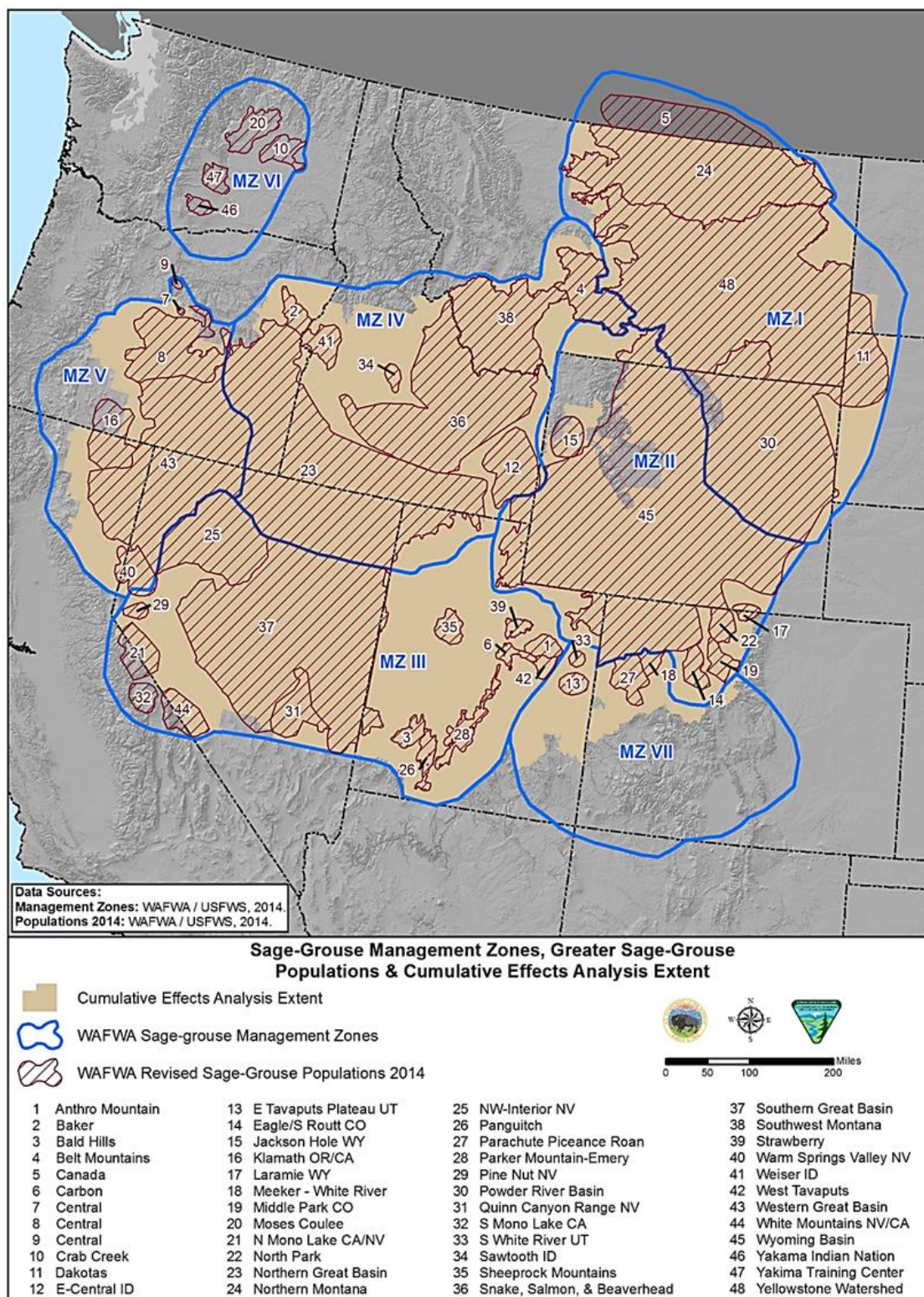


Table 4-5
Cumulative Effects Analysis Incorporated by Reference

Resource Topic	Location of Cumulative Effects Analysis
Greater Sage-Grouse	<p>The range of alternatives addressed in the 2015 cumulative effects analysis includes both the current No-Action Alternative (2015 Final EIS ARMPA), the current Management Alignment Alternative (2015 Final EIS, Alternative D), and the Proposed Plan.</p> <p>The 2015 Final EIS concluded that the cumulative impacts of the actions in Alternative D were substantially similar to the 2015 Final EIS Proposed LUPA. The cumulative effects analysis for all the action alternatives in the 2015 Final EIS stated that “Alternatives B, C, and D and the Proposed LUPA [are] anticipated to result in a net conservation gain for [Greater Sage-Grouse] in MZ II/VII when compared to current management . . . While not as extensive as Alternatives B or C, Alternative D and the Proposed LUPA include [Greater Sage-Grouse] conservation measures and resource use allocations that would improve baseline conditions and exert less development pressure on non-federal lands.”</p> <p>The detailed discussion regarding cumulative effects of fluid minerals decisions on Greater Sage-Grouse is contained in Chapter 5, Section 5.4, page 5-12 [of the 2015 Final EIS].</p>
Fluid Minerals	<p>The range of alternatives addressed in the 2015 Final EIS cumulative effects analysis includes both the current No-Action Alternative (2015 Final EIS Proposed LUPA), the current Management Alignment Alternative (2015 Final EIS Alternative D), and the Proposed Plan.</p> <p>Under all of the 2015 Final EIS action alternatives (Alternatives B, C, and D and the Proposed LUPA), oil and gas production would decrease due to restrictions placed on development. Decreases in production would be greatest under the 2015 Final EIS Alternative C, under which the BLM/Forest Service would close all PHMA to fluid mineral leasing. Restrictions on oil and gas leasing would have a cumulative effect on the ability to develop these resources. Under the 2015 Final EIS Alternative A, oil and gas exploration and development were expected to continue, as correlated with mineral commodity prices.</p> <p>The detailed discussion regarding cumulative effects of the alternatives on fluid minerals is contained in Chapter 5, Section 5.9, p. 5-82 [of the 2015 Final EIS].</p>
Socioeconomics	<p>The range of alternatives addressed in the 2015 Final EIS cumulative effects analysis includes both the current No-Action Alternative (2015 Final EIS Proposed LUPA), the current Management Alignment Alternative (2015 Final EIS Alternative D), and the Proposed Plan.</p> <p>The main driver of changes in employment and earnings in the study area is oil and gas activity. Restrictions on development and land use under the 2015 Final EIS Alternatives B, C, and D and the Proposed LUPA could impair economic growth in some sectors, as measured by employment and income in the cumulative impact analysis area. In the context of overall employment and earnings projections, and from a regional perspective, the impacts would be relatively minor.</p> <p>The detailed discussion regarding cumulative effects of the alternatives on socioeconomics is contained in Chapter 5, Section 5.22, p. 5-97 [of the 2015 Final EIS].</p>

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.¹

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.

4.8.2 Why use WAFWA Management Zones?

The WAFWA represents state and provincial fish and wildlife agencies. It 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 analyzes habitats and allocation decisions at the scale of the six WAFWA-delineated Greater Sage-Grouse MZs within the plan amendments to enable the decision-maker to understand the impacts on Greater Sage-Grouse at a biologically meaningful scale (see **Figure 1** in **Appendix 2**). The MZs were delineated based on floristic provinces (identified by Connelly et al. 2004) within which the vegetation communities comprising Greater Sage-Grouse habitat and 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, threats, and vegetation conditions important to Greater Sage-Grouse habitat management. 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

¹ 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).

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.

The sum of past, present, and reasonably foreseeable actions listed in **Appendix 2** 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.

The habitat fragmentation and disturbance resulting from energy development, mining, and infrastructure remain the greatest threat to Greater Sage-Grouse in the Rocky Mountain Region; the levels of development within the range of projected wildland fire analyzed in the 2015 Final EIS. 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 range-wide;² 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 range-wide 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 the 2018 Proposed Plan Amendment 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 Land Use Plans, 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.

² Removing 2012 and 2017, which were above-average wildland fire years, the 8-year average is approximately 500,000 acres burned per year.

4.8.3 Cumulative Effects on Greater Sage-Grouse: Management Zone I

In addition to the analysis in the 2015 Final EIS in **Appendix 2 (Table I)**, other anticipated incremental impacts are discussed below in association with planning issues analyzed in this DSEIS.

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 RMPAs 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 RMPA 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 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 (HMA) 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 HMA would be documented using the appropriate level of NEPA analysis that would, as applicable, provide analysis regarding any potential impacts; however, because the underlying HMA 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 RMPA. 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 vegetation 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, in MA 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 habitat. It would ensure that once causal factors are resolved, management reverts to preadaptive 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 RMPA 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 they 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.

The BLM's Proposed RMPAs in MZ I are also unlikely to preclude the reasonably foreseeable actions listed in **Appendix 2** 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. 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.

4.8.4 Cumulative Effects on Greater Sage-Grouse: Management Zone II/VII

In addition to the analysis in the 2015 Final EIS in **Appendix 2 (Table I)**, other anticipated incremental impacts are discussed below in association with planning issues analyzed in this DSEIS.

MZs II/VII encompass portions of Wyoming, Colorado, Utah, Montana, and Idaho. Under the Proposed RMPAs in these this MZ, PHMA would decrease by 1 percent, and GHMA would decrease by 1 percent, compared with the acreage values in the No-Action Alternative. The proposed change in HMA 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 Important Habitat Management Areas (IHMA) for population monitoring purposes as a result of a tripped adaptive management trigger; however, the habitat would continue to be managed as PHMA, which results in no net change to overall acreages included in the HMA. Across this MZ, no other modifications to HMA 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 are closed to leasing. The Proposed Plan 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 MZs II and VII, land use plan allocations tied to HMA did not change between the No-Action Alternative and the Proposed RMPA. 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 RMPA 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 MZ II/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 that Greater Sage-Grouse will persist. Additionally, the relevant distribution of land use plan allocations associated with these HMA changes would not significantly change (0–3 percent; see **Appendix 2**).

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 Mining Law of 1872, and they would make slight adjustments to habitat objectives. 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 MZs II/VII would be consistent with those impacts identified in the 2015 Final EISs for the then Proposed Plan Amendments. The currently Proposed RMPAs' changes 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 HMA and the allocations associated with those HMA are not being proposed for change in any plan in MZs 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 HMA across MZs 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 the zone. Future modifications of HMA would be documented using the appropriate level of NEPA analysis that would, as applicable, provide analysis regarding any potential impacts; however, because the underlying HMA 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 HMA, 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. There would be no appreciable additive impact, therefore, 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 Land Use Plan Amendments, the recommendation to withdraw SFAs from location and entry under the Mining Law of 1872 would be removed, as the EIS process considering the withdrawal was canceled on October 11, 2017. In its 2016 SFA Withdrawal Draft 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 of surface disturbance over 20 years, with approximately 0.58 percent of Greater Sage-Grouse male birds 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.³ 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.

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; 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 state's 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 the vegetation 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 EISs. All ongoing planning efforts in MZs II/VII would make slight adjustments to habitat objectives. In Wyoming and Utah, they 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 DSEIS, 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. They, however, 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.

³ See footnote 2

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 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. The existing disturbance screening criteria and the disturbance development criteria, however, would highly 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 2** 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. The proposed plan amendments, however, retain conservation measures that would be applied consistent with State management plans. They continue 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 and the expansion of the Blowout Penstemon Area of Critical Environmental Concern (ACEC) during this Greater Sage-Grouse planning effort. The Visual Resource Management 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 to Greater Sage-Grouse in MZ II as a result of the Rawlins RMP Amendment.

4.8.5 Cumulative Effects on Greater Sage-Grouse: Management Zone III

In addition to the analysis in the 2015 Final EIS in **Appendix 2 (Table I)**, other anticipated incremental impacts are discussed below in association with planning issues being analyzed in this DSEIS.

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, Other Habitat Management Areas (OHMA) would decrease by 2 percent, as compared with the acreages identified in the No-Action Alternative. The proposed change in HMA acres between the No-Action Alternative and the 2018 Proposed Plan Amendment in Nevada and Northeastern California is based on adjustments made to habitat modeling used to delineate HMA and improve alignment with Nevada's delineations for HMA, which the State of Nevada adopted in December 2015. In Utah, GHMA (approximately 860,000 acres) were removed in the 2018 Proposed Plan Amendment in an effort to align with the HMA identified by the State of Utah. Following this HMA 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 HMA did not change between the alternatives. The decrease in PHMA, GHMA, and OHMA within WAFWA MZ III between the No-Action Alternative and the 2018 Proposed Plan Amendment would therefore have negligible to minimal impacts on Greater Sage-Grouse and its habitat in the context of the entire MZ. This is because the relevant distribution of land use plan allocations associated with these HMA is not significantly changing (only an overall 0–3 percent decrease; see **Appendix 2**).

Both planning efforts' 2018 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. In both planning areas, it 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 2018 Proposed Plan Amendments in the MZ are also unlikely to preclude the reasonably foreseeable actions listed in **Appendix 2** 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 an associated decline in Greater Sage-Grouse habitat quality. The 2018 Proposed Plan Amendments, however, 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 2018 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

HMA 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 2018 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 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 2018 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 HMA, 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. There would be no appreciable additive impact, therefore, 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 2018 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.

4.8.6 Cumulative Effects on Greater Sage-Grouse: Management Zone IV

In addition to the analysis in the 2015 Final EIS in **Appendix 2 (Table I)**, other anticipated incremental impacts are discussed below in association with planning issues being analyzed in this DSEIS.

MZ IV encompasses portions of Idaho, Nevada, Montana, Oregon, Utah, and a small portion of Wyoming. Under the 2018 Proposed Plan Amendment, PHMA would decrease by 2 percent, IHMA would decrease by 0 percent, GHMA would decrease by 0 percent, and OHMA would decrease by 1 percent, as compared with the acreage identified in the No-Action Alternative. The proposed change in HMA acres between the No-Action Alternative and the 2018 Proposed Plan Amendment in Nevada is based on adjustments made to habitat modeling used to delineate HMA and to improve alignment with Nevada's delineations for HMA. In Idaho, minor proposed changes in HMA 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. HMA 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 an 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 HMA 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. This is because the relevant distribution of land use plan allocations associated with these HMA is not significantly changing (0–2 percent; see **Appendix 2**).

Each planning effort's 2018 Proposed Plan Amendment in MZ IV incorporates management flexibility that would allow exceptions to allocation decisions within HMA and would allow for site-specific adjustments for land use authorizations and adjustments to existing adaptive management strategies. Under all 2018 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 on 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 this MZ, where wildfire, invasive plants, and conifer encroachment are greater threats to the Greater Sage-Grouse and its habitats.

The BLM's 2018 Proposed Plan Amendments in the MZ are also unlikely to preclude the reasonably foreseeable actions listed in **Appendix 2** 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 an associated decline in Greater Sage-Grouse habitat quality; however, the 2018 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's 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 approximately 4,000 acres of PHMA and approximately 20,000 acres of GHMA within MZ IV, making its 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 reasonably foreseeable development scenario for the area predicts zero wells. The changes proposed in Utah's proposed plan would have no additive effect on Greater Sage-Grouse habitats within MZ IV.

The Oregon RMPA would change access on 21,959 acres in all or portions of key research natural areas (RNAs) 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 dominant use is grazing. Grazing management will follow standards for rangeland health. Changes to Utah's Table 2-2 (habitat objectives) that incorporate local science 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 reasonably foreseeable development scenario 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 be measurably different compared 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. The existing disturbance screening criteria and the disturbance development criteria, however, 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. There would be no appreciable additive impact, therefore, 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, the recommendation to withdraw SFAs from location and entry under the Mining Law of 1872 would be removed, as the EIS process considering the 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 of surface disturbance over 20 years, with approximately 0.58 percent of Greater Sage-Grouse male birds 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.⁴

The cumulative effects of implementing the proposed plan are as described in the 2016 SFA Withdrawal EIS, under the No-Action Alternative, in which SFAs are not carried forward. There would be negligible cumulative impacts, therefore, 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.

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.

4.8.7 Cumulative Effects on Greater Sage-Grouse: Management Zone V

In addition to the analysis in the 2015 Final EIS in **Appendix 2 (Table I)**, other anticipated incremental impacts are discussed below in association with planning issues analyzed in this DSEIS. All changes in the extent of HMA 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 (HMAs) (PHMA and GHMA). Oregon removed the recommendation for withdrawal in SFA under a plan maintenance action in May 2018, prior to the start of this amendment process. That action resulted in no difference between the No-Action Alternative and the 2018 Proposed Plan Amendments in terms of withdrawals.

Under the 2018 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 with the acreages identified in the No-Action Alternative. The proposed change in HMA acres between the No-Action Alternative and the 2018 Proposed Plan Amendment in Nevada and Northeastern California is based on adjustments made to habitat modeling used to delineate HMA and improve alignment with the State of Nevada's delineations for HMA, which the State of Nevada adopted in December 2015. Following this HMA modification, planning-level allocation decisions have also been adjusted to reflect the distribution of habitat in Nevada/Northeastern California. Future adjustments to HMA 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 (2018 Proposed Plan Amendment) would retain livestock grazing within key RNAs. The Management Alignment Alternative would result in allowing livestock grazing on 21,959 acres within the Oregon project area. 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.

⁴ See footnote 2

A summary of potential cumulative impacts by proposed management action is presented below.

Under the Nevada/Northeastern California amendment, the Management Alignment Alternative (2018 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 HMA acres between the No-Action Alternative and 2018 Proposed Plan Amendment would be the result of improved habitat modeling used to delineate HMA (best available science) and to align with the State of Nevada's delineations for HMA (adopted by the State of Nevada in December 2015). Following this HMA modification, planning-level allocation decisions have also been adjusted to reflect the distribution of habitat in Nevada/Northeastern California.

The Management Alignment Alternative (2018 Proposed Plan Amendment) for Nevada and Northeastern California would also remove the recommendation for withdrawal in SFA; allow exceptions to allocation decisions within PHMA, GHMA, and 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 2**). The largest percent allocation change between the alternatives within the MZ, and would be consistent with those impacts described in the 2015 Final EIS for the then Proposed RMPAs because the Management Alignment Alternatives (2018 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.

From these actions, cumulative impacts on Greater Sage-Grouse populations across MZ V would be consistent with those impacts described in the 2015 Final EIS for the then 2018 Proposed Plan Amendments because the Management Alignment Alternatives (2018 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 (2018 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; the relevant distribution of land use plan allocations associated with these HMA would result in an estimated 2.5 to 3 percent decrease, all from Nevada and Northeastern California (see **Appendix 2**).

The BLM's 2018 Proposed Plan Amendments in MZ V are unlikely to preclude the reasonably foreseeable actions listed in **Appendix 2** from proceeding. Overall, the 2018 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 2018 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 HMA 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 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 2018 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 HMA, 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. There would be no appreciable additive impact, therefore, 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 2018 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.

4.9 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 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.

4.10 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 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 2018 Proposed Plan Amendment.

Impacts from permanent conversion of areas to other uses, such as transportation, mineral, and energy development or off-highway vehicle use, would be greater under the 2018 Proposed Plan Amendment, but overall minimal for both alternatives. Both the No-Action Alternative and the 2018 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 result in the destruction of the target species, be it annual grass, noxious weed, or encroachment of juniper. Some level of competition for forage between wildlife, livestock, and wild horses would occur. Instances of displacement, harassment, and injury to these species could also occur. Both the No-Action Alternative and the 2018 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 be expected to decrease the potential for ignitions in the decision area. 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 could occur under the No-Action Alternative or the 2018 Proposed Plan Amendment.

4.11 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 DSEIS.

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 resources such 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 2018 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 2018 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 2019 NEPA PROCESS

5.1.1 Public Comments on the 2019 DSEIS

BLM will accept comments on this DSEIS for 45 days after the NOA publishes in the *Federal Register*.

5.1.2 Future Opportunities for Public Involvement on the SFEIS

After receiving comments on the DSEIS, and making any appropriate updates, the BLM will publish a Notice of Availability in the *Federal Register* to notify the public of the availability of the SFEIS.

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 DSEIS solely updates NEPA analysis to clarify the approach taken in the 2018 Final EIS.

The Colorado BLM contacted all Native American tribes and organizations with interests in the planning area by mail requesting a consultation and inviting participation in the planning process. These tribes included the following:

- Eastern Shoshone Tribe (Wind River Reservation)
- Northern Arapaho Tribe
- Northern Cheyenne Tribe
- Southern Ute Indian Tribe
- Ute Indian Tribe (Uintah and Ouray Reservation)
- Ute Mountain Ute Indian Tribe

5.3 LIST OF DSEIS PREPARERS

An interdisciplinary team of staff from the BLM, in collaboration with Environmental Management and Planning Solutions, Inc. prepared the DSEIS.

Name	Role/Responsibility
Ryan Hathaway	Team Lead
Joel Humphries	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.

All designated habitat (ADH). Includes priority habitat, general habitat, and linkage/connectivity habitat.

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).

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.

Council on Environmental Quality (CEQ). An advisory council to the President of the US established by the National Environmental Policy Act of 1969. 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 Department of Interior, Bureau of Land Management 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 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.

Linkage/Connectivity Habitat Management Areas (LCHMA). Areas that have been identified as broader regions of connectivity important to facilitate the movement of Greater Sage-Grouse and maintain ecological processes.

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 of 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 and geophysical exploration equipment off designated routes, 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). 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 concentration areas.

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 the Federal Land Policy and Management Act 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 No Surface Occupancy, Timing Limitations, and Controlled Surface Use. Lease stipulations are developed through the land use planning process.

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Appendix I

Responses to Substantive Public Comments
on the 2018 Draft EIS

Appendix I. Responses to Substantive Public Comments on the 2018 Draft EIS

This appendix is split up into four sections: Rangewide Comment Responses; Colorado-Specific Comment Responses; Rangewide Comments; and Colorado-Specific Comments. The Rangewide Comment Responses section contains a summary of comments received on the 2018 Draft EIS that apply mostly rangewide. The BLM recognized that not all of these comments applied to all states, but they do apply across multiple states. This section also contains a response to the summaries of comments. The Colorado-Specific Comment Responses section contains a summary of comments received specific to Colorado on the 2018 Draft EIS and responses to those comments. The full text of parsed comments received both rangewide and Colorado-specific can be found in the respective sections.

I.1 RANGEWIDE COMMENT RESPONSES

I.1.1 Adaptive Management

Summary: The “hard” and “soft” triggers identified in the 2015 plan amendments should be maintained in the current planning amendments.

Response: BLM is focused on aligning its management with the states. BLM’s stated purpose and need is to promote consistency and alignment with each State’s management for Greater Sage-Grouse. The adaptive management triggers have been maintained. However, they have been modified to align with the State’s management for Greater Sage-Grouse and with consideration for local circumstances. See individual state plans for the modified adaptive management.

Summary: Priority Habitat Management Area (PHMA) should be expanded to include additional areas.

Response: BLM is focused on aligning its management with the states. BLM’s stated purpose and need is to promote consistency and alignment with each State’s management for Greater Sage-Grouse. The habitat areas identified in the Draft RMPAs are based, in part, on the information provided by the State agencies and the latest available science and information regarding habitat for Greater Sage-Grouse. The habitat designations in the plans can be modified based on established criteria to address habitat changes, new information, and site-specific conditions. Core area and winter habitat needs to coordinate response with Wyoming.

I.1.2 Alternatives - Other

Summary: West Nile virus is a material threat to sage-grouse, and retention ponds and infiltration ponds contribute to this risk.

Response: Where West Nile virus has been identified as a threat, the 2015 plans identified required design features specifically designed to reduce the risk of West Nile Virus. Further analyzing impacts of West Nile are outside the scope and do not meet the purpose and need of the 2018 plan amendment.

I.1.3 Assumptions and Methodology

Summary: The analysis assumes that there are sufficient resources to implement the plan, which is not a supported assumption. The analysis makes unrealistic assumptions about the capacity for restoration.

Response: Department workforce reduction actions are speculative at this time and not specific to BLM or Greater Sage-Grouse related staff. 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. BLM is committed to the continued implementation of sage-grouse habitat and sagebrush steppe management.

Summary: The analysis assumes that project-level activities will undergo additional environmental review, but the use of Categorical Exclusions (CXs) and Determinations of NEPA Adequacy contradicts this assumption.

Response: If additional project level analysis is needed the BLM will conduct it at the appropriate stage. If the existing NEPA relevant to future actions is sufficient to support the decision maker, the BLM will document this in a Determination of NEPA Adequacy. If an action is categorically excluded and no extraordinary circumstances are present, the BLM expects to use a Categorical Exclusion. The list of DOI and BLM Categorical Exclusions is included in Appendices 3 and 4 of the BLM NEPA Handbook (H-1790-1). In addition, Section 390 of the Energy Policy Act of 2005 established five statutory Categorical Exclusions that apply only to oil and gas exploration and development pursuant to the Mineral Leasing Act.

Summary: The analysis assumes impacts will primarily occur on federal lands, but there is research that suggests otherwise.

Response: The decisions in the RMPAs apply only to BLM-administered lands and federal mineral estate. To the extent that these decisions affect non-BLM-administered lands, the effects are disclosed in the EIS. However, much of the direct and indirect effects of the decisions are confined to BLM-administered lands and federal mineral estate.

Summary: The analysis assumes use of best available science, but key studies are missing.

Response: The BLM coordinated with states, federal agencies and cooperating agencies to identify how the affected environment for sage-grouse management has changed. BLM specifically partnered with USGS to review the best available information published between January 2015 and January 2018 and incorporate the management implications of that information into this EIS. The report from USGS is available <https://pubs.er.usgs.gov/publication/ofr20181017> and referenced throughout the EIS. Please review the Data and Science response in this section for more information.

I.1.4 Cumulative Impacts

Summary: Because the scope of the current amendments isn't narrower than the 2015 amendments, tiering isn't appropriate. Incorporation of the Cumulative Effects Analysis (CEA) by reference is allowable, but the summary of the CEA is insufficient as written.

Response: BLM is using incorporation by reference, not tiering, to streamline our 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.

Summary: The incorporation by reference of the 2015 CEA impedes public review.

Response: BLM is adding quantitative analysis of the cumulative impacts from planning decisions for each management zone to the Final EISs to address rangewide issues and trends.

Summary: The CEA failed to account for a number of relevant activities, such as oil and gas projects in Wyoming and other scheduled lease sales.

Response: The BLM will update the past, present, and reasonably foreseeable actions as needed to reflect all current projects in the Final EIS.

1.1.5 Data and Science

Summary: The public submitted studies for consideration by the BLM.

Response: BLM specifically partnered with USGS to review the best available information and incorporate the management implications of that information into this EIS. The report from USGS is available <https://pubs.er.usgs.gov/publication/ofr20181017> and referenced throughout the EIS.

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 to the BLM to consider, and the BLM has reviewed each source submitted. Further, the BLM asked the USGS to participate in the review, and to verify if information was included in the USGS synthesis report that was developed for the Draft EIS. Many suggested articles were already included for analysis in the USGS report, and may have been missed by commenters in the initial review of the synthesis report and Draft EIS.

Both known and new studies were reviewed by BLM staff, including scientists and NEPA specialists, and each BLM State Office reviewed each study specific to how it informed their planning decisions and environmental conditions. The BLM has included, where appropriate, updates to analysis in the appropriate EISs. Overall, submitted studies did not offer information that changed the analysis of the plans/EISs and did not offer any new conditions or other information the BLM had not considered already. The BLM has reviewed all new information and suggested studies from comments received rangewide, and in specific states. Further, the BLM takes new information seriously, and identified 11 articles from the studies suggested in comments. These 11 studies are sorted below by whether they were review by the BLM by being cited in the USGS Report, being references in the bibliography of the USGS Report, or by the BLM considering them during the RMP Amendment development and review of comments. Articles not specifically addressed below were still reviewed during comment response development.

Cited in USGS Synthesis Report

Baumgardt, J. A., Reese, K. P., Connelly, J. W., & Garton, E. O. (2017). Visibility bias for sage-grouse lek counts. *Wildlife Society Bulletin*, 41(3), 461-470.

Smith, K. T., Beck, J. L., & Pratt, A. C. (2016). Does Wyoming's Core Area Policy protect winter habitats for greater sage-grouse?. *Environmental Management*, 58(4), 585-596.

Dinkins, J. B., Smith, K. T., Beck, J. L., Kirol, C. P., Pratt, A. C., & Conover, M. R. (2016). Microhabitat conditions in Wyoming's Sage-grouse Core Areas: effects on nest site selection and success. *PloS one*, 11(3), e0150798.

Green, A. W., Aldridge, C. L., & O'donnell, M. S. (2017). Investigating impacts of oil and gas development on greater sage-grouse. *The Journal of Wildlife Management*, 81(1), 46-57.

Edmunds, D. R., Aldridge, C. L., O'Donnell, M. S., & Monroe, A. P. (2018). Greater sage-grouse population trends across Wyoming. *The Journal of Wildlife Management*, 82(2), 397-412.

Gamo, R.S. & Beck, J.L. *Environmental Management* (2017) 59: 189. <https://doi.org/10.1007/s00267-016-0789-9>.

Not cited, but considered and in USGS Synthesis Report Bibliography

Spence, E. S., Beck, J. L., & Gregory, A. J. (2017). Probability of lek collapse is lower inside sage-grouse Core Areas: Effectiveness of conservation policy for a landscape species. *PloS one*, 12(11), e0185885.

Juliussan, L. M., & Doherty, K. E. (2017). 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*, 80, 98-111.

Not included in USGS Report, but considered by BLM in review (this includes the new WAFWA and USFS studies that were not published before the Draft EISs)

WAFWA Gap Analysis 2018

Cross, T. B., Schwartz, M. K., Naugle, D. E., Fedy, B. C., Row, J. R., & Oyler-McCance, S. J. (2018). The genetic network of greater sage-grouse: Range-wide identification of keystone hubs of connectivity. *Ecology and Evolution*, 8(11), 5394-5412.s

Kitzberger, T., Falk, D. A., Westerling, A. L., & Swetnam, T. W. (2017). Direct and indirect climate controls predict heterogeneous early-mid 21st century wildfire burned area across western and boreal North America. *PloS one*, 12(12), e0188486

1.1.6 Disturbance and Density Caps

Summary: NSO in priority habitat should be maintained

Response: BLM is focused on aligning our management with the states. BLM's goal is to promote consistency and alignment with each State's management for Greater Sage-Grouse, including the approach to implementing actions to reduce threats to sage-grouse. The analysis and decisions in the

RMPs are based on the information provided by the State agencies and are based on the latest available science and information regarding Greater Sage-Grouse.

Summary: Existing disturbance caps should be maintained

Response: BLM is focused on aligning our management with the states. BLM's goal is to promote consistency and alignment with each State's management for Greater Sage-Grouse, including the approach to implementing actions to reduce threats to sage-grouse. The analysis and decisions in the RMPs are based on the information provided by the State agencies and are based on the latest available science and information regarding Greater Sage-Grouse.

Summary: Disturbance caps are inadequate because they permit severe localized impacts

Response: The BLM analyzed the impacts of the disturbance cap in 2015 and in 2018, where appropriate, and disclosed the potential for localized impacts. Mitigation is designed to reduce some of these impacts to a level below the thresholds established in the plans.

Summary: Disturbance caps don't account for fragmentation

Response: The BLM recognizes the risk that habitat fragmentation poses to greater sage-grouse and its habitats. The BLM analyzed the impacts, including fragmentation, of the disturbance cap in 2015 and in 2018, where appropriate, and disclosed the potential for fragmentation. Disturbance caps are one tool in a broader management strategy that BLM employs to minimize habitat fragmentation. The density cap is designed to reduce some of these impacts to below the thresholds established in the plans. Further, the BLM also addresses fragmentation through mechanisms other than disturbance caps. For example, the conservation measures that apply in PHMA address threats to Greater Sage-Grouse, including fragmentation. Those measures include, but are not limited to, disturbance and density caps.

1.1.7 Fire and Invasive Species

Summary: The approach to managing noxious and invasive weeds needs to be more specific. The analysis should also include the 2018 Western Association of Fish and Wildlife Agencies (WAFWA) Gap Report.

Response: BLM has comprehensive strategies to address invasive species and has been implementing those strategies. Improving invasive species management did not emerge as an issue during scoping to increase management alignment or flexibility.

1.1.8 General Habitat Management Areas

Summary: The public submitted studies for consideration by the BLM in support of maintaining protections for General Habitat Management Areas (GHMA). The importance of GHMA to genetic conservation was not given sufficient attention in the analysis

Response: Removing GHMA is being evaluated as a potential way to better align federal management with that of the state. The BLM reviewed the best available science and finds that while there is evidence that gene-flow and connectivity is facilitated by GHMA, presents a sufficiently low risk to species persistence that additional analysis of this impact related to GHMA removal, beyond that in the draft EIS, is not warranted.

1.1.9 Guidance and Policy

Summary: Discretionary waivers and modifications create uncertainty in the application of protections that was not adequately analyzed.

Response: Under the Proposed Plan, 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 proposed plan balances the risk of uncertainty against the benefits of management flexibility when considering whether to grant a waiver, exception, or modification. Planning criteria identified for this amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

Summary: BLM should tailor policies closer to state policy rather than providing general discretion.

Response: BLM implementation actions must conform with plan goals and objectives. The details of implementation are guided by current policy which are discretionary and open to change based on amendments to RMPs.

Summary: Secretarial Orders referenced in the Draft EISs need additional clarifying language for how they are guiding the direction of the Draft EISs.

Response: BLM is ensuring this planning effort conforms with the guidance and direction contained in Secretary's Orders, including SO 3353, Greater Sage-Grouse Conservation and Cooperation with Western States. The Proposed Plan explains the relationship between various SOs and this planning process in greater detail. The BLM will continue to manage public lands in conformance with its approved land use plans, while future policies and Secretary's Orders may provide guidance and direction about how BLM implements those plans.

1.1.10 Habitat Boundary/Habitat Management Area Designations

Summary: BLM should use a strict 3% area threshold on administrative boundary changes. Changes to habitat boundaries exceeding 3% in area should require a new plan amendment.

Response: The thresholds for amending plans are defined in BLM's planning handbook and often depend on specific context. The BLM is committed to streamlined and effective processes using plan maintenance and other measures when appropriate. Habitat boundaries are adjusted according to specific criteria and whether modified via plan maintenance or amendment will be determined at the appropriate time. Public participation will be commensurate with the level of planning and BLM policy.

Summary: Discretionary waivers and modifications introduce uncertainty to protections that were not adequately analyzed.

Response: Under the Proposed Plan, 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 proposed plan balances the risk of uncertainty against the benefits of management flexibility when considering whether to grant a waiver, exception, or modification. Planning criteria identified for this amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

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Response: The BLM is ensuring this planning effort conforms with the guidance and direction contained in Secretary's Orders, including SO 3353, Greater Sage-Grouse Conservation and Cooperation with Western States. The Proposed Plan explains the relationship between various SOs and this planning process in greater detail. The BLM will continue to manage public lands in conformance with its approved land use plans, while future policies and Secretary's Orders may provide guidance and direction about how BLM implements those plans

1.1.11 Habitat Management Areas

Summary: The spatial extent of habitat management areas should not be modified.

Response: HMAs reflect habitat which is mapped based on best available information. If 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.

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 may result 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.

1.1.12 Habitat Objectives

Summary: BLM should more closely align its specific habitat objectives with the 2018 USGS report.

Response: BLM's habitat objectives reflect the best available information defining habitat conditions that sage-grouse preferentially select. The USGS report confirms BLM's assumption that such understanding may change over time. BLM has developed the flexibility in the plans to modify seasonal habitat objectives based on new science or site-specific information.

1.1.13 Lands and Realty

Summary: BLM should not dispose of lands with sage-grouse because transferring lands out of federal ownership introduces regulatory uncertainty and risks reducing habitat connectivity.

Response: BLM disposes of lands based on programmatic guidance and policy, and following specific criteria. Land and realty actions are often implementation level decisions that must conform with the sage-grouse goals and objectives identified in these RMP amendments.

I.1.14 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/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, this 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 public submitted studies for consideration by the BLM in support of larger lek buffers.

Response: The BLM reviewed all submitted studies, and additional information. Please see the response to Data and Science comments for a response to this study.

I.1.15 Mitigation

Summary: Mitigation provisions in the 2015 plans were relied on in the USFWS 2015 finding. Mitigation should follow consistent principles. Mitigation could benefit from different strategies in different states. Mitigation provides stronger, faster decisions on project authorizations

Response: BLM's Proposed Plan balances the risk of uncertainty against the benefits of management flexibility when considering mitigation strategies. 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 Proposed Plan clarifies 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.

Summary: Mandatory net-gain and compensatory mitigation is supported by some commenters, and objected to by others.

Response: BLM's Proposed Plan balances the risk of uncertainty against the benefits of management flexibility when considering mitigation strategies. 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 Proposed Plan clarifies 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.

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 has concluded that FLPMA does not explicitly mandate or authorize the BLM to require public land users to implement compensatory mitigation to offset environmental effects beyond the proponents level of impact. The Proposed Plan seeks to clarify that the mitigation standard applies not at the project level, but rather as a planning-level goal and objective unless specifically required under a state management authority. The BLM is pursuing 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.

Summary: Various commenters argued that recent changes in mitigation policy and the applicability to sage-grouse warrant additional analysis, public review, or a SEIS.

Response: Public input on implementing mitigation, “including alternative approaches to requiring compensatory mitigation in BLM land use plans,” was explicitly requested as part of the public comment period on the 2018 Draft EIS (see page ES-8, Section ES.4.2, last sentence of second paragraph). The Proposed Plan clarifies 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. Because this clarification simply aligns the Proposed Plan Amendment with BLM policy and with the scope of compensatory mitigation authority expressly provided by FLPMA, and because any analysis of compensatory mitigation relating to future projects would necessarily be fact-specific and evaluated in project-specific NEPA documents, there is limited value in attempting to do so at the level of land use planning.

Summary: Many commenters stated the BLM should clarify how it will implement compensatory mitigation.

Response: The BLM is pursuing 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 clarifies that 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 further clarifies the application of the mitigation standard as a planning-level goal and objective for sage-grouse habitat conservation. BLM commits to cooperating with the State 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 Resource Management Plan.

1.1.16 Modifying Waivers, Exceptions, and Modifications of Fluid Minerals

Summary: One-time exceptions should be preferred over more expansive exceptions

Response: Under the Proposed Plan, waivers, exceptions, and modifications would be granted only when meeting specific criteria designed to advance the management goals and objectives in the RMPs. BLM's proposed plan balances the risk of uncertainty against the benefits of management flexibility when considering whether to grant a waiver, exception, or modification. Planning criteria identified for this amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

Summary: Waivers should be narrowly defined.

Response: Under the Proposed Plan, waivers, exceptions, and modifications would be granted only when meeting specific criteria designed to advance the management goals and objectives in the RMPs. BLM's proposed plan balances the risk of uncertainty against the benefits of management flexibility when considering whether to grant a waiver, exception, or modification. Planning criteria identified for this amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

Summary: There should be opportunity for public notice and comment for certain types of waivers, exceptions, or modifications.

Response: The BLM will comply with 43 CFR 3101.1-4 regarding public notification of waivers, exceptions, or modifications, which includes a 30-day public notification period. An exception is a limited type of waiver and therefore is subject to 43 CFR 3101.1-4.

1.1.17 Noise Management Outside of PHMA

Summary: Noise restrictions should be stronger. The public submitted studies for consideration by the BLM in support of stronger restrictions on noise. The public suggested changes to the noise measurement methods.

Response: BLM has determined the noise restrictions are adequate to balance best available information with the goals and objectives of the Proposed Plan and to meet the Purpose and Need.

1.1.18 Preferred Alternative

Summary: The preferred alternative should be the No Action Alt because it was relied on for the 2015 listing decisions.

Response: The proposed plan was chosen based on the BLM's stated purpose and need, coordination with cooperating agencies, and public comment. The no action was not the sole factor USFWS relied upon when reaching its 2015 listing determination. BLM's proposed plan balances the risk of uncertainty against the benefits of management flexibility when considering the selection of a proposed plan. Planning criteria identified for this amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

1.1.19 Prioritization of Mineral Leasing

Summary: No summary—implementation-level decision

1.1.20 Range of Alternatives

Summary: The range of alternatives is unreasonably narrow.

Response: The range is adequate to address the agency's purpose and need for considering these amendments. And by incorporating the 2015 plans by reference, BLM avails itself of a larger range of management options previously analyzed in a broadly distributed EIS. Further, BLM considered a number of alternatives and issues during scoping that the agency determined not to carry forward.

Summary: The no-action alternative does not reflect a proper baseline.

Response: The No-Action Alternative represents the current management plan as it is implemented on the ground across 11 states and over 90 RMPs, including US Forest Service lands, thereby reflecting a management baseline that is well understood by BLM.

1.1.21 Recreation

Summary: Recreation and its socioeconomic benefits are tied to sagebrush ecosystems

Response: The BLM agrees and ensures that recreation-related projects and actions in sage-grouse habitats conform with management goals and objectives from the 2015 management plans.

1.1.22 Required Design Features (RDFs)

Summary: NSO stipulations should be maintained in priority habitats.

Response: BLM is focused on aligning our management with the states. BLM's goal is to promote consistency and alignment with each State's management for greater sage-grouse. In most cases, the proposed plan maintains NSO restrictions and other management prescriptions. Where BLM has increased its management flexibility, it has done so to improve alignment with the state plans and based on local information. The impact to sage-grouse from disturbance and habitat fragmentation is well documented in the 2015 EIS.

1.1.23 Sagebrush Focal Areas (SFAs)

Summary: Sagebrush focal areas (SFAs) should not be removed. 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 our management with the states. 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, so the withdrawal would not have provided additional protection to Greater Sage-Grouse.

I.1.24 Sage-Grouse

Summary: Regulatory changes and regulatory uncertainty increase the likelihood of listing of the species under the ESA. The impacts analysis is deficient. Protections afforded by the plans aren't sufficient to prevent listing of the species.

Response: BLM's proposed plan balances the risk of uncertainty against the benefits of management flexibility and alignment when considering changes to the 2015 plans. Planning criteria identified for this amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

I.1.25 Statutes and Regulations

Summary: The BLM must respect valid existing rights, including those reflected in oil and gas leases issued under the Mineral Leasing Act. The BLM also implements land use planning decisions differently with respect to uses related to the Mining Law of 1872.

Response: All proposed actions contained in the RMPA will be subject to valid existing rights, including those associated with leases issued under the Mineral Leasing Act of 1920. Accordingly, the BLM will ensure that its implementation of the management actions in the RMPA is consistent with the terms and conditions in existing leases or existing contracts. For example, if the BLM previously issued an oil and gas lease with standard lease terms and conditions, and the lessee submits an application for permit to drill, the BLM will ensure that any management actions from the RMPA will be applied in a manner that is consistent with the terms and conditions of the underlying oil and gas lease.

The BLM also recognizes that it has limited authority to impose conditions on certain uses related to the Mining Law of 1872 through land use planning decisions. Accordingly, the BLM will apply management actions in the RMPA only to the extent that they are consistent with the Mining Law of 1872 and the BLM's regulations.

Summary: The purpose and need is unreasonably narrow.

Response: The agency's purpose and need for considering these amendments was carefully drawn to promote alignment with the State's plans and policies while satisfying the BLM's responsibilities under FLPMA, other applicable laws, and BLM policy. This planning effort also builds off the comprehensive 2015 planning and NEPA process; incorporates the 2015 Final EIS analysis by reference in its entirety, including its alternatives; and has been informed by a scoping process that has identified specific opportunities to improve alignment with state plans.

Summary: The purpose and need is driven solely by applicant objectives.

Response: The planning and NEPA process does not respond to any applications submitted to the BLM. The BLM's intention is to build upon the 2015 plans by improving access and management flexibility by better aligning our management plans with the States' management plans. The purpose and need reflects this intent consistent with the agency's mission and Administration's priorities.

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 our 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 has summarized and referenced applicable aspects of the 2015 EIS throughout the 2018 EIS, but especially in **Chapters 2 and 4**.

Summary: The BLM failed to consider and designate Areas of Critical Environmental Concern (ACECs).

Response: BLM properly considered and analyzed the designation of ACECs in 2015. No new information suggests it is necessary to reconsider those decisions and BLM has determined the issue of ACECs to fall outside the scope of this effort to better align federal management with state management plans.

Summary: BLM fails to incorporate an appropriate Analysis of Management Situation.

Response: 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 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. In addition, as described in Draft EIS Chapter 3, the BLM determined that the current management situation is similar in condition to that assessed in 2015.

1.1.26 Travel and Transportation Management

Summary: Travel plans should be part of the plan amendments.

Response: Travel management planning is a crucial aspect in implementing land use plans. Ongoing travel management decisions in sage-grouse habitat are guided by the 2015 plans, with clarifications in the 2018 plan. Those BLM offices with travel plans in Greater Sage-Grouse habitat would also conform with the goals and objectives, and planning decisions in these amendments.

1.1.27 Waivers, Exceptions, and Modifications

Summary: The uncertainty with how waivers, exceptions, and modifications will be used introduces uncertainty to protections that aren’t fully analyzed. Criteria for the use of waivers, exceptions, and modifications should be more narrowly prescribed.

Response: Under the Proposed Plan, 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 proposed plan balances the risk of uncertainty against the benefits of management flexibility when considering whether to grant a waiver, exception, or modification. Planning criteria identified for this amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

Summary: BLM should monitor the use of waivers, exceptions, and modifications.

Response: BLM currently monitors and tracks disturbance in Greater Sage-Grouse habitats. Some BLM states, through the fluid minerals program, track waivers, exceptions, and modifications. The BLM is currently reviewing how to apply these best management practices at the national level.

I.2 COLORADO-SPECIFIC COMMENT RESPONSES

I.2.1 Purpose and Need

Summary: The BLM’s purpose and need is too narrow. Alignment of the BLM plan with the State of Colorado’s plan for managing Greater Sage-Grouse creates uncertainty for USFWS and may not prevent the listing of the species. The BLM cannot tie to the alternatives in the 2015 EIS because the 2015 EIS had a different purpose and need. Therefore, the BLM should consider a new range of alternatives in the 2018 EIS.

Response: The agency’s purpose and need for considering these amendments was carefully drawn to promote alignment with the State’s plans and policies while satisfying the BLM’s responsibilities under FLPMA, other applicable laws, and BLM policy. This planning effort also builds off the comprehensive 2015 planning and NEPA process; incorporates the 2015 Final EIS analysis by reference in its entirety, including its alternatives; and has been informed by a scoping process that has identified specific opportunities to improve alignment with state plans.

I.2.2 Criteria

Summary: The plan should clarify that the issuance of new SOs or policies does not supersede decisions in the RMPA.

Response: BLM is ensuring this planning effort conforms with the guidance and direction contained in SOs, including SO 3353, Greater Sage-Grouse Conservation and Cooperation with Western States. The Proposed Plan explains the relationship between various SOs and this planning process in greater detail. The BLM will continue to manage public lands in conformance with its approved land use plans, while future policies and SOs may provide guidance and direction about how BLM implements those plans.

I.2.3 Issues dismissed from detailed analysis

Summary: The Habitat Assessment Framework should not apply to livestock grazing and should not be used as a basis for adjustments or developing thresholds under grazing permits.

Response: As noted in section I.2 of the Draft EIS, the Purpose and Need for this effort is to modify greater sage-grouse management “to better align with individual state plans...” Because management using the Habitat Assessment Framework from the 2015 ARMPA is consistent with the state’s plan, considering changes to the Framework is not consistent with the purpose of this effort, and is therefore

not analyzed in detail. The Habitat Assessment Framework is a data-driven methodology for evaluating sage-grouse habitat at various scales. The Habitat Assessment Framework provides information for one aspect of land health standards that apply to livestock grazing, but does not comprise the only factors by which the BLM analyzes grazing. Any changes to grazing permits as a result of not meeting any of the standards would require a causal factor analysis, not just application of the Habitat Assessment Framework.

Summary: Clarification regarding prioritization of oil and gas leasing outside of PHMA and GHMA is needed to comply with IM 2018-026.

Response: 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 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 2018-026.

1.2.4 Fluid Minerals Determinations

Summary: The spatial extent and socioeconomic impact of fluid mineral restrictions is not adequately analyzed.

Response: Section 4.7 includes an analysis of impacts of both the spatial extent (acreage estimates in section 4.5 reflect the allocation changes) and management changes, and how those allocations could affect fluid minerals activities. Under Alternative B, there would be an additional 224,000 acres open to fluid mineral leasing. The socioeconomic impact of the preferred alternative includes an assumption that any development and production that may occur under that alternative would be within the range analyzed for the social and economic impacts in the 2015 Final EIS. Although social and economic conditions, including market forces in the oil and gas industry have changed, the results provided in the 2015 Final EIS provide a reference point for understanding how revenues and economic activity associated with oil and gas development and production could look under different scenarios and alternatives. The pace and level of oil and gas leasing, development and production would drive the amount of associated economic activity that occurs as well as the amount of revenues generated and disbursed back to the State of Colorado. The BLM also recognizes inherent uncertainties in forecasting activities, and has built in additional flexibility while aligning better with state management.

1.2.5 Modifying Waivers, Exceptions, and Modifications of Fluid Minerals Determinations

Summary: The BLM should clarify the meaning of the required consultation with CPW and also provide an opportunity for USFWS to comment on proposed actions. There needs to be more certainty that CPW recommendations would be followed.

Response: Clarification of the process for allowing waivers, exceptions and modifications was included in the proposed action – Section 2.6. Under the Proposed Plan, waivers, exceptions, and modifications would be granted only when meeting specific criteria designed to advance the management goals and objectives in the RMPs. BLM’s proposed plan balances the risk of uncertainty against the benefits of management flexibility when considering whether to grant a WEM. Planning criteria identified for this

amendment include consideration of how planning decisions may impact future listing determinations under the ESA. Analysis of USFWS involvement was previously considered in the 2015 Final EIS.

Summary: Commenters suggested changes to the exceptions, modifications, and waivers, for example: Additional clarifications to the exceptions, modifications, and waivers and should include a 30-day public notice and comment period.

Response: The BLM will comply with 43 CFR 3101.1-4 regarding public notification of waivers, exceptions, or modifications, which includes a 30-day public notification period. An exception is a limited type of waiver and therefore is subject to 43 CFR 3101.1-4.

Summary: Exceptions should be prioritized over waivers or modifications.

Response: Clarification of the process for allowing waivers, exceptions and modifications was included in the proposed action – **Section 2.6**. Under the Proposed Plan, waivers, exceptions, and modifications would be granted only when meeting specific criteria designed to advance the management goals and objectives in the RMPs. BLM's proposed plan balances the risk of uncertainty against the benefits of management flexibility when considering whether to grant a WEM. Planning criteria identified for this amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

Summary: The BLM should allow for exceptions in cases where there may be short-term impacts on Greater Sage-Grouse, but the overall benefits outweigh multiple impacts over a longer period of time.

Response: Clarification of the process for allowing waivers, exceptions and modifications was included in the proposed action – **Section 2.6**. Under the Proposed Plan, waivers, exceptions, and modifications would be granted only when meeting specific criteria designed to advance the management goals and objectives in the RMPs. BLM's proposed plan balances the risk of uncertainty against the benefits of management flexibility when considering whether to grant a WEM. Planning criteria identified for this amendment include consideration of how planning decisions may impact future listing determinations under the ESA.

I.2.6 Lek Buffers

Summary: Restrictions on coal development within 2 miles of a lek are arbitrary (Objectives MR-7 and MD MR-23 through 31).

Response: The 2-mile lek buffers applicable to coal are based on best available science and analyzed as part of 2015 plans. The issue was not carried forward for additional analysis in the 2018 Draft EIS, in part, because no new information identified this issue as relevant to the purpose and need. BLM has determined the issue to be outside of the scope of this analysis.

Summary: Commenters stated that the lek buffers conflict with laws and that there should be greater flexibility in the lek buffers. Commenters also noted that the lek buffers were defined overly-generally, failing to capture relevant heterogeneity in the potential for activities to effect a lek, such as that resulting from variation in topography.

Response: The proposed plan includes a clarification on the use and flexibility of lek buffers as a tool for analyzing impacts to leks, including consideration of topography, based on the type of impacts. Lek buffers are not allocation decisions.

I.2.7 Mitigation

Summary: If the BLM changes the mitigation approach in the Final EIS, an analysis of Colorado's existing mitigation measures and standards should be included.

Response: Public input on implementing mitigation, "including alternative approaches to requiring compensatory mitigation in BLM land use plans," was explicitly requested as part of the public comment period on the 2018 Draft EIS (see page ES-8, **Section ES.4.2**, last sentence of second paragraph). The Proposed Plan clarifies 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 impose and implement its compensatory mitigation strategy. Because this clarification simply aligns the Proposed Plan Amendment with BLM policy and with the scope of compensatory mitigation authority expressly provided by FLPMA, and because any analysis of compensatory mitigation relating to future projects would necessarily be fact-specific and evaluated in project-specific NEPA documents, there is limited value in attempting to do so at the level of land use planning.

Summary: MD SSS-3 should be revised to maintain consistency with BLM's compensatory mitigation policy.

Response: BLM's Proposed Plan balances the risk of uncertainty against the benefits of management flexibility when considering mitigation strategies. 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 (IM 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 Proposed Plan clarifies 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.

Summary: Include options for simultaneous mitigation of impacts that could benefit habitat to a greater level than avoidance or minimization.

Response: BLM's Proposed Plan balances the risk of uncertainty against the benefits of management flexibility when considering mitigation strategies. 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 Proposed Plan clarifies 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.

Summary: The BLM does not have the authority to require net conservation gain or conservation uplift and this should be removed in name and in concept. The document should clarify that compensatory mitigation is voluntary.

Response: BLM's Proposed Plan balances the risk of uncertainty against the benefits of management flexibility when considering mitigation strategies. 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 (IM 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 Proposed Plan clarifies 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.

Summary: Compensatory mitigation should be a voluntary option or tool to offset the potential impacts under these circumstances where avoidance or minimization is limited.

Response: BLM's Proposed Plan balances the risk of uncertainty against the benefits of management flexibility when considering mitigation strategies. 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 (IM 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 Proposed Plan clarifies 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 impose its compensatory mitigation strategy.

Summary: The BLM has the authority to require compensatory mitigation if it is adopted in a land use plan. The BLM should continue to require compensatory mitigation as laid out in the Draft EIS.

Response: BLM's Proposed Plan balances the risk of uncertainty against the benefits of management flexibility when considering mitigation strategies. 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 (IM 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 Proposed Plan clarifies 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.

Summary: The BLM must do a Supplemental EIS to analyze the new guidance in IM 2018-093 related to compensatory mitigation and also clarify how it will uphold its commitment to the states in terms of applying state mitigation plans and also provide regulatory certainty to avoid an ESA listing.

Response: Public input on implementing mitigation, “including alternative approaches to requiring compensatory mitigation in BLM land use plans,” was explicitly requested as part of the public comment period on the 2018 Draft EIS (see page ES-8, **Section ES.4.2**, last sentence of second paragraph). The Proposed Plan clarifies 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 impose and implement its compensatory mitigation strategy. Because this clarification simply aligns the Proposed Plan Amendment with BLM policy and with the scope of compensatory mitigation authority expressly provided by FLPMA, and because any analysis of compensatory mitigation relating to future projects would necessarily be fact-specific and evaluated in project-specific NEPA documents, there is limited value in attempting to do so at the level of land use planning.

1.2.8 Habitat Management Area

Summary: Habitat disconnectivity due to a site-based approach would limit management options for the Greater Sage-Grouse.

Response: Clarification regarding the identification and modification of habitat management area boundaries is included in 1.5.2 Clarification of Planning Decisions in the 2015 ROD/ARMPA (Modifying Habitat Management Areas [PHMA and GHMA]).

Summary: Commenters expressed the need for connectivity among all seasonal ranges of Greater Sage-Grouse to preserve dispersal of individuals and gene flow among populations.

Response: Clarification regarding the identification and modification of habitat management area boundaries is included in 1.5.2 Clarification of Planning Decisions in the 2015 ROD/ARMPA (Modifying Habitat Management Areas (PHMA and GHMA)).

Summary: Commenters were concerned that habitat management areas (especially PHMA) would not contain all resources necessary for successful sage-grouse reproduction.

Response: Clarification regarding the identification and modification of habitat management area boundaries is included in 1.5.2 Clarification of Planning Decisions in the 2015 ROD/ARMPA (Modifying Habitat Management Areas (PHMA and GHMA)).

Summary: Commenters noted the need for refinement of maps of suitable sage-grouse habitat to more accurately differentiate biologically significant sage-grouse habitat from land that could provide viable economic opportunities.

Response: Clarification regarding the identification and modification of habitat management area boundaries is included in 1.5.2 Clarification of Planning Decisions in the 2015 ROD/ARMPA (Modifying Habitat Management Areas (PHMA and GHMA)).

Summary: Commenters suggested that all maps of PHMA and GHMA and area calculations be verified to ensure disturbance calculations be verified to ensure disturbance cap calculations are appropriate should they remain required in Colorado.

Response: Clarification regarding the identification and modification of habitat management area boundaries is included in 1.5.2 Clarification of Planning Decisions in the 2015 ROD/ARMPA (Modifying Habitat Management Areas (PHMA and GHMA)).

Summary: Commenters expressed concern that the BLM's suitability language and habitat restrictions may not be sufficiently flexible under the multiple use mandate and may preclude resource development, adding that the policy of avoiding "unnecessary or undue degradation" implies some level of due or necessary degradation.

Response: Clarification regarding the identification and modification of habitat management area boundaries is included in 1.5.2 Clarification of Planning Decisions in the 2015 ROD/ARMPA (Modifying Habitat Management Areas (PHMA and GHMA)).

1.2.9 Livestock Grazing

Summary: Livestock grazing may be improperly treated as a primary threat to sage-grouse habitat when other factors pose a greater threat.

Response: BLM identifies proper livestock management as compatible with sage-grouse conservations, and manages the impacts from grazing consistent with the degree of threat identified by USFWS in their 2015 finding under ESA. The draft plan does not change Livestock grazing decisions. They are not contemplated to change under the alternatives considered, and are not analyzed in detail in this analysis.

1.2.10 Habitat Objectives

Summary: The capability of any habitat management areas to meet the 7-inch grass height and canopy cover requirements is unknown and that development of such data would be excessively costly.

Response: Commenters questioned the scientific basis for and practicality of the Habitat Objectives Table (**Table 2.2**), asserting that the grass height and canopy cover requirements are not scientifically based.

The BLM based its habitat objectives on the best available science, which is referenced in table H-I, but recognizes that "These habitat objectives are not obtainable on every acre within the designated Greater Sage-Grouse habitat management areas. Therefore, the determination of whether the objectives have been met will be based on the specific site's ecological ability to meet the desired condition identified in **Table H-I**." The BLM's monitoring will aid in this finding, but per CEQ regulation, the BLM does not consider cost of implementing the different alternatives, because it cannot predict appropriations to provide funding for these alternatives. Following **Table H-I** are a list of scientific references supporting the determinations on habitat objectives.

1.2.11 Preferred Alternative

Summary: Because of perceived lack of coordination with local plans, the term "coordination" (**Section 2.3.2**, Line 1) should be replaced with the term "cooperation" in the analysis.

Response: The term has been changed from “coordination” to “meeting with the State and cooperating agencies.”

Summary: If BLM were to choose the Management Alignment Alternative, as its preferred alternative but amend it to be consistent with IM 2018-093, a Supplemental EIS would be required.

Response: Same as above, however, whether or not the Management Alignment Alternative is chosen as the preferred alternative doesn’t bear on the need for supplemental analysis; supplemental analysis is required if new information demonstrates that the existing analysis is insufficient.

1.2.12 Range of Alternatives

Summary: Commenters were concerned that the range of alternatives is insufficient and does not take into account rigorous exploration of all reasonable alternatives, and is therefore in violation of NEPA.

Response: The range is adequate to address the purpose and need for these amendments. And by incorporating the 2015 plans by reference, BLM avails itself of a larger range of management options previously analyzed in a broadly distributed EIS. Further, BLM considered a number of alternatives and issues during scoping that the agency determined not to carry forward.

Summary: Commenters requested that BLM present a middle-ground alternative other than the Management Alignment Alternative and the No Action Alternative.

Response: The range is adequate to address the purpose and need for these amendments. And by incorporating the 2015 plans by reference, BLM avails itself of a larger range of management options previously analyzed in a broadly distributed EIS. Further, BLM considered a number of alternatives and issues during scoping that the agency determined not to carry forward.

Summary: Commenters were concerned that the proposed changes in the Management Alignment alternative would weaken existing protections for Greater Sage-Grouse instead of improving management.

Response: There are two action alternatives considered in the Final EIS. Additionally, several alternatives were considered but not analyzed in detail. See the Alternatives Considered but Not Analyzed in Detail section 2.2 of the Final EIS for more information. In addition, this EIS incorporates by reference all of those alternatives considered in 2015, including more restrictive alternatives. Moreover, the Purpose and Need of this Draft EIS was carefully focused to better improve alignment with the State of Colorado and current BLM Policy without opening all portions of the 2015 ARMPA to change.

1.2.13 Alternatives – Other

Summary: BLM must add NTT (2011) road location and road density limits to the Management Alignment Alternative according to the best available science.

Response: No changes are being considered for route density, and thusly road density limits are not germane to the new analysis. The 2015 decisions on road location and road density limits are part of both alternatives, and the 2015 analysis accounted for the NTT literature review.

1.2.14 Data and Science

Summary: The public submitted studies for consideration by the BLM.

Response: BLM specifically partnered with USGS to review the best available information and incorporate the management implications of that information into this EIS. The report from USGS is available here and referenced throughout the EIS. All references suggested by commenters were reviewed and were either already included in the 2015 RMPA or the 2018 review (Carter et al., 2018), or are not yet available publicly.

1.2.15 Assumptions and Methodology

Summary: The Forest Service stated that **Table 2-2** will be removed from the Forest Service plan and provided rationale for doing so; BLM should follow suit as the Forest Service concedes that the science does not support stubble height and canopy cover requirements.

Response: BLM has provided clarification on the use of **Table 2-2** including an explanation that the BLM based its habitat objectives on the best available science, which is referenced in **Table 2-2** and recognizes that “habitat objectives are not obtainable on every acre within the designated Greater Sage-Grouse habitat management areas. Therefore, the determination of whether the objectives have been met will be based on the specific site’s ecological ability to meet the desired condition identified in **Table 2-2**”

Summary: If direction for livestock and grazing in the IMs is not accountable and clear, it will result in livestock permittees receiving flawed management decisions.

Response: Policy is outside of the scope of the analysis, however, BLM has worked with its cooperators to provide clear, concise policy guiding the implementation of the 2015 plan decisions.

Summary: The ARMPA and Draft RMPA do not adequately define “facility” or “disruptive facility,” which may cause confusion for operators and BLM field offices on how to enforce the density cap.

Response: See **Appendix H** for clarification on the definition of “disruptive facility”

1.2.16 Sage-Grouse

Summary: Predation (especially by raptors, corvids, and coyotes) should be taken into account as a primary and well-documented factor in declining sage-grouse populations.

Response: The relative threat of predation is fully described and incorporated by reference from the 2015 Greater Sage-Grouse RMPA. Additionally, the role of BLM is to manage habitat, not wildlife (including predators). Measures to reduce predation (e.g. perches) were included in the 2015 plan and are carried forward.

Summary: Recent site-scale research suggests that grass height is less related to sage-grouse nesting success than previously thought and that other factors are more influential; this should be taken into account in the impacts analysis.

Response: Research related to grass height is considered on a site-specific basis and the study referenced would be considered relative to site potential as described in the use of habitat objectives table 2-2.

1.2.17 Non Greater Sage-Grouse

Summary: BLM needs to clarify the relationship of fire and disturbance caps.

Response: **Appendix H** includes a clarification on the application of disturbance caps, including disturbances which are counted.

1.2.18 Fluid Minerals

Summary: Prioritization of oil and gas leasing and development cannot be based solely on whether BLM has sufficient resources to process leasing nominations or applications.

Response: 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 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 2018-026. That notwithstanding, the BLM has worked diligently with its cooperators to provide clear, concise policy guiding the implementation of the 2015 plan decisions.

1.2.19 Socioeconomics

Summary: Recent estimates of recoverable oil and gas weren’t taken into account in the 2015 or 2018 analyses.

Response: Recent estimates of oil and gas resources were evaluated in the analysis, including information released between 2015 and present. The analysis is presented in 4.7 Impacts on Socioeconomics.

1.3 RANGEWIDE COMMENTS

1.3.1 Adaptive Management

Adaptive management provisions such as "hard" and "soft" triggers must be maintained, along with provisions for public notice and comment when they are triggered, to show that monitoring of effectiveness is ongoing and management is adjusted as needed.

In sum, designated PHMAs should be expanded to all lands designated as PACs by the US Fish and Wildlife Service in 2013 (COT 2013), and include expansions of Core Areas adopted by the State of Wyoming in 2015. In turn, SFA status and management parameters should be expanded to all lands designated as PHMA if the BLM truly wants to protect and conserve sage-grouse throughout its range and the Plans are being used to defer ESA listing.

1.3.2 Alternatives - Other

In sum, designated PHMAs should be expanded to all lands designated as PACs by the US Fish and Wildlife Service in 2013 (COT 2013), and include expansions of Core Areas adopted by the State of

Wyoming in 2015. In turn, SFA status and management parameters should be expanded to all lands designated as PHMA if the BLM truly wants to protect and conserve sage-grouse throughout its range and the Plans are being used to defer ESA listing.

I.3.3 Assumptions and Methodology

The analytical assumptions in the DEISs are neither reasonable nor supportable. At the beginning of Chapter 4, each DEIS lays out a series of analytical assumptions. The purpose of these assumptions is to set guidelines and provide reasonably foreseeable projected levels of development that would occur in the planning area during the planning period. As shown below, however, many of these assumptions are neither reasonable nor supportable when looked at objectively, and considering the most recent science.

• Assumption One: Sufficient funding and personnel would be available for implementing the final decision. • Table ES-1 in each Executive Summary of the DEISs shows a significant decline in all planned habitat restoration and protection activities for FY 18, including conifer removal and invasive species removal. However, invasive species removal is already falling far behind the pace needed to adequately restore sagebrush habitat, as shown in a recent WAFWA report (WAFWA Gap Analysis) finding that most invasive weed management programs are addressing less than 10% of the average infested acres, while the annual rate of spread of invasive plants, can range from 15-35%. That document states, "[This] [l]ack of effort is due almost entirely to lack of capacity, not expertise."¹⁴ • In FY 19, The Administration budget request for funding sage-grouse would impose further cuts by consolidating the sage-grouse program with other programs and reducing the total amount sought.¹⁵ • Interior Secretary Zinke has told lawmakers that he wants to reduce the Department workforce by 4,000 full-time jobs.¹⁶ (Greenwire 8/15/17) • Assumption Two: Implementation-level actions necessary to execute the LUP-level decisions in this RMPA/EIS would be subject to further environmental review, including that under NEPA. • Instruction Memorandum (IM) 2018-034, recent guidance issued by BLM governing oil and gas leasing, emphasizes using Determinations of NEPA Adequacy instead of NEPA analysis. • IM 2018-061 instructs BLM staff members to ensure they are using several tools to make the NEPA process more efficient, including categorical exclusions for certain types of oil and gas development. • Pending legislation, H.R. 6106, introduced by Representative Pearce (R-NM), would require use of categorical exclusions from NEPA for many oil and gas drilling activities. • Pending legislation, H.R. 6088, introduced by Representative Curtis (R-UT), would allow oil and gas companies to obtain authorization to drill in some circumstances without NEPA analysis. • Pending legislation, S. 1417, introduced by Sen. Hatch (R-UT) and Sen. Heinrich (D-NM), would create categorical exclusions for a wide variety of sage-grouse management activities, such as the use of herbicides and pesticides, mechanical piling and burning, chaining, and broadcast burning. • There has been a large increase in the use of categorical exclusions from NEPA analysis for oil and gas development in Wyoming, particularly in the Continental Divide-Creston Project Area, where categorical exclusions allowed by section 390 of the Energy Policy Act of 2005 (42 U.S.C. § 15942) are being employed. • Assumption Three: Direct and indirect impacts of implementing the RMPA/EIS would primarily occur on public lands administered by the BLM in the planning area. • The DEISs loosen restrictions on oil and gas development on BLM lands in a variety of ways, such as decreasing buffers, removing or modifying disturbance and density caps, opening new areas to development, and eliminating general habitat in Utah. While BLM assumes that impacts would primarily occur on public land, recent scientific research indicates the likelihood of impacts to adjoining private or public lands owned by agencies other than BLM. This study, by Spence et al., found that the probability of lek collapse was positively related to the density of oil and gas wells located outside of core areas at two distances - within 1.6 km and within 4.8 km of the core area boundary.¹⁷ • These proposed changes would impact future collaborative processes, as expressed by Wyoming Governor

Matt Mead: "If we go down a different road now with the sage grouse, what it says is, when you try to address other endangered species problems in this country, don't have a collaborative process, don't work together, because it's going to be changed," Mead said. "To me, that would be a very unfortunate circumstance."¹⁸ ? Assumption Four: The BLM would carry out appropriate maintenance for the functional capability of all developments. ? As noted in Assumption One, BLM is already not carrying out appropriate maintenance, and potential budget cuts foretell even greater deficiencies in the future. Moreover, the mere fact that treatment has occurred does not necessarily indicate that the habitat has successfully been restored, rendering Table ES-I essentially meaningless. As the 2018 USGS Synthesis of recent scientific research states, "Restoring sagebrush communities can be difficult, costly and slow."¹⁹ ? In *Desert Survivors v. U.S. Dept. of the Interior*, Case No. 16-cv-01165-JCS (N.D. CA May 15, 2018)²⁰, in ruling that the FWS erred in failing to list the bi-state GRSG population under ESA, the court held, "the service must offer some rational basis for its conclusions that future conservation efforts will be effective enough to improve the status of the bi-state (grouse) and therefore warrant withdrawal of the proposed listing." *Id.* at 64. Assumptions must have a basis in fact. ? Assumption Five: The discussion of impacts is based on best available data. ? In Chapter 4, the DEISs acknowledge that much important data is not available, including comprehensive planning area-wide inventory of wildlife and special status species occurrence and condition and GIS data used for disturbance calculation on private lands. Indeed, the DEISs acknowledge that some impacts of the proposed changes could not be quantified.²¹ ? CEQ regulations further require, where data is unavailable a summary of existing scientific evidence relevant to evaluating reasonably foreseeable significant adverse impacts and the agency's evaluation of such impacts.²² The DEISs fail to provide either of these types of information. ? In addition to failing to include the results of the WAFWA Gap Analysis, the DEISs also do not consider a study published in PLoS ONE by Kitzberger et al. (PLoS ONE study) finding that many parts of the West can expect to see more than five times the area burned during the next 20 years than fires covered in the past 20.²³ The DEISs state that their assumptions apply to the analysis of both alternatives presented by BLM. It is not appropriate, however, to rely on assumptions, as BLM has done here, that are not based either in fact or sound science.

III. THE ASSUMPTIONS, DATA, AND PLANNING CRITERIA BLM RELIES ON IN THE DRAFT EISs ARE FLAWED. There are significant problems in the DEISs relating to the assumptions, data, and planning criteria BLM uses in support of the proposed amendments to the 2015 land use plans. These flaws lead to a series of inadequacies in the DEISs themselves, including both faulty conclusions and a high degree of regulatory uncertainty as to the meaning of the proposed amendments, discussed in detail below. A. The analytical assumptions in the DEISs are neither reasonable nor supportable At the beginning of Chapter 4, each DEIS lays out a series of analytical assumptions. The purpose of these assumptions is to set guidelines and provide reasonably foreseeable projected levels of development that would occur in the planning area during the planning period. As shown below, however, many of these assumptions are neither reasonable nor supportable when looked at objectively, and considering the most recent science.

I.3.4 Cumulative Impacts

F. BLM's cumulative impacts analysis is insufficient and invalid. The BLM is required to consider the cumulative environmental impacts to sage-grouse and sage-grouse habitat in the EISs it has prepared. 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. § 1508.2(c). Despite the requirement to consider cumulative environmental impacts in the sage-grouse land use plan amendment EISs, the BLM has failed to do this adequately. For one, the BLM claims that the cumulative effects analysis from the 2015 sage-grouse land use plan amendments meets the cumulative effects analysis requirement that is needed now. The inappropriateness and legal invalidity of this claim is discussed elsewhere in these comments. As noted above, tiering is only appropriate when a subsequent narrower environmental analysis relies on an earlier broader environmental analysis. See 40 C.F.R. § 1508.28 (a) (stating that tiering is appropriate when a program, plan, or policy environmental impact statement is used to support a new analysis of "lessor scope" or which is site-specific). But we do not have that here; the scope of the current analysis is as broad as the 2015 analysis. There is no "step down" present here, therefore the cumulative impacts analysis from the 2015 plans cannot "incorporate[] by reference the analysis in the 2014 and 2015 Final EISs and the 2016 Draft Sagebrush Focal Area Withdrawal EIS." Wyoming DEIS at 4-20. In addition, BLM cannot simply incorporate the previous analysis by reference without justifying how it is appropriate and summarizing how it applies, neither of which has been done in the Draft EISs. See, 43 C.F.R. § 46.135(a). BLM also must ensure any incorporation by reference does not impede review by the public, which it surely does here. See 40 C.F.R. § 1502.21. Moreover, the purpose and need for the 2018 EISs differs from that of the 2015 EISs, which underscores why neither tiering nor incorporation by reference is appropriate.

Secondly, in each of the six 2018 EISs the BLM lists a number of projects that it claims reflect the cumulative effects impacts that are applicable here. See, e.g., Table 4-3 in the Wyoming Draft EIS (DEIS). But this list of projects fails to incorporate many relevant projects that should be considered in the cumulative effects analysis. In Wyoming, for example, neither the Normally Pressured Lance or Converse County oil and gas projects are listed. See Wyoming DEIS at Table 4-3, page 4-35. These are two mammoth projects, that will involve drilling thousands of oil and gas wells which will have significant impacts on sage-grouse and sage-grouse habitats.¹¹ Neither of these projects were considered in the 2015 EISs. In Utah the Greater Chapita Wells Natural Gas Infill Project is not considered in the Utah sage-grouse plan amendment EIS. Utah DEIS at Table 4-4, pages 4-41 to 42. This project could involve the drilling of 2808 natural gas wells in Uintah County, which is prime sage-grouse habitat. See <https://eplanning.blm.gov/epl-frontoffice/eplanning/planAndProjectSite.do?methodName=renderDefaultPlanOrProjectSite&projectId=3736> 2. There are other projects missing from the Range Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions table in the other states. In addition, while in Wyoming (and the other states), past and upcoming oil and gas lease sales are mentioned, see Wyoming DEIS at Table 4-3, page 4-35, the list is incomplete. The June lease sale (198,588 acres) is mentioned but neither the upcoming September (366,151 acres) or December (698,589 acres) lease sales are discussed.¹² The same is true in other states. For example, in Utah, the Utah DEIS says 646 acres of oil and gas leases will be offered in Habitat Management Areas (HMA) in June, but it fails to mention the 158,944 acres (with 45,227 acres that had been previously offered) that will be offered for lease in September.¹³ The same is true in other states.

The BLM should review the list of projects shown in Tables 4-3 or 4-4 (depending on the state) causing cumulative impacts and ensure they are as comprehensive as is required to include "the incremental impact[s] . . . when added to other past, present, and reasonably foreseeable future actions." We note again the projects we have mentioned were not considered in the 2015 sage-grouse plan amendment EISs. These are "collectively significant actions taking place over a period of time" that must be

considered in the cumulative impacts analysis, but which have not been. In addition, BLM should evaluate the cumulative effects of these projects across the planning areas of the 2015 Sage-grouse Plans. Under Council on Environmental Quality (CEQ) guidance, BLM must consider the current aggregate effects of past actions in a cumulative impacts analysis. CEQ, Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (available at https://ceq.doe.gov/docs/ceq-regulations-andguidance/regs/Guidance_on_CE.pdf). This means the BLM must consider what the impacts of implementing the 2015 plans has been on cumulative impacts. BLM cannot just incorporate the 2015 plans by reference as its cumulative effects analysis, rather it must consider the "identifiable present effects of past actions," which the 2015 plans clearly are. Under the 2015 plans BLM has taken hundreds of actions, and in total those actions have had cumulative environmental impacts. An analysis of those cumulative impacts is missing from the current EISs, which is not permissible. "A cumulative impact analysis "must be more than perfunctory; it must provide 'a useful analysis of the cumulative impacts of past, present, and future projects.'" N. Plains Res. Council, Inc. v. Surface Transp.Bd., 668 F.3d 1067, 1076 (9th Cir. 2011) (quoting Kern v. U.S. Bureau of Land Mgmt., 284 F.3d 1062, 1075 (9th Cir. 2002) (additional citation omitted). "To be useful to decision makers and the public, the cumulative impact analysis must include "some quantified or detailed information; . . . general statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided.'" 668 F.3d at 1076 (quoting Ocean Advocates v. U.S. Army Corps of Eng'rs, 402 F.3d 846, 868 (9th Cir. 2004) (additional citation omitted). Here the BLM has offered nothing more than a perfunctory cumulative impacts analysis. There is no useful analysis of past projects; the dozens if not hundreds of approved projects implementing the 2015 sage-grouse plans. There is no quantifiable or detailed information about those projects, and there are not even any general statements about the cumulative impacts of those projects, many of which have undergone a NEPA analysis. Based on the above, it is evident the cumulative impacts analyses in the 2018 Draft EISs is invalid and must be expanded to fully address the cumulative impacts from the amendments.

1.3.5 Data and Science

A 2016 Wyoming study by Smith et al.³³ cited in both the USGS Annotated Bibliography and the ZUSGS Synthesis found that sage-grouse frequently used winter habitats outside of core areas. The Annotated Bibliography summarizes the implications of this study: Current seasonal use restrictions in winter concentration areas (December 1 to March 15) are shorter than the GRSG winter habitat use period identified in the study. A substantial proportion of winter use areas were located outside of identified core areas in one of the two study areas, suggesting reconsideration of the ability of Wyoming's Core Area policy to provide for long-term conservation of GRSG. While the Wyoming DEIS refers to potential changes to Habitat Management Area Designations (See, e.g., WY DEIS at 4-14-4-15), neither this study nor the need to expand winter habitat is mentioned. ? A second Wyoming study by Spence et al.³⁵ found the probability of lek collapse was positively related to the density of oil and gas wells located outside core areas at two distances - within 1.6 km and within 4.8 km of the core area boundary. The USGS Annotated Bibliography states: 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.³⁶ The Wyoming DEIS again makes no mention of this study, and in fact proposes reducing noise restrictions outside priority habitat (WY DEIS at 2-12-2-13), while other DEISs in other states, such as Utah and Idaho, eliminate a variety of restrictions outside but adjacent to priority habitat (see e.g., UT DEIS at 2-6; ID DEIS at 2-10).

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We appreciate the idea that broad, science-based objectives have a place in determining whether greater sage-grouse habitat is contributing to stable populations. However, no single objective can cover the wide range of variability that occurs across a landscape as vast as the sagebrush sea. The Habitat Objectives Tables (Table 2-2) have been misinterpreted as standards that must be met, likely at the expense of the widest and most adaptable use in the West-livestock grazing. It does not make sense that these objectives be reflected in livestock grazing permittee/lessee terms and conditions if they do not fit the ecosystem in which they are being applied. Because of this, we appreciate those amendments that propose to make clear that habitat objectives must account for local conditions and site variability. This includes the removal of the seven-inch perennial grass and forb height habitat objective. We understand why grass and forb height objectives need to be considered for the health of the bird, but we believe these objectives should vary across the range. We request these changes be made to the habitat objectives tables for each greater sage-grouse RMP amendment.

By ignoring the WAFWA Gap Analysis and Plos ONE study, the DEISs fail to recognize the warning that occurs later in the USGS Synthesis, which states: [T]here continues to be emerging science quantifying effects and measuring the efficacy of conservation recommendations. Review of this new information as it becomes available, and incorporating changes, if appropriate, are essential to implementing valid conservation recommendations.³²

In addition to the problems with Table ES-1 noted above in the first section, the figures used in the Table and on page 3-1 are of limited utility at best because they are not broken down either state by state or by sage-grouse management zone. Range-wide data can mask significant decreases in habitat or population in a more localized area. In addition, no citation is provided for either data set so that the numbers provided can be examined and verified. ? The PLoS ONE study found that median increases in AAB (Annual Area Burned) greater than 700% are predicted for ID, MT, and NV, and strong upper quartile increases are predicted for OR, ID, MT, and WY. In many areas the actual burning on the ground has exceeded the models. This is a huge increase from the conclusion in the 2015 FWS sage-grouse listing decision that that wildfire would continue to affect the Great Basin at the current rate of about 85% percent per year.²⁹

In discussing the findings of the Synthesis on impacts of activities such as oil and gas development to sage-grouse habitat, the DEIS states: 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 range-wide population declines; however, it is not expected to reverse the declines, particularly in areas of active oil and gas operations ([Synthesis], p.2). This information may have relevance when considering the impact of management actions designed to limit discrete disturbances.³¹ The studies referenced in this passage appears to be set out on page 14 and 15 of the USGS Synthesis. We were not able to locate a single instance in any of the DEISs, however, where any of these papers were cited in a discussion of the Impacts of the BLM Preferred Alternative in the DEISs.

The DEISs ignore studies referenced in the USGS Annotated Bibliography and USGS Synthesis that either support additional protections for sage-grouse habitat or provide evidence against the amendments BLM proposes.

The PLoS ONE study found that median increases in AAB (Annual Area Burned) greater than 700% are predicted for ID, MT, and NV, and strong upper quartile increases are predicted for OR, ID, MT, and WY. In many areas the actual burning on the ground has exceeded the models. This is a huge increase from the conclusion in the 2015 FWS sage-grouse listing decision that that wildfire would continue to affect the Great Basin at the current rate of about 85% percent per year.²⁹

The WAFWA Gap Analysis shows that invasive plant infestations in the West, particularly in the range of the sage-grouse, have reached enormous levels with estimates of invasive annual grass and perennial forb infestations at more than 100 million acres of public and private lands. Again, this is far more than contemplated in the FWS sage-grouse listing decision.³⁰

A limit of 3% human surface disturbance per square-mile section is the minimum necessary standard for preventing habitat abandonment by sage grouse. Knick et al. (2013) found that 99% of active leks across the western half of the sage grouse's range were surrounded by land with 3% or less human development. Decker et al. (2017) found a similar result in Colorado, with a linear decrease in sage grouse lek populations once surface disturbance increased above the 2.5% threshold. Preliminary results from Kirol et al. (in prep) indicate that the vast majority of sage-grouse were found in habitats with <1% surface disturbance. Disturbance density can also affect survival, Kirol et al. (2015a) found that brood survival for sage-grouse began to decline significantly once disturbance density hit the 4% threshold. The vast majority were surrounded by much less disturbance. Copeland et al. (2013) found that if all of the State of Wyoming sage grouse policy provisions (which include a 5% disturbance cap calculated using a Disturbance Density Calculation Tool) were implemented fully and to the letter, that a 9 to 15% decline in greater sage grouse populations would still occur statewide, including a 6 to 9% decline within designated Core Areas (where the 5% disturbance cap would be applied). There is no scientific evidence at all indicating that sage grouse can tolerate a greater percentage of surface disturbance. In particular, the 5% cap on disturbance proposed for the Wyoming RMP amendment for Core Areas and Connectivity Areas been shown to be effective by no scientific study, ever.

The data BLM chose to rely upon is insufficient. The scientific grounding for the BLM plans, including the level of certainty in how they are applied, was a key part of the foundation for the FWS decision that listing the sage-grouse under ESA was not warranted.²⁴ Any changes proposed to the plans now by the BLM should meet a similarly high standard, complying with both the CEQ regulations and considering all the most recent peer-reviewed research. Unfortunately, here, much of the relevant data is not available, and the data BLM has ignored includes important studies that would argue against many of the changes

BLM proposes in the DEISs. Table ES-I of the DEISs purports to use the amount of on-the-ground treatment activity for the past three fiscal years, as well as planned activities for the current fiscal year, to show progress in sagebrush habitat restoration. In addition, every DEIS also includes the following language on page 3-1: While the BLM acknowledges that there have been changes to the landscape since 2015, due to the scale of this analysis... 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 biologically significant unit (BSU) scale... indicates that there has been a minimal overall increase in estimated disturbance (less than 1 percent range-wide from 2015 through 2017) within PHMA. Moreover, there has been an overall decrease in sagebrush availability (less than 1 percent range-wide from 2012 through 2015) in PHMAs within BSUs. Finally, Chapter 3 of every DEIS references both the USGS annotated bibliography of scientific research on greater sage-grouse published since January 2015²⁵ (USGS Annotated Bibliography) and the USGS report that synthesizes and outlines potential management implications of the new science.²⁶ (USGS Synthesis). These data are intended to show that changes to the landscape since the 2015 plans are "relatively minimal."²⁷ In addition, the DEISs state: Based on available information, including [the Annotated Bibliography and Synthesis], the BLM has concluded that the existing condition is not substantially different from that of 2015; therefore, the data and information presented in the 2014 and 2015 Final EISs are incorporated into this RMPA/EIS.²⁸ Both conclusions are faulty. Changes to the landscape since 2015 are not relatively minimal, and the sagebrush landscape of 2018 is not substantially similar to that of 2015, as shown below.

BLM must accurately characterize the findings in the Synthesis, elaborate upon the status of data considered and explain how it is addressing missing data. The agency cannot simply gloss over these requirements with rote or unsupported conclusions that it used in support of its Preferred Alternative.

Finally, Chapter 3 of every DEIS references both the USGS annotated bibliography of scientific research on greater sage-grouse published since January 2015²⁵(USGS Annotated Bibliography) and the USGS report that synthesizes and outlines potential management implications of the new science.²⁶(USGS Synthesis). These data are intended to show that changes to the landscape since the 2015 plans are "relatively minimal."²⁷In addition, the DEISs state: Based on available information, including [the Annotated Bibliography and Synthesis], the BLM has concluded that the existing condition is not substantially different from that of 2015; therefore, the data and information presented in the 2014 and 2015 Final EISs are incorporated into this RMPA/EIS.²⁸ Both conclusions are faulty. Changes to the landscape since 2015 are not relatively minimal, and the sagebrush landscape of 2018 is not substantially similar to that of 2015, as shown below.

Holloran (2005) found that several types of oil and gas infrastructure sited within 1.9 miles of the lek site had a negative impact on populations of breeding males on the lek; these infrastructure feature include both wellpads during the post-drilling, production phase and gravel trunk roads leading to five or more wellpads. It is important to note that a single wellpad or road can cause significant impacts, and these impacts occur even in cases where roads are not visible from the lek site due to intervening terrain (Holloran 2005). Drilling activities can have significant impacts when wells are sited within 3 miles of leks (id.). Manier et al. (2014) reviewed all available science and found that appropriate lek buffers (the "interpreted range") ranged from 3.1 to 5 miles. Aldridge and Boyce (2007) suggested that even larger buffers (10 km) are warranted. In addition to significant negative impacts on breeding populations at the lek site, industrial incursions can also have a significant negative impact on nesting females. The lek is the

hub of nesting activity, with most females nesting within 4 to 6 miles of a lek site. Holloran et al. (2007) found that yearling sage grouse avoided otherwise suitable nesting habitat within 930m (almost 0.6 mile) of oil and gas-related infrastructure. This means that individual wellsites, and their access roads and other related facilities, will be surrounded by a 0.6-mile band of habitat that has substantially lost its habitat capability for use by nesting grouse. The National Technical Team (2011: 20) observed, "it should be noted that protecting even 75 to >80% of nesting hens would require a 4-mile radius buffer (Table 1). Even a 4-mile NSO buffer would not be large enough to offset all the impacts reviewed above." Importantly, a 0.6-mile lek buffer covers by area only 2% of the nesting habitat encompassed by a 4-mile lek buffer, which takes in approximately 80% of nesting grouse according to the best available science.

Priority Habitats were largely 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 (see, e.g., Smith et al. 2016, Dinkins et al. 2017). For Wyoming, Dinkins et al. (2017: 10) state, "Although breeding habitat-defined as the area within 8.5 km [5.3 miles] of a lek-was a good surrogate for delineating all seasonal habitats for sage-grouse, Core Areas provided habitat protections disproportionately for summer habitats compared to winter." These researchers went on to state, "our mapping results demonstrated that net reproduction from all birds associated with a winter habitat magnifies the importance of maintaining high-quality winter habitat. In other words, birds breeding outside of winter habitats were reliant on winter habitats for winter survival; thus, degraded winter habitat could equate to loss of reproduction from a much larger spatial footprint.

Recent empirical study confirms the established finding that sage-grouse lek attendance is negatively related to oil and gas density, regardless of sagebrush cover and participation.³ Green et al. (2017) examined greater sage-grouse lek attendance, oil and gas well, and habitat and precipitation data from Wyoming over the period 1984 to 2008, and, consistent with numerous prior studies, that lek attendance declines are closely associated with the density of oil and gas development: Oil and gas development correlates well with sage-grouse population declines from 1984 to 2008 in Wyoming, which is supported by other findings (Doherty et al. 2010b, Harju et al. 2010, Hess and Beck 2012, Taylor et al. 2013, Gregory and Beck 2014). As with other studies, we also found support for 4-year lag effects of oil and gas development on lek attendance (Walker et al. 2007, Doherty et al. 2010a, Harju et al. 2010, Gregory and Beck 2014). This result suggests that development likely affects recruitment into the breeding population rather than avoidance of wells by adult males or adult survival. Adult sage-grouse are highly philopatric to lek sites (Dalke et al. 1963, Wallestad and Schladweiler 1974, Emmons and Braun 1984, Dunn and Braun 1985, Connelly et al. 2011a), and males typically recruit to the breeding population in 2-3 years. We would expect a delayed response in lek attendance if development affects recruitment, either by reducing fecundity or avoidance of disturbance by nesting females, as adult males die and are not replaced by young males.

Sagebrush Focal Areas ("SFAs") are by definition a subset of PHMA, where all PHMA direction applies with additional protections overlaid in some cases. Our organizations agree with the need for modification insofar as we believe SFA management actions should be expanded to more lands. In addition, we believe that all priority habitats, including SFAs must be designated as sage-grouse Areas of Critical Environmental Concern (ACECs) and managed to protect sage-grouse, as discussed in more detail above. The current Greater Sage-Grouse RMP Amendments and Revisions incorporate insufficient

Priority Habitat Management Area designations in all states except Oregon, Colorado, and North Dakota. Crist et al. (2015) provided a critique that indicated that many PHMA units were too small and isolated to sustain sage-grouse populations over the long term, and also noted that a handful of large areas are strongholds of disproportionate importance to sage-grouse conservation efforts. All lands designated as Priority Areas for Conservation 65 ("PACs") by the U.S. Fish and Wildlife Service need to be designated as Priority Habitat Management Areas and given strong, science-based protections in accord with the recommendations of the National Technical Team. In addition, expansions of PHMA are warranted in Wyoming, where the BLM and U.S. Fish and Wildlife Service erroneously incorporated reductions in state Core Area designations that were made for political, rather than scientific, purposes, and which render this state's Priority Habitat Management Areas scientifically invalid.

Scientific research has determined that one energy site per square mile is the density threshold at which significant impacts to sage-grouse populations begin to be measured (Copeland et al. 2013). Tack (2009) found that this study in Montana's Milk River Basin, well densities of one per square mile also were correlated with a very low probability of a lek being large (see Figure 9, p. 43). The analysis of Copeland et al. (2013) found that a statewide analysis of well densities revealed population decline curves very close to the earlier studies by Holloran (2005), but also noted that a 1 wellpad per square mile density of development correlated to approximately 18% decline in sage grouse lek population (see Figure 4). So one wellpad per square mile definitely is not a zero-impact threshold. Indeed, Garman (2018) found that clustering 8 wells per pad using directional drilling in the Atlantic Rim coalbed methane project, which would meet the one-pad-per-square-mile threshold required for PHMA, still left comparatively little habitat within the Project Area outside the ecological zone of influence of roads and wellpads. This one-site-per-square-mile-section is a threshold that should not be subject to waiver, modification, or exception.

The BLM's own experts recommended for existing fluid mineral leases that a 4-mile No Surface Occupancy buffer should be applied to leks, with an exception allowed in cases where the entire lease is within 4 miles of a lek, in which case a single wellsite should be permitted in the part of the lease most distal to the lek (NTT 2011). This recommendation is reinforced by a similar recommendation from western state agency biologists, who also recommended a 4-mile No Surface Occupancy buffer (Ara et al. 2008). According to Taylor et al. (2012: 27), in a study commissioned by BLM, 68 Second, female sage-grouse that visit a lek use an approximately 9-mi (15-km) radius surrounding the lek for nesting; a 2-mi (3.2-km) radius encompasses only 35-50% of nests associated with the lek (Holloran and Anderson 2005, Tack 2009). While a lek provides an important center of breeding activity, and a conspicuous location at which to count birds, its size is merely an index to the population dynamics in the surrounding habitat. Thus attempting to protect a lek, without protecting the surrounding habitat, provides little protection at all.

The studies referenced in this passage appears to be set out on page 14 and 15 of the USGS Synthesis. We were not able to locate a single instance in any of the DEISs, however, where any of these papers were cited in a discussion of the Impacts of the BLM Preferred Alternative in the DEISs. ? By ignoring the WAFWA Gap Analysis and Plos ONE study, the DEISs fail to recognize the warning that occurs later in the USGS Synthesis, which states: [T]here continues to be emerging science quantifying effects and measuring the efficacy of conservation recommendations. Review of this new information as it becomes available, and incorporating changes, if appropriate, are essential to implementing valid conservation recommendations.³² ? The DEISs ignore studies referenced in the USGS Annotated

Bibliography and USGS Synthesis that either support additional protections for sage-grouse habitat or provide evidence against the amendments BLM proposes.

There is a substantial body of scientific literature concluding that discrete anthropogenic activities that are present in sagebrush have negative effects on sage-grouse. The extent of these effects varies based on the size, intensity and persistence of the human activity, and can range from displacement to local extirpation of sage-grouse.⁷³ Nonrenewable energy developments, such as fluid mineral leasing, and their supporting infrastructure are a pervasive, and in some cases an increasing presence within the range of sage-grouse.⁷⁴ There has, however, been a gradual decrease in recommended requirements for fluid mineral leasing within priority areas. * 2011 NTT Report⁷⁵: For unleased federal fluid mineral estate, close priority areas with very limited exceptions. For leased federal areas, do not allow new surface occupancy in priority habitat, with limited exception. Proposed surface disturbance cannot exceed 3% with limited exception. Disturbance measured within individual priority areas and local project area.⁷⁶ * 2013 COT Report⁷⁷: Avoid development in priority areas; identify areas where leasing is not acceptable. If avoidance not possible, development should occur only in non-habitat areas or 72 U. least suitable habitat. Reduce and maintain density of energy structures below which there are no impacts to sage-grouse habitats or do not result in declines to sage-grouse populations.⁷⁸ * 2015 BLM Plans⁷⁹: Implement disturbance cap of 3% within individual priority areas and local project area in priority habitat. Implement a density cap of an average of 1 energy and mining facility per 640 acres.⁸⁰ * 2018 BLM Proposed RMPA.EIS: Numerous additional waivers, exceptions and modifications for drilling in priority areas; restrictions on drilling limited; for Utah, if project design and site conditions indicate a project will improve habitat, exceedances of disturbance and density caps at either project level or individual priority area are allowed.; in Idaho disturbance cap only measured for individual population areas, not project area.⁸¹ The 2015 finding by the Fish and Wildlife Service that Greater Sage-Grouse did not need to be listed under the ESA relied heavily on the provisions in the 2015 BLM plans: As previously stated, sage-grouse are sensitive to disturbance, and small amounts of development within sage-grouse habitats can negatively affect sage-grouse population viability. Thus, limiting future disturbances in sage-grouse habitats is an essential component of reducing or eliminating effects related to disturbance, as recommended in the COT Report.⁸² In addition to the NTT and COT reports, numerous research papers confirm the importance of density and disturbance caps: * 2017 Edmunds study: Modeled density-independent and -dependent population growth across multiple spatial scales relevant to management and conservation. Relatively close fine-scale populations of sage-grouse can trend differently, indicating that large-scale trends may not accurately depict what is occurring across the landscape (e.g., local effects of gas and oil fields may be masked by increasing larger populations).⁸³ * 2017 Green study (importance of caps): Best models indicated that GRSG responded to energy development with a 1 to 4-year time lag, and well density within 6,400 m of leks best explained GRSG losses. Sagebrush cover and precipitation explained little variation in lek attendance over time. Across Wyoming, decreases in lek attendance were significant at a density of 4 wells per square kilometer, reaching 17 percent per year at 5.24 wells per square kilometer. Current regulations in Core Areas could limit GRSG losses from energy developments, but they may not promote GRSG recovery.⁸⁴ * 2015 Holloran Study (importance of caps): Use of suitable winter habitat by sage-grouse decreased with increasing density of gas wells within 2.8 km of data loggers. Habitat use also increased with distance to wells and plowed main haul roads, but well density was a better predictor. Effects of anthropogenic activity were evident at lower well densities. Effects of gas development on sage-grouse can be reduced by minimizing well densities and adopting methods that reduce anthropogenic activities.⁸⁵ * 2015 Fedy study (importance of caps): Birds avoided areas of high well density and nests were not found in areas

with greater than 4 wells per km² and majority of nests (63%) were in areas with = 1 well per km².⁸⁶ * 2015 Kirol study (importance of caps): Energy infrastructure had negative effects on habitat use and brood survival, with brood survival decreasing once surface disturbance exceeded 4 percent. Results suggest that reduction of habitat quality was primarily driven by avoidance of energy infrastructure, resulting in primary and secondary source habitat becoming low-occurrence habitat.⁸⁷ * 2017 Spence Study (importance of caps): Probability of lek collapse inside core areas was positively related to the density of oil and gas wells located outside of core areas at two distances - within 1.6 km and within 4.8 km of the core area boundary.⁸⁸ * 2018 Holloran Letter (importance of 2015 protections): Recommending management approaches and objectives established in 2015 BLM sage-grouse land use plans be used as minimum standards in sagebrush habitat.⁸⁹

As explained in the NTT report: Sage grouse exhibit strong site fidelity (loyalty to a particular area even when the area is no longer of value) to seasonal habitats, which includes breeding, nesting, brood rearing, and wintering areas. (Connelly et al. 2004, Connelly et al. 2011b). Adult sage grouse rarely switch between these habitats once they have been selected, limiting their adaptability to changes. NTT at 51 (emphases added). Accordingly, loss of critical wintering habitat could lead to extirpation of sage-grouse populations that solely rely on these areas for the winter. See also FEIS at 3-5 ("Site fidelity in breeding birds could delay population response to habitat changes, and a clear response may require the death of most site-tenacious individuals.")

Attached is Attachment 3 to comments submitted by The Wilderness Society, Conservation Colorado, National Audubon Society, Colorado Wildlife Federation, Rocky Mountain Wild, Western Values Project, National Wildlife Federation and Natural Resources Defense Council.

For example, in Wyoming, Copeland et al. (2013) projected further sage-grouse population declines with full and rigorous implementation of the Wyoming Core Area plan (which subsequently was implemented in the federal Wyoming amendments and revisions as PHMA). Smith et al. (2017:9) found much lower probability of lek collapse inside PHMA, attributing this to a lower density of energy development in designated PHMA habitats: "This finding was predictable given how Core Areas were delineated to avoid existing energy disturbance and the low densities of disturbance where Core Areas were to be established prior to the [state Sage-Grouse Executive Order] in 2008." Also for Wyoming, Juliusson et al. (2017) modeled the likelihood of future oil and gas development under state and federal development restrictions (but not incorporating prioritization of leasing and development outside Core Areas, and found that with all other restrictions applied, 27.4% of the sage-grouse population would be exposed to baseline or highintensity energy development in Management Zone I (Northern Plains), versus 13.9% of the sage-grouse population in Management Zone II. Spence et al. (2017) found that the likelihood of lek collapse inside PHMAs was roughly half that of leks outside PHMAs, related to comparatively higher levels of surface development outside PHMAs, but also found that leks 53 near the boundary are likely to be negatively affected by development along the PHMA boundary. Edmunds et al. (2016) documented continued declines in most Core Areas, while Gamo and Beck (2017) attributed value to the Core Area effort on the basis of lower levels of drilling and construction in sage-grouse habitats outside Core Areas versus inside them. Based on these studies, RMPAs as originally drafted and approved are expected to slow the decline, but not to halt or reverse it. During the pendency of the sage-grouse RMPA process and in the years that followed, approximately 5 million acres of oil and gas leases were deferred from federal lease auctions across 7 western states due to sage-grouse concerns, including 2.2 million acres in Nevada, 1.6 million acres in Wyoming, 600,000 acres in Montana, and more

than 300,000 acres each in Colorado and Utah. This enormous amount of lease deferral represents the sole effective and scientifically sound conservation measure in the ARMPAs, inasmuch as sage-grouse habitats that remain unleased cannot be industrially developed, and their habitats are not subject to further degradation.

It is a well-established principle that for sage grouse, there is a time-lag for population responses to habitat impacts, taking two to ten years before population changes become measurable (Holloran 2005, Walker et al. 2007, Harju et al. 2010). As a result, the appropriate decision-point for changing management strategies would actually be 2-10 years before population declines are noted (in the best-case scenario that monitoring reliably recognizes a downturn as caused by a management problem versus population cyclicity, which is also problematic), which means that by the time that adaptive management changes are adopted it is already too late, the damage has been done, and because industrial infrastructure is rarely removed once in place the damage has become effectively irreversible.

We appreciate the idea that broad, science-based objectives have a place in determining whether greater sage-grouse habitat is contributing to stable populations. However, no single objective can cover the wide range of variability that occurs across a landscape as vast as the sagebrush sea. The Habitat Objectives Tables (Table 2-2) have been misinterpreted as standards that must be met, likely at the expense of the widest and most adaptable use in the West-livestock grazing. It does not make sense that these objectives be reflected in livestock grazing permittee/lessee terms and conditions if they do not fit the ecosystem in which they are being applied. Because of this, we appreciate those amendments that propose to make clear that habitat objectives must account for local conditions and site variability. This includes the removal of the seven-inch perennial grass and forb height habitat objective. We understand why grass and forb height objectives need to be considered for the health of the bird, but we believe these objectives should vary across the range. We request these changes be made to the habitat objectives tables for each greater sage-grouse RMP amendment.

Recent empirical study confirms the established finding that sage-grouse lek attendance is negatively related to oil and gas density, regardless of sagebrush cover and participation.⁴ Green et al. (2017) examined greater sage-grouse lek attendance, oil and gas well, and habitat and precipitation data from Wyoming over the period 1984 to 2008, and, consistent with numerous prior studies, that lek attendance declines are closely associated with the density of oil and gas development: Oil and gas development correlates well with sage-grouse population declines from 1984 to 2008 in Wyoming, which is supported by other findings (Doherty et al. 2010b, Harju et al. 2010, Hess and Beck 2012, Taylor et al. 2013, Gregory and Beck 2014). As with other studies, we also found support for 4-year lag effects of oil and gas development on lek attendance (Walker et al. 2007, Doherty et al. 2010a, Harju et al. 2010, Gregory and Beck 2014). This result suggests that development likely affects recruitment into the breeding population rather than avoidance of wells by adult males or adult survival. Adult sage-grouse are highly philopatric to lek sites (Dalke et al. 1963, Wallestad and Schladweiler 1974, Emmons and Braun 1984, Dunn and Braun 1985, Connelly et al. 2011a), and males typically recruit to the breeding population in 2-3 years. We would expect a delayed response in lek attendance if development affects recruitment, either by reducing fecundity or avoidance of disturbance by nesting females, as adult males die and are not replaced by young males.

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The BLM's own experts recommended for existing fluid mineral leases that a 4-mile No Surface Occupancy buffer should be applied to leks, with an exception allowed in cases where the entire lease is within 4 miles of a lek, in which case a single wellsite should be permitted in the part of the lease most distal to the lek (NTT 2011). This recommendation is reinforced by a similar recommendation from western state agency biologists, who also recommended a 4-mile No Surface Occupancy buffer (Apa et al. 2008). According to Taylor et al (2012: 27), in a study commissioned by BLM, Second, female sage-grouse that visit a lek use an approximately 9-mi (15-km) radius surrounding the lek for nesting; a 2-mi (3.2-km) radius encompasses only 35-50% of nests associated with the lek (Holloran and Anderson 2005, Tack 2009). While a lek provides an important center of breeding activity, and a conspicuous location at which to count birds, its size is merely an index to the population dynamics in the surrounding habitat. Thus attempting to protect a lek, without protecting the surrounding habitat, provides little protection at all.

To the extent that BLM's existing ARMPAs and revised RMPs ignore the recommendations of its own experts, they are arbitrary and capricious and an abuse of discretion. BLM should rectify this legal deficiency if the ARMPAs are further amended. In the context of the original Greater Sage-Grouse RMP amendment and revision effort, BLM's own Draft EIS analysis has supported 4-mile No Surface Occupancy buffers to be applied as Conditions of Approval to existing fluid mineral leases. The Wyoming Nine-Plan DEIS states, "Walker et al. (2007) recommends a buffer distance of at least 4.0 miles containing extensive stands of sagebrush habitat for breeding populations to persist." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-291. For the Buffalo RMP revision, BLM's analysis of the science states, 73 "Energy development within two miles of leks is projected to reduce the average probability of lek persistence from 87% to 5% (Walker et al. 2007a). Current research suggests that impacts to leks from energy development are discernible out to a minimum of 4 miles, and that some leks within this radius have been extirpated as a direct result of energy development (Apa et al. 2008). Even with a timing limitation on construction activities, Greater Sage-Grouse avoid nesting in oil and gas

fields because of the activities associated with operations and production" Buffalo RMP Revision DEIS at 367. For Montana, BLM observes, "Impacts from energy development occur at distances between 3 and 4 miles. Impacts to leks caused by energy development would be most severe near the lek." HiLine RMP Revision DEIS at 4-135. Manier et al. (2014) undertook a comprehensive analysis of the available science on lek buffers, and concluded that the appropriate range for lek buffer protections was 3.1 to 5 miles, which encompasses and buttresses BLM's earlier NTT (2011) expert recommendations. State agencies and their wildlife experts have long pointed out the flaws in smaller lek buffers and the need for 4-mile No Surface Occupancy buffers around leks. According to the Nevada Division of Wildlife, "...the current NSO distance is 0.6 miles, which is not based on the best available science (see Coates et al. 2013 which suggests a buffer distance of 5.0 kilometers)." NDOW comments on Nevada - Northeastern California DEIS, January 14, 2014, analysis chart 1. Apa et al. (2008, emphasis added) reviews the best available science by a team of state sage grouse biologists, and states, "Yearling female greater sage-grouse avoid nesting in areas within 0.6 miles of wellpads, and brood-rearing females avoid areas within 0.6 miles of producing wells. This suggests a 0.6-mile buffer around all suitable nesting and brood-rearing habitat is required to minimize impacts to females during these seasonal periods." This report further clarifies, "These suggest that all areas within at least 4-miles of a lek should be considered nesting and brood-rearing habitats in the absence of mapping." Thus, by combining these two recommended buffers, state experts in this report in effect recommended a 4.6-mile NSO buffer around active leks. The U.S. Fish and Wildlife Service has also pointed out the inadequacy of smaller lek buffers. For the Utah RMP effort, the agency states, "There is substantial scientific information that shows that impacts of human disturbance (e.g. oil and gas drilling) to sage-grouse remain discernible out to distances > 4 miles of a lek." Attachment 2, USFWS comments on Utah Conservation Plan 7/12/12, at 3. The agency goes on to conclude, "In summary, we recommend avoiding permanent structures within a 4 mile lek buffer...at all times. Exceptions may be appropriate for the placement of permanent structures on non-habitat areas within the 4 mile lek buffer if it can be determined that the location of these structures will not impact nesting sagegrouse." USFWS comments Utah Conservation Plan, 5/8/13 at 8. In Nevada, the USFWS states, "We recommend a year-round lek buffer of 4.0 miles." 74 BLM's own NEPA analysis indicates that proposed lek buffers are inadequate. In the Nevada - Northeastern California DEIS, BLM states, Impacts on GRSG accrue over varying distances from origin depending on the type of development: ? Energy extraction such as oil and gas, geothermal, and plan of operation mining at 11.8 miles (19 kilometers) based on direct impacts of field development, including associated infrastructure, noise, lighting, and traffic (Johnson et al. 2011; Taylor et al. 2012) Nevada - Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605. BLM Wyoming Draft EIS analysis arrives at the same conclusion: "Buffer distances from 0.5 to two miles from oil and gas infrastructure have been shown to be inadequate to prevent declines of birds from leks (Walker et al. 2007). Studies have shown that greater distances, anywhere from two to four miles, are required for viable Greater Sage-Grouse populations to persist (Connelly et al. 2000, Holloran and Anderson 2005, Walker et al. 2007)." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-335. According to Apa et al. (2008), "Buffer sizes of 0.25 mi., 0.5 mi., 0.6 mi., and 1.0 mi. result in estimated lek persistence of 5%, 11%, 14%, and 30%." BLM concludes, "Studies have shown that greater distances, anywhere from two to four miles, are required for viable Greater Sage-Grouse populations to persist." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-335. For these reasons, the application of a 0.6-mile lek buffer is arbitrary and capricious, violates BLM Sensitive Species Policy, and will contribute to further population declines in Core Areas that will contribute to the need to protect the greater sage grouse under the Endangered Species Act. Holloran (2005) undertook an empirical test of the adequacy of 0.25-mile No Surface Occupancy buffers and 2-mile Timing Limitation Stipulations, and determined that sage grouse in the

Pinedale Anticline and Jonah Fields would be completely extirpated within 19 years of the study as a result of full-field development with this package of protections applied. BLM's NEPA analysis for a recent Miles City Field Office oil and gas leasing EA provides a thorough synopsis: "Sage grouse are offered species specific protections through a stipulation. Under Alternative B, ¼ mile NSO buffers and 2 mile timing buffers would apply where relevant. Based on research, these stipulations for sage grouse are considered ineffective to ensure that sage grouse can persist within fully developed areas. With regard to existing restrictive stipulations applied by the BLM, (Walker et al. 2007a) research has demonstrated that the 0.4-km (0.25 miles) NSO lease stipulation is insufficient to conserve breeding sage-grouse populations in fully developed gas fields because this 75 buffer distance leaves 98 percent of the landscape within 3.2 km (2 miles) open to fullscale development. Full-field development of 98 percent of the landscape within 3.2 km (2 miles) of leks in a typical landscape in the Powder River Basin reduced the average probability of lek persistence from 87 percent to 5 percent (Walker et al. 2007a). Other studies also have assessed the efficacy of existing BLM stipulations for sage grouse. Impacts to leks from energy development are most severe near the lek, and remained discernable out to distances more than 6 km (3.6 miles) (Holloran 2005, Walker et al. 2007a), and have resulted in the extirpation of leks within gas fields (Holloran 2005, Walker et al. 2007a). Holloran (2005) shows that lek counts decreased with distance to the nearest active drilling rig, producing well, or main haul road, and that development influence counts of displaying males to a distance of between 4.7 and 6.2 km (2.9 and 3.9 miles). All well-supported models in Walker et al. (2007a) indicate a strong effect of energy development, estimated as proportion of development within either 0.8 km (0.5 miles) or 3.2 km (2 miles), on lek persistence. Buffer sizes of 0.25 mi., 0.5 mi., 0.6 mi. and 1.0 mi. result in an estimated lek persistence of 5 percent, 11 percent, 14 percent, and 30 percent. Lek persistence in the absence of CBNG development averages approximately 85 percent. Models with development at 6.4 km (4 miles) had considerably less support, but the regression coefficient indicated that impacts were still apparent out to 6.4 km (4 miles) (Walker et al. 2007a). Tack (2009) found impacts of energy development on lek abundances (numbers of males per lek) out to 7.6 miles." Miles City October 2014 Oil and Gas Leasing EA, Environmental Assessment DOI/BLM-MT-C020-2014-0091-EA, May 19, 2014 at 60. For most states, BLM purported to apply lek buffer distances in accordance with Manier et al. (2014) at the project stage of the NEPA approval process. These typically are set at 3.1 miles for roads and energy infrastructure, 2 miles for tall structures, and 1.2 miles for low structures, and represent the lowest (least protective) end of the protection spectrum described by Manier et al. (2014). Green et al. (2017) found that oil and gas development in proximity to leks contributed to a 2.5% per year decline in sage-grouse populations, and that the 3.1-mile buffer best explained these energy-driven declines, but it is important to note that these researchers neglected to test development densities at buffer distances larger than 3.1 miles in radius. We are concerned that these buffer distances (and also the 1.2-mile standard for low structures) are inappropriately small (with the possible exception of the road buffer) because while they be adequate to protect breeding grouse while on the lek based on the best available science, they will allow these disruptive and damaging features to be located in the midst of prime nesting habitat, which extends 5.3 miles from the lek site (Holloran and Anderson 2005). Furthermore, "Justifiable departures to decrease or increase from these distances, based on local data, best available science, landscape features, and other existing protections (e.g., land use allocations, state regulations) may be appropriate for determining activity impacts." See, e.g., Idaho/Southwest Montana RMPA FEIS at DD-1. Statements like these completely undermine the certainty of implementation of lek buffers, rendering them completely discretionary. Because the nesting period is equally sensitive and equally important to survival of and recruitment to

A limit of 3% human surface disturbance per square-mile section is the minimum necessary standard for preventing habitat abandonment by sage grouse. Knick et al. (2013) found that 99% of active leks across the western half of the sage grouse's range were surrounded by lands with 3% or less human development. Decker et al. (2017) found a similar result in Colorado, with a linear decrease in sage grouse lek populations once surface disturbance increased above the 2.5% threshold. Preliminary results from Kirol et al. (in prep.) indicate that the vast majority of sage-grouse were found in habitats with <1% surface disturbance. Disturbance density can also affect survival; Kirol et al. (2015a) found that brood survival for sage-grouse began to decline significantly once disturbance density hit the 4% threshold. The vast majority was surrounded by much less disturbance. Copeland et al. (2013) found that if all of the State of Wyoming sage grouse policy provisions (which include a 5% disturbance cap calculated using a Disturbance Density Calculation Tool) were implemented fully and to the letter, that a 9 to 15% decline in greater sage grouse populations would still occur statewide, including a 6 to 9% decline within designated Core Areas (where the 5% disturbance cap would be applied). There is no scientific evidence at all indicating that sage grouse can tolerate a greater percentage of surface disturbance. In particular, the 5% cap on disturbance proposed for the Wyoming RMP amendment for Core Areas and Connectivity Areas been shown to be effective by no scientific study, ever.

Scientific research has determined that one energy site per square mile is the density threshold at which significant impacts to sage-grouse populations begin to be measured (Copeland et al. 2013). Tack (2009) found that this study in Montana's Milk River Basin, well densities of one per square mile also were correlated with a very low probability of a lek being large (see Figure 9, p. 43). The analysis of Copeland et al. (2013) found that a statewide analysis of well densities revealed population decline curves very close to the earlier studies by Holloran (2005), but also noted that a 1 wellpad per square mile density of development correlated to approximately 18% decline in sage grouse lek population (see Figure 4). So one wellpad per square mile definitely is not a zero-impact threshold. Indeed, Garman (2018) found that clustering 8 wells per pad using directional drilling in the Atlantic Rim coalbed methane project, which would meet the one-pad-per-square-mile threshold required for PHMA, still left comparatively little habitat within the Project Area outside the ecological zone of influence of roads and wellpads. The one-site-per-square-mile-section is a threshold that should not be subject to waiver, modification, or exception.

BLM should not reduce protections for greater sage-grouse on GHMA in Idaho because the agency does not have enough information about some Idaho sage-grouse populations to reasonably predict what impacts of reducing protections will be. One area of concern is the East-Central Idaho population of sage-grouse, where BLM Idaho has proposed oil and gas leasing twice in 2018 and then temporarily deferred leasing after conservation groups filed administrative protests and litigated. In 2012, the U.S. Fish and Wildlife Service convened a "Conservation Objectives Team" of Service and state representatives with expertise in greater sage-grouse science and conservation. In 2013, that body issued a Conservation Objectives Team Report (COT Report) evaluating the threats to the species and recommending conservation measures. The COT Report described the East-Central Idaho sage-grouse population as "isolated/small size" and "high risk" with a "low probability of persistence" COT Report at 22, 76-77. Such a greater sage-grouse population is nevertheless 10 Green, Adam et al., Investigating Impacts of Oil and Gas Development on Greater Sage-Grouse, *Journal of Wildlife Management*, doi: 10.1002/jwmg.21179 (2016). 85 valuable because it helps ensure the species continues to exist by contributing to its redundancy, representation, and resilience. See COT Report at 12. Preserving peripheral populations is essential to arresting the decline of greater sage-grouse toward extinction and

Endangered Species Act listing. See COT Report at 12-13. The COT Report further stated: [L]ittle information is available on [East Central Idaho] sage-grouse populations other than some limited location and attendance data on a few leks. No lek routes have been established within this area that would allow consistent monitoring of sage-grouse populations. This lack of data is largely due to very difficult access in most years during winter and spring. COT Report at 76. This paucity of information about the East-Central Idaho/East Idaho Uplands population of sage-grouse is well known to resource managers. Due to insufficient population information, the Idaho Department of Fish and Game closed the East Idaho Uplands area of the state to greater sage-grouse hunting in 2008. It has not been reopened since. See 2015 Idaho Sage-grouse Statewide Report at 16, 2016 Sage-grouse Rules at 2 and 2017 Sage-grouse Rules at 2.11 The Sage-grouse Conservation Plan prepared by the East Idaho Uplands Sage-grouse Working Group noted, "There is a need for better information related to population status and trends. Status, survival and trend data relative to sage-grouse populations in the East Idaho Uplands SGPA [Sage-grouse Planning Area] is lacking." EIU Sage-grouse Conservation Plan at 29. The Conservation Plan also stated that much of the area had not been surveyed for sage-grouse or had been only minimally surveyed by air without follow-up ground surveys; due to the lack of consistent lek counts and lek count routes, there was no index to sage-grouse breeding trend. EIU Sage-grouse Conservation Plan at 29. Furthermore, "It is unknown if sage-grouse in the East Idaho Uplands are migratory and if there is one population or multiple populations occurring in different parts of the area." EIU Sage-grouse Conservation Plan at 30. Moreover, the Plan stated there is no information available about seasonal habitat quality, the population is believed to be isolated from other sage-grouse populations, and there may be sage-grouse population isolations within the East Idaho Uplands Planning Area. EIU Sage-grouse Conservation Plan at 30, 31. The 2015 Idaho Sage-grouse Local Working Groups Statewide Annual Report, which was published in August 2016 by the Idaho Sage-grouse Advisory Committee Technical Assistance Team, demonstrates that five years later, these data deficiencies still existed. "Lack of information" was listed as a threat to the East Idaho Uplands greater sage-grouse population: "Most of EIU [East Idaho Uplands] does not have detailed information on populations, movements, etc." 2015 Idaho Sage-grouse Statewide Report at 20.12 11 The 2018-2019 Idaho sage-grouse season will not be set until August 2018. See Idaho Department of Game and Fish, Upland Game, Turkey & Furbearer, 2018 & 2019 Seasons & Rules at 9. Available at <https://idfg.idaho.gov/sites/default/files/seasons-rules-upland-birds-2018-2019.pdf>. 12 The 2015 statewide report (published in August 2016) is the most recent. No Idaho Sage-grouse Local Working Group Statewide Report has been published for 2016 or 2017. Email communications between Ann Moser (Idaho Department of Fish and Game) and Kelly Fuller (Western Watersheds Project), December 19, 2017. 86 Oil and gas leasing and exploratory well drilling in this area, near Grays Lake National Wildlife Refuge, has occurred in the past, despite BLM's lack of site-specific greater sagegrouse population information for this area. Attachment 6. Although BLM has deferred oil and gas leasing in this area twice in 2018, the Expressions of Interest that led to this area being scheduled for leasing are still listed as "pending" in BLM's National Fluids Lease Sale System database as of July 17, 2018.

Its impact analysis must also account for the primacy of cheatgrass invasion in determining patterns of rangeland fire. According to BLM's past NEPA analysis, "The positive feedback loop between fire and invasive plant species may be the greatest impact on fire management and GRSG (Abatzoglou and Kolden 2011)." Nevada - Northeastern California Greater Sage Grouse RMP Amendment DEIS at 701. BLM further elucidates, 87 In Oregon 19th and early 20th century grazing practices, along with introduction and spread of invasive plant species and the practice of fire suppression in the 20th century, have all contributed to fire suppression and to increasingly destructive wildfires. Oregon Greater Sage

Grouse RMP Amendment DEIS at 4-10. BLM's past NEPA analysis concedes, "In the absence of cheatgrass, Wyoming big sagebrush sites can take 150 years to recover." Nevada - Northeast California Greater Sage Grouse RMP Amendment DEIS at 608. When cheatgrass is present, it can take over following disturbance, forming a monoculture characterized by unnaturally frequent fire return intervals that can effectively prevent the recovery of sagebrush and perennial grasses on a long-term if not permanent basis. For Oregon, BLM states, "In Wyoming big sagebrush sites, full recovery to pre-burn sagebrush canopy cover conditions will take over 100 years (Cooper 2007);...." Oregon Greater Sage Grouse RMP Amendment DEIS at 3-70. More generally, BLM states, "Sagebrush recovers slowly from fire; most species do not resprout but must be replenished by wind-dispersed seed from adjacent unburned stands or seeds in the soil. Depending on the species and the size of a burn, sagebrush can reestablish itself within five years, but a return to a full pre-burn community cover can take 50 to over 100 years (Baker 2011)." Oregon Greater Sage Grouse RMP Amendment DEIS at 4-10. For these reasons, BLM must incorporate science-based measures to reduce the spread of cheatgrass, including rest from livestock grazing, into any future sage-grouse plan amendments, and must also rest burned areas for two years or more from livestock grazing, to allow native perennial grasses to recover and to reduce the distribution of weed seeds on newly burned areas.

Smith et al. (2017:9) found much lower probability of lek collapse inside PHMA, attributing this to a lower density of energy development in designated PHMA habitats: "This finding was predictable given how Core Areas were delineated to avoid existing energy disturbance and the low densities of disturbance where Core Areas were to be established prior to the [state Sage-Grouse Executive Order] in 2008." Also for Wyoming, Juliusson et al. (2017) modeled the likelihood of future oil and gas development under state and federal development restrictions (but not incorporating prioritization of leasing and development outside Core Areas, and found that with all other restrictions applied, 27.4% of the sage-grouse population would be exposed to baseline or high-intensity energy development in Management Zone I (Northern Plains), versus 13.9% of the sage-grouse population in Management Zone II. Spence et al. (2017) found that the likelihood of lek collapse inside PHMAs was roughly half that of leks outside PHMAs, related to comparatively higher levels of surface development outside PHMAs, but also found that leks near the boundary are likely to be negatively affected by development along the PHMA boundary. Edmunds et al. (2016) documented continued declines in most Core Areas, while Gamo and Beck (2017) attributed value to the Core Area effort on the basis of lower levels of drilling and construction in sage-grouse habitats outside Core Areas versus inside them. Based on these studies, RMPAs as originally drafted and approved are expected to slow the decline, but not to halt or reverse it. During the pendency of the sage-grouse RMPA process and in the years that followed, approximately 5 million acres of oil and gas leases were deferred from federal lease auctions across 7 western states due to sage-grouse concerns, including 2.2 million acres in Nevada, 1.6 million acres in Wyoming, 600,000 acres in Montana, and more than 300,000 acres each in Colorado and Utah. This enormous amount of lease deferral represents the sole effective and scientifically-sound conservation measure in the ARMPAs, inasmuch as sage-grouse habitats that remain unleased cannot be industrially developed, and their habitats are not subject to further degradation.

Wyoming Greater Sage-grouse RMP Amendments Draft EIS at 4-276. Wisdom et al. (2011) found that lands within 3.1 miles of transmission lines and highways had an elevated rate of lek abandonment. Nonne et al. (2011) found that raven abundance increased along the Falcon-Gondor powerline corridor in Nevada both during the construction period, and long-term after powerline construction activities had ceased. Braun et al. (2002) reported that 40 leks with a power line within 0.25 mile of the lek site

had significantly slower population growth rates than unaffected leks, which was attributed to increased raptor predation. Dinkins (2013) documented sage grouse avoidance of powerlines not just during the nesting period but also during early and late brood-rearing. LeBeau et al. (2014) found that sage grouse avoided habitats within 2.9 miles of transmission lines during the brood-rearing period. Hansen et al. (2016) documented negligible additional avoidance of a powerline co-located with an existing transmission line in low-quality wintering habitats in Utah, and stated (at p. 184, "existing transmission line corridors located in poor-quality winter habitat are likely already avoided by sage-grouse, and co-locating additional lines within these corridors may dampen the effects of new tall structures on the landscape in the years immediately following construction." Dinkins et al. (2014) documented no spatial avoidance, but lower hen survival in areas with higher powerline density. Shirk et al. (2015) found that colocating several transmission lines beside each other resulted in a complete barrier to sagegrouse migration and dispersal in central Washington. The National Technical Team (NTT 2011) recommended that Priority Habitats be exclusion areas for overhead powerlines, and that General Habitats should be avoidance areas for overheads lines. And according to BLM's own NEPA analysis, Impacts on GRSG accrue over varying distances from origin depending on the type of development: ? Tall structures such as power lines, wind turbines, communication towers, agricultural, and urban development based on an avian predator foraging distance of 4.3 miles (6.9 kilometers; Boarman and Heinrich 1999; Leu et al. 2008) Nevada - Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605. The National Technical Team (NTT 2011) recommended that Priority Habitats be exclusion areas for overhead powerlines, and that General Habitats should be avoidance areas for overheads lines. And according to BLM's own NEPA analysis, 61 Impacts on GRSG accrue over varying distances from origin depending on the type of development: ? Tall structures such as power lines, wind turbines, communication towers, agricultural, and urban development based on an avian predator foraging distance of 4.3 miles (6.9 kilometers; Boarman and Heinrich 1999; Leu et al. 2008) Nevada - Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605. The National Technical Team (2011) recommended that general habitats be managed as avoidance areas for new rights-of-way, and also recommended that overhead powerlines and other infrastructure that have fallen out of use should be removed, when they occur in Priority Habitats

The EPA supports coordination among federal, state, local, and tribal authorities for consistent and effective conservation of imperiled species. We are concerned that the Draft EIS does not provide sufficient information to fully assess the impacts of the proposed action. For this reason, the EPA has rated the Draft EIS/RMPA as Environmental Concerns - Insufficient Information - (EC-2). The description of the EPA's rating system is available at: <https://www.epa.gov/nepa/environmental-impact-statementrating-system-criteria>. The enclosed detailed comments include recommendations for improving the assessment and disclosure of the Proposed Action's expected impacts to greater sage-grouse and habitat; however, we defer to the expertise of the U.S. Fish and Wildlife Service and appropriate state wildlife management agencies regarding the extent to which those impacts would be beneficial or detrimental to the species. Specifically, we recommend improvements in the analysis of the potential impacts from increased oil and gas development for the Proposed Action, and updating the mitigation section to reflect any changes resulting from public comments.

Wyoming Greater Sage-grouse RMP Amendments Draft EIS at 4-276. Wisdom et al. (2011) found that lands within 3.1 miles of transmission lines and highways had an elevated rate of lek abandonment. Nonne et al. (2011) found that raven abundance increased along the Falcon-Gondor powerline corridor in Nevada both during the construction period, and long-term after powerline construction activities

had ceased. Braun et al. (2002) reported that 40 leks with a power line within 0.25 mile of the lek site had significantly slower population growth rates than unaffected leks, which was attributed to increased raptor predation. Dinkins (2013) documented sage grouse avoidance of powerlines not just during the nesting period but also during early and late brood-rearing. LeBeau et al. (2014) found that sage grouse avoided habitats within 2.9 miles of transmission lines during the brood-rearing period. Hansen et al. (2016) documented negligible additional avoidance of a powerline co-located with an existing transmission line in low-quality wintering habitats in Utah, and stated (at p. 184, "existing transmission line corridors located in poor-quality winter habitat are likely already avoided by sage-grouse, and co-locating additional lines within these corridors may dampen the effects of new tall structures on the landscape in the years immediately following construction." Dinkins et al. (2014) documented no spatial avoidance, but lower hen survival in areas with higher powerline density. Shirk et al. (2015) found that co-locating several transmission lines beside each other resulted in a complete barrier to sage-grouse migration and dispersal in central Washington. The National Technical Team (NTT 2011) recommended that Priority Habitats be exclusion areas for overhead powerlines, and that General Habitats should be avoidance areas for overheads lines. And according to BLM's own NEPA analysis, Impacts on GRSG accrue over varying distances from origin depending on the type of development: ? Tall structures such as power lines, wind turbines, communication towers, agricultural, and urban development based on an avian predator foraging distance of 4.3 miles (6.9 kilometers; Boarman and Heinrich 1999; Leu et al. 2008) Nevada - Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605. 58 The National Technical Team (NTT 2011) recommended that Priority Habitats be exclusion areas for overhead powerlines, and that General Habitats should be avoidance areas for overheads lines. And according to BLM's own NEPA analysis, Impacts on GRSG accrue over varying distances from origin depending on the type of development: ? Tall structures such as power lines, wind turbines, communication towers, agricultural, and urban development based on an avian predator foraging distance of 4.3 miles (6.9 kilometers; Boarman and Heinrich 1999; Leu et al. 2008) Nevada - Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605. The National Technical Team (2011) recommended that general habitats be managed as avoidance areas for new rights-of-way, and also recommended that overhead powerlines and other infrastructure that have fallen out of use should be removed, when they occur in Priority Habitats.

A rather glaring oversight throughout this - and all state DEISs - is that BLM attempts to justify several aspects of the planning analyses through inclusion by reference from the 2015 analyses of sage-grouse plan amendments. However, the BLM used 2012-13 data in their analyses for the 2015 land use plan amendments, and it cannot be denied that an extensive amount of new information, project development, and other factors have been developed or occurred since 2013. This seemingly violates BLM Planning Handbook and NEPA procedures.

Scientific Flaws with the Plan Amendment and Listing Decision: In addition to the missteps related to process, the Plan Amendments are substantively flawed. The key agency reports (the Reports) underpinning the Plan Amendments, as well as the earlier warranted but precluded GRSG listing decision, were plagued with conflicts of interest, bias and selective citation. They ignored the most relevant factors to grouse populations (weather, predation and hunter harvest) in favor of draconian restrictions that will cost jobs and harm local communities without corresponding benefits to the species. The 2018 LUPAs fail to acknowledge the scientific shortcomings in the National Technical Team ("NTT") Report, the Conservation Objectives Team ("COT") Report, the U.S. Geological Society ("USGS") Monograph, and the Manier et al. Buffers Report (collectively, the "Reports"), much less

redress the resulting inaccuracies in the agency decisions. DOI and the U.S. Department of Agriculture must recognize critical errors in the Reports and the prescriptions they support. Because future agency management decisions and potential litigation continue to turn to the Reports for support, addressing the scientific foundation is crucial. Accordingly, DOI should include this statement in the forthcoming amendments and records of decision ("RODs"): The NTT Report, the COT Report, the USGS Monograph and Manier, et al. 2014 (collectively "the Reports") were heavily relied upon in the 2010 listing decision on GRS as well as the LUPAs and corresponding RODs. Since then, the science and understanding on GRS has evolved and some significant shortcomings with the Reports have come to light. Management prescriptions from the Reports should be viewed with caution and tempered with the best available information, including specifically state and local science and knowledge. Detailed Data Quality Act challenges based on these issues were never adequately answered. In 2015, a coalition of 20 local governments (including the Counties) as well as diverse agricultural and energy interests (collectively, the Petitioners) undertook an independent scientific review of the Reports. The reviews uncovered significant errors, omissions and biases in the Reports that have contaminated subsequent policy and management actions based thereon. In several Data Quality Act challenges, (the Challenges), Petitioners documented hundreds of pages of flaws with: * 3 percent disturbance caps * Density caps of 1 disturbance per 640 acres * Lek buffers * Required Design Features * No Surface Occupancy areas (NSOs) in priority habitat * Implementation of an avoid-minimize-compensate policy * Net conservation gains * Sagebrush canopy cover * The warranted but precluded listing decision for GRS The Reports erroneously ignore accurate population data and adopt flawed modeling approaches that have consistently failed to accurately predict populations. This selective use of science is wholly misleading and assumes GRS populations are in decline despite evidence to the contrary. The Reports ignore natural population fluctuations; single out human-driven activities for alleged declines (but exclude the significance of hunter harvest); and overlook actual threats to GRS such as predation. The Reports fail to meet the standards of quality, integrity, objectivity and utility required by the Data Quality Act, as well DOI's standards of scientific integrity and transparency. DOI failed to address these shortcomings. The National Technical Team Challenge was 97 pages in length with four exhibits for a total of 197 pages of detailed issues. The COT Challenge was 88 pages with four exhibits for a total of 159 pages. The Monograph Challenge was 99 pages with three exhibits for a total of 332 pages. The Buffers Challenge was 41 pages. Nonetheless, the agencies virtually ignored these shortcomings and issued only a four-page response to the cumulative 729-page Challenges, and a two-page response to subsequent appeals. Moreover, in the NEPA documents, the agencies hardly recognized the existence of the Challenges, let alone addressed their merits. BLM and the USFS failed to address the substance and detail in these challenges and provided little if any rationale for their misplaced use of the Reports and the Monograph. No corrective actions were taken nor were adequate disclosures of these flaws recognized or addressed as required by implementing regulations for NEPA. See 40 C.F.R. § 1502.9(b). In sum, these misplaced and unscientific management restrictions will negatively impact the economies and future viability of countless communities, small businesses, and family farms and ranches as well as efforts to conserve GRS and we request BLM address the above bulleted points.

The purpose of this letter is to underscore recommendations made in a letter sent to you on Octob~13, 2017 by members of the sage-grouse science community in light of the recently completed U.S. Geological Survey (USGS) literature review and the Bureau of Land Management's (BLM) May 2018 draft Land Use Plan (LUP) amendments. Conclusions reached by the USGS in their synthesis of sage-grouse science (Synthesis) published since release of the BLM and U.S. Forest Service's LUPs in 2015 suggest that if these agencies proceed with amendments to those LUPs they must do so with a narrow,

science-based focus. Unfortunately, we do not believe BLM's recently released draft Environmental Impact Statements (DEISs) reflect such a targeted focus.

The Department of Interior (DOI) and the U.S. Department of Agriculture (USDA) must recognize shortcomings in the key reports relied upon to craft the BLM's 2015 Record of Decision (ROD) which include the NIT and COT Reports and the USGS Monograph and the prescriptions they support. Agency management decisions and potential litigation will surely turn towards the Reports for support. Absent recognition of shortcomings, land management is sure to be entangled in controversy for years to come. Accordingly, we urge DOI to include this statement in the forthcoming amendments and records of decision (RODs): The NIT Report, the COT Report, the USGS Monograph and Manier, et al. 2014 (collectively "the Reports") were heavily relied upon in the 2010 listing decision on GRSG as well as the LUPAs and corresponding RODs. Since then, the science and understanding on GRSG has evolved and some significant shortcomings with the Reports have come to light. Management prescriptions from the Reports should be viewed with caution and tempered with the best available information including specifically state and local science and knowledge. Most importantly, none of the information contained in the COT Report, NIT Report or the USGS Monograph specifically addressed the highly unique landforms, variable habitat or naturally fragmented habitat that exists in the Parachute-Piceance-Roan population found in Garfield County. The terrain in our County that hosts Greater Sage Grouse is a naturally fragmented habitat that varies radically over short distances to include severely undulating topography, steep slopes and deep canyons, dark timber, sage brush on the ridges and a complex range of vegetation types. These reports relied on above are void of scientific specificity regarding Garfield County's highly unique terrain.

The BLM is required to contemplate new science since the BLM's 2015 Record of Decision to better inform policy in the RMPA. Rather, the BLM has only relied on a limited scope of new scientific information contained in a report prepared by the US Geologic Survey. This report ignores a vast body of additional science that provides beneficial analysis on grazing, predation, climate / weather impacts, high-resolution mapping and the value of including local working group activity. This is a tremendous shortcoming where the BLM ignored the opportunity to approach the management of the impacts to the species that could have been informed by a wide net of best available science; rather, it appears the best available science has been cherry picked thereby excluding highly important elements of could and should contribute to a more robust and effective adaptive management program for the benefit of the species.

We ask that the following information be considered in the EIS so that there is a more complete set of relevant new scientific information as best available science: **A. THE IMPORTANCE OF HIGH RESOLUTION MAPPING TO PRIORITIZING SAGE-GROUSE CONSERVATION EFFORTS** Coates, P.S., Casazza, M.L., Brussee, B.E., Ricca, M.A., Gustafson, K.B., Sanchez-Chopitea, E., Mauch, K., Niell, L., Gardner, S., Espinosa, S., and Delehanty, D.L., 2016, Spatially explicit modeling of annual and seasonal habitat for greater sage-grouse (*Centrocercus urophasianus*) in Nevada and northeastern California-An updated decision-support tool for management: U.S. Geological Survey Open-File Report 2016-1080, 160 p., <https://doi.org/10.3133/ofr20161080>. This revised USGS report utilized new data multiple sources, including updated GRSG telemetry locations, high-resolution vegetation maps, and seasonal habitat suitability indices. As a result of this higher resolution mapping, the authors note that, "GRSG habitat area increased by 6.5 percent compared to findings in the earlier report, with increases of a similar magnitude in core, priority, and general GRSG habitat management categories." The significance

of this study is that it underscores the importance of producing modern, reproducible, high-resolution sage-grouse habitat maps to inform and prioritize conservation efforts far better than broad brush stroke approaches used in the development of the Northwestern Colorado RMP. A similar high-resolution habitat mapping effort is underway in Northwestern Colorado.

ACCOUNTING FOR CLIMATIC VARIATION IN POPULATION RESPONSES IN ADAPTIVE

MANAGEMENT This paper is significant to northwestern Colorado but not for what the authors may have intended. Genetic and habitat connectivity analyses reveal the highest high levels of genetic and spatial connectivity among sage-grouse subpopulations were found within Sage-grouse management zone 2, comprising the greater Wyoming basin population which includes Northwestern Colorado. These results are contrary to and refute the basic assumptions of Garton et al. (2009, 2011), that assumed far greater genetic isolation and were used to produce the population extinction predictions relied upon by the USFWS in their 2010 ESA listing decision, management subsequent reports and recommendations (including the COT and subsequent BIM RMPs). Homer, C.G., G. Xian, C.L. Aldridge, O.K. Meyer, T.R. Loveland, M.S. O'Donnell. 2015. 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* 55: 131-145. <https://doi.org/10.1016/j.ecolind.2015.03.002> The significance of this paper to Northwestern Colorado RMP is that it reiterates the need for locally informed and locally implemented adaptive tactics and strategies for vegetation and land management to offset predicted long-term climatic trends. Tronstad, L., G. Jones, M. Andersen and G. Beauvais. 2018. Modeling and mapping the distribution of invertebrate prey used by Greater Sage-grouse during the early brood rearing period: Report of a pilot project. Report prepared for the Wyoming Landscape Conservation Initiative by the Wyoming Natural Diversity Database, University of Wyoming, Laramie, Wyoming. Previous research on sage-grouse habitat evaluations has focused on vegetation and topographic components. However, invertebrate prey, which is strongly affected by climate and local weather, is vital to chick survival and sage-grouse hens typically prefer brooding habitat with higher densities of invertebrates. Therefore, this study investigated the relationship between vegetation and invertebrate species composition and density. This approach is significant because tracking annual variation and multi-year trends in invertebrate populations potentially provides a locally-based predictor of annual chick survival and therefore, population trends (i.e. spring conditions where a warm, moist spring may have far more invertebrates available compared to a cold, dry spring, and this will influence annual cohort size.). Ramey II, R.R. J.L. Thorley, and A.S. Ivey. local and population-level responses of greater sagegrouse to oil and gas and climatic variation in Wyoming. *BioArxiv* (<https://doi.org/10.1101/028274>) The significance of this research to adaptive management in the Northwestern Colorado RMP is that it was the first study to quantitatively evaluate the relative effects of regional climatic variation (as indexed by the PDO) and oil and gas surface disturbance on sage grouse population dynamics, at local and population-level scales. This research underscores the need for accounting for climatic variation in understanding sage-grouse responses to human development and management actions, including the use of population "triggers" in adaptive management.

THE IMPORTANCE OF LOCAL WORKING GROUPS AND KNOWLEDGE FOR EFFECTIVE

SAGEGROUSE MANAGEMENT Belton, L.R., S.N. Frey; and D.K. Dahlgren. 2017. Participatory Research in Sage-grouse Local Working Groups: Case Studies from Utah. *Human-Wildlife Interactions*: 11(3):287-301. Available at: <https://digitalcommons.usu.edu/hwl/vol11/iss3/7> Christiansen, T.J. and L.R. Belton. 2017. Wyoming Sage-Grouse Working Groups: Lessons learned. *Human-Wildlife Interactions*: 11(3):274-286. Available at: <https://digitalcommons.usu.edu/hwl/vol11/iss3/6> The significance of these two

papers, one from Utah and the other from Wyoming, is that they demonstrate the value of participatory research and tailored management done at local (working group) scale, which benefits greater sage-grouse conservation efforts both locally and regionally. The collaborative, local working group approach as implemented in Utah and Wyoming, contrasts sharply with the one-size fits all, top-down management prescriptions as proposed in the BIM via the Northwest Colorado RMP. As noted by Christiansen and Belton (2017), the strength of the local working group approach is that it is "reliant on the ability of diverse participants, who often hold adversarial viewpoints, to develop and maintain positive working relationships in seeking to achieve mutually agreeable goals. We believe the Wyoming model has potential to succeed in an era of political polarization."

THE IMPORTANCE OF MANAGING RAVENS: A DIRECT THREAT TO SAGE-GROUSE SURVIVAL

Peebles, L.W., M.R. Conover, and J.B. Dinkins. 2017. Adult sage-grouse numbers rise following raven removal or an increase in precipitation. *Wildlife Society Bulletin* 41(3). Available at https://doi.org/10.1002/wsb_788 This paper is significant to the Northwestern Colorado RMP because it underscores the importance of incorporating climatic (or long term weather) indices in any evaluation of population response to any management prescriptions, in this case, decreasing raven numbers to increase sage grouse survival. This approach is especially important for effective adaptive management of sage-grouse populations northwestern Colorado in general, and Garfield County in particular, where habitat is naturally fragmented and sage-grouse are found at low density, or both. The significance of this paper to the Northwestern Colorado RMP is twofold. First, the authors report that reducing anthropogenic subsidies (i.e. food and water sources, open landfills) is likely to be most effective in reducing raven densities over the long term, and thus decrease raven predation on sage grouse nests and chicks. And second, the authors report that because livestock and animal husbandry operations provide indirect food and water subsidies that are exploited by ravens, increasing their distance from sage-grouse nesting and brood rearing habitat will further decrease predation on sage-grouse and increase overall population productivity. These recommendations are critical to Northwestern Colorado where the threat of predation from ravens is under-addressed and other restrictive land management measures are favored by the BLM. Peebles, L.W. and M.R. Conover. 2017. Winter ecology and spring dispersal of common ravens in Wyoming. *Western North American Naturalist* 77(3): 293-308. Repeated research has shown that ravens have emerged as the primary predation threat to sagegrouse. However, land management agencies, including the BLM have continued to advocate for various restrictions on human activities (including NSO and setbacks) despite the fact that have not been proven to have a net positive effect on sage-grouse at local or population scales. The paper by Peebles and Conover (2017) is significant to the question of how to directly reduce local raven populations in order to mitigate the primary threat to sage-grouse eggs and chicks: determine raven dispersal distances and target winter roosts at landfills within range of sage-grouse nesting and brood rearing habitat. Because of the close proximity of landfills to BLM administered sagegrouse habitat in northwestern Colorado, this adaptive and highly effective approach should not be ignored or discounted in favor of one-size fits all management prescriptions that fails to address this threat.

Peebles, L.W. and M.R. Conover. 2017. Winter ecology and spring dispersal of common ravens in Wyoming. *Western North American Naturalist* 77(3): 293-308. Repeated research has shown that ravens have emerged as the primary predation threat to sage-grouse. However, land management agencies, including the BIM have continued to advocate for various restrictions on human activities (including NSO and setbacks) despite the fact that have not been proven to have a net positive effect on sage-grouse at local or population scales. The paper by Peebles and Conover (2017) is significant to the

question of how to directly reduce local raven populations in order to mitigate the primary threat to sage-grouse eggs and chicks: determine raven dispersal distances and target winter roosts at landfills within range of sage-grouse nesting and brood rearing habitat. Because of the close proximity of landfills to BIM administered sage-grouse habitat in northwestern Colorado, this adaptive and highly effective approach should not be ignored or discounted in favor of one-size fits all management prescriptions that fails to address this threat. Additionally, as another example of the BIM's failure to meaningfully coordinate with local governments, the RMPA did not consider the predator control policies found in the Garfield County Greater Sage Grouse Conservation Plan of 2014, as amended and provided here: Section 5: Predation of sage-grouse eggs, juveniles, and adults occurs naturally, but can increase in association with human development, unless precautions are undertaken. Scientific research has shown that the predators on sage grouse are generalists, meaning that they prey on other species as well, and in some cases their populations are subsidized by human sources of food. Sage-grouse eggs are preyed upon by red foxes, coyotes, badgers, ravens, and (sometimes) black-billed magpies. Common predators of juvenile and adult sage-grouse include golden eagles, prairie falcons (as well as other raptors), coyotes, badgers, red fox and bobcats. Younger birds (especially brood\$), may be preyed upon by raven, red fox, northern harrier, ground squirrel, snakes, and weasels. However, of these predators, research has shown that ravens are the most abundant and have the greatest impact on the populations studied. While predation on sage grouse occurs at all stages of the life cycle, it is predation on nests and broods that is generally recognized as having the largest deleterious effect on annual survivorship and recruitment in populations. Adding to this problem is the fact that predators, such as ravens, are subsidized by humans to the point where they exceed historic levels in some areas by as much as 1,500%. In such cases, management actions, especially where predators like ravens are abundant and sage grouse mortality is high (such as in the Plan Area), may be needed to ensure that sage-grouse populations are not depressed by a known and potentially mitigated source of mortality. Ravens are clever and highly adaptable in their behavior. They use communication and group foraging which allows them to opportunistically exploit food resources associated with humans (e.g., landfills, trash, road kill, unattended food, and carrion from livestock operations). In contrast, sage-grouse are very stereotypic in their behavior and rely on cryptic coloration, which makes them vulnerable to predation by ravens. As a result of these and other unintended food subsidies, raven populations have greatly expanded in the West. This, in turn, has impacted many species, including desert tortoises, marbled murrelets, least terns, California condors, and sage-grouse. While reducing human-supplied food subsidies to predators is an essential part of any management strategy, it may not be effective unless coupled with active deterrents or management actions to reduce raven density (i.e., Coates and Delehanty 2010; Dinkins 2013). The last reported research on nest and brood survival in the PPR population (Ara 2010), estimated annual nest success between zero and 40%, and substantially lower chick survival. By the end of that study, "Only 2 chicks remained radio-marked after 30 days of age. Apparent brood survival was 86% (n = 12/14) at 7 days, 62% (n = 9/14) at 14 days, and 14% (n = 2/14) at 30 days." Those data indicate predation could be holding back the PPR population.

Chapter 6 References - This section refers to older (now amended) versions of the Garfield County's Land Use Resolution and the Greater Sage Grouse Conservation Plan which is additional evidence that the BLM did not meaningfully coordinate with Garfield County. Further, as pointed out earlier in these comments, the BLM has neglected to consider significant studies and best available science published since the 2015 ROD. Garfield County requests the BLM not only cite the following studies but also amend the RMPA DEIS to incorporate the value these studies bring to the document including adaptive management.

Addressed Scientific Flaws with the Plan Amendments and the Listing Decision The Department of Interior (DOI) failed to recognize shortcomings in the key reports relied upon to craft the BLM's 2015 Record of Decision (ROD) which include the NTT and COT Reports and the USGS Monograph and the prescriptions they support. Multiple Data Quality Act challenges documented significant flaws with: * 3 percent disturbance caps * Density caps of 1 disturbance per 640 acres * Lek buffers * Required Design Features * No Surface Occupancy areas (NSOs) in priority habitat * Implementation of an avoid-minimize-compensate policy * Net conservation gains * Sagebrush canopy cover * The warranted but precluded listing decision for GRSG Absent recognition of these flaws, land management will be misled and entangled in litigation for many years to come. Therefore, the Districts respectfully request DOI to include the following statement in the forthcoming amendments and records of decision (RODs): provide adequate habitat quality for nesting sage o grouse." Effects of rotational grazing management on nesting greater sage o grouse (The Journal of Wildlife Management <https://onlinelibrary.wiley.com/doi/full/10.1002/jwmg.21344>)

"The newest study's authors re-evaluated more than 800 nests from several studies that originally showed a positive correlation between nest success and grass height. After correcting the data to account for grass growth, researchers found no relationship between grass height and nest fate, confirming a sampling bias in two of three re-analyzed datasets, (emphasis added) and a reduced but still significant association in the third." "These findings suggest that the height of grass may not be as crucial to sage grouse nesting success as previously thought. Researchers recommend that field sampling methods be adjusted to ensure unbiased measurement of grass height at predicted hatch date, and that sitescale habitat management guidelines that include grass height as an indicator of nesting habitat quality be revisited." Sage Grouse Initiative. 2017. Taking the Bias Out of Grass Height Measurements. Science to Solutions Series Number 15. Sage Grouse Initiative. 4pp.sagegrouseinitiative.com/taking-bias-out-sage-grouse-nesting-studies.

All Land Use Plan Amendments ("LUPAs") must recognize and allow for updates based on the most current and best science available. Identifying unique place-based, topographical differences and adjusting standards accordingly should be a decision made by local land managers utilizing the best available information and local, scientifically based data.

The RMPA should replace the current RMPA mapping with the revised mapping of priority habitat boundaries and active lek sites provided by Colorado Parks and Wildlife ("CPW").

Scientific Flaws with the Plan Amendment and Listing Decision: In addition to the missteps related to process, the Plan Amendments are substantively flawed. The key agency reports (the Reports) underpinning the Plan Amendments, as well as the earlier warranted but precluded GRSG listing decision, were plagued with conflicts of interest, bias and selective citation. They ignored the most relevant factors to grouse populations (weather, predation and hunter harvest) in favor of draconian restrictions that will cost jobs and harm local communities without corresponding benefits to the species. The 2018 LUPAs fail to acknowledge the scientific shortcomings in the National Technical Team ("NTT") Report, the Conservation Objectives Team ("COT") Report, the U.S. Geological Society ("USGS") Monograph, and the Manier et al. Buffers Report (collectively, the "Reports"), much less redress the resulting inaccuracies in the agency decisions. DOI and the U.S. Department of Agriculture must recognize critical errors in the Reports and the prescriptions they support. Because future agency management decisions and potential litigation continue to turn to the Reports for support, addressing

the scientific foundation is crucial. Accordingly, DOI should include this statement in the forthcoming amendments and records of decision ("RODs"): The NTT Report, the COT Report, the USGS Monograph and Manier, et al. 2014 (collectively "the Reports") were heavily relied upon in the 2010 listing decision on GRSG as well as the LUPAs and corresponding RODs. Since then, the science and understanding on GRSG has evolved and some significant shortcomings with the Reports have come to light. Management prescriptions from the Reports should be viewed with caution and tempered with the best available information, including specifically state and local science and knowledge. Detailed Data Quality Act challenges based on these issues were never adequately answered. In 2015, a coalition of 20 local governments (including the Counties) as well as diverse agricultural and energy interests (collectively, the Petitioners) undertook an independent scientific review of the Reports. The reviews uncovered significant errors, omissions and biases in the Reports that have contaminated subsequent policy and management actions based thereon. In several Data Quality Act challenges, (the Challenges), Petitioners documented hundreds of pages of flaws with: * 3 percent disturbance caps * Density caps of 1 disturbance per 640 acres * Lek buffers * Required Design Features * No Surface Occupancy areas (NSOs) in priority habitat * Implementation of an avoid-minimize-compensate policy * Net conservation gains * Sagebrush canopy cover * The warranted but precluded listing decision for GRSG The Reports erroneously ignore accurate population data and adopt 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. The Reports ignore natural population fluctuations; single out human-driven activities for alleged declines (but exclude the significance of hunter harvest); and overlook actual threats to GRSG such as predation. The Reports fail to meet the standards of quality, integrity, objectivity and utility required by the Data Quality Act, as well DOI's standards of scientific integrity and transparency. DOI failed to address these shortcomings. The National Technical Team Challenge was 97 pages in length with four exhibits for a total of 197 pages of detailed issues. The COT Challenge was 88 pages with four exhibits for a total of 159 pages. The Monograph Challenge was 99 pages with three exhibits for a total of 332 pages. The Buffers Challenge was 41 pages. Nonetheless, the agencies virtually ignored these shortcomings and issued only a four-page response to the cumulative 729-page Challenges, and a two-page response to subsequent appeals. Moreover, in the NEPA documents, the agencies hardly recognized the existence of the Challenges, let alone addressed their merits. BLM and the USFS failed to address the substance and detail in these challenges and provided little if any rationale for their misplaced use of the Reports and the Monograph. No corrective actions were taken nor were adequate disclosures of these flaws recognized or addressed as required by implementing regulations for NEPA. See 40 C.F.R. § 1502.9(b). In sum, these misplaced and unscientific management restrictions will negatively impact the economies and future viability of countless communities, small businesses, and family farms and ranches as well as efforts to conserve GRSG and we request BLM address the above bulleted points.

The Department of Interior (DOI) and the u.s. Department of Agriculture (USDA) must recognize shortcomings in the key reports relied upon to craft the BIM's 2015 Record of Decision (ROD) which include the NIT and COT Reports and the USGS Monograph and the prescriptions they support. Agency management decisions and potential litigation will surely turn towards the Reports for support. Absent recognition of shortcomings, land management is sure to be entangled in controversy for years to come. Accordingly, we urge DOI to include this statement in the forthcoming amendments and records of decision (RODs): The NIT Report, the COT Report, the USGS Monograph and Manier, et al. 2014 (collectively "the Reports") were heavily relied upon in the 2010 listing decision on GRSG as well as the LUPAs and corresponding RODs. Since then, the science and understanding on GRSG has evolved

and some significant shortcomings with the Reports have come to light. Management prescriptions from the Reports should be viewed with caution and tempered with the best available information including specifically state and local science and knowledge. Most importantly, none of the information contained in the COT Report, NIT Report or the USGS Monograph specifically addressed the highly unique landforms, variable habitat or naturally fragmented habitat that exists in the Parachute-Piceance-Roan population found in Garfield County. The terrain in our County that hosts Greater Sage Grouse is a naturally fragmented habitat that varies radically over short distances to include severely undulating topography, steep slopes and deep canyons, dark timber, sage brush on the ridges and a complex range of vegetation types. These reports relied on above are void of scientific specificity regarding Garfield County's highly unique terrain.

The BLM is required to contemplate new science since the BLM's 2015 Record of Decision to better inform policy in the RMPA. Rather, the BLM has only relied on a limited scope of new scientific information contained in a report prepared by the US Geologic Survey. This report ignores a vast body of additional science that provides beneficial analysis on grazing, predation, climate / weather impacts, high-resolution mapping and the value of including local working group activity. This a tremendous shortcoming where the BLM ignored the opportunity to approach the management of the impacts to the species that could have been informed by a wide net of best available science; rather, it appears the best available science has been cherry picked thereby excluding highly important elements of could and should contribute to a more robust and effective adaptive management program for the benefit of the species.

We ask that the following information be considered in the EIS so that there is a more complete set of relevant new scientific information as best available science: A. THE IMPORTANCE OF HIGH RESOLUTION MAPPING TO PRIORITIZING SAGE-GROUSE CONSERVATION EFFORTS Coates, P.S., Casazza, M.L., Brussee, B.E., Ricca, M.A., Gustafson, K.B., Sanchez-Chopitea, E., Mauch, K., Niell, L., Gardner, S., Espinosa, S., and Delehanty, D.L., 2016, Spatially explicit modeling of annual and seasonal habitat for greater sage-grouse (*Centrocercus urophasianus*) in Nevada and northeastern California-An updated decision-support tool for management: U.S. Geological Survey Open-File Report 2016-1080, 160 p., <https://doi.org/10.3133/ofr20161080>. This revised USGS report utilized new data multiple sources, including updated GRSG telemetry locations, high-resolution vegetation maps, and seasonal habitat suitability indices. As a result of this higher resolution mapping, the authors note that, "GRSG habitat area increased by 6.5 percent compared to findings in the earlier report, with increases of a similar magnitude in core, priority, and general GRSG habitat management categories." The significance of this study is that it underscores the importance of producing modern, reproducible, high-resolution sage-grouse habitat maps to inform and prioritize conservation efforts far better than broad brush stroke approaches used in the development of the Northwestern Colorado RMP. A similar high-resolution habitat mapping effort is underway in Northwestern Colorado.

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the ARMPA, and by extension the Draft RMPA, rely on technical reports riddled with significant inaccuracies, omissions, and shortcomings which do not constitute the best scientific data.

The NTT Report contains numerous errors and shortcomings, as documented in the Alliance's first DQA challenge, including: * Failure to include citations in the "Literature Cited" section, and listed articles in the "Literature Cited" section that are not referenced or used in the Report; * Citing authorities in a misleading fashion; * Failure to provide justification for the 3% disturbance cap used; * Including noise restriction recommendations based on flawed studies that relied on unpublished data and speculation, and using suspect testing equipment in unrealistic conditions; * Failure to cite or include scientific reports and papers on oil and natural gas operations and mitigation measures available at the time the NTT Report was created; and, * Failure to undergo an adequate peer review.

The ARMPA further relies on Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and Its Habitats (Studies in Avian Biology), published in 2011 (USGS Monograph). This book also suffers from scientific and technical flaws. The Center for Environmental Science, Accuracy and Reliability analyzed four of the most frequently cited sources and found, as documented in our third DQA challenge: Northwest Colorado Greater Sage-Grouse Draft RMPA August 2, 2018 Page 12 of 17 * Significant mischaracterization of previous research; * Substantial errors and omissions; * Lack of independent authorship and peer review; * Methodological bias; * Lack of reproducibility; and, * Inadequate data.

BLM finally relies on the flawed USGS "Conservation Buffer Distance Estimates for Greater Sage-Grouse - A Review" (Buffer Report), to support the 3.1-mile lek buffer for infrastructure related to energy development imposed in the Draft RMPA. Draft RMPA at H-3. As discussed in our fourth DQA challenge, the studies referenced in the Buffer Report did not test the buffers discussed therein and failed to recognize other factors driving GrSG population changes such as variations in regional climate and weather. Furthermore, the Buffer Report: * Was developed with unsound methods; * Ignores scientific studies that do not support its conclusions; * Reaches conclusions that are pure conjecture; and * Disseminates information that is neither objective nor reliable and that lacks scientific integrity. Accordingly, the Buffer Report, and by extension the buffers and noise restrictions in the Draft RMPA, are not based on the best available science.

On March 22, 2013, the FWS-organized Conservation Objectives Team (COT) issued the Greater Sage-grouse (*Centrocercus urophasianus*) Conservation Objectives: Final Report (COT Report). BLM applies measures from the COT Report to all of the action alternatives identified in the ARMPA, and by extension to the Draft RMPA. As detailed in our second DQA challenge, the COT Report suffers from various errors. Specifically, the report: * Provides no original data or quantitative analysis; * Does not provide comprehensive, unbiased review of all available scientific literature; * Relies on unverified data; * Relies on flawed and biased reports; * Contains flawed methodology; * Suffers from conflicts of interest; * Relies on ambiguous definitions; * Includes unsupported, speculative statements lacking empirical basis; * Ignores evidence related to GrSG adaptation to disturbed environments; * Discounts conservation strategies utilized by states; and, * Fails to recognize latest habitat mapping efforts.

The operational restrictions in the ARMPA and Draft RMPA are not based on the best available science. The Buffer Report, the NTT Report, the COT Report, and the GrSG Monograph are fundamentally flawed and do not support the operational restrictions in the ARMPA and the Draft RMPA. BLM should address additional scientific analysis related to GrSG conservation that were not cited in the NTT

Report, COT Report, GrSG Monograph, and the Buffer Report. Additionally, BLM should utilize state and local conservation measures that have been imposed and successful for over a decade, rather than unsubstantiated landscape-scale measures that do not take into account site-specific considerations.

The proposed disturbance cap and density limit, to be applied across an entire section of habitat that contains existing development and fragmentation, are overbroad and unduly restrictive. This type of habitat management mechanism should only be applied sparingly on an as-needed basis, after site-specific survey and biological analysis. Specifically, any disturbance threshold should be based on a discrete area of biological influence, rather than across an entire section of habitat that contains existing surface development and habitat fragmentation. The Draft RMPA fails to recognize that increased surface disturbance will not automatically result in environmental impacts where there are protections in place for specific resources, such as offset mitigation requirements. In addition, BLM fails to explain why it rejected less restrictive disturbance caps and density limits. Specifically, BLM proposes to require a 3% disturbance cap in Colorado and a 5% disturbance cap in Wyoming. 2015 ROD at I-18. The use of a 5% disturbance cap in Wyoming demonstrates that a higher threshold is reasonable. Further, BLM does not explain why it rejected Colorado's less restrictive density BMP which calls for the avoidance of 10 well pads per 10-square mile area in GrSG breeding and summer habitat (within 4 miles of active leks) and allows for increased density with a Comprehensive Development Plan, which has proven effective. BLM should remove the proposed 3% disturbance cap and density limit. Instead, BLM should rely on site-specific analysis to determine potential impacts to GrSG and appropriate mitigation measures consistent with CPW's AMAIWR.

Scientific Flaws with the Plan Amendment and Listing Decision: In addition to the missteps related to process, the Plan Amendments are substantively flawed. The key agency reports (the Reports) underpinning the Plan Amendments, as well as the earlier warranted but precluded GRSG listing decision, were plagued with conflicts of interest, bias and selective citation. They ignored the most relevant factors to grouse populations (weather, predation and hunter harvest) in favor of draconian restrictions that will cost jobs and harm local communities without corresponding benefits to the species. The 2018 LUPAs fail to acknowledge the scientific shortcomings in the National Technical Team ("NTT") Report, the Conservation Objectives Team ("COT") Report, the U.S. Geological Society ("USGS") Monograph, and the Manier et al. Buffers Report (collectively, the "Reports"), much less redress the resulting inaccuracies in the agency decisions. DOI and the U.S. Department of Agriculture must recognize critical errors in the Reports and the prescriptions they support. Because future agency management decisions and potential litigation continue to turn to the Reports for support, addressing the scientific foundation is crucial. Accordingly, DOI should include this statement in the forthcoming amendments and records of decision ("RODs"): The NTT Report, the COT Report, the USGS Monograph and Manier, et al. 2014 (collectively "the Reports") were heavily relied upon in the 2010 listing decision on GRSG as well as the LUPAs and corresponding RODs. Since then, the science and understanding on GRSG has evolved and some significant shortcomings with the Reports have come to light. Management prescriptions from the Reports should be viewed with caution and tempered with the best available information, including specifically state and local science and knowledge.

Detailed Data Quality Act challenges based on these issues were never adequately answered. In 2015, a coalition of 20 local governments (including the Counties) as well as diverse agricultural and energy interests (collectively, the Petitioners) undertook an independent scientific review of the Reports. The reviews uncovered significant errors, omissions and biases in the Reports that have contaminated

subsequent policy and management actions based thereon. In several Data Quality Act challenges, (the Challenges), Petitioners documented hundreds of pages of flaws with: * 3 percent disturbance caps * Density caps of 1 disturbance per 640 acres * Lek buffers * Required Design Features * No Surface Occupancy areas (NSOs) in priority habitat * Implementation of an avoid-minimize-compensate policy * Net conservation gains * Sagebrush canopy cover * The warranted but precluded listing decision for GRSG The Reports erroneously ignore accurate population data and adopt 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. The Reports ignore natural population fluctuations; single out human-driven activities for alleged declines (but exclude the significance of hunter harvest); and overlook actual threats to GRSG such as predation. The Reports fail to meet the standards of quality, integrity, objectivity and utility required by the Data Quality Act, as well DOI's standards of scientific integrity and transparency. DOI failed to address these shortcomings. The National Technical Team Challenge was 97 pages in length with four exhibits for a total of 197 pages of detailed issues. The COT Challenge was 88 pages with four exhibits for a total of 159 pages. The Monograph Challenge was 99 pages with three exhibits for a total of 332 pages. The Buffers Challenge was 41 pages. Nonetheless, the agencies virtually ignored these shortcomings and issued only a four-page response to the cumulative 729-page Challenges, and a two-page response to subsequent appeals. Moreover, in the NEPA documents, the agencies hardly recognized the existence of the Challenges, let alone addressed their merits. BLM and the USFS failed to address the substance and detail in these challenges and provided little if any rationale for their misplaced use of the Reports and the Monograph. No corrective actions were taken nor were adequate disclosures of these flaws recognized or addressed as required by implementing regulations for NEPA. See 40 C.F.R. § 1502.9(b). In sum, these misplaced and unscientific management restrictions will negatively impact the economies and future viability of countless communities, small businesses, and family farms and ranches as well as efforts to conserve GRSG and we request BLM address the above bulleted points.

Research has shown that in arid and semiarid areas, grazing at use levels below 40 percent can have positive impacts to forage plants compared to exclusion of grazing.¹ Research conducted in western Colorado in mountain big sagebrush communities found no significant effects from 40-50 years of grazing exclusion on cover or frequency of grasses, biotic crusts, or bare soil and that grazing exclusion decreased above ground net primary production and biodiversity.² In a synthesis of scientific literature on long-term rest in the sagebrush steppe, Davies et al.³ found that long-term rest and properly managed grazing produced few significant differences, and in some situations, negative ecological effects from long-term rest.

The Department of Interior (DOI) and the U.S. Department of Agriculture (USDA) must recognize shortcomings in the key reports relied upon to craft the BIM's 2015 Record of Decision (ROD) which include the NIT and COT Reports and the USGS Monograph and the prescriptions they support. Agency management decisions and potential litigation will surely turn towards the Reports for support. Absent recognition of shortcomings, land management is sure to be entangled in controversy for years to come. Accordingly, we urge DOI to include this statement in the forthcoming amendments and records of decision (RODs): The NIT Report, the COT Report, the USGS Monograph and Manier, et al. 2014 (collectively "the Reports") were heavily relied upon in the 2010 listing decision on GRSG as well as the LUPAs and corresponding RODs. Since then, the science and understanding on GRSG has evolved and some significant shortcomings with the Reports have come to light. Management prescriptions from the Reports should be viewed with caution and tempered with the best available information including

specifically state and local science and knowledge. Most importantly, none of the information contained in the COT Report, NIT Report or the USGS Monograph specifically addressed the highly unique landforms, variable habitat or naturally fragmented habitat that exists in the Parachute-Piceance-Roan population found in Garfield County. The terrain in our County that hosts Greater Sage Grouse is a naturally fragmented habitat that varies radically over short distances to include severely undulating topography, steep slopes and deep canyons, dark timber, sage brush on the ridges and a complex range of vegetation types. These reports relied on above are void of scientific specificity regarding Garfield County's highly unique terrain.

While many opine about Sage-grouse as if they are the only species in the sage, I'm well aware of the decline of sagebrush songbirds and mule deer across much of the range, and have documented Brewer's and sagebrush sparrow, sage thrasher, and mule deer on the Pinedale Anticline's critical winter range, where the species has declined by 60% since drilling began in winter a little over a decade ago. Sage-grouse are now the face of a systemic problem of not giving wildlife freedom to roam across the west. Short-sighted land management plans that change with shifting political winds aren't good for wildlife or stakeholders. We need to know that our leaders in land management will stand with the best science and researchers in seeking optimal solutions.

With that backdrop, the sudden change to Secretarial order 3353 just two years away from the next milestone of the current plan is baffling. I stand with Governors Mead and Hickenlooper in calling for giving the current plan a chance to work. Order 3353 isn't adaptive management, but a major shift from solid science into the unknown. State population targets and reduced buffers for these iconic birds, still declining and vulnerable to prolonged drought and a host of other threats invites a population crash that would likely be irreversible.

The EPA supports coordination among federal, state, local, and tribal authorities for consistent and effective conservation of imperiled species. We are concerned that the Draft EIS does not provide sufficient information to fully assess the impacts of the proposed action. For this reason, the EPA has rated the Draft EIS/RMPA as Environmental Concerns - Insufficient Information - (EC-2). The description of the EPA's rating system is available at: <https://www.epa.gov/nepa/environmental-impact-statementrating-system-criteria>. The enclosed detailed comments include recommendations for improving the assessment and disclosure of the Proposed Action's expected impacts to greater sage-grouse and habitat; however, we defer to the expertise of the U.S. Fish and Wildlife Service and appropriate state wildlife management agencies regarding the extent to which those impacts would be beneficial or detrimental to the species. Specifically, we recommend improvements in the analysis of the potential impacts from increased oil and gas development for the Proposed Action, and updating the mitigation section to reflect any changes resulting from public comments.

We note that most of the 2015 greater sage-grouse analysis was focused largely on lek habitat. However, BLM has also identified winter concentration, nesting, brood rearing and linkage habitats as having the highest conservation value to maintain sustainable greater sage-grouse populations. We recommend the Final EIS include any new information on winter, nesting and brood rearing habitat in Colorado and consider whether additional mitigation measures are warranted to protect these seasonal habitats from impacts from O&G development. We also recommend the Final EIS include information on whether increased drilling and O&G production in greater sage-grouse habitat compared to the 2015 plan would specifically impact any general- or linkage habitat areas.

The RMPA should replace the current RMPA mapping with the revised mapping of priority habitat boundaries and active lek sites provided by Colorado Parks and Wildlife ("CPW")

A study was conducted by Adrian Monroe, a CSU research scientist, and found the effects of grazing on sage-grouse populations may depend on plant productivity. The study evaluates multiple, real-world livestock grazing operations across the entire state. There is a direct correlation between plant growth, when and how much livestock graze, and the effects on wildlife, and a way to sustain ranching while simultaneously sustaining wildlife populations.

1.3.6 Disturbance and Density Caps

No surface occupancy stipulations must be maintained for oil and gas development in priority habitats. Preventing destruction of greater sage-grouse habitat is critical to avoiding harm while permitting development.

Existing disturbance caps must be maintained to limit harm to habitat. Disturbance caps serve as a backstop that limits harm to habitat and provides needed certainty.

BLM acknowledges the changes in Utah "could result in a site-specific loss of Greater Sage-Grouse habitat and displacement from the area of development by local populations."⁹⁰ BLM also admits that, "Projects that would likely be precluded under the No Action Alternative could proceed under the 2018 proposed amendments."⁹¹ BLM reasons, however, that requiring that impacts improve habitat will offset those concerns. There are significant problems with the agency's reasoning because the Draft Utah mitigation rule does not provide a preference for offset benefits to accrue within the landscape affected by the project; prioritize projects that provide the greatest benefits, and reduce the greatest threats, to sage-grouse habitat; does not require mitigation for all impacts; does not guarantee against temporal losses; does not use a habitat quantification tool to measure comparability between impacts and offsets. BLM also notes the requirement to avoid development within priority habitat, but this development would expressly occur within priority areas. The DEIS also provides new opportunities for waivers, exceptions, modifications for siting projects in priority habitat.⁹³

In Idaho, the DEIS states: Removal of the 3 percent project level disturbance cap would allow BLM to intentionally cluster developments within areas already degraded by discrete anthropogenic activities in Greater Sage-Grouse habitat as long as the overall disturbance within the BSU remains below 3 percent. The 3 percent project scale disturbance cap has the potential to spread development into undeveloped areas of Greater Sage-Grouse habitat just to avoid reaching the 3 percent project scale disturbance cap in already fragmented areas. All 8 BSUs in Idaho are well under the 3 percent BSU scale Disturbance Cap (most are less than 1 percent) and are expected to remain low because of the nonet-loss mitigation standard and the other restrictions to development in PHMA and IHMA. Some areas, especially those with existing development, may be further developed even though compensatory mitigation would offset those impacts for the statewide Greater Sage-Grouse habitat.⁹⁴ Essentially, Idaho has come up with a standard that for the foreseeable future will never disallow a project because the priority area densities are so low, even though the density of an individual project area may be high. This flies in face of studies showing impacts to sage-grouse because of individual project density, and Edmunds study that there can be differences between densities at large and small-scale levels that are significant. Also, Idaho's mitigation program is not finalized, and there is no time line by which it is guaranteed to be finalized; thus, we do not know what provisions it will or will not include. As a result,

we oppose these amendments to the land use plan, both because they will reduce important protections for sage-grouse, and because they make it more likely that the bird will need to be listed under ESA.⁹⁵

IX. DENSITY AND DISTURBANCE CAPS SHOULD BE MAINTAINED. The DEISs propose changes in Utah and Idaho to the density and disturbance caps set out in the 2015 BLM sage-grouse land use plans limiting the amount of development that can take in priority habitat management areas. We oppose these changes, for the reasons set out below. ⁶⁶ The decision by the FWS not to list sage-grouse under the ESA noted the importance of the caps to sagegrouse protection: Each Federal Plan includes a disturbance cap that will serve as an upper limit (the maximum disturbance permitted). Anthropogenic disturbance has been identified as a key impact to sagegrouse. To limit new anthropogenic disturbance within sage-grouse habitats, the Federal Plans establish disturbance caps, above which no new development is permitted (subject to applicable laws and regulations; e.g., General Mining Law of 1872, and valid existing rights). This cap acts as a backstop to ensure that any implementation decisions made under the Federal Plans will not permit substantial amounts of new disturbance within the distribution of sage-grouse on BLM and USFS

I.3.7 Fire and Invasive Species

A more specific approach to managing noxious weeds and invasive species should be developed and included to address this significant threat. The 2018 report issued by Western Association of Fish and Wildlife Agencies (updating a 2013 report) summarizing policy, fiscal and science challenges land managers have encountered in control and reduction of invasive grasses and fire cycle, with a focus on the greater sage-grouse found ongoing gaps and also recommended that the agencies continue working on a "landscape-scale approach to fire and land management and further enhance collaborative, science-based approaches to management activities within the Sagebrush Biome." 2018 Gap Report, p. 46. Following these recommendations and committing to developing a more detailed strategy is needed.

I.3.8 General Habitat Management Areas

A just-released U.S. Forest Service study (Cross 2018) attempted to quantify the importance of connectivity across the sagebrush range. ⁶¹ Scientists set out to map the mating areas called "leks" and identify the birds that use each of these areas. They grouped 1,200 leks into "nodes," or a collection of leks, within the network of greater sage-grouse. The nodes were then categorized as "hubs" or "spokes" based on their importance to facilitating gene flow within and across the range of sage-grouse. Hubs foster gene flow out to the spokes. If a hub were to be lost, the birds in the connected spokes would be at risk of genetic isolation. The two maps below depict (1) the location of general habitat in Utah under the 2015 BLM sage-grouse land use plans, with the pink areas representing general habitat,⁶² and (2) a figure depicting the overall ranking of node importance to genetic connectivity across the contiguous range of greater sage-grouse, as measured by "betweenness" calculated in Cross et al. 2018.⁶³ As the maps reveal, the Forest Service found hubs across the bird's range, with a concentration in northwestern Utah, where protection of general habitat is particularly important. Areas in northeastern Utah also show up as corridors of genetic connectivity to Colorado. Even where general habitat is not important for connectivity between populations, as is in central Utah, general habitat is important for providing links between different priority habitat areas within Utah. Similarly, hubs were also concentrated in central Idaho, where large swaths of general habitat are located.⁶⁴ *See attachment, Map* Given the role general habitat plays in preserving connectivity between populations, as well as the other purposes it serves, it would be a grave mistake to eliminate, or even reduce, protections for these areas. In addition, the importance placed on general habitat by the Fish and Wildlife Service raises the

concern that the proposed changes will lead to a greater chance of listing sage-grouse under the ESA. The proposed amendments to eliminate or reduce protections for general habitat should therefore be rejected.

CPC strongly supports the intent of the DRMPA to improve the alignment between individual state plans and/or conservation measures, and DOI and BLM policy. States have authority for managing wildlife populations and work with local governments and stakeholders to balance conservation and business development practices in consideration of their socioeconomic impacts.

Of the more than 48 million acres in the Utah Subregional Planning Area, only about 580,000 are in general habitat, as are another 225,000 acres of mineral estate.⁵⁵ Eliminating general habitat in Utah would mean, for example, that mitigation, including avoidance, minimization and compensatory mitigation, as well as minimal Required Design Features (RDFs), are not required in those areas, regardless of the impact to sage-grouse populations or sagebrush habitat. It would also preclude application of precautionary measures such as avoiding removal of sagebrush and minimizing development that creates a physical barrier to sage-grouse movement.⁵⁶ For areas constituting such a small percentage of Utah's land base, it makes no sense to skimp on protections that could both prevent further reductions in Utah's sage-grouse populations and avoid imposing additional burdens on neighboring states still required to manage general habitat for sage-grouse. This is particularly true given the importance of general habitat in Utah and other sagebrush steppe states for sage-grouse connectivity. Sage-grouse select large intact sagebrush landscapes.⁵⁷ The USGS Synthesis has confirmed the importance of maintaining connectivity between different sage-grouse populations to conserve genetic diversity.⁵⁸ A 2015 study found that long-distance movements of GRSG have been documented, but the risk associated with the landscapes that the birds traverse is not well understood. The current designated priority area strategy does not protect movement corridors among priority areas, and some areas may be at risk of isolation even when they are not separated by large distances.⁵⁹ A 2016 study covering Idaho, Utah and Wyoming showed that several sage-grouse moved 100 km north and west, traversing from the Wyoming Basin to a range typically associated with the Snake River Plain, and theorized that these migrating birds may serve as an important genetic link between two sage-grouse management zones.⁶⁰ A just-released U.S. Forest Service study (Cross 2018) attempted to quantify the importance of connectivity across the sagebrush range.⁶¹ Scientists set out to map the mating areas called "leks" and identify the birds that use each of these areas. They grouped 1,200 leks into "nodes," or a collection of leks, within the network of greater sage-grouse. The nodes were then categorized as "hubs" or "spokes" based on their importance to facilitating gene flow within and across the range of sage-grouse. Hubs foster gene flow out to the spokes. If a hub were to be lost, the birds in the connected spokes would be at risk of genetic isolation.

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swaths of general habitat are located.⁶⁴ [See Attachment PG 37 and 38] Given the role general habitat plays in preserving connectivity between populations, as well as the other purposes it serves, it would be a grave mistake to eliminate, or even reduce, protections for these areas. In addition, the importance placed on general habitat by the Fish and Wildlife Service raises the concern that the proposed changes will lead to a greater chance of listing sage-grouse under the ESA. The proposed amendments to eliminate or reduce protections for general habitat should therefore be rejected.

VII. GENERAL HABITAT MANAGEMENT AREAS SHOULD BE MAINTAINED. The Utah DEIS would eliminate all protections for general habitat.⁴⁷ Other states would weaken protections for sage-grouse in general habitat;⁴⁸ Idaho, for example would eliminate lek buffers, reduce the application of required design features, and eliminate compensatory mitigation in general habitat.⁴⁹ For the reasons set out below, we oppose any reduction of protection for general habitat. While General Habitat Management Areas (GHMA) represent areas with fewer leks and lower densities of breeding birds where disturbance is limited, and provide greater flexibility for land use activities,⁵⁰ their designation is still important to sage-grouse conservation. The FWS 2015 Sage-grouse Listing Decision states: The designation as GHMAs provide sage-grouse conservation by protecting habitat and connectivity between populations and potential refugia in the event of catastrophic events such as wildfire. While the amelioration of threats in GHMAs will likely be less than in PHMAs due to less stringent required conservation measures, GHMAs do have restrictions that benefit sage-grouse conservation.⁵¹ It is important to ensure that seasonal habitats not included in priority areas receive some protection,⁵² and to allow for expansion of recovering populations into newly restored areas. In addition, general habitat can serve as a location for compensatory mitigation offsets and restoring degraded habitat.⁵³ The recent USGS synthesis of recent science on sage-grouse recently stated: Maintaining connectivity among (priority areas) through restoration activities or conservation of existing sagebrush communities at important "pinch points," where movements are constrained, is an important component of an overall sage-grouse management strategy. Maintenance or restoration of habitat quality within corridors is important to limit exposure to risk (for example, from predators), and because sage-grouse use these sites as resting and refueling areas.⁵⁴

In addition, general habitat can serve as a location for compensatory mitigation offsets and restoring degraded habitat.⁵³ The recent USGS synthesis of recent science on sage-grouse recently stated: Maintaining connectivity among (priority areas) through restoration activities or conservation of existing sagebrush communities at important "pinch points," where movements are constrained, is an important component of an overall sage-grouse management strategy. Maintenance or restoration of habitat quality within corridors is important to limit exposure to risk (for example, from predators), and because sage-grouse use these sites as resting and refueling areas.⁵⁴ Of the more than 48 million acres in the Utah Subregional Planning Area, only about 580,000 are in general habitat, as are another 225,000 acres of mineral estate.⁵⁵ Eliminating general habitat in Utah would mean, for example, that mitigation, including avoidance, minimization and compensatory mitigation, as well as minimal Required Design Features (RDFs), are not required in those areas, regardless of the impact to sage-grouse populations or sagebrush habitat. It would also preclude application of precautionary measures such as avoiding removal of sagebrush and minimizing development that creates a physical barrier to sage-grouse movement.⁵⁶ For areas constituting such a small percentage of Utah's land base, it makes no sense to skimp on protections that could both prevent further reductions in Utah's sage-grouse populations and avoid imposing additional burdens on neighboring states still required to manage general habitat for sage-grouse. This is particularly true given the importance of general habitat in Utah and other sagebrush

steppe states for sage-grouse connectivity. Sage-grouse select large intact sagebrush landscapes.⁵⁷ The USGS Synthesis has confirmed the importance of maintaining connectivity between different sage-grouse populations to conserve genetic diversity.⁵⁸ A 2015 study found that long-distance movements of GRSG have been documented, but the risk associated with the landscapes that the birds traverse is not well understood. The current designated priority area strategy does not protect movement corridors among priority areas, and some areas may be at risk of isolation even when they are not separated by large distances.⁵⁹ A 2016 study covering Idaho, Utah and Wyoming showed that several sage-grouse moved 100 km north and west, traversing from the Wyoming Basin to a range typically associated with the Snake River Plain, and theorized that these migrating birds may serve as an important genetic link between two sage-grouse management zones.⁶⁰

1.3.9 Habitat Boundary/Habitat Management Area Designations

For larger adjustments, NEPA and BLM planning rules and procedures should apply, requiring a plan amendment and public engagement, as well as the following provisions, before any adjustment of habitat management boundaries: * Federal, state, and local agencies, and other interested stakeholders, should have the opportunity to participate. * There should be public notice of proposed changes, and an opportunity for the public to comment. * Adjustments should be based on the best available, science-based information, including all applicable peer-reviewed research papers. * Review of boundaries would occur every five years, unless more frequent adjustments are necessary, as determined by BLM and the relevant state agency * Boundaries would generally not be adjusted to exclude non-habitat areas if those areas are wholly contained within existing management boundaries. * Areas within habitat management boundaries not currently used by sage-grouse but ecologically capable of supporting sage-grouse would not be removed from existing management boundaries.¹⁵³ As part of this process, states may convene working groups to recommend boundary adjustments, as long as the recommendations of those groups are made available to the public for comment. Because of the concern of a future listing under ESA, any changes should not represent a meaningful decrease in the current level of conservation under the 2015 Sage-grouse Plans. In the event that BLM wants to address the potential for broader habitat adjustments, then the agency can conduct additional analysis to evaluate the impacts of increasing and reducing habitat within a larger area (i.e., greater than 3% of the identified habitat management area polygon), which could then be tiered to for later adjustments.

The Plans manage PHMAs as right-of-way "avoidance areas" instead of exclusion areas (See, e.g., Wyoming RMPA FEIS at 2-25), as recommended by their own experts. This prevents certainty of implementation by allowing new rights-of-way to be granted on a case-by-case basis. "Exclusion" is the appropriate level of management for these habitats based on the best available science, and this level of protection should also apply to Focal Areas and Winter Concentration Areas as well. Only portions of General Habitats would be managed as avoidance areas for rights-of-way based on other resource values (See, e.g., Wyoming RMPA FEIS at 2-26); the importance of protecting sage grouse habitat merits avoidance management for all General Habitats.

XII. HABITAT BOUNDARY ADJUSTMENTS SHOULD BE BASED ON BEST AVAILABLE SCIENCE AND DATA, AND MADE WITH FULL TRANSPARENCY. All the 2018 DEISs except for the Oregon DEIS include provisions for adjustment of sage-grouse habitat management boundaries.¹⁵⁰ We support transparent and consistent science-based efforts to ensure that any habitat management boundaries changes (1) represent the most available up-to-date and accurate information; and (2) do the most effective job possible of conserving sage-grouse habitat, and do not result in a meaningful decrease in the

current level of conservation provided by the 2015 sage-grouse land use plans. Moreover, boundary adjustments and complementary adjustments of related management prescriptions should only be made to reflect a changed understanding of the preferences of the species and/or data showing changed use and conditions of habitat; adjustments may not be made to accommodate a proposed use that might otherwise be prohibited or conditioned based on a different habitat classification. We recognize that some changes to boundaries will be so small that they do not require a plan amendment. Plain maintenance procedures are available to refine or clarify a previously approved decision. BLM's regulations and Land Use Planning Handbook provide that "land use plan decisions and supporting components can be maintained to reflect minor changes in data" but [m]aintenance is limited to further refining, documenting, or clarifying a previously approved decision incorporated in the plan."¹⁵¹ Examples of appropriate plan maintenance provided in the BLM Land Use Planning Handbook include "correcting minor data, typographical, mapping, or tabular data errors in the planning records after a plan or plan amendment has been completed" and "refining the known habitat of a special status species addressed in the plan based on new information."¹⁵² Such actions, which do not involve formal public involvement or NEPA analysis, should only be used for small boundary adjustments of an existing individual habitat management area. We propose that an adjustment (adding or subtracting acreage) comprising not more than 3% of an existing polygon would qualify as appropriate for a maintenance action.

1.3.10 Habitat Management Areas

All sage-grouse habitat must be subject to specific management approaches. While the strongest protections should continue to apply to the most important habitat, managing general habitat is also important for maintaining, improving, restoring and expanding habitat overall. Protections that were included in Sagebrush Focal Area designations should be incorporated into Priority Habitat Management Areas, where appropriate. The General Habitat Management Areas in Utah must be maintained; eliminating GHMA in Utah would hamper sage-grouse recovery in the state and have grave implications for habitat designations in other states. Similarly, proposals to remove management protections associated with GHMA in Idaho must not be adopted, since they effectively undercut the meaning of the habitat classification.

In addition, to meet the overall goals of the plans and habitat objectives to conserve, enhance and restore sage-grouse habitat, the plans should develop and incorporate specific restoration targets for PHMA to incentivize activities to reduce disturbance and the threat from noxious weeds.

1.3.11 Habitat Objectives

Specific habitat objectives for all aspects of the sage-grouse lifecycle should be defined, as discussed in the 2018 USGS report, which highlight the need to address the full range of sage-grouse habitat.

1.3.12 Lands and Realty

Sage-grouse habitat must be retained in federal ownership and not transferred to state control in order to maintain certainty of management across these lands, as well as habitat connectivity.

Sage-grouse habitat should be retained in federal ownership. The BLM's Scoping Report mentions the concerns of states such as Utah that maintaining sage-grouse habitat in federal ownership could affect the states' ability to develop land.⁶⁷ In fact, the Utah DEIS states: Increased potential for disposal and/or exchange of BLM-managed federal lands in [priority] and Greater Sage-Grouse habitat outside of

[priority areas] could possibly result in expanded economic opportunities in the affected location... Possible land uses include use for county and municipal physical facilities, commercial or residential development, and/or recreation use.⁶⁸ These uses are all identified as threats to sage-grouse habitat in the 2013 Conservation Objectives Team (COT) Report, which developed range-wide conservation objectives for sage-grouse that define the degree to which threats needed to be reduced or ameliorated to ensure that the species was no longer in danger of an ESA listing. ⁶⁹ It can be difficult under the standards proposed by BLM to determine if land disposal "will compromise" sage-grouse persistence, or have "no direct or indirect impact" on populations.⁷⁰ Retaining habitat in federal ownership helps ensure the land will be managed as prescribed in the BLM land use plans, providing certainty. It also will promote connectivity of sage-grouse populations.⁷¹ States have not committed to all the same management and approaches as BLM. Moreover, in some cases, such as for state trust lands, they are required to manage the lands to maximize revenues, which is likely inconsistent with conserving sage-grouse habitat. If there is a need to correct lands designated as sage-grouse habitat, we prefer it be accomplished through authorized habitat management boundary adjustments as provided for in the 2018 DEISs, consistent with our recommendations for how that process should be conducted. We also support the continued inclusion of provisions in the BLM plans that encourage acquisition of habitat where it will benefit sage-grouse populations.

VIII. KEEPING GROUSE HABITAT IN FEDERAL OWNERSHIP IS IMPORTANT FOR CONSISTENT MANAGEMENT AND CONNECTIVITY. The 2015 Utah sage-grouse land use plan provides that BLM cannot dispose of priority or general habitat, unless there are no impacts to sage-grouse or its habitat or there would be a net conservation gain to sagegrouse. The 2018 DEIS would change this provision to allow disposal if it improves the condition of sage-grouse habitat, or BLM can demonstrate disposal "will not compromise the persistence of Greater Sage-Grouse populations" within priority habitat. The 2015 Utah plans also support identifying areas where acquisitions or easements will benefit sage-grouse habitat, while the 2018 DEIS eliminates this provision.⁶⁵ Similarly, the Nevada DEIS also allows disposal of sage-grouse habitat if it would have "no direct or indirect adverse impact on conservation of the Greater Sage-Grouse or can achieve a net conservation gain through the use of compensatory mitigation."⁶⁶ We oppose these changes in the 2018 DEISs. Sage-grouse habitat should be retained in federal ownership. The BLM's Scoping Report mentions the concerns of states such as Utah that maintaining sage-grouse habitat in federal ownership could affect the states' ability to develop land.⁶⁷ In fact, the Utah DEIS states: Increased potential for disposal and/or exchange of BLM-managed federal lands in [priority] and Greater Sage-Grouse habitat outside of [priority areas] could possibly result in expanded economic opportunities in the affected location... Possible land uses include use for county and municipal physical facilities, commercial or residential development, and/or recreation use.⁶⁸ These uses are all identified as threats to sage-grouse habitat in the 2013 Conservation Objectives Team (COT) Report, which developed range-wide conservation objectives for sage-grouse that define the degree to which threats needed to be reduced or ameliorated to ensure that the species was no longer in danger of an ESA listing. ⁶⁹ It can be difficult under the standards proposed by BLM to determine if land disposal "will compromise" sage-grouse persistence, or have "no direct or indirect impact" on populations.⁷⁰ Retaining habitat in federal ownership helps ensure the land will be managed as prescribed in the BLM land use plans, providing certainty. It also will promote connectivity of sage-grouse populations.⁷¹ States have not committed to all the same management and approaches as BLM. Moreover, in some cases, such as for state trust lands, they are required to manage the lands to maximize revenues, which is likely inconsistent with conserving sage-grouse habitat. If there is a need to correct lands designated as sage-grouse habitat, we prefer it be accomplished through authorized habitat

management boundary adjustments as provided for in the 2018 DEISs, consistent with our recommendations for how that process should be conducted. We also support the continued inclusion of provisions in the BLM plans that encourage acquisition of habitat where it will benefit sage-grouse populations.

1.3.13 Lek Buffers

Prescribed buffer distances (both those limiting activities and those setting out areas for analyzing and addressing impacts) must be maintained to guide analysis of impacts and limit harm to habitat.

BLM and USFS may approve actions in PHMAs that are within the applicable lek buffer distance identified above only if the BLM or USFS determine that a buffer distance other than the distance identified above offers the same or greater level of protection to sage-grouse and its habitat. The BLM or USFS will make this determination based on best available science... For actions in GHMAs, the BLM and USFS will apply the lek buffer distances in Table 3 as required conservation measures to fully address any impacts to sage-grouse identified during the project-specific NEPA analysis. However, if it is not possible to locate or relocate the project outside of the applicable lek buffer distance(s) identified above, the BLM or USFS may approve the project only if: (1) Based on best available science, landscape features, and other existing protections, (e.g., land use allocations, State regulations), the BLM or USFS determine that a lek buffer distance other than the applicable distance identified above offers the same or a greater level of protection to sage-grouse and its habitat, including conservation of seasonal habitat outside of the analyzed buffer area; or (2) the BLM or USFS determines that impacts to sage-grouse and its habitat are minimized such that the project will cause minor or no new disturbance (e.g., co-location with existing authorizations); and (3) any residual impacts within the lek buffer distances are addressed through compensatory mitigation measures sufficient to ensure a net conservation gain, as outlined in the Mitigation Strategy (see below). By applying lek buffers in addition to other measures, the Federal Plans provide an additional layer of protection to the habitat in closest proximity to leks and the areas documented in the literature to be the most important for breeding and nest success.¹⁰⁰

If BLM is to move forward with eliminating the 1-mile leasing closure around sage grouse lek sites in favor of a No Surface Occupancy (NSO) stipulation, then it must be done in a manner that provides certainty for conservation outcomes. The draft plan provides opportunities for oil and gas operators to seek waivers, modifications, or exceptions (WME) for both the new NSO stipulation within 1-mile of a lek and new criteria for WMEs in priority habitat beyond that distance. Given the fact that the criteria for both stipulations is heavily predicated upon consultation with Colorado Parks and Wildlife and compensatory mitigation, then BLM must commit to requiring compensatory mitigation while also still adhering to the mitigation hierarchy, which prioritizes avoiding and minimizing impacts prior to mitigating.

On average, lek attendance was stable when no oil and gas development was present within 6,400m. However, attendance declined as development increased.⁴ For nesting habitat Zabihi et al. (2017) likewise found that avoidance of wellpads and access roads were the two most important factors predicting nest site selection. Importantly, Green et al. confirmed that declines in sage-grouse populations may continue even within Wyoming's "core areas," where density of wells is limited to approximately one pad per square mile. In addition, Kirol et al. (2015b) found that increases on coalbed methane wastewater ponds were correlated with decreased nest success in the Powder River Basin of Wyoming. To rectify these problems, BLM should impose, as terms of the Resource Management Plan,

Conditions of Approval on all existing fluid mineral leases consistent with the recommendations of the Sage-Grouse National Technical Team, including no new surface occupancy on existing federal leases (with exceptions for occupancy of no more than 3% outside a 4-mile lek buffer, if the entire leasehold is within such habitat).

To develop relevant and practical lek buffer distances for the BLM plans, DOI commissioned the U.S. Geological Survey to review the scientific information on conservation buffer distances for sage-grouse. The resulting study¹⁰¹ recommended there be 5 km (3.1 miles) between leks and infrastructure related to energy development.¹⁰² It is important to stress that this distance does not result in 100% protection for sage-grouse: [T]he minimum distance inferred here (5 km [3.1 miles]) from leks may be insufficient to protect nesting and other seasonal habitats. Based on the collective information reviewed for this study, conservation practices that address habitats falling within the interpreted distances may be expected to protect as much as 75 percent to 95 percent of local population's habitat utilization.¹⁰³ A recent Wyoming study suggests that current regulations may only be sufficient for limiting population declines but not for reversing these trends. That study also noted that areas not protected under the 100 Wyoming plans are not subject to core area regulations and may experience larger increases in oil and gas development and, therefore, larger declines in sage-grouse populations.¹⁰⁴ Other scientific input continues to stress the importance of buffers: ? 2016 Dahlgren study (UT): This study assesses distances between seasonal habitats to recommend buffer zones for conservation. Females and their broods from larger populations in contiguous sagebrush moved more than those in smaller, isolated populations, but small populations moved farther from leks to winter grounds. Distances from nests to leks were consistent with other research, but nest success slightly increased with distance from leks. Seasonal movements of Utah GRSG were generally lower than reported rangewide, likely because of fragmented sagebrush habitats. Management actions that increase the area of usable sagebrush may benefit Utah GRSG. Management plans can incorporate buffers based on, for example, observed distances between nests and leks to increase the conservation value of management actions. The authors recommended buffers of 5 and 8 kilometers between disturbed areas and GRSG breeding and summer habitats, respectively.¹⁰⁵ ? 2018 Holloran Letter (importance of 2015 protections): Recommending management approaches and objectives established in 2015 BLM sage-grouse land use plans be used as minimum standards in sagebrush habitat.¹⁰⁶ BLM's argument in support of the changes in Idaho, despite its acknowledgment that infrastructure and development would be allowed much closer to leks, is that there is very new development of infrastructure in Idaho in either priority or important habitat.¹⁰⁷ If that is the case, then there is no real need for the proposed change. BLM also asserts that disturbance from development is not the major threat to sage-grouse in Idaho. While that is true, it is still a threat, one that buffers are designed to avoid. The Utah and Nevada DEISs argue that the 2014 USGS Report acknowledges that because of differences in populations, habitats and other factors, there is no single buffer distance that is appropriate for all sagegrouse populations and habitats across the range, and that buffers are just one of a number of protections for sage-grouse.¹⁰⁸ The USGS Report acknowledges these points, and states that it attempted to take this variability into account in determining proper buffer distances, and notes that some studies have supported an 8 km buffer.¹⁰⁹ As a result, USGS thus ended up with a compromise standard that protects most, but not all, habitat. Given that FWS explicitly relied on buffers as one of the protections that allowed it to avoid listing sage-grouse, it would be a mistake to reduce these standards or vest greater discretion with the states to allow reductions.

X. BUFFERS AROUND LEKS SHOULD BE MAINTAINED. The Idaho DEIS proposes to weaken buffers around leks in important habitat management areas, and to eliminate them in general habitat. They also grant additional discretion to decrease or increase buffers generally.⁹⁶ Other DEISs also increase the degree of discretion afforded to decrease or increase⁹⁷ buffers.⁹⁸ Still other DEIS propose to provide "clarification" for lek buffers without stating what form that clarification would take.⁹⁹ We oppose any changes that would weaken the standard for buffers in the 2015 Sage-grouse Plans. The decision by the FWS not to list sage-grouse under the ESA noted the importance of buffers to sagegrouse protection, and their role in the decision not to list: Sage-grouse leks are communal breeding centers that are representative of the breeding and nesting habitats. Conservation of these areas is crucial to maintaining sage-grouse populations.

I.3.14 Mitigation

Overall, the plans must explicitly commit to maintaining the FWS "not warranted" decision. The purpose and need of the 2018 amendments to seek better cooperation with states by modifying the management approach in the plans must be reconciled and made consistent with the purpose and need of the 2015 Sage-grouse Plans to conserve, enhance, and restore sage-grouse habitat by eliminating or minimizing threats to their habitat identified in the FWS 2010 finding that listing under the ESA was warranted. Without ongoing conservation, enhancement and restoration of habitat, the already impacted habitat and risks of further harm that led to the FWS 2010 finding will not be sufficiently addressed in these plans to maintain the FWS 2015 finding that listing is no longer warranted.

Mitigation must be applied through the mitigation hierarchy (avoid, minimize, then compensate) and, at a minimum, apply a "no net loss" standard so that while a range of multiple uses continue, their impacts are addressed. Avoidance should include avoiding locating rights-of-ways in habitat. Mitigation programs must incorporate a set of recognized principles related to mitigation, and continue to provide for application of compensatory mitigation at greater than 1:1 ratios, where necessary to address factors such as the full suite of harms and the uncertainty of success for specific mitigation measures, including where state programs provide for such approaches. The 2015 Sagegrouse Plans were premised on the understanding that ongoing activities in habitat would result in ongoing damage to habitat, so that opportunities to enhance and expand habitat must be provided in order for the species to ultimately survive.

Mitigation is a well-established tool that was relied upon in the 2015 Fish and Wildlife Service decision to support the decision to not list the Greater Sage-Grouse as threatened or endangered under the Endangered Species Act. The practice of "mitigation" is based on two common-sense principles: (1) certain activities are more appropriate in some locations than others; and (2) we should clean up after ourselves as we conduct activities that damage the landscape. The simplest definition of mitigation is "the action of reducing the severity, seriousness, or painfulness of something." Mitigation "done right" involves smart planning, efficient and effective decision-making, and predictability for project proponents, as well as a multitude of other stakeholder interests, and can result in positive outcomes for all - the public, communities, businesses, and the environment. The widely accepted mitigation hierarchy is a step-wise framework for evaluating proposed impacts that first acknowledges that the best way to address impacts from development on the most important habitat is to avoid those impacts in the first place. Some places are just too important to develop, or measures to minimize and/or compensate impacts may not be available or effective. Consider the wintering areas for sage-grouse. Several recent studies have confirmed the importance of ensuring conservation of sufficient amounts of these

habitats.¹¹² The next step in the hierarchy is to minimize impacts. A project developer should employ a wide range of actions to avoid as much disturbance as possible to wildlife in the area. For example, markers work to prevent fence-related mortality or injury that can occur when sage-grouse fly low to the ground over sagebrush range.¹¹³ If unavoidable impacts occur, the third and final step in the mitigation hierarchy is to compensate for the loss by creating, restoring, enhancing, or preserving habitat elsewhere. This might involve securing a conservation easement on private land or restoring nearby habitat with treatments designed to improve conditions for the affected species overall. Compensatory mitigation for a new road system or transmission line in sagebrush habitat could involve, for example, payments by the developer to reconvert farmland in central Montana that have pushed out sage species' preferred cover back to native sagebrush habitat. Thus, in its most basic sense, mitigation policy is truly about good governance. Sound mitigation policy provides agencies such as BLM with a structured, rational, and transparent framework for reviewing use requests and meeting their multiple use and sustained yield mandates. When agencies frontload their planning and provide the public and applicants with information in advance about where development should and should not go, they are empowered to make faster, better decisions. Potential conflicts between conservation and development are reduced when developers know in advance what areas should be avoided. Good mitigation policy and practice is also one of the best opportunities to achieve sustainable development and conservation goals. Projects, even those with relatively small footprints, can pose significant impacts to migratory wildlife. Avoidance of the most important places offers the best way to support a Western landscape where species can thrive. Where impacts cannot be avoided or minimized, well-designed compensatory mitigation programs can achieve the multiple-use, sustained yield objectives of BLM and other federal agencies.

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,"¹³⁵ 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.¹³⁶ This general authority also confers broad discretion on BLM to impose mitigation requirements on project applicants, including compensatory mitigation in appropriate circumstances.¹³⁷ 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."¹³⁸ 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*, 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.")

As noted above, there has been a great deal of concern surrounding the BLM's authority to apply a net conservation benefit standard for sage grouse. Regardless of the standard employed, it is most important that there be a high level of certainty that direct, indirect, and cumulative impacts of infrastructure

development will be offset with high quality, durable, timely, and additional compensatory mitigation projects. High quality compensatory mitigation projects are guided by mitigation programs that appropriately account for the magnitude, extent and duration of impacts, characterize the benefits of compensatory mitigation projects, and ensure that compensatory mitigation projects are durable. We support compensatory mitigation programs that seek to achieve a "reasonable relationship" between impacts and compensatory mitigation and adequately account for habitat quality, temporal losses, and risk of project failure. The 2016 Work Group Mitigation Report states that for compensatory mitigation programs to adequately address residual impacts, they should "provide habitat values, services and functions that bear a reasonable relationship to the lost values, service and functions for which mitigation is required".¹⁴⁸ There are large variations in the quality of habitat for sage-grouse, and a significant likelihood of failure of restoration of habitat due to catastrophic fire events and the current low success rates of restoration.¹⁴⁹ Recognizing these issues, most state sage-grouse mitigation programs, such as Nevada, address the variation in habitat quality by including measures of habitat functionality and using adjustment factors to account for the risk of failure and temporal loss. If habitat functionality is considered, state agencies can use a ratio-based estimate, adjusted to include consideration of factors such as likelihood of success and temporal loss of functions. Compensatory mitigation programs need not rely upon overly complicated measures - they must be defensible but need not be overly precise.

BLM has ample authority to apply the full mitigation hierarchy in the sage-grouse plans. FLPMA directs that public lands to be managed 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.¹²⁰ This direction guides every significant aspect of the management of public lands under FLPMA, including the development of land management plans,¹²¹ project-specific authorizations for the use, occupancy, development of public lands,¹²² the granting of rights of way on public lands,¹²³ and the promulgation of regulations to implement each of these authorities.¹²⁴ 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.¹²⁵ 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.

Beside the principles of FLPMA and its multiple use/sustained yield standards, individual provisions of that Act confer additional authority on BLM to apply the mitigation hierarchy. In the section on land use plans, for example, FLPMA obliges BLM to consider environmental values, such as fish and wildlife like the sage grouse, in the development of such plans.¹³³ More particularly, BLM must also "consider the relative scarcity of the values involved and the availability of alternative means...and sites for realization of those values".¹³⁴ Sage-grouse habitat is a wildlife value with relative scarcity, as evidenced by the Fish and Wildlife Service's consideration of the species for listing under the ESA, its designation as a special status species by BLM, and its active management by numerous Western states. In the process of developing land use plans which account for this important and relatively scarce species, BLM can provide for the use of "alternative sites" in appropriate instances, thereby resulting in avoidance. Similarly, BLM can specify "alternative means," which can include minimization as well as compensatory mitigation under appropriate circumstances. In short, resources designated as "special" by BLM should

be managed through a resource goal that may necessitate compensatory mitigation actions, as appropriate.

BLM has the authority to incorporate, implement, and enforce state sage-grouse mitigation programs that meet a recognized set of principles. The 2015 Records of Decision for Greater sage-grouse included a commitment to develop compensatory mitigation strategies in each sage-grouse management zone.¹⁴² As the 2015 land use plans were completed and implementation efforts began, however, several states had already completed or had begun efforts to develop compensatory mitigation strategies to implement GRSG conservation measures on state and private lands. It thus became apparent that developing federal mitigation strategies for each management zone would be redundant and could, in fact, create conflicts between state and federal mitigation strategies. This recognition led to the establishment of the Greater Sage-Grouse Mitigation Work Group (2016 Work Group Mitigation Report), and its charge to identify key principles for compensatory mitigation strategies as well as mechanisms to support and institutionalize collaborative state and federal GRSG mitigation efforts.¹⁴³ The 2018 DEISs state that the purpose of the Work Group was "to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and/or conservation measures and DOI and BLM policy."¹⁴⁴ The DEISs also state that, "The BLM will work to be consistent with or complementary to the management actions in [state] plans whenever possible."¹⁴⁵ Given BLM's broad authority to adopt and impose mitigation to protect sage-grouse, at a minimum, BLM certainly can act to adopt, implement and enforce the state mitigation programs for use on federal land. In doing so, it is critical to ensure that the state mitigation programs employed by BLM follow commonly recognized principles, such as those laid out by The Nature Conservancy in its 2015 report, *Achieving Conservation and Development: Applying the Mitigation Hierarchy* (2015 TNC Report).¹⁴⁶ These principles include: application of the mitigation hierarchy in a landscape context; policy goals that support conservation and drive accountability; inclusion of stakeholder engagement practices; long-term, durable options; additionality, equivalence, and protection against temporal losses.¹⁴⁷ We support efforts of the states to experiment with different mitigation approaches, if their programs and those of the Department, meet the defined principles. The fact that the state programs differ from each other is not necessarily a concern; in fact, variation can often result in good management outcomes, enabling programs to be tailored to the needs of each state, as well as allowing states to experiment and determine which approaches are most effective. We thus support the Department providing minimum principles, consistent with the 2015 TNC Report, that all state programs must meet, and allowing states to exceed those principles if they choose to do so.

FLPMA also directs the Secretary to "manage the public lands under principles of multiple use and sustained yield".¹²⁶ The principles of multiple use and sustained yield pervade and underpin each of BLM's authorities under FLPMA, including the policies governing the Act,¹²⁷ the development of land use plans,¹²⁸ the authorization of specific projects,¹²⁹ and the granting of rights of way.¹³⁰ Multiple use means, among other things: the management of public lands...so that they are utilized in the combinations that will best meet the present and future needs of the American people; ... a combination of balanced and diverse resource uses that takes into account the long term needs of future generations for renewable and nonrenewable resources, including...range, ... watershed, wildlife and fish...; and harmonious and coordinated management of the various resources without permanent impairment of...the quality of the environment...¹³¹ Sustained yield means "the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the public lands".¹³² Sage-grouse is certainly one of the wildlife resources to be protected

under the multiple use standard, and it is a resource whose annual and periodic output is to be achieved and maintained in perpetuity under the sustained yield standard. To protect the present and long-term use of the public land for "fish and wildlife" "without impairment of the quality of the environment," BLM has the authority to apply the mitigation hierarchy for sage grouse, including compensatory mitigation in appropriate circumstances. Thus, BLM has additional, clear authority to use the mitigation hierarchy in its land use plans for the protection of the sage-grouse and its habitat. Case law confirms that multiple use/sustained yield principles do "not mandate that every use be accommodated on every piece of land; rather, delicate balancing is required." *New Mexico ex rel. Richardson v. BLM*, 565 F.3d 683, 710 (10th Cir. 2009). The mitigation hierarchy, including compensatory mitigation, provides an important tool for achieving a balance among the multiple uses allowed on public lands. BLM can authorize a consumptive use, like oil and gas development, but balance that use by providing compensatory mitigation for the unavoidable losses suffered by the fish and wildlife. In other words, the mitigation hierarchy can have the effect of expediting and defending authorized consumptive uses of the public lands while simultaneously protecting fish and wildlife resource values in perpetuity.

Good mitigation policy and practice is also one of the best opportunities to achieve sustainable development and conservation goals. Projects, even those with relatively small footprints, can pose significant impacts to migratory wildlife. Avoidance of the most important places offers the best way to support a Western landscape where species can thrive. Where impacts cannot be avoided or minimized, well-designed compensatory mitigation programs can achieve the multiple-use, sustained yield objectives of BLM and other federal agencies. Governments, businesses, and local communities are increasingly acting to improve mitigation policy and practice. This is shown by the following: ? 56 countries have or are developing national mitigation policies that require offsets or enable the use of offsets, with most of these policies developed over the past decade. ? Multi-lateral and private sector financial institutions are requiring projects they finance to avoid, minimize, and compensate for biodiversity impacts in accordance with new performance standards. This includes requirements for project developers to avoid impacts to "critical habitat." ? A 2015 analysis of the economic contribution of mitigation determined that the domestic ecological restoration sector directly employs approximately 126,000 workers nationwide and generates \$9.5 billion in economic output (sales) annually, with an additional 95,000 jobs and \$15 billion in economic output through indirect (business-to business) linkages and increased household spending.

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In 2015, in its ESA listing decision, the Fish and Wildlife Service (FWS) found that "the greater sage-grouse is not in danger of extinction now or in the foreseeable future throughout all or a significant portion of its range and that listing the species is no longer warranted." The Service's finding was based

not on the stability of the species' population, but rather on the "adequacy of regulatory mechanisms and conservation efforts".¹⁴ Mitigation - avoidance, minimization and, where appropriate, compensatory mitigation - was an essential regulatory and conservation tool that supported this decision. Specifically, the FWS stated: All of the Federal Plans require that impacts to sage-grouse habitats are mitigated and that compensatory mitigation provides a net conservation gain to the species. All mitigation will be achieved by avoiding, minimizing, and compensating for impacts following the regulations from the White House Council on Environmental Quality (e.g., avoid, minimize, and compensate), hereafter referred to as the mitigation hierarchy. If impacts from BLM/USFS management actions and authorized third party actions that result in habitat loss and degradation remain after applying avoidance and minimization measures (i.e., residual impacts), then compensatory mitigation projects will be used to provide a net conservation gain to the species. Any compensatory mitigation will be durable, timely, and in addition to that which would have resulted without the compensatory mitigation.¹⁵ The decision outlines the efforts states have made to utilize regulatory mechanisms to address threats to the species, noting that the Wyoming state program "features development stipulations to guide and regulate development within the Core Population Areas to avoid as much as possible, but, if avoidance is not possible, to minimize and mitigate, impacts to sage-grouse and its habitat."¹⁶ The Service then concluded, "Requiring mitigation for residual impacts provides additional certainty that, while impacts will continue at reduced levels on Federal lands, those impacts will be offset".¹⁷ Each of the seven states with significant sage-grouse populations has by now either completed or is working on establishing a mitigation program for sage-grouse. Barrick Gold and the Department of the Interior have also signed a separate agreement to create the Barrick Nevada Sage-Grouse Bank in northern Nevada, creating incentives for Barrick to voluntarily protect, restore and enhance sagebrush ecosystems for the benefit of sage-grouse, while allowing the company to conduct mining activities on other BLM land.¹⁸ Last August, the Department of the Interior (DOI) Sage-Grouse Review Team Report, commissioned by Secretary Zinke, concluded that state and federal mitigation programs were an important and critical tool to preclude an ESA listing, noting that both DOI and the states agree on this point.¹⁹ The 2015 BLM sage-grouse plans not only employ the mitigation hierarchy as a regulatory and conservation tool to preclude listing, but the listing decision is, in part, also based on the promise of the protections and conservation measures that implementation would deliver.

In addition, BLM should have the policy prescriptions and tools available to allow for compensatory mitigation on public lands to offset private or public activities. Impacts to key sage-grouse habitat located on private land, particularly in states such as Nevada, often necessitate the need for compensatory mitigation on public lands, given the limited availability of private land for use as offsets. Maintaining this capability will be critical to conservation success. Last, but far from least, providing agency field staff with training is an important mechanism to accelerate permitting and project review. By committing resources to training field staff, BLM could increase the technical capacity of local staff to implement mitigation policies effectively and do so consistently across field offices. Providing clear direction to project proponents on how the agencies will make avoidance, minimization and compensatory mitigation decisions can help streamline project review and accelerate project approval.

In doing so, it is critical to ensure that the state mitigation programs employed by BLM follow commonly recognized principles, such as those laid out by The Nature Conservancy in its 2015 report, *Achieving Conservation and Development: Applying the Mitigation Hierarchy* (2015 TNC Report).⁴⁶ These principles include: application of the mitigation hierarchy in a landscape context; policy goals that support conservation and drive accountability; inclusion of stakeholder engagement practices; long-term,

durable options; additionality, equivalence, and protection against temporal losses.¹⁴⁷ We support efforts of the states to experiment with different mitigation approaches, if their programs and those of the Department, meet the defined principles. The fact that the state programs differ from each other is not necessarily a concern; in fact, variation can often result in good management outcomes, enabling programs to be tailored to the needs of each state, as well as allowing states to experiment and determine which approaches are most effective. We thus support the Department providing minimum principles, consistent with the 2015 TNC Report, that all state programs must meet, and allowing states to exceed those principles if they choose to do so.

It has recently been argued by several states that BLM may only use compensatory mitigation to prevent "unnecessary or undue degradation". Under this view, where the impacts of a proposed activity have not been demonstrated to rise to the level of "unnecessary or undue degradation," any authorization of that activity which requires either net benefit or no net loss for the actual impacts would violate FLPMA. The unnecessary or undue degradation standard, however, is just a minimum standard for BLM's land management policy; it does not restrain BLM's discretion to adopt or require mitigation in circumstances that do not rise to the level of "undue or unnecessary degradation" or to implement a higher mitigation standard. As explained above, BLM has numerous authorities supporting its use of mitigation more generally, including the policies and principles underlying FLPMA, the foundational multiple use, sustained yield standard, the authority to promulgate regulations, and the specific authorities applicable to land use plans and project-specific authorizations. This point was confirmed in *Western Exploration, LLC v. U.S. Department of the Interior*.¹³⁹ 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... In sum, Plaintiffs fail to establish that BLM's challenged decisions under FLPMA are arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.¹⁴⁰ Both FLPMA and the case law thus establish that BLM has ample discretion to go beyond the prevention of unnecessary or undue degradation to seek compensatory mitigation that will meet "the long-term needs of future generations for renewable and non-renewable resources, including, but not limited to, . . . wildlife and . . . natural scenic, scientific and historical values."¹⁴¹ None of these authorities distinguish between avoidance, minimization, and compensatory mitigation or prohibit or circumscribe compensatory mitigation; rather, the authorities are broad and support the use of each aspect of mitigation in appropriate circumstances. BLM's obligations, discretion and authority are particularly important in coordinating with states, especially where states lack ownership or authority to carry out needed mitigation.

XI. MITIGATION IS AN IMPORTANT PART OF FEDERAL AND STATE EFFORTS, AND MUST BE MAINTAINED. Each of the DEISs contains similar language requesting comments on how the Bureau of Land Management (BLM) should consider and implement sage-grouse mitigation: The DOI and the BLM

have 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 are evaluating whether the implementation of a compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities. We request 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.¹¹⁰ For some states, such as Idaho, Utah, and Wyoming, the DEIS also removed the requirement of a net conservation gain standard for their mitigation programs.¹¹¹ Overall: 1. Mitigation (avoidance, minimization, and compensation) as adopted in the 2015 BLM land use plans is an effective and well-established tool that the Fish and Wildlife Service relied upon to support its decision not to list the Greater Sage-Grouse as threatened or endangered under the ESA. Sound mitigation policy provides agencies such as BLM with a structured, rational, and transparent framework for reviewing use requests and meeting their multiple use and sustained yield mandates. The 2015 BLM sage-grouse plans employed the mitigation hierarchy to help reach their goal of protecting sage-grouse while also allowing multiple uses to proceed by ensuring that associated impacts to habitat are fully offset. 2. BLM has ample authority to apply the full mitigation hierarchy in the sage-grouse plans. Both FLPMA and case law provide BLM the discretion to seek compensatory mitigation to protect sage-grouse. 3. BLM has the authority to incorporate, implement, and enforce state sage-grouse mitigation programs that meet a recognized set of principles. We recommend that these principles should be consistent with those laid out by The Nature Conservancy in its 2015 report, *Achieving Conservation and Development: Applying the Mitigation Hierarchy*. In addition, we support compensatory mitigation programs that seek to achieve a "reasonable relationship" between impacts and compensatory mitigation and adequately account for habitat quality, temporal losses, and risk of project failure. The amount and type of compensatory mitigation should be proportional to, and have a reasonable relationship to, direct and indirect impacts.

1.3.15 Modifying Waivers, Exceptions, and Modifications of Fluid Minerals

As an example, the general approach conditions included in the Draft Colorado RMP Amendment related to no surface occupancy stipulations are more specific and include public engagement. * Waivers are permitted if the area lacks "protected attributes" - as determined through coordination with Colorado Parks and Wildlife and following a 30-day public notice/comment period * Modifications and exceptions are permitted if: (1) impacts are fully offset by compensatory mitigation; or (2) no impacts to greater sage-grouse would occur because of terrain or habitat type - but can only be applied after consultation with Colorado Parks and Wildlife. CO Draft RMP Amendment/EIS, pp. 2-4 - 2-5. Overall, one-time exceptions should be the preferred approach where relief is sought from protective stipulations, such that the safeguards prescribed in these stipulations will remain in place for the majority of oil and gas leases. Waivers, exceptions and modifications should only be granted from no surface occupancy (NSO) stipulations or any stipulations in PHMA after a 30-day public notice and comment period. Further, the U.S. Fish and Wildlife Service should have the opportunity to submit information for consideration prior to granting waivers, exceptions and modifications. Finally, it is critical that BLM track waivers, exceptions and modifications requested and those granted, and make that information available to the public. These records will provide important insight into how the stipulations are being applied and the potential impact of waivers, exceptions and modifications on the overall function of the plans. This information will also allow BLM to determine if the availability of or criteria for granting waivers, exceptions and modifications needs to be further narrowed in order to ensure sufficient protection for sage-grouse habitat. Accordingly, we recommend that each plan include language that provides:

Exceptions will be considered prior to considering waivers or modifications. If the BLM determines that a waiver or modification is more appropriate, the reasons for such decisions will be documented. Waivers are permitted if the area lacks "protected attributes" - as determined through coordination with the appropriate state wildlife agency. Modifications and exceptions are permitted if: (1) impacts are fully and verifiably offset by compensatory mitigation; or (2) there are no impacts to greater sage-grouse because of terrain or habitat type, based on consultation with the applicable state wildlife agency. Prior to granting any waivers, exceptions and modifications, BLM will insure that the U.S. Fish and Wildlife Service has the opportunity to submit information for consideration. For no surface occupancy stipulations or stipulations in Priority Habitat Management Areas, waivers exceptions and modifications will only be granted following a 30-day public notice and comment period. BLM will maintain an ongoing record of requests for waivers, exceptions and modifications and whether those requests are granted, and will publish those cumulative results on a quarterly basis.

V. RECOMMENDED APPROACH TO WAIVERS, EXCEPTIONS AND MODIFICATION TO OIL AND GAS LEASE STIPULATIONS. The 2015 Sage-grouse Plans include numerous oil and gas lease stipulations that apply to development in order to protect sage-grouse and sage-grouse habitat, including no surface occupancy stipulations, timing limitations and surface use limitations. The draft amendments and EISs also rely on lease stipulations. However, the protections actually provided by the stipulations are only reliable and effective to the extent that the safeguards are applied. Waivers (permanent exemption that applies to the entire leasehold), exceptions (one-time exemption for a particular site within the leasehold) and modifications (change to the lease stipulation, either temporarily or for the term of the lease, can apply to the entire leasehold or certain areas) all permit an operator to avoid compliance with the requirements of a stipulation. Where these loopholes are permitted and used, the protections that the stipulations are supposed to provide can be undermined. Recent studies confirm that oil and gas development can harm both sage-grouse habitat and lifecycle activities, such as breeding.⁴⁶ Consequently, it is vital that protections associated with oil and gas development are reliably applied and, as a result, that waivers, exceptions and modifications are not broadly used to weaken those protections. While we can accept narrowly prescribed waivers, exceptions and modifications to lease stipulations that are based on very specific criteria, broad standards, such as those currently included in the Nevada Draft RMP Amendment/EIS are not acceptable.

1.3.16 Noise Management Outside of PHMA

Comment: 2 Document: CH 3 - Affected Environment 3.11 Noise 3.11.5 Page Number: 3-95 Line Number: 14 Local studies conducted for the PAPA found existing ambient sound levels (L50) at four locations throughout the Upper Green River area for hours important to greater sage-grouse lek behavior (1800-0800) were 19.9 dBA, 14.8 dBA, 14.3 dBA, and 14.5 dBA. The median L50 for all 1800-0800 hours at all sites was 15.4 dBA.

Comment: 5 Document: CH 3 - Affected Environment 3.11 Noise 3.11.5.3 Page Number: 3-97 Line Number: 1-16 The discussion including the BLM Wyoming sage-Grouse RMP Amendments should include Appendix C, Required Design Features identifying ambient measures as 20-24 dBA at sunrise at the perimeter of a lek during active lek season.

Comment: 7 Document: CH 2 -Alternatives 2.4.3 Greater Sagegrouse habitat management Page Number: 2-8 Line Number: 25-27 Noise protocols for Wyoming have been developed and should be required (Ambrose and MacDonald 2015. Review of sound level measurements in Wyoming relative to

greater sage grouse and recommended protocol for future measurements) Management of noise should include but not be limited to, timing restrictions during lekking, nesting and brood rearing season, and design features that include; siting facilities outside of grouse priority habitat or placed to take advantage of topography, application of sound blankets and or sound walls, use of mufflers, and reducing traffic noise through controlled traffic patterns and restricting travel hours to between 8 am and 6 pm within 2 miles of the perimeter of a lek.

Comment:3 Document: CH 3 - Affected Environment 3.1.1 Noise 3.1.1.5.2 Page Number: 3-95 Line Number: 27 We are concerned for the validity of the noise data provided for this project as the microphone height was reported as being 2.43 meters (8 feet) above the ground. Protocols for noise monitoring were established for the Pinedale Field Office, Pinedale Anticline Project Area which requires a microphone height of 0.3 m (1 foot) to address the influence of wind on sound measurement.

Comment:4 Document: CH 3 - Affected Environment 3.1.1 Noise 3.1.1.5.2 Page Number: 3-96 Line Number:2-7 An evaluation of sound level studies was conducted for WGFD which looked at noise data collected throughout Wyoming (Ambrose, S. and J. MacDonald, 2015. Review of Sound Level Measurements in Wyoming Relative to Greater Sage-grouse and Recommended Protocol for Future Measurements.) The authors recommended microphones be placed 1 foot from the ground (0.30 m) to more accurately reflect sounds experienced by the bird. They also found wind to have a clear influence on dBA data and metrics; the higher the wind speed, the higher the dBA levels "As wind speed increased, dBA levels increased, regardless of microphone height; however, dBA levels at 1.5 m were significantly higher than dBA levels at 0.3 m (up to 8.7 dBA higher). What these data indicate is that at a microphone height of 0.3 m, the increase in dBA level was due to sounds of wind through vegetation. The report goes on to say, "Sounds due to wind are of two types: natural sounds, such as leaves rustling and the sound of wind through vegetation, and wind-induced equipment sounds, such as turbulence over the diaphragm of the microphone, wind hitting the foam wind screen, wind causing the microphone tripod to move, or wind sounds through cables securing the tripod. Wind-induced equipment sounds are not part of the acoustic environment, but rather an artifact of data collection. Such data should not be included in analysis. "We are concerned for the validity of the noise data provided for this project as the microphone height was reported as being 2.43 meters (8 feet) above the ground. Also, no monitoring data was excluded from the analysis even though three of the microphones were found tipped over due to wind. This would suggest the data is flawed as the influence of noise and equipment falling over are not legitimate sounds of the environment, but artifacts of wind-equipment interaction.

Comment:6 Document: CH 3 - Affected Environment 3.1.1 Noise 3.1.1.5.3 Page Number: 3-99 Line Number:1-8 Minimum L50 values reported for the monitoring sites were elevated due to the microphone height being at 8 feet from the ground and tipping over resulting in additive influence from wind. The single average L50 value of 25 dBA recommended to characterize the ambient noise level at the perimeter of lek location in the NPL Project EIS is flawed. By comparison, within the PAPA (an active gas field) the median L50 dBA for all hours at all leks for the years 2013-2015 was 26.0 dBA (range 17.5-36.9). Additionally, monitoring noise impacts in the PAPA has revealed lek declines for all leks exposed noise > 26 dBA from the perimeter of a lek.

Comment: 1 Document: CH 3 - Affected Environment 3.1.1 Noise Page Number: 3-89 through 3-99 This section proposes to evaluate existing sound levels within the proposed project area to adequately assess noise-related impacts from the proposed action. The data was collected in 2012 and likely does

not represent sound levels found in the project area today. Six of the 10 leks within the proposed project area are showing declining trends without the addition of this project activity. This suggests there are already impacts to sage grouse from existing anthropogenic activities. Four of the leks showing declining trends are within a Core area for sage grouse. This project evaluation drew comparisons from a study conducted in Lander WY. To adequately assess the noise-related impacts of the NPL Project, it would be appropriate to incorporate local baseline data. Such data was collected for the adjacent Pinedale Anticline Project Area (PAPA) and should be included in this project evaluation. Noise level data has been collected throughout the Upper Green River Valley since 2009. This information is available from published reports on the BLM PAPO web page (<http://www.wy.blm.gov/jio-papo/>). Instead the analysis drew comparisons only to a study conducted in Lander WY.

1.3.17 Preferred Alternative

Proposed Alternative to Maintain the "Not Warranted" Finding The 2015 Sage-grouse Plans were the basis for the U.S. Fish and Wildlife Service (FWS) finding that listing the greater sage-grouse under the Endangered Species Act (ESA) is no longer warranted. This decision was based on a determination that the plans provide sufficient certainty regarding their implementation and effectiveness and must not be threatened by this amendment process. The surest way to maintain the not warranted decision would be to maintain the current 2015 Sage-grouse Plans by adopting the "no action" alternative in this amendment process, which would still provide sufficient flexibility to adapt through implementation. However, recent instruction memoranda and policy changes (such as rescinding guidance on mitigation) that alter implementation of the 2015 plans are already undermining their effectiveness. The changes to the 2015 plans that are currently under review further jeopardize the structure and function of the plans and, as a result, risk the important protections that safeguard habitat and support FWS's not warranted finding. The collaborative work that went into creating the original plans should be honored. To the extent that DOI and BLM are committed to making some changes to the plans while also maintaining necessary protections to justify the Fish and Wildlife Service's finding, this proposed alternative highlights key elements to be incorporated in the plans, including maintaining current provisions and clarifying or improving others. This alternative is further supported by the 2018 U.S. Geological Survey report (<https://doi.org/10.3133/ofr20181017>), which found that research since 2015 reinforces the science underlying the structure and function of the 2015 Sage-grouse Plans. The following describes the key elements of our recommended alternative. Additional detail regarding implementation of the elements is available in technical comments.

The surest way to maintain the not warranted decision would be to maintain the current 2015 Sage-grouse Plans by adopting the "no action" alternative in this amendment process, which would still provide sufficient flexibility to adapt through implementation. However, recent instruction memoranda and policy changes (such as rescinding guidance on mitigation) that alter implementation of the 2015 plans are already undermining their effectiveness. The changes to the 2015 plans that are currently under review further jeopardize the structure and function of the plans and, as a result, risk the important protections that safeguard habitat and support FWS's not warranted finding. The collaborative work that went into creating the original plans should be honored. To the extent that DOI and BLM are committed to making some changes to the plans while also maintaining necessary protections to justify the Fish and Wildlife Service's finding, this proposed alternative highlights key elements to be incorporated in the plans, including maintaining current provisions and clarifying or improving others. This alternative is further supported by the 2018 U.S. Geological Survey report

(<https://doi.org/10.3133/ofr20181017>), which found that research since 2015 reinforces the science underlying the structure and function of the 2015 Sage-grouse Plans.

1.3.18 Prioritization of Mineral Leasing

The requirement to prioritize oil and gas leasing and development outside of sage-grouse habitats must be maintained and clarified so that it is a meaningful tool to reduce habitat destruction and fragmentation. Prioritization should be based on analyzing factors such as the condition of habitat and oil and gas potential to make informed decisions about when the best approach would be to prioritize other proposed lease or permits, or even defer leasing or phase development in order to ensure habitat is protected.

In order to ensure adequate conservation of sage-grouse and sage-grouse habitat, prioritization of oil and gas leasing and development cannot be based solely on whether BLM has sufficient resources to process leasing nominations or applications for permits to drill in sage-grouse habitat. Rather, there must be a thorough consideration of opportunities to protect habitat. These opportunities include deferring proposed leasing that would unnecessarily harm habitat or where leasing is not the best use of agency resources (both internal resources and in terms of allocating our public lands), such as where there is low or no potential for leasing, high quality habitat and no surrounding infrastructure or development. BLM is not obligated to lease every parcel that is proposed nor is there a requirement that any deferral be replaced with another parcel to somehow maintain the same number of parcels or acres up for lease. See, e.g., *New Mexico ex. rel. Richardson v. BLM*, 565 F.3d 683, 710 (10th Cir. 2009) ("It is past doubt that the principle of multiple use does not require BLM to prioritize development over other uses."). Rather, the agency can take into account relevant factors and the importance of conserving grouse habitat to meaningfully prioritize leasing where it is most appropriate and least harmful to sage-grouse habitat. The impact such factors could have on leasing decisions is demonstrated by the map below, which shows the distribution of proposed lease sale parcels for the December 2018 sale in sage-grouse habitat in the Kremmling (Colorado) Field Office: [SEE ATTACHMENT PG 28] Explicitly considering the value of habitat and the potential for actual energy production would unquestionably help the agency prioritize the right parcels for leasing.

RECOMMENDED APPROACH TO PRIORITIZING OIL AND GAS LEASING AND DEVELOPMENT OUTSIDE SAGE-GROUSE HABITAT. The 2015 Sage-grouse Plans are clear as to the need for prioritizing oil and gas leasing and drilling outside sage-grouse habitat and the desired effect of related actions. From the Rocky Mountain Record of Decision (p. 1-25): . . . the ARMPs and ARMPAs prioritize oil and gas leasing and development outside of identified PHMAs and GHMAs. This is to further limit future surface disturbance and encourage new development in areas that would not conflict with GRSG. This objective is intended to guide development to lower conflict areas and as such protect important habitat and reduce the time and cost associated with oil and gas leasing development by avoiding sensitive areas, reducing the complexity of environmental review and analysis of potential impacts on sensitive species, and decreasing the need for compensatory mitigation. The Rocky Mountain ROD also identifies prioritizing oil and gas leasing and development outside habitat as a "key component" and a "key management response" (pp. 1-18 - 1-19). The Buffalo Field Office ARMP/ROD (p. 50) and Wyoming 9-Plan ARMPA (p. 24) echo this directive, including the following objective: Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of Greater Sage-Grouse habitat. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in priority habitat (core population areas and core population connectivity

corridors) and general habitat, 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. (emphasis added). The inter-agency, expert Conservation Objectives Team (COT) Report confirms the need to prioritize development outside habitat, finding that: Sage-grouse populations can be significantly reduced, and in some cases locally extirpated, by non-renewable energy development activities, even when mitigative measures are implemented (Walker et al. 2007). The persistent and increasing demand for energy resources is resulting in their continued development within sage-grouse range, and may cause further habitat fragmentation. . . . Both non-renewable and renewable energy developments are increasing within the range of sage-grouse, and this growth is likely to continue given current and projected demands for energy.⁴⁴ As a result, the COT Report recommended the following objective for energy development: "Energy development should be designed to ensure that it will not impinge upon stable or increasing sage-grouse population trends."⁴⁵

Prioritization for Leasing BLM has used specific factors to guide prioritization of leasing outside sage-grouse habitat. For instance, in assessing the December 2017 lease sale for the Vernal Field Office (https://eplanning.blm.gov/epl-frontoffice/projects/nepa/80165/130450/158729/Final_Vernal_EA.pdf), BLM created a chart evaluating how certain prioritization considerations applied to parcels (existing lease, existing unit, field-EIS, high gas potential, high oil potential), completed site visits to confirm conditions on the ground, and then only included parcels in the lease sale that met the majority of the factors. We propose that the BLM use the following factors: * Intactness/quality of habitat - classification of habitat (i.e., priority, important, general); quality of habitat; importance for connectivity or seasonal habitat * Population trends in applicable zone or biologically significant unit * Distance from existing disturbance * Distance from existing infrastructure - roads, well pads, pipelines * Need for additional infrastructure - estimated surface disturbance * Adjacent to existing lease - yes/no/proximity * Within existing oil and gas unit * Within existing master leasing plan * Oil potential - none, low, moderate, high * Natural gas potential - none, low, moderate, high BLM will conduct site visits to confirm conclusions, as needed. Decisions to include nominated lease parcels in sage-grouse habitat in lease sales will be based on the following evaluation of factors: - Parcels that do not have moderate or high potential should not be offered. - Parcels that have high quality habitat, are not in proximity to existing disturbance and/or require additional infrastructure to be developed should not be offered. - Parcels that are in close proximity to existing disturbance and infrastructure, and are already within an existing oil and gas unit or master leasing plan that has been analyzed in an environmental impact statement may be considered for leasing. - Parcels outside priority habitat should be considered for leasing prior to parcels in PHMA. Prioritization in Development BLM will prioritize development outside sage-grouse habitat by considering the following factors: * Intactness/quality of habitat - classification of habitat (i.e., priority, important, general); quality of habitat; quality of habitat; importance for connectivity or season habitat * Population trends in applicable zone or biologically significant unit * Distance from a lek * Need for new infrastructure - estimated surface disturbance * Ability to use existing well pad and infrastructure * Oil potential - none, low, moderate, high * Natural gas potential - none, low, moderate, high These factors will apply to both exploratory and other types of development activities. BLM will conduct site visits to confirm conclusions, as needed. Decisions to approve applications for permits to drill in sage-grouse habitat will be based on the following evaluation of factors: - Where applications for permits to drill are in high quality/intact habitat, are not in proximity to existing disturbance and/or require additional infrastructure to be developed, they will not be prioritized and opportunities will be evaluated to relocate permits. - Where applications for permits to drill are not in areas with high or moderate potential, they will not be prioritized. - Where applications for permits to drill are able to use

existing well pads and infrastructure and otherwise avoid surface disturbance and noise impacts to leks, they are more suitable for processing and approval. - Applications for permits to drill outside priority habitat should be considered for approval prior to parcels in PHMA.

Prioritization is also essential when it comes to the location of oil and gas leasing and development. BLM makes no mention of lease prioritization in the DEIS despite previous guidance regarding lease prioritization. Quite simply, it makes perfect sense to prioritize the leasing and development of oil and gas resources outside of priority and general habitat. Nearly 90% of Colorado's Greater sage grouse population is concentrated in Moffat and Jackson Counties. Without the highest quality habitat being conserved, the risk of adversely impacting those populations is far too high and in turn, the likelihood of a future ESA listing grows, which no one wants to see happen.

1.3.19 Range of Alternatives

Alternatives are measured against purpose and need; BLM has not considered a reasonable range of alternatives in the Draft EIS based on the restated purpose and need. When developing an EIS, the "range of reasonable alternatives is measured against the 'Purpose and Need' section...." *Cal. ex rel. Lockyer v. U.S. Dep't. of Agriculture*, 459 F. Supp. 2d 874, 905 (N.D. Calif., 2006), *aff'd*, 2009 U.S. App. LEXIS 19219 (9th Cir. 2009). The statement of "purpose and need" is the basis upon "which the agency is responding in proposing the alternatives including the proposed action." 40 C.F.R. §1502.13 and *City of Carmel-by-the-Sea v. U.S. Dep't. of Transportation*, 123 F.3d 1142, 1155 (9th Cir. 1997). Therefore, if the purpose and need of the 2018 Draft EIS for the Greater Sage-Grouse changes from the purpose and need for the 2015 EIS, then the range of alternatives must necessarily change as well. Even the 2018 Draft EIS recognizes that "BLM's purpose and need for this planning action helps define the scope of proposed alternative actions..." Nevada DEIS, p. ES-2. In *Lockyer*, the Forest Service argued that it could base its EIS for the new 2005 version of the "Roadless Rule" upon the EIS (and its alternatives) for 2001 Roadless Rule that it replaced. The court found: This argument fundamentally misconstrues the role of the consideration of reasonable alternatives, which lies at the heart of any NEPA analysis. Failure to consider reasonable alternatives thwarts the goals of informed decision making and meaningful public comment before the environmental die is cast. *Lockyer* at 905 (citations omitted). The Forest Service proposed the 2005 Roadless Rule as a means to give states more authority over designating roadless areas on federal land. In fact, the Forest Service called the 2005 rule the "State Petitions" rule. While the Forest Service argued the 2005 rule and the 2001 rule "share the same purpose and need," the Court concluded that their purposes were "plainly quite different" because the 2005 rule granted state-specific exemptions. *Lockyer* at 906. The 2018 Draft EISs are clear that their purpose and need is different from the 2015 EISs. Under the heading "Purpose of and Need for Action," the Draft EISs state that "The purpose of this RMPA/EIS is to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and conservation measures and with DOI and BLM policy." See, e.g. Nevada DEIS, p. 1-3. Because the 2018 Draft EIS states a different purpose and need compared to the 2015 EIS, BLM, pursuant to *Lockyer*, must necessarily consider a new range of alternatives to meet that new purpose and need. Under *Lockyer*, BLM in 2018 cannot tier to alternatives considered for the different purpose and need of the 2015 EIS.

The No-Action Alternative in the Draft EIS is the baseline, not a real alternative. The 2018 Draft EISs for the Greater Sage-Grouse purport to compare two alternatives - the "No Action Alternative" versus the "Management Alignment Alternative." See, e.g. Nevada DEIS, p. 2-3. But the "no action alternative

generally does not satisfy the proposed action's purpose and need; its inclusion in the Environmental Impact Statement is required by NEPA as a basis for comparison." Lockyer at 905, quoting Ronald E. Bass, Albert I. Herson & Kenneth M. Bogdan, *The NEPA Book: A Step-by-Step Guide on How to Comply with the National Environmental Policy Act*, 95 (2d. ed. 2001). Because the No Action Alternative fails to satisfy the purpose and need of the 2018 Draft EISs, the Draft EISs propose only one alternative: the Management Alignment Alternative. When there is only one alternative, it is not, by definition, an alternative at all. "[T]he agency must consider a range of alternatives that covers the full spectrum of possibilities." *Sierra Club v. Watkins*, 808 F. Supp. 852, 872 D.D.C. 1991). By proposing the "Management Alignment Alternative" as the only option to the status quo, BLM has failed to "consider a range of alternatives that covers the full spectrum of possibilities." *Id.* at 872.

BLM must evaluate additional management alternatives. By failing to thoroughly evaluate more than one alternative, BLM is not complying with NEPA. See *TWS v. Wisely*, 524 F. Supp. 2d 1285, 1312 (D. Colo. 2007) (BLM violated NEPA by failing to consider "middle-ground compromise between the absolutism of the outright leasing and no action alternatives"); *Muckleshoot Indian Tribe v. US Forest Serv.*, 177 F.3d 800, 813 (9th Cir. 1999) (NEPA analysis failed to consider reasonable range of alternatives where it "considered only a no action alternative along with two virtually identical alternatives"). BLM must consider additional alternatives, including alternatives that are more environmentally protective than the Management Alignment Alternative. The purpose and need of the 2015 Sage-grouse Plans is to "conserve, enhance, and restore GRS habitat by eliminating or minimizing threats to their habitat" (Rocky Mountain Record of Decision, p. 1-21), while the 2018 amendments are based on a purpose to "enhance cooperation with the states." BLM should consider an alternative that is explicitly focused on enhancing cooperation with the states while conserving, enhancing and restoring sage-grouse habitat. For instance, the projection of on-the-ground activities set out in Table ES-1 of the 2018 EISs shows a reduction in restoration efforts, but a more conservation-oriented alternative would consider increasing these projects. Similarly, this alternative would evaluate how to enhance cooperation with the states while retaining more of the core protections and management approaches that made the previous plans the basis for the FWS determination that listing was no longer warranted under the ESA. This alternative would be more environmentally protective and provide more certainty. We have developed a proposed alternative that would accomplish these goals, set out in detail in Attachment I, incorporated herein by reference. BLM should also have considered alternatives to complete additional analysis of key protective provisions that it is proposing to eliminate through the DEISs: net conservation gain and Sagebrush Focal Areas (SFA). The DEISs state: 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 are evaluating whether the implementation of compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities. We request 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. See, e.g. Utah DEIS, p. ES-8. The Management Alignment Alternative in the DEISs for Utah and Wyoming proposes to remove this standard. Utah DEIS, p. ES-8; Wyoming DEIS, p. ES-6. Rather than seeking comments only on eliminating this approach, BLM should evaluate an alternative that would retain the approach, while leaving the agency flexibility to determine applicable standards by working with the states. The DEISs also propose eliminating SFAs in Utah, Wyoming, Nevada and Idaho. Utah DEIS, p. 2-6; Wyoming DEIS, p. ES-6; Nevada DEIS, p. 1-8; Idaho DEIS, p. 2-7. BLM's scoping notice stated that the agency "seeks comments on the SFA designation" in response to the decision in *Western Exploration, LLC v. U.S. Dep't of the Interior*, 250

F. Supp. 3d 718 (D. Nev. 2017), which found BLM must conduct supplemental NEPA analysis in order to support the designation. 82 Fed. Reg. 47248, 47249 (Oct. 11, 2017). As another alternative, BLM should evaluate the impacts of the SFAs without the previously-proposed mineral withdrawal, which has now been withdrawn, in light of how those designations and the important protective measures they provide (in addition to the withdrawal protections) benefit sage-grouse habitat and how application can be better coordinated with the states.

The range of alternatives is insufficient. The Draft EISs only consider one alternative, the "Management Alignment Alternative" and refer to the 2015 Sage-grouse Plans as the "No Action Alternative." This does not meet BLM's obligations under NEPA. 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. See 40 C.F.R. §§ 1502.14(a) and 1508.25(c). NEPA's requirement that alternatives be studied, developed, and described both guides the substance of environmental decision-making and provides evidence that the mandated decision-making process has actually taken place. Informed and meaningful consideration of alternatives -- including the no action alternative -- is thus an integral part of the statutory scheme. *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1228 (9th Cir. 1988), cert. denied, 489 U.S. 1066 (1989) (citations and emphasis omitted). "An agency must look at every reasonable alternative, with the range dictated by the nature and scope of the proposed action." *Northwest Envtl Defense Center v. Bonneville Power Admin.*, 117 F.3d 1520, 1538 (9th Cir. 1997). An agency violates NEPA by failing to "rigorously explore and objectively evaluate all reasonable alternatives" to the proposed action. *City of Tenakee Springs v. Clough*, 915 F.2d 1308, 1310 (9th Cir. 1990) (quoting 40 C.F.R. § 1502.14). This evaluation extends to considering more environmentally protective alternatives and mitigation measures. See, e.g., *Kootenai Tribe of Idaho v. Veneman*, 313 F.3d 1094, 1122-1123 (9th Cir. 2002) (and cases cited therein). By only meaningfully considering one alternative and not considering alternatives that would be more environmentally protective, BLM has failed to consider a reasonable range of alternatives.

The 2018 Draft EISs also state that their purpose and need is to "better align with ... DOI and BLM policy." See, e.g. Nevada DEIS, p. 1-3. That policy was issued on June 7, 2017, through Secretarial Order 3353, "Greater Sage-Grouse Conservation and Cooperation with Western States." The Secretarial Order stated that one of the policy goals for managing the Greater Sage-Grouse is to "give appropriate weight to the value of energy and other development on public lands" in compliance with President Trump's Executive Order of March 28, 2017, "Promoting Energy Independence and Economic Growth" (EO 13783). The new "DOI and BLM policy" is completely opposite of the purpose and need expressed in the 2015 EIS, which identified the "major threats" to sage grouse habitat as "exploration and development" of hard rock mining and fluid mineral development. Nevada DEIS, p. 1-8. The purpose and need for the 2018 Draft EISs - and thus the basis for the 2018 alternatives - has shifted from conservation in 2015 to energy development in 2018: "As analyzed in the [2015 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 (emphasis added)." Nevada DEIS, p. 2-3. The purpose and need of the 2018 Draft EIS, pursuant to Secretarial Order 3353, is to "contribut[e] to economic growth and energy independence" (Nevada DEIS, p. 2-3), or, in other words, increase development opportunities on public lands. Therefore, BLM cannot base the pro-development alternatives in its 2018 Draft EISs upon the 2015 alternatives that had a purpose and need focused on conservation and avoidance of an ESA listing, not energy independence and economic growth. Because the "range of reasonable alternatives is measured against the 'Purpose and Need'

section," Lockyer at 905, the range of alternatives in the 2018 Draft EIS fail to account for the dramatic change in purpose and need compared to the 2015 EIS, which is a violation of NEPA. 40 C.F.R. §1502.13. In another section of these comments we discuss the purpose and need issue in the 2018 EISs in more detail.

I.3.20 Recreation

These management strategies are more than smart conservation – they also support our local economies. A healthy sagebrush ecosystem is an important economic driver for Western economies and hundreds of other species that live in sagebrush habitat including the golden eagle, elk, pronghorn and mule deer. Research has shown that across the American West, the sagebrush ecosystem powers the outdoor recreation industry to the tune of more than \$1 billion—\$76 million in Colorado alone.

I.3.21 Sagebrush Focal Areas

Concerns with removal of SFAs in Idaho, Nevada, Utah, and Wyoming. Unfortunately, under the draft land use plans and the accompanying EISs that BLM has prepared for proposed changes to the 2015 Sage-grouse Plans, the BLM would eliminate SFAs in the states of Idaho, Nevada, Utah, and Wyoming. This would include about 8.7 million acres of public land. It represents a tremendous downgrade in land use plan protections that are oriented towards sage-grouse conservation. While BLM previously decided to not pursue the withdrawal from mineral location and entry that was recommended under the 2015 land use plans for the approximately 10 million acres of SFAs that are located in the states of Wyoming, Montana, Idaho, Oregon, Nevada, and Utah, this new, additional proposal represents a further step backward. It is a retreat from environmental protections that have been recognized as needed for sage-grouse conservation by the U.S. Fish and Wildlife Service (and BLM). But given the previous retreat relative to mineral entry, the effect of the current proposed elimination of the SFAs in four of the states in the range of the sage-grouse is somewhat less significant. Still, there will be a number of lost or modified protections that applied to SFAs in one or more of the four states. These include provisions under the 2015 plans that require oil and gas leasing to only be allowed pursuant to a no surface occupancy (NSO) stipulation that was not subject to waiver, exception, or modification (Idaho, Nevada, and Utah); prioritizing SFAs for vegetation and conservation actions (Idaho, Nevada, Utah, and Wyoming); and prohibitions of geothermal development in SFAs (Nevada). These are important protections that must be maintained in priority habitat management areas (PHMA) if SFAs no longer exist in the four states. The value of these protections was recognized by the Fish and Wildlife Service in its 2015 not warranted decision, and thus are a key component of the land use plans that must be maintained if the not warranted decision is to be sustained, which it must be. "Based on our recommendation to further protect sage-grouse population centers that have been identified in the scientific literature as critically important for the species and areas identified through our analysis as important for conservation, BLM and USFS designated areas as Sagebrush Focal Areas (SFA) and added protections that would further limit new, human-caused surface disturbance in SFAs." 80 Fed. Reg. 59858, 59875 (Oct. 2, 2015). SFAs "are the areas that the Federal Plans manage as the highest priority lands in PHMAs for sage-grouse conservation (Figure 5)." Id. at 59878. They are "strongholds" for sagegrouse conservation and as mentioned above contain important connectivity habitat and high densities of breeding birds. Id. The Fish and Wildlife Service recognized that in addition to PHMA protections, the protections mentioned above would also apply in SFAs, including mineral entry withdrawal, NSO stipulations for fluid minerals with no waivers, exceptions, or modifications, and prioritizing management and conservation actions. Id. This was because SFAs need "the most conservative strategies to protect sage-grouse and habitat." Id. Grazing permit review is also prioritized

in SFAs. Id. at 59877, 59910. Clearly the protections in SFAs that would be lost by eliminating SFAs must be maintained in the remaining PHMAs, and the land use plan amendments BLM is contemplating must so provide. The BLM should modify the EISs and proposed land use plan amendments in Idaho, Nevada, Utah, and Wyoming to specifically provide that the fluid minerals NSO stipulation with no waivers, exceptions, or modifications, the vegetation and conservation management stipulation, and where appropriate the prohibition on geothermal development will be specifically incorporated into and made a part of the PHMAs in those states.

Inconsistent treatment across the plans appears arbitrary and capricious. While the BLM is planning to eliminate SFAs in Idaho, Nevada, Utah, and Wyoming, they would be maintained in Oregon and Montana. The BLM provides no explanation for this differential treatment of central aspects of the 2015 Sage-grouse Plans, yet the agency must do so to comply with fundamental legal requirements that apply to Administrative Procedure Act rulemaking efforts, the hard look and public involvement provisions of NEPA, and the land use planning provisions of the FLPMA. In Oregon, the BLM states that SFAs presented "issues [that] require clarification of language in the 2015 ROD/ARMPA but do not require new analysis" and in any event the only issue that requires clarification relative to SFAs is withdrawal from mineral entry. Oregon Draft Resource Management Plan (RMP) and EIS at 1-8. The BLM does not mention Montana in this NEPA analysis because that state desires to leave its 2015 sage-grouse plans intact. Therefore, SFAs would remain intact in Montana. But in Wyoming, Utah, Idaho, and Nevada elimination of SFAs would be pursued with little explanation. In Wyoming "[u]nder the Management Alignment Alternative, there would be no designation of SFAs." Wyoming Draft RMP and EIS at 4-15. According to the BLM, the environmental impact of not having SFAs was considered in the no action alternative in the 2015 Approved Resource Management Plan Amendment (ARMPA), and in the other Wyoming RMPs that did not consider SFAs, the impacts of designating PHMAs encompassed the impacts of SFAs. Id. The BLM seems to believe that its 2016 Draft EIS for Sagebrush Focal Area Withdrawal concluded that SFAs had little conservation benefit and it is only interested in issues related to the nonexistent mineral withdrawal in any event. Id. at ES-3, 1-8, 4-16. In Idaho, BLM without explanation, states SFAs duplicate protections, focus on mere de minimis activities, do not provide appreciable benefits for sage-grouse, and they complicate the state's adaptive management provisions. Idaho Draft RMP and EIS at ES-3, 1-6. BLM concludes "[t]he removal of SFA designations would have no measurable effect on the conservation of Greater Sage-Grouse in Idaho because the Management Direction proposed for PHMA would remain in place and continue to protect Greater Sage-Grouse habitat. SFA removal would add flexibility for responsible development with stringent requirements including mitigation to achieve a no net loss to Greater Sage-Grouse habitat in PHMA." Id. at 4-10. In Nevada, BLM is again concerned about the nonexistent mineral withdrawal serving as a basis for SFAs and whether SFAs "adequately maintain conservation of Greater Sage-Grouse habitat . . ." Nevada Draft RMP and EIS at ES-3, 1-8, 2-8. In Utah BLM also raises the nonexistent mineral withdrawal as a basis for eliminating SFAs as well as questioning whether they achieve conservation outcomes and concerns about alignment with the state strategy. Utah Draft RMP and EIS at ES-3, 1-7. The explanations for elimination of SFAs in these four states does not establish a clear basis for doing so especially when they would be maintained in Montana and Oregon. This differential treatment and the basis for it must be explained. Fundamentally BLM is creating regulatory uncertainty by creating this patchwork pattern. The need for regulatory certainty, and the fact it was established by the 2015 plans, was a key basis for the Fish and Wildlife Service reaching its not warranted decision. 80 Fed. Reg. 59858. Yet now BLM is creating regulatory uncertainty. This raises questions about whether the sage-grouse will have to be given ESA protections, which in our view should be avoided. At a minimum, to avoid this uncertainty,

the SFA protections we have mentioned, like the fluid mineral NSO stipulation with no waiver, exception, or modification, need to be made part of the PHMAs in states that no longer have SFAs. Moreover, BLM needs to address whether eliminating SFAs in some states will threaten SFA protections in Oregon and Montana where the SFA designation would remain in place. It would be inappropriate for SFAs to be threatened in Oregon and Montana just because they have been eliminated elsewhere. If BLM is going to treat SFA designation as subject to state-by-state revocation and not as a range-wide need-a proposition that is totally at odds with the Fish and Wildlife Service not warranted finding not to mention language in the 2015 land use plans-it needs to put in place provisions to ensure the SFA designations are protected where they remain and reconsider the proposals to eliminate SFAs.

Recent legal decisions support maintaining SFAs. There are two recent decisions that BLM should consider as it makes decisions about SFA designations. These are *W. Exploration, LLC v. U.S. Dept. of the Interior*, 250 F. Supp. 3d 718 (D. Nev. 2017) and *Desert Survivors v. U.S. Dept. of the Interior*, 2018 U.S. Dist. LEXIS 81922 (N.D. Cal., May 15, 2018). BLM frames *Western Exploration* as creating a need for these RMP amendments stating changes might be needed "in order to comply with the court's order" and "seeking comment on the SFA designation." 82 Fed. Reg. 47248-49 (Oct. 11, 2017). BLM states that the court "held that the BLM violated NEPA by failing to prepare a supplemental EIS for the designation of SFAs in the 2015 Greater Sage-Grouse Plan in Nevada." *Id.* at 47248. In fact, *Western Exploration* does not direct BLM to eliminate SFAs from the land use plans. First, the court found that the BLM had adequately considered any inconsistencies between the Federal sage-grouse plans and local county plans. 250 F. Supp. 3d at 744. The court also found that the BLM met its multiple use responsibilities under FLPMA when it adopted the Nevada sage-grouse plan. *Id.* at 746. The proposed withdrawal of 2.8 million acres from mineral entry (i.e., the SFAs) did not violate FLPMA. *Id.* "A review of the administrative record shows that BLM considered the relative value of Nevada's resources." *Id.* While the court agreed that under NEPA "the designation of 2.8 million acres as Focal Areas in Nevada amounts to a substantial change relevant to environmental concerns, requiring the Agencies to prepare [a supplemental EIS]" the court nevertheless refused to enjoin the ROD implementing the Nevada plan, holding "protection of the greater-sage grouse weighs against vacatur of the RODs. Enjoining implementation of the Plan Amendments pending the Agencies' preparation of an SEIS presents 'the possibility of undesirable consequences' to the greater sage-grouse species and their habitat." *Id.* at 748, 751. Based on this decision, the BLM is not required to eliminate SFAs, as it proposes, but rather, at most, it should only reconsider whether the SFA designations were made with a sufficient opportunity for public comment, and allow for additional public comment if warranted, making, possibly, only mid-course corrections, not summary eliminations. Further, as discussed above, in *Desert Survivors* the court determined that in withdrawing the proposed ESA listing of the Nevada/California bi-state sage-grouse population the FWS ignored the best available science, improperly concluding voluntary conservation measures could stem the decline of the population. The court held the Service "erred in concluding there was sufficient certainty of effectiveness of planned conservation measures to support the conclusion that listing" the bird as threatened "was no longer warranted." *Desert Survivors* at 71. "There are no rational grounds for the service's conclusion." *Id.* at 83. The court held that, "the service must offer some rational basis for its conclusions that future conservation efforts will be effective enough to improve the status of the bi-state (grouse) and therefore warrant withdrawal of the proposed listing." *Id.* at 64. In reaching its 2015 not warranted finding, FWS concluded that SFAs had a strong scientific basis and were a critical element in showing that BLM had put in place adequate regulatory mechanisms to make listing the sage-grouse unnecessary. Now the BLM is abandoning the commitment

to implement SFA protections in much of the range of the sage-grouse. That decision is not based on best available science and must be reassessed.

Clearly the protections in SFAs that would be lost by eliminating SFAs must be maintained in the remaining PHMAs, and the land use plan amendments BLM is contemplating must so provide. The BLM should modify the EISs and proposed land use plan amendments in Idaho, Nevada, Utah, and Wyoming to specifically provide that the fluid minerals NSO stipulation with no waivers, exceptions, or modifications, the vegetation and conservation management stipulation, and where appropriate the prohibition on geothermal development will be specifically incorporated into and made a part of the PHMAs in those states.

In Oregon, the BLM states that SFAs presented "issues [that] require clarification of language in the 2015 ROD/ARMPA but do not require new analysis" and in any event the only issue that requires clarification relative to SFAs is withdrawal from mineral entry. Oregon Draft Resource Management Plan (RMP) and EIS at I-8. The BLM does not mention Montana in this NEPA analysis because that state desires to leave its 2015 sage-grouse plans intact. Therefore, SFAs would remain intact in Montana. But in Wyoming, Utah, Idaho, and Nevada elimination of SFAs would be pursued with little explanation. In Wyoming "[u]nder the Management Alignment Alternative, there would be no designation of SFAs." Wyoming Draft RMP and EIS at 4-15. According to the BLM, the environmental impact of not having SFAs was considered in the no action alternative in the 2015 Approved Resource Management Plan Amendment (ARMPA), and in the other Wyoming RMPs that did not consider SFAs, the impacts of designating PHMAs encompassed the impacts of SFAs. *Id.* The BLM seems to believe that its 2016 Draft EIS for Sagebrush Focal Area Withdrawal concluded that SFAs had little conservation benefit and it is only interested in issues related to the nonexistent mineral withdrawal in any event. *Id.* at ES-3, I-8, 4-16. In Idaho, BLM without explanation, states SFAs duplicate protections, focus on mere de minimis activities, do not provide appreciable benefits for sage-grouse, and they complicate the state's adaptive management provisions. Idaho Draft RMP and EIS at ES-3, I-6. BLM concludes "[t]he removal of SFA designations would have no measurable effect on the conservation of Greater Sage-Grouse in Idaho because the Management Direction proposed for PHMA would remain in place and continue to protect Greater Sage-Grouse habitat. SFA removal would add flexibility for responsible development with stringent requirements including mitigation to achieve a no net loss to Greater Sage-Grouse habitat in PHMA." *Id.* at 4-10. In Nevada, BLM is again concerned about the nonexistent mineral withdrawal serving as a basis for SFAs and whether SFAs "adequately maintain conservation of Greater Sage-Grouse habitat . . ." Nevada Draft RMP and EIS at ES-3, I-8, 2-8. In Utah BLM also raises the nonexistent mineral withdrawal as a basis for eliminating SFAs as well as questioning whether they achieve conservation outcomes and concerns about alignment with the state strategy. Utah Draft RMP and EIS at ES-3, I-7.

The explanations for elimination of SFAs in these four states does not establish a clear basis for doing so especially when they would be maintained in Montana and Oregon. This differential treatment and the basis for it must be explained. Fundamentally BLM is creating regulatory uncertainty by creating this patchwork pattern. The need for regulatory certainty, and the fact it was established by the 2015 plans, was a key basis for the Fish and Wildlife Service reaching its not warranted decision. 80 Fed. Reg. 59858. Yet now BLM is creating regulatory uncertainty. This raises questions about whether the sage-grouse will have to be given ESA protections, which in our view should be avoided. At a minimum, to avoid this uncertainty, the SFA protections we have mentioned, like the fluid mineral NSO stipulation with no

waiver, exception, or modification, need to be made part of the PHMAs in states that no longer have SFAs. Moreover, BLM needs to address whether eliminating SFAs in some states will threaten SFA protections in Oregon and Montana where the SFA designation would remain in place. It would be inappropriate for SFAs to be threatened in Oregon and Montana just because they have been eliminated elsewhere. If BLM is going to treat SFA designation as subject to state-by-state revocation and not as a range-wide need-a proposition that is totally at odds with the Fish and Wildlife Service not warranted finding not to mention language in the 2015 land use plans-it needs to put in place provisions to ensure the SFA designations are protected where they remain and reconsider the proposals to eliminate SFAs.

These are important protections that must be maintained in priority habitat management areas (PHMA) if SFAs no longer exist in the four states. The value of these protections was recognized by the Fish and Wildlife Service in its 2015 not warranted decision, and thus are a key component of the land use plans that must be maintained if the not warranted decision is to be sustained, which it must be. "Based on our recommendation to further protect sage-grouse population centers that have been identified in the scientific literature as critically important for the species and areas identified through our analysis as important for conservation, BLM and USFS designated areas as Sagebrush Focal Areas (SFA) and added protections that would further limit new, human-caused surface disturbance in SFAs." 80 Fed. Reg. 59858, 59875 (Oct. 2, 2015). SFAs "are the areas that the Federal Plans manage as the highest priority lands in PHMAs for sage-grouse conservation (Figure 5)." Id. at 59878. They are "strongholds" for sage-grouse conservation and as mentioned above contain important connectivity habitat and high densities of breeding birds. Id. The Fish and Wildlife Service recognized that in addition to PHMA protections, the protections mentioned above would also apply in SFAs, including mineral entry withdrawal, NSO stipulations for fluid minerals with no waivers, exceptions, or modifications, and prioritizing management and conservation actions. Id. This was because SFAs need "the most conservative strategies to protect sage-grouse and habitat." Id. Grazing permit review is also prioritized in SFAs. Id. at 59877, 59910.

IMPORTANCE OF SAGEBRUSH FOCAL AREAS An important component of the existing BLM and Forest Service sage-grouse land use plans is the designation of sagebrush focal areas (SFA). These are the most important sage-grouse habitats, which contain large, contiguous blocks of Federal lands in important sage-grouse habitats that have high levels of population connectivity and densities of breeding birds.

1.3.22 Sage-Grouse

Current finding that listing is no longer warranted. In 2010, FWS determined that the greater sage-grouse warranted listing under the ESA "due to the loss and fragmentation of habitat and a lack of adequate regulatory mechanisms to stem habitat loss." In 2015, FWS concluded that the species no longer warranted listing, explaining the change in position in a Frequently Asked Questions accompanying its finding as follows: How did the Service arrive at this not warranted finding? In September 2015, the Bureau of Land Management and U.S. Forest Service completed amendments and revisions to 98 separate federal land use plans that address sage-grouse habitat loss, fragmentation, and other threats to the species. This represents the largest landscape-scale conservation planning effort in U.S. history. In addition, states in the greater sage-grouse range developed or updated greater sage-grouse conservation plans. New federal and state regulatory mechanisms developed since 2010 in the Rocky Mountain region have addressed the most serious threats to the species, primarily fossil fuel and renewable energy development, infrastructure such as roads and power lines, mining, improper grazing, the direct conversion of sagebrush to croplands, and urban and ex-urban development. In the Great

Basin region, regulatory mechanisms and other conservation efforts developed since 2010 will substantially reduce and mitigate the primary potential threats of wildfire, invasive plants, conifer encroachment and mining.² Although actual, on-the-ground, measurable improvements to sage-grouse habitat were not accomplished simply by completing the federal plans in 2015, the measures agreed to in those plans, along with those by the states of Wyoming, Montana, and Oregon formed the basis for the FWS finding by meeting the elements of the agency's Policy for Evaluating Conservation Efforts (PECE), which provides that, in order to rely on a conservation effort, FWS "must find that the conservation effort is sufficiently certain to be implemented and effective so as to have contributed to the elimination or adequate reduction of one or more threats to the species . . .³See, 68 Fed.Reg. 15100 (March 28, 2003) (emphasis added). FWS relied on this policy in its 2015 finding, stating: The [PECE] policy provides guidance on how to evaluate conservation efforts that have not yet been implemented or have not yet demonstrated effectiveness. The evaluation focuses on the certainty that the conservation efforts will be implemented and the effectiveness of the conservation efforts to contribute to make listing a species unnecessary. In this finding, we evaluated the certainty that the Federal Plans, and the Montana and Oregon Plans will be implemented into the future and the certainty that they will be effective in addressing threats, based on the best available science and professional recommendations provided in the COT and other scientific literature and reports. 80 Fed.Reg. 59874 (October 2, 2015) (emphasis added).

BLM cannot rely on perch inhibitors to reduce impacts to sage grouse, as these do not address the behavioral avoidance of sage grouse of tall structures, and don't even completely prevent raptor perching. Prather (2010) provided an empirical test of the effectiveness of perch inhibitors on smaller distribution lines in Utah, and found that they had no significant effect in terms of reducing raptor perching activity. Lammers and Collopy (2007) found similar results for larger transmission lines in Nevada.

Geophysical exploration can result in numerous impacts to sage grouse, including crushing sagebrush, creating linear disturbances through sagebrush habitat that facilitate the movements of sage grouse predators, causing direct disturbance to birds, leading to stress and/or displacement from important habitats, and direct collision mortality. For these reasons, the National Technical Team (2011) recommended, "Allow geophysical operations only by helicopter-portable drilling methods and in accordance with seasonal timing restrictions and/or other restrictions that may apply." The existing RMPAs neglect to provide definable seasonal restrictions on geophysical exploration in important sage grouse habitats, and also does not prescribe that low-impact techniques (i.e., heliportable methods) be applied, and the amendments to the RMPAs need to redress this deficiency.

THE DIRECTION OF THE OVERALL CHANGES TO THE 2015 SAGE-GROUSE PLANS RISKS THE FINDING THAT THE GREATER SAGE-GROUSE NO LONGER WARRANTS LISTING UNDER THE ENDANGERED SPECIES ACT. Although the FWS found that the greater sage-grouse no longer warranted listing under the ESA in 2015, the actions that this administration has taken and proposed are undermining the reasons for that finding, imperiling the species. Walking away from the vital commitments in the BLM's 2015 Sage-grouse Plans will have unavoidable consequences for the grouse, the more than 350 species that rely on the same habitat and the many stakeholders who have benefitted from the current, flexible management of millions of acres of public lands. If the administration continues on the present track, then: * Actual protections in BLM's 2015 Sage-grouse Plans - the "foundation" of FWS's 2015 not warranted decision - would be weakened or removed altogether, despite a wealth of

science showing they are needed; * Commitments to implement and fund other meaningful protections will continue to be formally abandoned or made doubtful; and, * Without reliable, effective actions to address ongoing threats to greater sage-grouse, there will no longer be a basis for finding that a listing is not warranted, leading to action by the FWS and/or the courts to protect the species and its habitat.

The FWS's 2015 finding explicitly relied on specific conservation measures in BLM's 2015 Sage-grouse Plans to address major threats, such as oil and gas development. For example, with respect to oil and gas in the Frequently Asked Questions: How do the conservation actions address the threat of oil and gas development in greater sage-grouse habitat? Oil and gas development is likely to continue throughout the greater sage-grouse range into the future, although its form and extent across the landscape may change. For this status review, the Service mapped locations of the highest potential for oil and gas development in Montana, the Dakotas, Wyoming, Colorado and northeastern Utah to quantify potential exposure of greater sage-grouse to risk of future development. The Service's analyses indicate that the federal land use plans and the Wyoming Core Area Strategy are reducing exposure of the species to fossil fuel development, as measured by the portions of the breeding population and breeding habitat. The Service estimates that the vast majority of lands with a high- to moderate potential for oil and gas development are outside Priority Habitat. Regulatory mechanisms further reduce the risk of nonrenewable energy exposure to the breeding population and breeding habitat by more than 35 percent in Montana, Wyoming's Powder River Basin and the Dakotas, and more than 60 percent in the rest of Wyoming and adjacent portions of Colorado and Utah

The NSO buffers in the plan are likely insufficient to protect wintering sage grouse. While surface disturbance could be prohibited up to 3.1 miles around leks, sage-grouse will still avoid development within 1.75 miles of wellpads and other development during winter (Holloran et al. 2015), or within 1.9 miles of wellpads during the breeding season (Holloran 2005), as discussed above. Thus, development near these buffer zones could still cause sage grouse to avoid otherwise suitable winter areas falling within lek buffer zones. No analysis shows that enough winter habitat will be left undisturbed under existing ARMPAs to support local populations. Absent a clear definition of "winter habitat" and "winter concentration area" and the distinction between the two, BLM should adopt a plan that provides adequate disturbance and vegetation protection for all identified winter habitats. In the current Plans, it is unclear whether these terms are interchangeable or distinct concepts. The NTT defines "winter concentration areas" as: Sage-grouse winter habitats which are occupied annually by sage-grouse and provide sufficient sagebrush cover and food to support birds throughout the winter (especially periods with above average snow cover). Many of these areas support several different breeding populations of sage-grouse. Sage-grouse typically show high fidelity for these areas, and loss or fragmentation can result in significant population impacts. NTT 2011, p. 37. Winter habitat, on the other hand, may be areas that have favorable sagebrush conditions for sage grouse throughout the winter, regardless of whether sage grouse annually occupy these areas. Wintering areas not utilized in typical years may become critical in severe winters. Caudill 2013. Thus, all winter habitat should be protected. Finally, as detailed in previous comments, BLM's winter habitat health objectives must have scientific support. These objectives should require 20-30% crown cover with shrub heights 25-35 cm above the median snow level, or greater than 40 cm in height, whichever is taller. See Center for Biological Diversity Nevada RMPA DEIS Comment, p. 22. PHMA designations may not be adequate to protect sage-grouse wintering habitats. For example, in Wyoming, Dinkins et al. (2016) found that PHMAs protected 62.5% of breeding locations in Wyoming, but only 50% of wintering habitats. These researchers recommended designating winter concentration areas outside PHMAs for elevated habitat protections. BLM should suspend mineral

leasing and all other development activities until all winter habitat is identified. Identified winter habitats, whether inside or outside of Priority Habitats, should be closed to future mineral leasing and materials sales and withdrawn from locatable minerals entry. For valid existing rights both agencies should impose a 3% surface disturbance limit and one pad limit, both calculated per square mile section of winter habitat; No Surface Occupancy within 1.75 miles of the edge of wintering habitats; and no high-volume roads within 1.9 miles of wintering habitats. Wintering habitats should be seasonally closed to all vehicular access between November 30 and March 15. If BLM will not protect all winter habitat as requested, BLM should suspend mineral leasing and all other development activities in winter 63 habitat until winter concentration areas are identified. These winter concentration areas should receive the same protections as the NTT recommends for priority habitats. BLM should also tailor winter habitat objectives to 20-30% crown cover with shrub heights 25-35 cm above the median snow level, or greater than 40 cm in height, whichever is taller.

Wastewater ponds associated with coalbed methane development form breeding habitat for the *Culex tarsalis* mosquitoes that transmit West Nile virus, and have been directly linked to increases in these mosquito populations (Zou et al. 2006, Doherty 2007). The National Technical Team (2011: 19) observed that "ponds created by coal bed natural gas development may increase the risk of West Nile virus mortality in late summer (Walker et al. 2004, Zou et al. 2006, Walker 3 Id. 4 Green et al. at 9. 52 et al. 2007b)." In addition, Kirol et al. (2015b) found that coalbed methane wastewater ponds subsidize sage-grouse nest predators, and that pond shoreline length was the single greatest correlate with sage-grouse nest failure. Greater sage grouse have essentially no ability to develop immunity to West Nile virus (Naugle et al. 2004), and outbreaks of West Nile have led to catastrophic population losses of sage grouse in habitats developed for coalbed methane in the past (Walker et al. 2004). Sinai et al. (2017) found that sage-grouse did not produce antibodies against West Nile, and in addition were susceptible to avian leukosis virus. Taylor et al. (2012) found that the synergy of oil, gas and coalbed methane impacts and West Nile would result in the functional extinction of the Powder River Basin sage grouse population in Wyoming as a result of the next major West Nile virus outbreak.

Sage grouse avoid habitats 54 surrounding roads (Braun 1986, Holloran 2005, Wisdom et al. 2011). According to BLM's own NEPA analysis: Impacts on GRSG accrue over varying distances from origin depending on the type of development: ... ? Interstate highways at 4.7 miles (7.5 kilometers) and paved roads and primary and secondary routes at 1.9 miles (3 kilometers) based on indirect effects measured through road density studies (Connelly et al. 2004; Holloran 2005; Lyon 2000) Nevada - Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605. BLM has admitted that roads fragment habitats and interfere with natural movements of sensitive species, and with regard to road upgrades, "Any exceptions resulting in road upgrades could further fragment habitat, cause vegetation loss, erosion, and the spread of invasive, nonnative plant species." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-313 and 4- 294, respectively. BLM's own National Technical Team (2011: 11) recommended that at minimum, vehicle traffic in Priority Habitats be limited to designated roads and trails, use existing roads for access, limit construction to realignments of existing routes that minimize impacts to sage grouse, prohibit road upgrades that change route category, consider seasonal road closures, and conduct travel planning within 5 years, reclaiming roads and trails not designated for vehicular use. Road densities are also an issue, because sage grouse avoid habitats adjacent to roads. Holloran (2005) found that road densities greater than 0.7 linear miles per square mile within 2 miles of leks resulted in significant negative impacts to sage grouse populations. This road density should be applied as a maximum density in Priority and General Habitats, and in areas that already exceed this

threshold, existing roads should be decommissioned and revegetated to meet this standard on a per-square-mile-section basis. BLM's proposed plan amendment fails to provide adequate limits on road density. Limiting road and trail networks and off-road vehicle travel also is critical in limiting the spread of invasive weeds. According to BLM's own NEPA analysis, "Roads and trails are one of the main vectors of invasive weed spread, which leads to increase in FRCC and ecosystems moving away from natural fire regimes (CEC 2012)." Nevada - Northeastern California Greater Sage-grouse RMP Amendment DEIS at 701. Off-road vehicle travel must be adequately regulated to protect sage grouse under new plans. According to BLM's own analysis, off-road vehicles are noisy, and typically exceed the background noise levels by more than 10 dBA. Northwest Colorado Greater Sage-grouse RMP Amendment DEIS at 399. This level of noise exceedance has significant negative consequences for sage grouse, as outlined in the section of this protest addressing noise. Off-road vehicle use also results in habitat degradation and destruction, disturbance of sage grouse, and proliferation of invasive weeds (NTT 2011; see also Manier et al. 2011).

winter concentration areas should receive at least the level of protection from permitted industrial activities as recommended by NTT (2011) for priority habitats. As it stands now, unlimited surface disturbance is allowed in all winter concentration areas and winter habitat outside of priority habitats, risking significant winter habitat loss. This EIS must discuss these impacts resulting from development and sagebrush removal in winter habitat or respond to comments noting these impacts. Nor does it provide any sense of the long-term impact of winter habitat loss on the persistence of local sage grouse in the planning area. Moreover, BLM must identify baseline winter habitat and winter concentration areas to create a science-based understanding of any plan amendment's impacts on wintering sage grouse. Even if it were proper for BLM to postpone the identification of winter habitat, the EIS must analyze any specific plans as to how and when this will occur or the criteria these areas must meet for winter habitat protections to apply. And the planning amendment must provide for interim protections for these areas until mapping is complete. In the absence of interim protections, it is thus entirely possible that sage-grouse wintering areas will be irreparably damaged and sage-grouse populations lost before they can receive minimal protections that apply today under the ARMPAs, let alone the full set of protections needed for winter habitat based on the science. At minimum, any leasing or development of parcels that potentially contain winter habitat should be suspended until winter habitat and winter concentration areas are fully mapped and designated appropriate protections. This is extremely critical: Without any restrictions on sagebrush removal in wintering habitats, the habitat loss will be permanent. See Minnick 2015 (well sites lacked favorable soil conditions decades after reclamation, preventing sagebrush regrowth); cf. FEIS 4-315 (winter concentration areas "could be difficult to restore to original conditions...due to the composition and size of sagebrush in these areas"). Indeed, to the extent the EIS relies on winter habitat restoration as "mitigation" for any habitat loss, this is wishful thinking. Even a short-term loss of winter habitat would likely be detrimental to sage grouse dependent on these areas

1.3.23 Travel and Transportation Management

Travel planning should be carried out to address the risks of habitat destruction and fragmentation acknowledged in the plans.

1.3.24 Waivers, Exceptions, and Modifications

Waivers, exceptions and modifications to oil and gas lease stipulations must be subject to narrow and specific criteria so they are consistently and reliably applied, and can be effective as intended. In addition,

applications for and responses to waivers, exceptions and modifications should be tracked and made available to the public.

Finally, it is critical that BLM track waivers, exceptions and modifications requested and those granted, and make that information available to the public. These records will provide important insight into how the stipulations are being applied and the potential impact of waivers, exceptions and modifications on the overall function of the plans. This information will also allow BLM to determine if the availability of or criteria for granting waivers, exceptions and modifications needs to be further narrowed in order to ensure sufficient protection for sage-grouse habitat. Accordingly, we recommend that each plan include language that provides: Exceptions will be considered prior to considering waivers or modifications. If the BLM determines that a waiver or modification is more appropriate, the reasons for such decisions will be documented. Waivers are permitted if the area lacks "protected attributes" - as determined through coordination with the appropriate state wildlife agency. Modifications and exceptions are permitted if: (1) impacts are fully and verifiably offset by compensatory mitigation; or (2) there are no impacts to greater sage-grouse because of terrain or habitat type, based on consultation with the applicable state wildlife agency. Prior to granting any waivers, exceptions and modifications, BLM will insure that the U.S. Fish and Wildlife Service has the opportunity to submit information for consideration. For no surface occupancy stipulations or stipulations in Priority Habitat Management Areas, waivers exceptions and modifications will only be granted following a 30-day public notice and comment period. BLM will maintain an ongoing record of requests for waivers, exceptions and modifications and whether those requests are granted, and will publish those cumulative results on a quarterly basis.

V. RECOMMENDED APPROACH TO WAIVERS, EXCEPTIONS AND MODIFICATION TO OIL AND GAS LEASE STIPULATIONS. The 2015 Sage-grouse Plans include numerous oil and gas lease stipulations that apply to development in order to protect sage-grouse and sage-grouse habitat, including no surface occupancy stipulations, timing limitations and surface use limitations. The draft amendments and EISs also rely on lease stipulations. However, the protections actually provided by the stipulations are only reliable and effective to the extent that the safeguards are applied. Waivers (permanent exemption that applies to the entire leasehold), exceptions (one-time exemption for a particular site within the leasehold) and modifications (change to the lease stipulation, either temporarily or for the term of the lease, can apply to the entire leasehold or certain areas) all permit an operator to avoid compliance with the requirements of a stipulation. Where these loopholes are permitted and used, the protections that the stipulations are supposed to provide can be undermined. Recent studies confirm that oil and gas development can harm both sage-grouse habitat and lifecycle activities, such as breeding.⁴⁶ Consequently, it is vital that protections associated with oil and gas development are reliably applied and, as a result, that waivers, exceptions and modifications are not broadly used to weaken those protections. While we can accept narrowly prescribed waivers, exceptions and modifications to lease stipulations that are based on very specific criteria, broad standards, such as those currently included in the Nevada Draft RMP Amendment/EIS are not acceptable. As an example, the general approach conditions included in the Draft Colorado RMP Amendment related to no surface occupancy stipulations are more specific and include public engagement. * Waivers are permitted if the area lacks "protected attributes" - as determined through coordination with Colorado Parks and Wildlife and following a 30-day public notice/comment period * Modifications and exceptions are permitted if: (1) impacts are fully offset by compensatory mitigation; or (2) no impacts to greater sage-grouse would occur because of terrain or habitat type - but can only be applied after consultation with Colorado Parks

and Wildlife. CO Draft RMP Amendment/EIS, pp. 2-4 - 2-5. Overall, one-time exceptions should be the preferred approach where relief is sought from protective stipulations, such that the safeguards prescribed in these stipulations will remain in place for the majority of oil and gas leases. Waivers, exceptions and modifications should only be granted from no surface occupancy (NSO) stipulations or any stipulations in PHMA after a 30-day public notice and comment period. Further, the U.S. Fish and Wildlife Service should have the opportunity to submit information for consideration prior to granting waivers, exceptions and modifications.

I.4 COLORADO-SPECIFIC COMMENTS

I.4.1 Purpose and Need

BLM'S purpose and need violates NEPA. BLM is employing an unlawful "purpose and need" for the Draft EISs. While BLM has some discretion over a project's "purpose and need," that discretion is not unlimited. BLM may not, for example, define the "purpose and need" so narrowly that it forecloses consideration of a reasonable range of alternatives. *Westlands Water Dist. v. U.S. DOI*, 376 F.3d 853, 867 (9th Cir. 2004); see also *City of Carmel-By-The-Sea v. U.S. Dep't of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1997) ("... an agency cannot define its objectives in unreasonably narrow terms."). Nor may BLM simply adopt the "purpose and need" advanced by a project proponent. *National Parks Conservation Ass'n v. BLM [NPCA]*, 606 F.3d 1058, 1070-72 (9th Cir. 2010). Yet, that is exactly what BLM has done here. It has developed an unreasonably narrow "purpose and need" for the Draft EISs that forecloses consideration of any alternative that does not "align with individual state plans. . . ." Colorado Draft EIS, p. ES-2. Thus, BLM's "purpose and need" is fundamentally flawed and corrupts the range of alternatives, along with other aspects of the Draft EISs. I. BLM's "Purpose and Need" for the Draft EISs is unreasonably narrow. In violation of NEPA, BLM is using an unreasonably narrow "purpose and need" for the Colorado Draft EIS. As noted above, the Draft EIS states, "[t]he purpose of this resource management plan amendment/environmental impact statement (RMPA/EIS) is to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and conservation measures and with DOI and BLM policy." Colorado Draft EIS, p. ES-2. This represents a dramatic departure from the original purpose of the 2015 Colorado Plan to "identify and incorporate appropriate measures in existing LUPs to conserve, enhance, and restore GRSG habitat by avoiding, minimizing, or compensating for unavoidable impacts." 2015 Northwest Colorado RMP Amendment, p. I-7. Yet, BLM has totally and impermissibly eliminated this fundamental objective from the Draft EIS. When evaluating the reasonableness of an agency's "purpose and need" statement, courts consider the views of Congress . . . in the agency's statutory authorization to act, as well as in other congressional directives." *Citizens Against Burlington v. BUSEY IV*, 938 F.2d 190, 196 (D.C. Cir. 1991). Here, "Congress intended endangered species to be afforded the highest of priorities." *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 174 (1978). Accordingly, the ESA requires BLM to administer programs that "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved. . . ." 16 U.S.C. § 1531(b); see also *id.* § 1536(a)(1) ("The Secretary shall . . . utilize such programs in furtherance of the purposes of [the ESA]."). Previously, BLM fulfilled the wishes of Congress by identifying the need to develop and adopt adequate regulatory mechanisms that would address the long-term conservation needs of the species as the guiding and principal purpose for the plan. This purpose drove the development of alternatives for the plans, and more than any other factor, shaped the final decision on the plans: "The ARMPs and ARMPAs provide a comprehensive, coordinated, and effective conservation strategy for addressing the threats to the GRSG identified by the FWS such that the need for additional protections under the ESA may be avoided." Record of Decision for the Rocky Mountain Region, p. I-

34. FWS subsequently recognized BLM's conservation plans as the "foundation" of its "not-warranted" decision for Greater Sage-grouse. Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition To List Greater Sage- Grouse (*Centrocercus urophasianus*) as an Endangered or Threatened Species, 80 Fed. Reg. 59,858, 59,887 (Oct. 2, 2015). Notably, this decision found that only conservation plans adopted by BLM (and the U.S. Forest Service) and the states of Montana, Oregon, and Wyoming contained "adequate regulatory mechanisms." *Id.* at 59,936.

However, in spite of Congress's clear direction to make the conservation of endangered and threatened species the "highest priority," and even though BLM did so during the original planning process, BLM has now abandoned this purpose. Instead, in the Colorado Draft EIS, BLM is focused on "aligning" its conservation plans with those of the states. This purpose has nothing to do with ensuring the long-term conservation of sage-grouse or avoiding a future ESA listing. If anything, this new direction will likely move the species closer to a listing. Notably, both BLM and FWS both previously rejected an approach that relied heavily on state plans. FWS stated: While 10 of the 11 States in the range of the sage-grouse updated their State plans to conserve the species by incorporating new information, which is a testimony to their concern and commitment to protect the grouse and its habitats, not all of these plans have been implemented or are regulatory in scope. We will specifically highlight the regulatory conservation actions mandated by the State plans in Wyoming, Montana, and Oregon because they provide the greatest degree of regulatory certainty in addressing potential threats on State and private lands not under the jurisdiction of Federal plans. We appreciate the work that each State has completed, but not all planning efforts met a level of certainty for implementation and effectiveness. 80 Fed. Reg. at 59,873. Moreover, by focusing so narrowly on what the states want, BLM is foreclosing consideration of alternatives that respond to new information concerning the species and what changes or new approaches might be necessary to strengthen the regulatory mechanisms adopted in 2015. In sum, BLM has adopted an unreasonably narrow "purpose and need" that violates NEPA.

range-wide effectiveness of the plans or undermine FWS's 2015 not-warranted determination, it did not do so. Consequently, by focusing so narrowly on what specific states want, and ignoring the conservation needs of sage-grouse and objectives of the ESA, BLM's "purpose and need" for the Draft EIS violates NEPA.

BLM has impermissibly defined the "purpose and need" based on project proponent objectives. Also in violation of NEPA, BLM has improperly defined the "purpose and need" to reflect the narrow wishes of certain states/project proponents and not broader objectives set forth in the ESA and other federal laws. NEPA prohibits BLM from "mandating" that the interests of project proponents "define the scope of the proposed project." *NPCA*, 606 F.3d at 1070. Instead, BLM must reference and incorporate broader, national objectives contained in statutes and other congressional directives. *Id.* BLM failed to do so here, and instead developed the "purpose and need" to carry out the wishes of specific states. BLM has openly acknowledged doing so, stating that the decision to move forward with the plan amendments, as well as the range of issues and alternatives to be considered, came directly from certain states. See, e.g., Notice of Availability of the Idaho Draft Resource Management Plan Amendment and Draft Environmental Impact Statement for Greater Sage-Grouse Conservation, 83 Fed. Reg. 19,801, 19,802 (May 4, 2018) ("After carefully considering the Governor's input, . . . the BLM proposes amending the Idaho Greater Sage-Grouse land use plans that address GRSG management."); BLM, Press Release - BLM Listens to Utah State Partners (May 3, 2018) ("We are not abandoning the 2015 plans; we are building on them," said BLM state director Ed Roberson. "In the two and a half years since those

plans were adopted, we've gotten tremendous feedback from the State on on-the- ground outcomes and impacts that are the basis for proposed changes that recognize the unique nature of sagegrouse presence in Utah."). Yet, BLM is not permitted to blindly accept a project proponent's objectives in this manner. As the NPCA court explained, "[o]ur holdings . . . forbid the BLM to define its objectives in unreasonably narrow terms. The BLM may not circumvent this proscription by adopting private interests to draft a narrow purpose and need statement that excludes alternatives that fail to meet specific private objectives. . . ." 606 F.3d at 1072. While it may have been permissible for BLM to develop a "purpose and need" that sought to better accommodate the wishes of the states, provided that any changes did not weaken the

Because the 2018 Colorado Draft EIS states a different purpose and need compared to the 2015 EIS, BLM, pursuant to Lockyer, must necessarily consider a new range of alternatives to meet that new purpose and need. Under Lockyer, BLM in 2018 cannot tier to alternatives considered for the different purpose and need of the 2015 EIS.

The purpose and need for the 2018 Colorado Draft EIS - and thus the basis for the 2018 alternatives - has shifted from conservation in 2015 to energy development in 2018. Therefore, BLM cannot base the pro-development alternatives in its 2018 Draft EISs upon the 2015 alternatives that had a purpose and need focused on conservation and avoidance of an ESA listing, not energy independence and economic growth. Because the "range of reasonable alternatives is measured against the 'Purpose and Need' section," Lockyer at 905, the range of alternatives in the 2018 Draft EIS fails to account for the dramatic change in purpose and need compared to the 2015 Colorado Plan, which is a violation of NEPA. 40 C.F.R. §1502.13.

Purpose and Need The 2018 Draft RMPA/EIS should still be guided by the purpose and need of the 2015 ARMPA which is "to identify and incorporate appropriate measures in existing LUPs to conserve, enhance, and restore GrSG habitat by avoiding, minimizing, or compensating for unavoidable impacts." (p. 1-7). Section 1.2 of the 2018 Draft EIS (p. 1-2) has a much narrower purpose and need statement. It states: "The purpose of this resource management plan amendment/environmental impact statement is to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and conservation measures and with DOI and BLM policy." Reasonable and science-based actions to compensate for unavoidable impacts to wildlife are a pillar of Colorado's GrSG conservation strategy. IM 2018-093 states that the BLM "will not impose, and will not build mechanisms for it to enforce, mandatory compensatory mitigation into its official actions, authorizations to use the public lands, and any associated environmental review documents. . . ." The policy goes on to say that, "Where a project proponent has voluntarily proffered compensatory mitigation in an application, including in conjunction with a State requirement or as a result of other Federal law, BLM may incorporate it into and consider it as part of the project analysis." While state compensatory mitigation requirements are included in the definition of a voluntary compensatory mitigation action it is unclear whether this IM allows the BLM to authorize a State compensatory mitigation requirement in a federal permit. If BLM were to follow IM 2018-093 and remove compensatory mitigation requirements from the Management Alignment Alternative it would no longer align with Colorado's state plans and conservation measures, and thus fail to meet the stated purpose and need.

Chapter I Purpose of Need for Action I) Section I.1-This section has misstated and effectively eliminated the Secretary's legal obligation in FLPMA (Section 202(c)(9) to coordinate with local governments. As currently written, the language stops short at coordinating with "states" and does not continue on to recognize the regulatory requirement to coordinate with local governments. Despite the rigorous evaluation and participation by local governments in both the 2015 ROD and in this current RMPA review, the language in this statement effectively highlights the BLM's desire to eliminate (or marginalize at best) the concerns of local governments despite their required duty under federal law to meaningfully coordinate and resolve inconsistencies. This is highly unfortunate as it certainly sets the tone for the rest of the document.

I.4.2 Criteria

On I-6, under Planning Criteria, the statement "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" implies that any future Secretarial Orders would override the RMPA/EIS. This statement is unacceptable and BLM must clarify that issuance of new secretarial orders (or other policies) does not relieve the agency from its obligations to ensure actions are consistent with governing land use plans (per 43 C.F.R. § 1601.0-5(b)).

I.4.3 Issues dismissed from detailed analysis

In Section titled Issues and related Resource Topics not carried Forward for Additional Analysis, it also lists "Prioritization of fluid mineral leases outside PHMA and GHMA." We suggest adding the language, "pursuant to Instructional Memorandum 2018-026, this Plan eliminates any prioritization of leasing and development outside GSGS habitat prior to leasing and development inside GSG habitat."

Prioritization for Leasing BLM has used specific factors to guide prioritization of leasing outside sage-grouse habitat. For instance, in assessing the December 2017 lease sale for the Vernal Field Office (https://eplanning.blm.gov/epl-frontoffice/projects/nepa/80165/130450/158729/Final_Vernal_EA.pdf), BLM created a chart evaluating how certain prioritization considerations applied to parcels (existing lease, existing unit, field-EIS, high gas potential, high oil potential), completed site visits to confirm conditions on the ground, and then only included parcels in the lease sale that met the majority of the factors. We propose that the BLM use the following factors: * Intactness/quality of habitat - classification of habitat (i.e., priority, important, general); quality of habitat; importance for connectivity or seasonal habitat * Population trends in applicable zone or biologically significant unit * Distance from existing disturbance * Distance from existing infrastructure - roads, well pads, pipelines * Need for additional infrastructure - estimated surface disturbance * Adjacent to existing lease - yes/no/proximity * Within existing oil and gas unit * Within existing master leasing plan * Oil potential - none, low, moderate, high * Natural gas potential - none, low, moderate, high BLM will conduct site visits to confirm conclusions, as needed.

Decisions to include nominated lease parcels in sage-grouse habitat in lease sales will be based on the following evaluation of factors: - Parcels that do not have moderate or high potential should not be offered. - Parcels that have high quality habitat, are not in proximity to existing disturbance and/or require additional infrastructure to be developed should not be offered. - Parcels that are in close proximity to existing disturbance and infrastructure, and are already within an existing oil and gas unit or master leasing plan that has been analyzed in an environmental impact statement may be considered for leasing. - Parcels outside priority habitat should be considered for leasing prior to parcels in PHMA.

Prioritization in Development BLM will prioritize development outside sage-grouse habitat by considering the following factors: * Intactness/quality of habitat - classification of habitat (i.e., priority, important, general); quality of habitat; quality of habitat; importance for connectivity or season habitat * Population trends in applicable zone or biologically significant unit * Distance from a lek * Need for new infrastructure - estimated surface disturbance * Ability to use existing well pad and infrastructure * Oil potential - none, low, moderate, high * Natural gas potential - none, low, moderate, high These factors will apply to both exploratory and other types of development activities. BLM will conduct site visits to confirm conclusions, as needed. Decisions to approve applications for permits to drill in sage-grouse habitat will be based on the following evaluation of factors: - Where applications for permits to drill are in high quality/intact habitat, are not in proximity to existing disturbance and/or require additional infrastructure to be developed, they will not be prioritized and opportunities will be evaluated to relocate permits. - Where applications for permits to drill are not in areas with high or moderate potential, they will not be prioritized. - Where applications for permits to drill are able to use existing well pads and infrastructure and otherwise avoid surface disturbance and noise impacts to leks, they are more suitable for processing and approval. - Applications for permits to drill outside priority habitat should be considered for approval prior to parcels in PHMA.

BLM Should Remove the Redundant Provision Prioritizing Leasing and Development Outside of PHMA. ConocoPhillips requests that BLM revise Objective MR-I in the 2015 Approved RMPA to remove the directive that BLM give priority to leasing and development outside of PHMA and General Habitat Management Areas (GHMA). See Northwest Colorado Greater Sage-Grouse Approved RMPA at 2-14 (2015). Objective MR-I first directs BLM to prioritize leasing and development outside of PI-IMA. See *id.* ("priority would be given to leasing and development of fluid mineral resources . . . outside of PI-IMA and GHMA"). Objective MR-I then provides that when BLM leases and authorizes development of fluid minerals in PHMA and GHMA, it will give priority to "development in non-habitat areas first and then in the least suitable habitat for [Greater Sage-Grouse]." *Id.*

ConocoPhillips requests that the Proposed RMPA remove the directive to prioritize leasing and development outside of PI-IMA and GHMA from Objective MR-I because it is difficult to administer, frustrates valid existing lease rights, risks a compensatory taking of private property, and is unnecessary. First, the directive that BLM prioritize leasing and development outside of greater sage-grouse habitat is difficult to administer because the directive to "prioritize" is inherently subjective. To implement this directive, BLM must make a series of judgment determinations as to when it has appropriately prioritized leasing and development outside of greater sage-grouse habitat and then in the "least suitable" habitat so that it may then authorize leasing and development within greater sage-grouse habitat. Already, BLM is facing a lawsuit that it did not correctly prioritize leasing and development under the 2015 Utah Greater Sage-Grouse Approved RMPA, Wyoming Greater Sage-Grouse Approved RMPA, and Miles City RMP. See Complaint, *W. Watershed Project v. Zinke*, No. 01:18-cv-187 (D. Idaho April 30, 2018). BLM should avoid inviting litigation over its leasing and development decisions and remove this ambiguous directive.

Second, the directive that BLM prioritize leasing and development outside of greater sage-grouse habitat is unnecessary because such prioritization is inherent to the structure of the Draft RMPA/EIS. The Draft RMPA encourages development outside of PI-IMA by imposing the most stringent management measures, such as density and disturbance limitations, in PHMA. See Draft RMPA/EIS at 2-4 - 2-7; Northwest Colorado Greater Sage-Grouse Approved RMPA at 2-14 - 2-16 (2015). Given the structure

of and incentives created by the Draft RMPA, a directive that BLM prioritize leasing and development outside of habitat areas is redundant. Finally, the directive that BLM prioritize development outside of greater sage-grouse habitat is inconsistent with valid existing lease rights and may lead to compensable takings of private property. Federal oil and gas leases convey the right to drill for, mine, extract, remove, and dispose of oil and natural gas during a 10-year primary term and so long thereafter as oil and gas is produced in paying quantities. The directive that BLM prioritize development outside of greater sage-grouse habitat could allow BLM to indefinitely defer development of existing oil and gas leases. A prolonged or indefinite deferral is contrary to the express contractual rights granted by a federal lease. Furthermore, because a federal oil and gas lease conveys a property interest, an indefinite deferral of development may give rise to a compensable taking under the Fifth Amendment of the United States Constitution. See generally *Bass Enters. Prod. Co. v. United States*, 381 F.3d 1360 (Fed. Cir. 2004). Simply put, after BLM issues a lease, it must honor the lessee's ability to develop it. Therefore, BLM should revise Objective MR-1 to remove the requirement that it prioritize development outside of greater sage-grouse habitat.

Furthermore, Appendix C, Required Design Features, Preferred Designed Features, and Suggested Design Features of the 2015 Plan³³ needs to be removed from the finalized version of the Proposed Plan. The restrictions in Appendix C, which are designed to apply to new leases in priority habitat, are being required even in the case of leases that predate the 2015 Plan. The restrictions include the requirements to: use directional and horizontal drilling, use telemetry and remote well control, place liquid gathering facilities outside of priority areas, bury distribution lines and place new utility development and transportation routes in existing utility or transportation corridors. ³⁴ The requirements are even more problematic given that the BLM still has not defined "facility" or "disruptive facility", which makes it unclear to operators and the BLM field offices how this required design feature ("RDF") should be applied. While the RDFs are best practices utilized by industry where feasible, these practices can be impracticable, uneconomical or cause additional unnecessary habitat disturbance, and therefore should not be required. Instead, the use of these RDFs should be encouraged where practical. At a minimum, the RDFs should not be required for leases that predate the 2015 Plan.

I.4.4 Fluid Minerals Determinations

I would like to formally respond to the Colorado Sage-Grouse Draft Resource Management Plan Amendment (RMPA) and Draft Environmental Impact Statement (EIS) prepared by the BLM referring to 1793 (C0-930). My investment group, Cherokee Ridge Resources LLC, would like to request that surface access for Oil and Gas exploration be protected in the area of northwest Colorado in Moffat County Colorado and Carbon County Wyoming that could be subject to non-surface occupancy stipulations for Sage Grouse mating area protection. It is our strong belief that oil and gas operations and development in the area mapped below should be allowed access to and development of oil and gas mineral resources in order to protect our mineral, lease and development property rights. Please consider these properties in your decision of nonsurface occupancy stipulations for Sage Grouse protection areas.

Leasing CPC supports changing the management action from closing new leasing with one mile from an active lek to opening new leasing with one mile from an active lek subject to a No Surface Occupancy (NSO) stipulation. Advancements in directional and horizontal drilling allow well pads to be located outside of lek buffers and directionally drilled under the surface of lek buffers. This results in the

avoidance of surface disturbance and minimization of indirect impacts to GrSG populations and habitat within lek buffers.

Although it is difficult to fully predict the immediate and long term effects of placing a restrictive ban on development on almost half of the county as the map below would indicate, one can easily see that anyone looking to begin a development project within the county would have good reason to be very hesitant. [1] The uncertainty factor surrounding sage grouse restrictions and protection is an incentive killer for anyone wanting to make something happen in the county.

The proposed sage grouse restriction with leasing restrictions, NSO designations, and the 4-mile non-development radius around any active lek are effectively a killer for any potential resource play. The restrictions remove large areas for possible drilling locations and effectively block out any kind of regular development drilling pattern that is key for the efficient and economic development of a resource play. Worse yet, the presence of these restrictions on large areas will keep any sensible operator from even exploring for a potential resource play. The result is a potential loss to the economy that generally cannot be calculated as no one knows for sure what is being left undeveloped. These concerns have been expressed to you by Moffat County. The County's excellent analysis of the problems with the proposed sage grouse restrictions covers the shortcomings of the definitions and the related laws and authorities, and the problems inherent in managing the sage grouse population together with the reality of the local economy.

My point here is not to "Wow" you with big numbers but to point out that there is a real cost in the loss of future revenue when large areas with good oil and gas potential are restricted from development. This cost represents the loss of real jobs, real tax revenue, and real economic growth potential for Moffat County. To the west of the Niobrara oil resource play area, there are large parts of the Sand Wash Basin that have a much lower likelihood under today's economic conditions of having significant oil and gas development due to the depth of the Niobrara. Over 90% of the "Preliminary Priority Habitat" in Moffat County lies outside the Niobrara resource play area. Even in areas of development, the footprint for full development is minimal ... about 20 acres per 640 acres (~3%) with wellbores extending out up to 10,000 feet under adjacent sections. In conclusion, large areas of Moffat County are unlikely to see intensive oil and gas development. Within these areas moderate restrictions to protect the greater concentrations of the sage grouse population are not unreasonable. In areas that have good potential for oil and gas development, though, it is in the best interests of all that the review process protects equally the interests of private industry and mineral interests, both private and federal, and of the county and the state, and that the process and regulations encourage the development of any oil and gas reserves present.

The proposed sage grouse restrictions with leasing restrictions, NSO designations, and the 4-mile non-development radius around any active lek are effectively a killer for any potential resource play. The restrictions remove large areas for possible drilling locations and effectively block out any kind of regular development drilling pattern that is key for the efficient and economic development of a resource play. Worse yet, the presence of these restrictions on large areas will keep any sensible operator from even exploring for a potential resource play. The result is a potential loss to the economy that generally cannot be calculated as no one knows for sure what is being left undeveloped.

I.4.5 Modifying Waivers, Exceptions, and Modifications of Fluid Minerals Determinations

Waivers, Exceptions and Modifications to NSO Stipulation CPC also supports the appropriate and reasonable use of exceptions or modifications by BLM from NSO stipulations. As indicated in the DRMPA, topography and land use ownership need to be given consideration in allowing for exceptions or modifications to the NSO stipulation: these factors can be effectively used to manage potential impacts to GrSG populations in locating new wells. BLM needs to retain its authority to apply waivers, exceptions and modifications, as deemed appropriate for site-specific conditions, and should do so in consultation with CPW to strive for consistency in making land use decisions in Colorado. CPC does not believe it is appropriate for FWS to formally approve waivers, exceptions or modifications submitted to BLM, yet the FWS should be consulted by BLM on a programmatic level and not in regard to individual project decisions. For these reasons, CPC supports the proposed changes in the DRMPA for waivers, exceptions and modifications on NSO stipulations.

III. RECOMMENDED APPROACH TO WAIVERS, EXCEPTIONS AND MODIFICATION TO OIL AND GAS LEASE STIPULATIONS. The 2015 Colorado Plan includes numerous oil and gas lease stipulations that apply to development in order to protect sage-grouse and sage-grouse habitat, including no surface occupancy (NSO) stipulations, timing limitations and surface use limitations. The Draft Colorado EIS also relies on lease stipulations. However, the protections actually provided by the stipulations are only reliable and effective to the extent that the safeguards are applied. Waivers (permanent exemption that applies to the entire leasehold), exceptions (one-time exemption for a particular site within the leasehold) and modifications (change to the lease stipulation, either temporarily or for the term of the lease, can apply to the entire leasehold or certain areas) all permit an operator to avoid compliance with the requirements of a stipulation. Where these loopholes are permitted and used, the protections that the stipulations are supposed to provide can be undermined.

regarding consultation. The Colorado EIS should further define "consultation" as seeking consensus in recommendations and providing sufficient time for thorough discussion before a decision is made. In addition, in order to ensure that the potential for not enforcing an NSO stipulation in this area, we recommend that the stipulation also provide an opportunity for FWS to provide comments on a proposed waiver, exception or modification. In addition, the proposed approach for the NSO stipulation applicable to PHMA now permits waivers, exceptions and modifications. Colorado Draft EIS, pp. 2-5 - 2-6. The 2015 Colorado Plan only permitted exceptions and required a "unanimous" agreement among BLM, Colorado Parks and Wildlife and FWS. *Id.* In light of the risks to important habitat from not applying the NSO stipulation, we recommend that BLM further defining the meaning of the required consultation with Colorado Parks and Wildlife and also provide an opportunity for FWS to submit comments on proposed actions.

Recent studies confirm that oil and gas development can harm both sage-grouse habitat and lifecycle activities, such as breeding.⁷ Consequently, it is vital that protections associated with oil and gas development are reliably applied and, as a result, that waivers, exceptions and modifications are not broadly used to weaken those protections. While we can accept narrowly prescribed waivers, exceptions and modifications to lease stipulations that are based on very specific criteria, broad standards are not acceptable. As an example, the general approach conditions included in the Draft Colorado RMP Amendment related to NSO stipulations are more specific and include public engagement. * Waivers are permitted if the area lacks "protected attributes" - as determined through consultation with Colorado Parks and Wildlife and following a 30-day public notice and comment period

* Modifications and exceptions are permitted if: (1) impacts are fully offset by compensatory mitigation; or (2) no impacts to greater sage-grouse would occur because of terrain or habitat type - but only after consultation with Colorado Parks and Wildlife. Colorado Draft EIS, pp. 2-4 - 2-5. However, in this particular instance, we propose additional clarifications and requirements for waiver, modification or exceptions from NSO stipulations. First, the proposed approach in the Colorado Draft EIS would apply an NSO stipulation within one mile of active leks, areas that were previously closed to leasing altogether. Colorado Draft EIS, p. 2-4. The stipulation should include additional specificity.

Overall, one-time exceptions should be the preferred approach where relief is sought from protective stipulations, such that the safeguards prescribed in these stipulations will remain in place for the majority of oil and gas leases. Waivers, exceptions and modifications should only be granted from no surface occupancy (NSO) stipulations or any stipulations in PHMA after a 30-day public notice and comment period. Further, the U.S. Fish and Wildlife Service should have the opportunity to submit information for consideration prior to granting waivers, exceptions and modifications. Finally, it is critical that BLM track waivers, exceptions and modifications requested and those granted, and make that information available to the public. These records will provide important insight into how the stipulations are being applied and the potential impact of waivers, exceptions and modifications on the overall function of the plans. This information will also allow BLM to determine if the availability of or criteria for granting waivers, exceptions and modifications needs to be further narrowed in order to ensure sufficient protection for sage-grouse habitat.

Accordingly, in addition to the specific changes recommended above, we recommend that the Colorado EIS include language that provides: Exceptions will be considered prior to considering waivers or modifications. If the BLM determines that a waiver or modification is more appropriate, the reasons for such decisions will be documented. Waivers are permitted if the area lacks "protected attributes" - as determined through coordination with the appropriate state wildlife agency. Modifications and exceptions are permitted if: (1) impacts are fully and verifiably offset by compensatory mitigation; or (2) there are no impacts to greater sage-grouse because of terrain or habitat type, based on consultation with the applicable state wildlife agency. For NSO stipulations or stipulations in Priority Habitat Management Areas, waivers exceptions and modifications will only be granted following a 30-day public notice and comment period.

ConocoPhillips agrees with BLM's proposal to provide oil and gas lessees more avenues for relief from stipulations when development poses little to no risk of impacting the greater sage-grouse. Particularly, ConocoPhillips agrees with BLM's proposal to identify exceptions, modifications, and waivers to the no surface occupancy (NSO) stipulations around active leks and in Priority Habitat Management Areas (PHMA). See Draft RMPA/EIS at 2-4 - 2-6 (proposing to modify 2015 Approved RMPA Decision Nos. MD MR-1, MD, MR-2). ConocoPhillips particularly agrees with the proposal to grant exceptions to NSO stipulations when impacts can be mitigated through compensatory mitigation. *Id.* at 2-5 - 2-6. This flexibility reduces the regulatory burdens of greater sage-grouse conservation, consistent with Executive Order No. 13783, Promoting Energy Independence and Economic Growth, 82 Fed. Reg. 16,093 (Mar. 31, 2018), while limiting the impacts of such development. ConocoPhillips encourages BLM to include the modified stipulations or variations thereof in the Proposed RMPA.

The proposed changes to the 2015 Greater Sage Grouse Management plan allows for exemptions, modifications and waivers for placing well pads within the priority and critical habitat areas and a

reduction in the setback for crucial mating leks. This could result in disruption to the habitat and mating of the Greater Sage Grouse on an additional 224,200 acres of critical habitat and again, puts at risk the recovery of the Sage Grouse as well as other species dependent on the sage brush habitat.

Waivers, Exceptions and Modifications The No Action Alternative clearly outlines the process for approving exceptions under Management Directive MR-2, which includes concurrence from the BLM, CPW, and FWS. In our scoping comments, we requested the FWS role be changed to advisory because they do not have management authority over the species. The Management Alignment Alternative removes FWS, but also removes the process by which BLM and CPW would agree to any exceptions or modifications. The Management Alignment Alternative states that BLM will determine exceptions and modifications "in consultation with the State of Colorado." This provides no certainty that recommendations from the State would be followed. Also, decisions would be made at the BLM Field Office level which would increase the level of inconsistency across the state in how decisions are made. We prefer the process outlined in the No Action Alternative with clarification that the FWS role is advisory. (Based on our communications with FWS, they agree that their role in this process is intended to be advisory.) This process should also be required for exceptions or modifications to the NSO stipulation within one mile from active leks (MD MR-1).

Waivers Exceptions and Modifications Process Caerus appreciates the changes made to allow the BLM flexibility to approve waivers, exceptions and modifications. The finalized version of the Proposed Plan should explicitly allow for an exception in cases where there may be more short-term impact to the GRSG, but the overall benefits outweigh multiple impacts over a longer period of time. The concern is that the Proposed Plan currently states that an exception will only be granted in "rare situations, where such development would have no impact or would benefit GRSG management".⁴¹ This statement may be interpreted by field staff to require an operator to show absolutely "no impact" to GRSG. That situation would overlook beneficial development methods, such as phased-development, which may cause short-term impacts to the GRSG and its habitat but create overall benefits to GRSG by decreasing the total impacts by allowing a drilling rig to enter and operate in an area once rather than returning on several different occasions over a prolonged period of time.

Caerus was pleased to see the USFWS no longer participates in the approval process given that the GRSG is not a listed species under the ESA and, therefore, is a state-managed species. However, requiring the State Director's approval of a waiver after public comment is overly burdensome and creates an unreasonably high hurdle for receipt of a waiver. Decisions on waivers, exceptions and modifications should be made by the local field office as they have the on the ground knowledge of the specific situation. State Director approval and a public comment period will inevitably cause delays that can result in making development uneconomic. Lastly, while it is beneficial to have the option to relieve the stipulations in the 2015 Plan through waivers, modifications and exceptions, requiring those stipulations at the leasing stage will greatly diminish future investment from oil and gas developers on the Western Slope. Companies cannot justify investments to lease minerals that have stipulations in place such as NSO or timing limitations because of the uncertainty as to whether they will ever be able to access, develop and produce the minerals.

In Table 2-I Comparable Summary of Alternatives it is appreciated that the BIM has eliminated the United States Fish and Wildlife Service (FWS) from any decision making when considering whether or not to grant Waivers, Modifications and Exceptions (WEMs). This is especially important as FWS has no

legal jurisdiction over a non-listed species; rather, that authority is left to the State of Colorado. Garfield County believes that these decisions to grant WEMs ought to be made at the field office level rather than with the State Director as currently proposed.

Waiver: No waivers are authorized unless the area or resource mapped as possessing the attributes protected by the stipulation is determined during collaboration with the State of Colorado to lack those attributes or potential attributes. A 30-day public notice and comment period is required before waiver of a stipulation. Waivers would require BLM Northwest District Manager approval. **Modification:** In consultation with the State of Colorado, a modification (changes to the stipulation either temporarily or for the term of either part of or the entire lease) to GRSG NSO could be granted based on an analysis of the following factors: 1. It is determined, based on site-specific information (using tools such as the Habitat Assessment Framework, Habitat Quantification Tool or others), that the impacts anticipated by the proposed activity would be fully offset through compensatory mitigation developed in coordination with the State of Colorado which meets principles of compensatory mitigation including: * achieving measurable outcomes for GRSG habitat function that are at least equal to the lost or degraded values; * providing benefits that are in place for at least the duration of the impacts; * accounting for a level of risk that the mitigation action may fail or not persist for the full duration of the impact and/or [1] 2. It is determined that there is no impact to GRSG based on an evaluation of the proposed lease activities in relation to the site-specific terrain and habitat type. For example, in the vicinity of leks, local terrain features such as ridges and ravines may shield potential disruptive impacts from affecting nearby GRSG habitat. **Exception:** In consultation with the State of Colorado, an exception to GRSG within the one (1) NSO could be granted 9R El eRe URIS ~fl556 (.BRY S6EYpBRE)' RIU5t he FeRIs",ed VJ.Jth!R .t l'eR," 9f SfIPHI"Bt) based the following factors: 1. It is determined, based on site-specific Information (using tools such as the Habitat Assessment Framework, UJe (;Q/sHlrIB HB~JtBt lixMBllge, Habitat Quantification Tool or others), that the impacts anticipated by the proposed activity would be fully offset through compensatory mitigation developed in coordination with the State of Colorado which meets principles of compensatory mitigation including, but not limited to: * achieving measurable outcomes for GRSG habitat function that are at least equal to the lost or degraded values; * providing benefits that are in place for at least the duration of the impacts; * accounting for a level of risk that the mitigation action may foil or not persist for the full duration of the impact and/or 2. It is determined that there is no impact to GRSG based on on evaluation of the proposed lease activities in relation to the site-specific terrain and habitat type. For example, in the vicinity of leks, local terrain features such as ridges and ravines may shield potential disruptive impacts from affecting nearby GRSG habitat. From One (1) mile to four (4) miles of a lek in PHMA: Shall be open to leasing subject to a Controlled Sur/ace Use (CSU) designation, in consultation with the State of Colorado, where activity may occur when it can be demonstrated that there is minimal impact to GRSG based on the following: 1} Topography/areas of non-habitat create effective barrier to impacts specifically including: a. Topography b. Slope c. Distance to existing roads d. Habitat e. Proximity to existing infrastructure and development f. Agricultural lands g. Sur/ace development allowed if no, or minimal disruption to lek would occur. Z} No additional impacts would be realized above those created by existing major infrastructure (for example: State Highway 13) 3} Precludes or offsets greater impacts proposed on adjacent parcels (for example: due to land ownership patterns) 4} Where there may be on impact to GSG, compensatory mitigation shall be required. 5} No public notice is required before approval is granted by the BLM's Northwest District Manager. This is something we should consider if MOA is our approach.

Finally, it is critical that BLM track waivers, exceptions and modifications requested and those granted, and make that information available to the public. These records will provide important insight into how the stipulations are being applied and the potential impact of waivers, exceptions and modifications on the overall function of the plans. This information will also allow BLM to determine if the availability of or criteria for granting waivers, exceptions and modifications needs to be further narrowed in order to ensure sufficient protection for sage-grouse habitat.

Explicitly considering the value of habitat and the potential for actual energy production would unquestionably help the agency prioritize the right parcels for leasing.

Recent studies confirm that oil and gas development can harm both sage-grouse habitat and lifecycle activities, such as breeding. Consequently, it is vital that protections associated with oil and gas development are reliably applied and, as a result, that waivers, exceptions and modifications are not broadly used to weaken those protections. Narrowly prescribed waivers, exceptions and modifications to lease stipulations that are based on very specific criteria make sense, however broad standards are not acceptable. Further, the U.S. Fish and Wildlife Service should have the opportunity to submit information for consideration prior to granting waivers, exceptions and modifications.

In Table 2-I Comparable Summary of Alternatives it is appreciated that the BLM has eliminated the United States Fish and Wildlife Service (FWS) from any decision making when considering whether or not to grant Waivers, Modifications and Exceptions (WEMs). This is especially important as FWS has no legal jurisdiction over a non-listed species; rather, that authority is left to the State of Colorado. Garfield County believes that these decisions to grant WEMs ought to be made at the field office level rather than with the State Director as currently proposed.

CFCD supports the ability of a landowner to be able to responsibly develop mineral rights. Because many of the private lands in NW Colorado are connected to various BLM permits, there is the possibility of federal nexus. This federal nexus and the BLM planning process could have an impact on the landowners' ability to responsibly develop their minerals. CFCD is concerned that the proposed BLM exemptions or modifications that could allow oil and gas development will be very difficult to obtain. CFCD supports the application of a controlled surface use approach in the proposed BLM Plan Amendment. CFCD believes this approach will allow for more flexibility for the landowners. This approach includes various stipulations that protect the Greater Sage-Grouse. Those stipulations include a case by case analysis of the on-site conditions. Some conditions that will be analyzed include: topography, slope, distance to existing roads, habitat (or lack thereof), proximity to existing infrastructure and development, presence of agricultural lands. Surface development could be allowed if no, or minimal, disruption to a lek would occur. Habitat mitigation efforts supported by the CPW and BLM would also be taken into consideration.

Timing limitations from March 1 to July 15 can make it very difficult for operators to timely drill and complete a multi-well pad. The final RMPA/EIS should explicitly allow for an exception/modification where the benefits to GrSG outweigh the impacts. The Draft RMPA currently states that exceptions will only be granted in "rare situations, where such development would have 'no impact' or would benefit GrSG management." Draft RMPA at 4-23. Northwest Colorado Greater Sage-Grouse Draft RMPA August 2, 2018 Page 10 of 17 Field office staff may interpret this statement to only allow exceptions when there is no impact, thereby overlooking beneficial development methods. For example, phased development may cause short-term impacts to the GrSG but yield overall benefits by confining

impacts to a single span of time. BLM should allow for more efficient and less stringent means to receive waivers, exceptions, and modifications in cases where development would have more impact on the GrSG for a longer period of time. BLM should specifically allow for year-round drilling and completions. Further, requiring the State Director's approval of a waiver after public comment is overly burdensome and creates an unreasonably high hurdle for receipt of a waiver. State Director approval and a public comment period will inevitably cause delays that can result in making development uneconomic. Decisions on waivers, exceptions, and modifications should be made by the local field office as they have the on the ground knowledge of the specific situation. The decisions should be appealed to the State Director, if necessary. The need for public comment on waivers and modifications should be determined on a case-by-case basis, in accordance with 43 C.F.R. § 3101.1-4.

BLM proposes to allow leasing within one mile of active leks subject to a one-mile NSO stipulation with the option for a waiver based on consultation with the State of Colorado. Draft RMPA at 2-4. BLM further proposes an NSO stipulation in PHMA with the option for waivers, exceptions, and modifications in consultation with the State of Colorado. Id. 2-4 - 2-5. However, these leases will include an NSO stipulation at the onset which will create business uncertainty with respect to access. No company could reasonably commit capital to obtain leases without being certain that they will ever have access to the minerals. If operators are unable to access the surface, they may be less likely to lease which would have negative effects on the local and state economies which largely depend on revenue from natural resources development. The Alliance supports the proposed inclusion of the option for waivers, modification, and exclusions based on site-specific information but does not support the NSO stipulations on new leasing within 1-mile of an active lek. The NSO stipulations should be removed; instead BLM should conduct a site-specific analysis at the time of development to evaluate necessary management actions with respect to new leases.

In Table 2-I Comparable Summary of Alternatives it is appreciated that the BIM has eliminated the United States Fish and Wildlife Service (FWS) from any decision making when considering whether or not to grant Waivers, Modifications and Exceptions (WEMs). This is especially important as FWS has no legal jurisdiction over a non-listed species; rather, that authority is left to the State of Colorado. Garfield County believes that these decisions to grant WEMs ought to be made at the field office level rather than with the State Director as currently proposed.

Waivers, Exceptions and Modifications The No Action Alternative clearly outlines the process for approving exceptions under Management Directive MR-2, which includes concurrence from the BLM, CPW, and FWS. In our scoping comments, we requested the FWS role be changed to advisory because they do not have management authority over the species. The Management Alignment Alternative removes FWS, but also removes the process by which BLM and CPW would agree to any exceptions or modifications. The Management Alignment Alternative states that BLM will determine exceptions and modifications "in consultation with the State of Colorado." This provides no certainty that recommendations from the State would be followed. Also, decisions would be made at the BLM Field Office level which would increase the level of inconsistency across the state in how decisions are made. We prefer the process outlined in the No Action Alternative with clarification that the FWS role is advisory. (Based on our communications with FWS, they agree that their role in this process is intended to be advisory.) This process should also be required for exceptions or modifications to the NSO stipulation within one mile from active leks (MD MR-1).

No Surface Occupancy (NSO) Moffat County continually expresses our frustration of BLM giving no credence to local governments regarding the NSO issue which Moffat County has clearly commented against, in multiple formal comments. To list a few of our attempts to address this issue with BLM, we highlight comments from letters to BLM dated: November 26, 2013, April 29, 2014, May 12, 2015, April 16, 2018, and yet again below. While Moffat County appreciates BLM amending the original position of not leasing minerals within 1 mile radius of Sage-grouse leks, the gesture is nullified by BLM continuing to require NSO in priority habitat and 4 mile radius' from a lek. This condition is functionally the same as "No Leasing". A land use decision to close public lands to oil and gas leasing is a defacto withdrawal without complying with FLPMA withdrawal procedures, 43 U.S.c. § 1714(c). The closure of any of the major land uses affecting more than 100,000 acres requires a report to Congress. 43 U.S.c. § 1712(e). The 1.1 million acres of lands designated as No Surface occupancy makes energy development of those lands impossible. This management action requires a withdrawal and a report to Congress. Id. at § 1714(c). Moffat County has regularly and actively participated in sage grouse planning efforts dating back over 20 years. We have followed grouse population rises and falls, and we have observed population impacts (or lack thereof) from various land use activities ranging from building fences to energy development and motorized recreation. We have analyzed and believe that an NSO between 1-4 miles from a lek, even with Waivers Exceptions and Modifications (WEM's), will be detrimental to our local economy and stifle our ability as a community to grow. In addition, Sage-grouse WEMs are not needed for grouse to continue to thrive in Moffat County. The net effect of NSO in priority habitat is an administrative and defacto "no-leasing" of minerals, especially in Moffat County where grouse leks overlap 4-mile radius' to the point of blotting out surface occupancy for 1.1 million acres of land, mostly contiguous. BLM often responds to Moffat County by stating that the Waivers, Exceptions, and Modifications will still allow oil and gas development. Moffat County strongly disagrees with this statement, as WEM's deter operators in exploratory areas such as Moffat County.

No new leasing within one mile of a lek: AGNC members appreciate and support the modification of the 2015 Sage-grouse EIS to allow for directional drilling to access resources within a mile of a lek while maintaining the no surface occupancy (NSO) provision. This NSO provision will allow for Waivers, Exceptions and Modifications (WEM's) where appropriate within 1 mile of active leks and in consultation with the State of Colorado. Conditions that may be applicable for a WEM include: Topography Slope Distance to existing roads Habitat (or lack thereof) Proximity to existing infrastructure and development Agricultural lands Surface development allowed if no, or minimal disruption to a lek would occur. Habitat Mitigation efforts supported by CPW and BLM. WEM's would also occur when proposed action would offset greater impacts proposed on adjacent parcels (for example: due to land ownership patterns) WEM's would require a 30-day public notice and approval from the BLM NW District Manager.

No Surface Occupancy (NSO): AGNC members are disappointed by the stance taken by Bureau of Land Management (BLM) regarding NSO provisions. As noted above, the NSO provision with WEM's within one mile of an active lek make sense and will serve to protect the sage-grouse while simultaneously allowing for critical economic development activities to take place in the area. However, the modification related to allowing new leasing within 1 mile of an active lek is rendered useless if the NSO designation continues to apply to miles 1-4 from an active lek and essentially negates the revised maps being developed for Northwest Colorado. During a cooperating agency meeting April 6, 2018, AGNC members were assured that an NSO with WEM's 1-4 miles from an active lek would provide for development of energy resources in the counties of Northwest Colorado. At that same meeting when

the CPW and BLM were asked how they would specifically address an NSO area, our members were told that NSO means that there is to be no occupancy on the surface and, regardless of provision for WEM's, they would manage the area for no surface occupancy. This strategy will not address the concerns of AGNC members regarding NSO's if there is no language that **REQUIRES** field management personnel to evaluate every NSO 1-4 miles from active leks for WEM's. AGNC members believe a better option lies with designating the area 1-4 miles from an active lek as a Controlled Surface Use (CSU). Stipulations associated with a CSU designation would be similar to the WEM criteria listed above. Such a designation would make it clear to current and future field personnel that these areas must be evaluated for appropriate uses rather than summarily dismissed for use due to an NSO designation. Our members believe the CSU designation with stipulations achieves the objectives of both, sage-grouse protection as well as provision for economic activity.

The proposed sage grouse restrictions with leasing restrictions, NSO designations, and the 4-mile non-development radius around any active lek are effectively a killer for any potential resource play. The restrictions remove large areas for possible drilling locations and effectively block out any kind of regular development drilling pattern that is key for the efficient and economic development of a resource play. Worse yet, the presence of these restrictions on large areas will keep any sensible operator from even exploring for a potential resource play. The result is a potential loss to the economy that generally cannot be calculated as no one knows for sure what is being left undeveloped.

After much consideration and debate over two years as an active Cooperating Agency in grouse planning efforts, we recommend a Controlled Surface Use standard, which would make Colorado's sage grouse plan consistent with neighboring states, and more practically managed. We propose the management in Priority Habitat as listed below: Within 1 mile of a lek: NSO with (WEM's) in consultation with the State of Colorado, within 1 mile of active leks. Conditions which may trigger a WEM include: Topography Slope Distance to existing roads Habitat (or lack thereof) Proximity to existing infrastructure and development Agricultural lands Surface development allowed if no, or minimal disruption to a lek would occur. Habitat Mitigation efforts supported by CPW and BLM. WEM's would also occur when proposed action would offset greater impacts proposed on adjacent parcels (For example: due to land ownership patterns) WEM's would require a 30 day public notice and approval from the BLM W District Manager. 1-4 miles from a lek: Moffat County supports a Controlled Surface Use (CSU) or other stipulations for the protection of grouse from 1-4 miles from leks. Stipulations should be similar to WEM criteria listed above. Moffat County's goal is to protect and conserve sage grouse and their habitat, while providing definite assurances regarding how oil and gas development can occur from mile 1 to mile 4 from a lek.

Noteworthy comment regarding regulation 1-4 miles from a lek: The April 6, 2018 Cooperating Agency meeting provided additional clarity from Colorado Parks and Wildlife and BLM how NSO's from 1-4 miles from a lek would NOT WORK in Moffat County, despite being proposed in the draft EIS language. Firm commitments by BLM and CPW staff confirmed that they would not support oil and gas development within 1-4 miles from a lek, which is why both agencies support a NSO stipulation 1-4 miles from a lek. This interpretation by CPW is 180 degrees opposite from the Governor's Office interpretation, who tells Moffat County that if WEM's are met, then drilling in NSO's would be allowed. This is clearly not the message the EIS nor CPW broadcast. The Governor's Office insists that if WEM criteria is met, then oil and gas drilling will occur, however the actual wording in the EIS contradicts this. The EIS wording regarding WEM's actually permissive rather than mandatory. Mandatory wording

was the intent and did not carry into the final document. As it stands, BLM and CPW confirmed that WEM's would certainly be the exception rather than the standard 1-4 miles from a lek. Moffat County hosts the largest sage grouse populations in Colorado, most in eastern Moffat County, and most overlapping oil, gas, and coal reserves. Four-mile NSO regulations around leks overlap each other to the point of blotting out 1.1 million acres in eastern Moffat County. Moffat County's economic viability is dependent upon the ability of our top 10 taxpayers to extract natural resources from the ground. Moffat County's economy cannot function without adequate grouse protections and oil and gas development being acknowledged as a legitimate and desired use of land 1-4 miles from a lek. Therefore, we do not support NSO 1-4 miles from a lek, but would a CSU with stipulations protecting sage grouse. We also firmly believe the above proposal achieves both sage grouse protection as well as allowing economic activity.

Buffers The arbitrary NSO buffers need to be removed from the Proposed Plan. The Piceance Basin is vastly different topographically from the locations where the buffer studies, including the NTT Report, were conducted and only supports 4% of the GRSg population. The proposed buffers in the Proposed Plan are unreasonable given Colorado's small population of native sage grouse. By comparison, the proposed plan for the State of Wyoming-home to 37% of the sage grouse population-amends the Wyoming 2015 RMP to provide for more reasonable management actions in GRSg habitat, such as a 0.25 mile NSC) in general habitat and 0.6 mile NSO in priority habitat during certain times of the year. The Proposed Plan needs to clarify whether all buffers are being eliminated or just the buffers outlined in Appendix B of the 2015 Plan. While the BLM is not carrying forward Appendix B, the buffer distances included within Appendix B are applied in Appendix H.2.5 Step 5. Caerus understands that the State of Colorado has requested the BLM remove all references to buffers from the final plan. The 4-mile "buffer" was not intended to be NSO but rather to delineate the area of land around the well pad that should be evaluated during the approval of an oil and gas project.

A blanket 4-mile NSO around an active lek during lekking, nesting and early brood-rearing in the Piceance Basin is unnecessary and should be removed from the Proposed Plan. As explained by the State, the 4-mile buffer was intended to be a radius of an "analytical area". This is not how the BLM is applying the buffer to either valid existing rights or new leases. Like the State, the BLM should require ground-truthing and determine the appropriate management actions at that time. While Caerus appreciates the BLM excluding the buffer requirements from Appendix B of the 2015 Plan, BLM also must reconsider the other buffers restrictions such as applying NSO within 1 -mile of a lek. The NSO determination should be project and/or site-specific rather than a blanket requirement during the leasing stage. Caerus asks that the buffer restrictions be removed, and the BLM follow the local and state conservation measures.

The DEIS continues to require a No Surface Occupancy (NSO) restriction in Priority Habitat Management Areas up to 4 (four) miles from a lek subject to waivers, modifications and exceptions. A four-mile NSO restriction is not feasible and lacks credible scientific support. As an alternative, NSOs of one mile, combined with the incorporation of waivers, modifications, and exceptions, should be adopted. In addition, rather than implementing blanket restrictions, any IUPAs should recognize that directional drilling under existing leks does not impact GRSg. More specifically, in Garfield County's extremely unique landscape, this NSO restriction arbitrarily neuters vast square miles of non-habitat from multiple use activity. Garfield County requests this NSO be replaced with a Controlled Surface Unit (CSU) designation in miles 1-4 from a lek allowing for more activity in those areas with

consultation. As equally important, approval of waivers, modifications and exceptions must be made at the local level by the field managers who are most familiar with our area and not by the State Director.

The Mineral Leasing Act of 1920, as amended, and the Mineral Leasing Act for Acquired Lands of 1947, as amended, give the BLM responsibility for oil and gas leasing on BLM, National Forest, and other federal lands, as well as private lands where mineral rights have been retained by the federal government. The BLM is a multiple use agency and therefore must balance the development of mineral resources in the best interests of the country as well as managing for uses like livestock grazing, recreation, and development and conservation of wildlife habitat. Within 1 mile of a lek: NSO with Waivers, Exceptions, and Modifications (WEM's) in consultation with the State of Colorado, within 1 mile of active leks. Conditions which may trigger a WEM include: Topography; Slope; Distance to existing roads; Habitat (or lack thereof); Proximity to existing infrastructure and development; Agricultural lands; Surface development allowed if no, or minimal, disruption to a lek would occur; and Habitat Mitigation efforts supported by CPW and BLM. WEM's would also occur when proposed action would offset greater impacts proposed on adjacent parcels (for example: due to land ownership patterns) WEM's would require a 30-day public notice and approval from the BLM NW District Manager. 1-4 miles from a lek: The Districts support a Controlled Surface Use (CSU) or other stipulations for the protection of grouse from 1-4 miles from leks. Stipulations should be similar to WEM criteria listed above. Our goal is to protect and conserve sage grouse and their habitat, while providing definite assurances regarding how oil and gas development can occur from mile 1 to mile 4 from a lek which is consistent with our County's History, Custom, and Culture as noted above. NSO from 1-4 miles from a lek, would not support this goal and is not consistent with our County's History, Custom, and Culture as noted above. Therefore, the Districts cannot support the NSO restriction 1-4 miles from leks.

Rather than indiscriminately constraining use within the restricted four mile No Surface Occupancy ("NSO") area, the proposed Management Alignment Alternative of opening leasing within one (1) mile of active leks, subject to NSO, combined with the incorporation of Waivers, Exceptions, and Modifications ("WEMs") should be adopted. Further, current leases cannot be held to the newly adopted standards.

No new leasing within one mile of a lek: AGNC members appreciate and support the modification of the 2015 Sage-grouse EIS to allow for directional drilling to access resources within a mile of a lek while maintaining the no surface occupancy (NSO) provision. This NSO provision will allow for Waivers, Exceptions and Modifications (WEM's) where appropriate within 1 mile of active leks and in consultation with the State of Colorado. Conditions that may be applicable for a WEM include: Topography Slope Distance to existing roads Habitat (or lack thereof) Proximity to existing infrastructure and development Agricultural lands Surface development allowed if no, or minimal disruption to a lek would occur. Habitat Mitigation efforts supported by CPW and BLM. WEM's would also occur when proposed action would offset greater impacts proposed on adjacent parcels (for example: due to land ownership patterns) WEM's would require a 30-day public notice and approval from the BLM NW District Manager.

No Surface Occupancy (NSO): AGNC members are disappointed by the stance taken by Bureau of Land Management (BLM) regarding NSO provisions. As noted above, the NSO provision with WEM's within one mile of an active lek make sense and will serve to protect the sage-grouse while simultaneously allowing for critical economic development activities to take place in the area. However,

the modification related to allowing new leasing within 1 mile of an active lek is rendered useless if the NSO designation continues to apply to miles 1-4 from an active lek and essentially negates the revised maps being developed for Northwest Colorado. During a cooperating agency meeting April 6, 2018, AGNC members were assured that an NSO with WEM's 1-4 miles from an active lek would provide for development of energy resources in the counties of Northwest Colorado. At that same meeting when the CPW and BLM were asked how they would specifically address an NSO area, our members were told that NSO means that there is to be no occupancy on the surface and, regardless of provision for WEM's, they would manage the area for no surface occupancy. This strategy will not address the concerns of AGNC members regarding NSO's if there is no language that **REQUIRES** field management personnel to evaluate every NSO 1-4 miles from active leks for WEM's. AGNC members believe a better option lies with designating the area 1-4 miles from an active lek as a Controlled Surface Use (CSU). Stipulations associated with a CSU designation would be similar to the WEM criteria listed above. Such a designation would make it clear to current and future field personnel that these areas must be evaluated for appropriate uses rather than summarily dismissed for use due to an NSO designation. Our members believe the CSU designation with stipulations achieves the objectives of both, sage-grouse protection as well as provision for economic activity.

* The BLM needs to do a better job of protecting Priority Habitat Management Areas by reducing oil/gas development impacts. New development should be prioritized outside these important population areas and strong buffers maintained around sage-grouse leks.

The DEIS continues to require a No Surface Occupancy (NSO) restriction in Priority Habitat Management Areas up to 4 (four) miles from a lek subject to waivers, modifications and exceptions. A four-mile NSO restriction is not feasible and lacks credible scientific support. As an alternative, NSOs of one mile, combined with the incorporation of waivers, modifications, and exceptions, should be adopted. In addition, rather than implementing blanket restrictions, any IUPAs should recognize that directional drilling under existing leks does not impact GRSG. More specifically, in Garfield County's extremely unique landscape, this NSO restriction arbitrarily neuters vast square miles of non-habitat from multiple use activity. Garfield County requests this NSO be replaced with a Controlled Surface Unit (CSU) designation in miles 1-4 from a lek allowing for more activity in those areas with consultation. As equally important, approval of waivers, modifications and exceptions must be made at the local level by the field managers who are most familiar with our area and not by the State Director.

I.4.6 Lek Buffers

Clarifying the Use of Lek Buffers in Appendix B of 2015 ROD/ARMPA In modifying MD SSS-2 in the 2015 ROD/ARMPA, CPC supports the evaluation of lek buffer distances during project-specific NEPA analyses in accordance with the Guidelines for Implementation and Adaptive Management in Appendix H. Specific site conditions should be analyzed in making project-level land use management decisions.

Management alignment alternative: In general, Peabody is supportive of the intent of BLM's Management Alignment Alternative ("preferred alternative"), which attempts to align the Draft RMP/EIS with Colorado's State Management Strategies. One significant improvement involves BLM's proposed removal of the Appendix B buffer zone distances. These buffer zone distances were significantly more stringent than national recommendations or surrounding states with no justification. Instead of reliance on Appendix B, BLM states that lek buffer distances will be evaluated during project specific NEPA analysis. Peabody agrees with this approach. Distances to lek buffers should not be the deciding factor on a

project, but rather an adaptive strategy to assess and account for any impacts that will occur. Peabody requests that BLM also clarify that the distances originally listed in Appendix B are in fact, overly restrictive and should not be used even as a guideline. Again, it is clear that these distances were significantly more stringent than necessary when compared to values used by surrounding states.

The 2015 RMP also continues to implement buffer zones specific to the coal industry in the Management Decisions for Solid Minerals - Coal (See Objectives MR-7 and MD MR-23 through 31). As mentioned above, the 2015 RMP continues to impose a 2 mile buffer for surface disturbance associated with underground mining in Management Decision MR-25. This arbitrary 2 mile buffer must be removed for similar reasons as above, since there is no scientific basis for this distance and it is an unnecessarily restrictive approach to coal mine leasing.

Clarification Issues a. Lek Buffers In general, the imposition of uniform lek buffer distances without regard for site specific project impacts ignores the unique circumstances and habitat impacted by most project operations. Notwithstanding an enthusiasm exhibited in the 2015 range wide GRSG LUPA planning exercise for lek buffer uniformity, even with accommodation to modify lek buffer requirements based on local data, best available science, landscape features, and other existing protections (e.g. land use allocation state regulations), there is little scientific basis for any default standard of lek buffers to be applied by the BLM in project specific context. Instead, lek buffers must be developed in conjunction with local knowledge of GRSG seasonal movements and population responses to management actions. For the Colorado LUPA, lek buffers must be analyzed to provide greater flexibility and adaptability to make changes to buffers as new information and science becomes available and if the site will allow for a more flexible approach. But more importantly, IMA-NA pauses to offer how the imposition of potentially inflexible lek buffer requirements potentially collide with the full range of applicable laws that authorize and encourage mining on public lands, including the General Mining Law of 1872, the Surface Use Act, the Mining and Materials Policy Act, FLPMA, and the implementing regulations of those statutes. IMA-NA is concerned by how the Colorado DES refers to the rights under the mining laws and the disjointed methodology in which the Colorado DEIS uses short hand descriptions to characterize the scope and sources of rights under the 1872 Mining Law. Consideration should be given to include LUP revisions that allow for reconciliation of potential conflicts and implementation of existing surface management regulations (43 CFR Subpart 3809) in order to appropriately complement baseline land use planning with appropriate analysis of project impacts at the project specific level.

Buffer distances must be re-evaluated. Existing blanket buffers misrepresent habitat separated from non-habitat by topographic relief such as exists in Garfield County. Buffers of 3.1 miles for new roads must be removed considering leks can commonly occur and thrive adjacent to existing county roads with daily traffic as well as reclaimed well pads and pipeline routes.

Appendix B of the Colorado Greater Sage-Grouse Conservation Plan outlines guidelines for habitat disturbance. The guidelines address the designation of seasonal habitats for the Greater Sage-Grouse in unmapped seasonal habitats vs. mapped seasonal habitats. According to these guidelines, if these seasonal habitats are not mapped and field validated, the habitats should be designated by 2 concentric circles around active leks. The first circle is a 0.6 mile radius and encompasses the "lek habitat" or the portion of the breeding habitat. The 4 mile radius encompasses the nesting, early-broad-rearing, and summer-fall habitat. The plan goes on to say that on federal lands, the 0.6 mile radius area around a lek in breeding habitat could be defined as an area of no surface occupancy (NSO) or an avoidance area.

(M). The 4 mile radius is not an NSO or M. The 4 mile radius is an area of consideration where disturbance guidelines should be applied, when and if, possible. If the habitats have been mapped and field validated, then the automatic drawing of the 2 concentric circles do not apply. The management of the habitats are based on the seasonal habitats that have been mapped and field validated. This mapping/field validation approach allows for on-site disturbance analysis on a case by case basis.

Thus, in new Appendix H, BLM proposes an additional 3.1-mile lek buffer on top of the no surface occupancy restrictions in Appendix G. Unlike ARMPA Appendix B which BLM proposes to not carry forward, new Appendix H does not explain how or under what circumstances the 3.1-mile buffer will be applied or the resulting outcomes. Draft RMPA Appendix H appears to require relocation or minimization to address any impact to GrSG or GrSG habitat, which is overbroad, not supported by the best available science, and beyond BLM's authority. Id. See discussion in Sections VII and VIII. Section H.2.7 also references "unacceptable residual impacts" but does not define or explain this term. BLM appears in Appendix H to propose an additional 3.1-mile lek buffer for infrastructure related to energy development in addition to the no surface occupancy stipulations in ARMPA Appendix G. However, unlike ARMPA Appendix B, which BLM proposes to not carry forward, the new Appendix H does not explain how or under what circumstances the 3.1-mile buffer will be applied or the resulting outcomes.

With respect to buffers, the Draft RMPA utilizes lek buffer distances of 3.1 miles for infrastructure related to energy development project approval in GHMA and PHMA in addition to no surface occupancy (NSO) buffers. Draft RMPA at H-3 - H-4. BLM also imposes a 4-mile active lek buffer from March 1 to June 15. ARMPA at G-5-G-6. These operational restrictions are more restrictive than necessary to protect GrSG. Both Colorado and Wyoming apply less restrictive buffers. CPW's Actions to Minimize Adverse Impacts to Wildlife Resources (AMAIWR) applies a 0.6-mile NSO lek buffer, and BLM's 2015 ARMPA in Wyoming, home to the largest amount of GrSG habitat and highest population of GrSG, utilizes NSO lek buffers of 0.6 miles in PHMA and 0.25 miles in GHMA. In addition, the timing limitation on activities is also greater in the Draft RMPA than CPW's requirement under the AMAIWR.

No new leasing within one mile of a lek: AGNC members appreciate and support the modification of the 2015 Sage-grouse EIS to allow for directional drilling to access resources within a mile of a lek while maintaining the no surface occupancy (NSO) provision. This NSO provision will allow for Waivers, Exceptions and Modifications (WEM's) where appropriate within 1 mile of active leks and in consultation with the State of Colorado. Conditions that may be applicable for a WEM include: Topography Slope Distance to existing roads Habitat (or lack thereof) Proximity to existing infrastructure and development Agricultural lands Surface development allowed if no, or minimal disruption to a lek would occur. Habitat Mitigation efforts supported by CPW and BLM. WEM's would also occur when proposed action would offset greater impacts proposed on adjacent parcels (for example: due to land ownership patterns) WEM's would require a 30-day public notice and approval from the BLM NW District Manager.

No Surface Occupancy (NSO): AGNC members are disappointed by the stance taken by Bureau of Land Management (BLM) regarding NSO provisions. As noted above, the NSO provision with WEM's within one mile of an active lek make sense and will serve to protect the sage-grouse while simultaneously allowing for critical economic development activities to take place in the area. However, the modification related to allowing new leasing within 1 mile of an active lek is rendered useless if the

NSO designation continues to apply to miles 1-4 from an active lek and essentially negates the revised maps being developed for Northwest Colorado.

During a cooperating agency meeting April 6, 2018, AGNC members were assured that an NSO with WEM's 1-4 miles from an active lek would provide for development of energy resources in the counties of Northwest Colorado. At that same meeting when the CPW and BLM were asked how they would specifically address an NSO area, our members were told that NSO means that there is to be no occupancy on the surface and, regardless of provision for WEM's, they would manage the area for no surface occupancy. This strategy will not address the concerns of AGNC members regarding NSO's if there is no language that **REQUIRES** field management personnel to evaluate every NSO 1-4 miles from active leks for WEM's. AGNC members believe a better option lies with designating the area 1-4 miles from an active lek as a Controlled Surface Use (CSU). Stipulations associated with a CSU designation would be similar to the WEM criteria listed above. Such a designation would make it clear to current and future field personnel that these areas must be evaluated for appropriate uses rather than summarily dismissed for use due to an NSO designation. Our members believe the CSU designation with stipulations achieves the objectives of both, sage-grouse protection as well as provision for economic activity.

Tri-State would like the Resource Management Plan amendments resulting from the current plan amendment process to address using best available science to adaptively manage GrSg and allow for the creation, modification, or removal of best management or mitigation practices that will benefit the species. Tri-State is supportive of the proposed removal of ARMPA Appendix B and alternatively addressing lek buffer distances on a case by case basis using the adaptive management guidelines outlined in Appendix H of the 2018 Draft RMPA/Draft EIS.

The DEIS continues to require a No Surface Occupancy (NSO) restriction in Priority Habitat Management Areas up to 4 (four) miles from a lek subject to waivers, modifications and exceptions. A four-mile NSO restriction is not feasible and lacks credible scientific support. As an alternative, NSOs of one mile, combined with the incorporation of waivers, modifications, and exceptions, should be adopted. In addition, rather than implementing blanket restrictions, any IUPAs should recognize that directional drilling under existing leks does not impact GRSG. More specifically, in Garfield County's extremely unique landscape, this NSO restriction arbitrarily neuters vast square miles of non-habitat from multiple use activity. Garfield County requests this NSO be replaced with a Controlled Surface Unit (CSU) designation in miles 1-4 from a lek allowing for more activity in those areas with consultation. As equally important, approval of waivers, modifications and exceptions must be made at the local level by the field managers who are most familiar with our area and not by the State Director.

Buffer distances must be re-evaluated. Existing blanket buffers misrepresent habitat separated from non-habitat by topographic relief such as exists in Garfield County. Buffers of 3.1 miles for new roads must be removed considering leks can commonly occur and thrive adjacent to existing county roads with daily traffic as well as reclaimed well pads and pipeline routes.

development impacts. New development should be prioritized outside these important population areas and strong buffers maintained around sage-grouse leks.

Do a better job of protecting Priority Habitat Management Areas by reducing oil/gas development impacts. New development should be prioritized outside these important population areas and strong buffers maintained around sage-grouse leks.

Breaking the 2015 collaborated plan onto individual state plans conveniently ends the 2015 plan, not just alters that plan, inviting states to ignore the GSG requirement for landscape with more supportive habitat after fire or industrial damage. When Dept. of Interior plans to remove NSO protection over a one-mile radius around a lek, instead opening that one-mile to oil//gas leasing with waiver, modification, or exception, it allows industry to disacknowledge science findings, such as that adult male GSG have lek-fidelity but lek-attendance can decrease by up to 49% when leasing allows industrial activities like noise, new roads, night lighting, or wells in vicinity view. Also, science studies have shown that nesting female GSG and younger males have lek-avoidance when NSO protection is removed at rates and mating seasons differing from older, and more genetically valuable, males (Hollaran 2010), who may waste a mating season on what, to them, was a lek-fidelity pattern. Then, there is eventual less recruitment of males to leks as "distance within external limit of development increases" (Kaiser 2006). One other issue driving Interior to end NSO around leks is that a one-mile radius closure can involve a mix of public and private land. In a case where a lek is in P-priority habitat, a proposed lease site must be withdrawn with some incentive to accompany the change.

I.4.7 Mitigation

Potential Changes to Mitigation Strategy The Draft RMPA/EIS does not modify the "net conservation gain standard for compensatory mitigation" (page 2-3) that BLM incorporated into its 2015 plan. Instead, the BLM requests public comment on mitigation approaches and implementation; including alternative approaches to requiring compensatory mitigation. If a change in mitigation approach and implementation is developed further in the Final EIS, we recommend including an analysis of Colorado's existing mitigation measures and standards, which include some aspects of compensatory mitigation.

Our greatest concern - and a fatal flaw across all states DEISs, but particularly for Colorado - centers on mitigation. The Department's recent decision to not require compensatory mitigation (BLM Instruction Memorandum 2018-093, July 24, 2018) has altered our perspective on the intent of these plan amendments, as well as their scientific underpinning. Because this IM undermines BLM's authority, through FLPMA, NEPA and CEQ guidance, to utilize mitigation - thus undermining the Colorado plan and good faith efforts put forth by the State and numerous stakeholders - we have no choice but strongly recommend that BLM select the No Action Alternative for the CO DEIS.

H-4 Mitigation The Plan Amendment states BLM's intent is to require Sage-grouse mitigation which a) avoids, and b) minimizes, impacts of a proposed project. However, we request BLM consider mitigation as a simultaneous and viable option to benefit habitat to a greater level than avoidance or minimization by itself could achieve. Programs such as the Colorado Habitat Exchange can provide this option, considering it is implemented fairly. Moffat County understands there are reports of excessive offset ratios and inequitable requirements applied to the oil and gas industry and other ground disturbing activities, which have caused a polarization in mitigation discussions. We request BLM add a bullet point to H.2.7. which reflects BLM's intent to not penalize a project proponent beyond the disturbed habitat they must replace or hold hostage projects that have adequately avoided or minimized their impacts to Sage-grouse habitat. We also request a second bullet point be added which clarifies BLM's desire for simultaneous mitigation, avoidance, and minimization of impacts. While Moffat County supports

mitigation efforts, largely because they are negotiated agreements with proponents of projects and largely focusin g on 1:1 ratios of mitigation to disturbance. Along with our support for mitigation, we are deeply concerned about BLM implementing authority they do not have requiring Net Conservation Gains and Conservation Uplift.

Compensatory mitigation standard. The Colorado Parks and Wildlife supports the principles of Net Conservation Gain found in the 2015 LUPA. BLM incorrectly defers to CPW allowing them to use mitigation to achieve net conservation gains and conservation uplift. BLM does not have the authority under the President's and the Interior Secretary's actions to revoke the underlying authority cited by BLM when it adopted Net Conservation Gain as a mitigation standard. Net Conservation Gain is inconsistent with statutory authority. The 2018 Plan continues this concept under new language (i.e. "beneficial mitigation actions," "conservation uplift"). A mitigation strategy that requires operators to improve the land beyond its resource condition or its capabilities exceeds BLM's statutory authority under FLPMA and NEPA. FLPMA mandates that federal land activities meet the standard of undue and unnecessary degradation of the lands. 43 U.S.C. § 1732(b). Thus, this section of FLPMA allows for some degradation so long as it is due and necessary. As the DC Court of Appeals held, there is no requirement that other resources be promoted or enhanced. See *Theodore Roosevelt Coal Partnership II*, 661 F.3d 66, 76-78 (D.C. Cir. 2011) (FLPMA's unnecessary or undue degradation standard must be read in light of BLM's responsibility under FLPMA to ensure public lands are managed under multiple use and sustained yield.); *Gardner II*, U.S. Bancrpt Ct. of Appeals, 638 F.3d 1217, 1222-1223 (9th Cir. 2011) (Section 1732(b) does not mandate BLM to adopt restrictions that would completely exclude off-road vehicle use in a specific area.).

BLM Policy No Longer Supports Net Conservation Gain The net conservation gain standard relied on Secretary Order 3330 (Improving Mitigation Policies and Practices of the Department of the Interior and the Presidential Memorandum issued on November 3, 2015 (Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment). Both of these documents have been rescinded by the Executive Order 13783 (Mar. 28, 2017) and Secretary Order 3349. As of 2017, there is no authority for net conservation gain. BLM is again capitulating to CPW. No statute or law grants any cooperative agency preference or the other cooperators. See 43 U.S.C. § 1712(c)(9); 42 U.S.C. § 4332(2)(C); 43 C.F.R. § 1610.3-2; 40 C.F.R. §§ 1502.9(b), 1503.4. BLM allows CPW to play an outsized role that is entirely at odds with FLPMA's multiple use management and the perspective of the western Colorado counties that actually host the Greater sage grouse

Clarifying Mitigation Procedures in Appendix H of ROD/ARMPA CPC supports the recommendation that BLM and CPW maintain a collaborative and cooperative relationship in evaluating development projects with a potential to impact GrSG populations or habitat. COGCC's 1200 Series Rules also support this type of relationship between operators and State agencies, including COGCC and CPW, through the consultation process required for proposed oil and gas locations in sensitive wildlife habitat including GrSG. The DRMPA proposes to modify MD SSS-3 to clarify the coordination between BLM and CPW, and to identify the process for mitigation as follows: "MD SSS-3: In all Greater Sage-Grouse habitat, in undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss or degradation, the BLM will require and ensure mitigation activities consistent with the recommendation of Colorado Parks and Wildlife in the programs. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions." "If the BLM and Colorado Parks and Wildlife determine that there are

unacceptable residual impacts on the Greater Sage-Grouse or Greater Sage-Grouse habitat, the BLM will require mitigation that provides a conservation uplift and achieves the outcome consistent with the principles outlined in Appendix H (Guidelines for Implementation and Adaptive Management), consistent with the State of Colorado's Habitat Exchange and mitigation strategy."

This proposed modification is inconsistent with the BLM Instruction Memorandum (IM) 2018-093 issued on July 24, 2018 that establishes BLM's policy on compensatory mitigation. This policy also clarifies what constitutes mitigation referring to definitions for mitigation set by Council of Environmental Quality regulations in 40 CFR 1508.20 which includes the mitigation hierarchy of avoid, minimize and mitigate. CPC requests that this proposed modification reflect BLM's policy that compensatory mitigation is not a requirement for public land use, including oil and gas development, unless where the law specifically requires it. CPC agrees that BLM and CPW should strive for consistency in evaluating and mitigating potential impacts through the mitigation hierarchy. CPC encourages BLM to also recognize strategies developed in planning oil and gas development as effective means to avoid and minimize potential impacts, in addition to the operational best management practices (BMPs) applied during project implementation. Siting analysis during planning often results in proposing a location that has less of a potential impact to a sensitive species compared to other locations and may, as a result, incur more cost. Yet, the analysis and decisions that led to selecting a proposed location may not be recognized as impact avoidance or minimization measures. CPC recommends that BLM value the process and resources applied in conducting a siting analysis to obtain a NEPA project level approval as an effective mitigation practice.

As stated in BLM's compensatory mitigation policy, 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 public lands. The policy recognizes that compensatory mitigation may be required by Federal laws other than FLPMA or by a State law. The policy allows for BLM to enter into an agreement with a State to obtain information about the amount of compensatory mitigation that the State would require from a project proponent, where a state has an offsite compensatory mitigation program under State law, and if the proposed activity on Federal land were taking place on State lands. The policy allows BLM to consider voluntary compensatory mitigation proffered by a project proponent, including as a means to reach a Finding of No Significant Action (FONSI) or as part of a proposed design feature of a project. BLM's IM recognizes that under Section 302(b) of FLPMA impacts from use of public lands are allowed as long as authorized activities do not result in unnecessary or undue degradation (UDD). Avoidance and minimization actions are commonly applied to mitigate the most significant potential impacts. However, mitigation of residual impacts, in the form of compensatory mitigation, should not be necessary to address every residual impact. Compensatory mitigation should be considered as a more appropriate response for those circumstances where avoidance and minimizations measures are limited in their capacity to mitigate potential impacts. As such, compensatory mitigation should be a voluntary option or tool to offset the potential impacts under these circumstances where avoidance or minimization is limited

.For these reasons, the proposed modifications above to MD SSS-3 regarding compensatory mitigation, the Colorado Habitat Exchange and a conservation uplift should be withdrawn for the following reasons:
 * BLM's IM 2018-093 does not require public land users to be subject to compensatory mitigation for potential impacts from activities authorized on public lands. * The Colorado Habitat Exchange is not a viable tool in its current form. See CPC's comments below on the Colorado Habitat Exchange as a

mechanism for compensatory mitigation. * The previous BLM Solicitor's Opinion that BLM is authorized to impose mandatory compensation to achieve a "net conservation", has been rescinded. FLMPA cannot be reasonably interpreted to require compensatory mitigation for impacts from activities authorized on public lands that do not result in unnecessary or undue degradation. CPC requests that the BLM revise its proposed modifications to MD SSS-3 by addressing CPC's comments above and maintaining consistency with BLM's compensatory mitigation policy.

For these reasons, CPC requests that any modifications proposed by BLM to the DRMPA recognize the CHE as a potential voluntary compensatory mitigation tool in the State of Colorado. Any reference to the CHE should be consistent with BLM's IM 2018-93 and should not be required by BLM to be used as a factor for exceptions or modifications to the NSO stipulation. CPC remains hopeful that the CHE will eventually be improved to account for avoidance and minimization efforts using BMPs as a means to reduce the current disparity in calculating debits and credits through the HQT. Until then, the CHE should not be cited as a factor in determining the appropriateness of any proposed exception or modification to the NSO stipulation.

The HQT did result in lower debit calculations for new locations constructed close to an existing highway, which is also recognized by BLM as the basis for a potential exception or modification in its proposed NSO-I stipulation. Otherwise, the HQT debit calculations for these new wells at these locations do not appear to inversely correlate with distance to an active lek whereby debits increase the closer to the active lek. The HQT also does not incentivize co-location of new wells on existing well pads, although consultation with CPW supported this practice to minimize impacts to GrSG populations. It is evident that the HQT does not account for the value of BMPs, whereas BMPs are recognized and valued during consultations with CPW as an effective means to avoid or minimize potential impacts to GrSG populations and habitat. Industry's requests were ignored to address its concerns with the overly conservative assumptions set forth in the HQT that create a disparity between credits calculated from conservation projects in comparison to debits calculated from development projects. There was no sign that the group could reach a place of agreement to address these concerns. As a result, CPC and other industry representative could no longer, in good faith, participate on the Oversight Committee in supporting the CHE. CPC believes the consultation process required between oil and gas operators and the CPW under COGCC's 1200 Series Rules is better suited to address the site-specific conditions and BMPs that are essential in making sound wildlife management decisions, including and not limited to GrSG, regarding new oil and gas development in sensitive habitat areas in Colorado. As previously stated, BLM's IM 2018-093 does not require public land users to be subject to compensatory mitigation for potential impacts from activities authorized on public lands. BLM's policy now states that any compensatory mitigation that a project proponent proposes must be voluntary. BLM must not explicitly or implicitly suggest that project approval is contingent upon proposing a voluntary compensatory mitigation component.

Requested Comment on Mitigation Policy for GrSG The BLM specifically requested public comment in the DRPMA about how it should consider and implement mitigation with respect to the GrSG, including alternative approaches to requiring compensatory mitigation in BLM land use plans. CPC believes BLM's issuance of IM 2018-93 to document its compensatory mitigation policy sets the framework for compensatory mitigation. CPC supports BLM's new policy and requests that additional guidance be provided, as needed, to support implementation of this policy. In terms of BLM's overall mitigation policy, CPC requests that the BLM recognize all types of practices that serve to mitigate potential

impacts to GrSG. As previously mentioned, CPC recommends that BLM value the process and resources applied in conducting a siting analysis to avoid or minimize potential impacts in obtaining a NEPA project level approval as an effective mitigation practice. CPC also encourages BLM to recognize and value the implementation of operational BMPs that avoid or minimize potential impacts to GrSG populations or habitat. Recent technological advancements in drilling, completing and production are far superior than those applied even 10 years ago when significant research was being conducted on impacts to GrSG from oil and gas development. For additional information on the use of compensatory mitigation, CPC encourages the BLM to review the following joint response to comments by oil and gas industry trade groups: * Joint Comments on FWS's Compensatory Mitigation Policy in a letter dated January 5, 2018.² * National Endangered Species Act Reform Coalition Comments on FWS's Compensatory Mitigation Policy in a letter dated January 5, 2018.³ * Joint Comments on FWS's Draft Compensatory Mitigation Policy in a letter dated October 16, 2017.⁴

"At times the nexus between a proposed undertaking and compensatory mitigation requirements is far from clear. These concerns are particularly acute when coupled with a net conservation gain goal, which necessarily seeks to go beyond mitigating actual or anticipated harm to forcing participants to pay to address harms they, by definition, did not cause."

Net conservation gain: First, Peabody does not agree with BLM's decision, at the request of State, to maintain the "net conservation gain" standard for compensatory mitigation. The question of a net conservation gain standard is not whether it is consistent with BLM or a State's goals or targets, but whether BLM has the legal authority to require a net conservation gain. As U.S. Fish and Wildlife Service (FWS) recently explained (Federal Register, Vol. 83, No. 146, July 30, 2018, Page 36469):

The FWS concluded through statutory and case law review that the ESA does not require a net conservation gain or no net loss standard and that compensatory mitigation cannot be required for impacts to candidate or at-risk species. Application of a net conservation gain standard to the Greater Sage-Grouse is an even more direct abuse of a compensatory mitigation policy, since the species was not listed as threatened or endangered under the ESA. In fact, the BLM also recently clarified their position on compensatory mitigation in Instructional Memorandum (I.M.) 2018-093, issued July 24, 2018, which states that: "Only voluntary, project proponent-recommended compensatory mitigation may be included in stipulations, conditions of approval, or other terms and conditions in BLM land use authorizations or NEPA decisions." This document clarifies that compensatory mitigation is a voluntary process. BLM needs to remove the "net conservation gain" language from the Draft RMP/EIS without clear legal authority to maintain this requirement. Furthermore, BLM should review the remainder of the Draft RMP/EIS to ensure consistency with BLM's recently updated position on compensatory mitigation.

Surface and underground coal mines are under the regulatory authority of the Colorado Division of Reclamation Mining and Safety (DRMS) and have extensive reclamation requirements that base revegetation on pre-mining conditions. BLM states that new information continues to reaffirm the understanding that Greater Sage-Grouse is a species that selects for large, intact landscapes and habitat patches. The landscape aspects of mine reclamation (including activities such as complete reconstruction of thousands of acres of land surface, reconstruction of streams and reservoirs, creation of wildlife habitat and features, and full revegetation of the entire disturbed area) can fully support the life-stage requirements for Greater Sage-Grouse. Peabody's operations in Northwest Colorado have a

longstanding and successful reclamation program that has been specifically recognized for its sharp tailed grouse habitat. Compliance with mining reclamation regulations and collaboration with the DRMS have resulted in both successful wildlife protections and enhancement. The Draft RMP/EIS must recognize that reclamation performed by the coal mining industry is already conducted under an extensive regulatory program and is more than sufficient to support the life-stage requirements of Greater Sage-Grouse. This renders compensatory mitigation unnecessary in the majority of cases, except where needed to compensate for temporal impacts of long-term facilities.

H-4 Mitigation The Plan Amendment states BLM's intent is to require Sage-grouse mitigation which a) avoids, and b) minimizes, impacts of a proposed project. However, we request BLM consider mitigation as a simultaneous and viable option to benefit habitat to a greater level than avoidance or minimization by itself could achieve. Programs such as the Colorado Habitat Exchange can provide this option, considering it is implemented fairly. Moffat County understands there are reports of excessive offset ratios and inequitable requirements applied to the oil and gas industry and other ground disturbing activities, which have caused a polarization in mitigation discussions. We request BLM add a bullet point to H.2.7. which reflects BLM's intent to not penalize a project proponent beyond the disturbed habitat they must replace or hold hostage projects that have adequately avoided or minimized their impacts to Sage-grouse habitat. We also request a second bullet point be added which clarifies BLM's desire for simultaneous mitigation, avoidance, and minimization of impacts. While Moffat County supports mitigation efforts, largely because they are negotiated agreements with proponents of projects and largely focusin g on 1:1 ratios of mitigation to disturbance. Along with our support for mitigation, we are deeply concerned about BLM implementing authority they do not have requiring Net Conservation Gains and Conservation Uplift.

Compensatory mitigation standard. The Colorado Parks and Wildlife supports the principles of Net Conservation Gain found in the 2015 LUPA. BLM incorrectly defers to CPW allowing them to use mitigation to achieve net conservations gains and conservation uplift. BLM does not have the authority under the President's and the Interior Secretary's actions to revoke the underlying authority cited by BLM when it adopted Net Conservation Gain as a mitigation standard. Net Conservation Gain is inconsistent with statutory authority. The 2018 Plan continues this concept under new language (i.e. "beneficial mitigation actions," "conservation uplift"). A mitigation strategy that requires operators to improve the land beyond its resource condition or its capabilities exceeds BLM's statutory authority under FLPMA and NEPA. FLPMA mandates that federal land activities meet the standard of undue and unnecessary degradation of the lands. 43 U.S.C. § 1732(b). Thus, this section of FLPMA allows for some degradation so long as it is due and necessary. As the DC Court of Appeals held, there is no requirement that other resources be promoted or enhanced. See *Theodore Roosevelt Coalition v. Salazar*, 661 F.3d 66, 76-78 (D.C. Cir. 2011) (FLPMA's unnecessary or undue degradation standard must be read in light of BLM's responsibility under FLPMA to ensure public lands are managed under multiple use and sustained yield.); *Gardner v. U.S. BLM*, 638 F.3d 1217, 1222-1223 (9th Cir. 2011) (Section 1732(b) does not mandate BLM to adopt restrictions that would completely exclude off-road vehicle use in a specific area.).

Mitigation (avoidance, minimization, and compensation) as adopted in the 2015 BLM land use plans is an effective and well-established tool that the Fish and Wildlife Service relied upon to support its decision not to list the Greater Sage-Grouse as threatened or endangered under the Endangered Species Act. Sound mitigation policy provides agencies such as BLM with a structured, rational, and transparent

framework for reviewing use requests and meeting their multiple use and sustained yield mandates. The 2015 BLM sage-grouse plans employed the mitigation hierarchy to help reach their goal of protecting sage-grouse while also allowing multiple uses to proceed by ensuring that associated impacts to habitat are fully offset. 2. BLM has ample authority to apply the full mitigation hierarchy in the sage-grouse plans. Both FLPMA and case law provide BLM the discretion to seek compensatory mitigation to protect sage-grouse. 3. BLM has the authority to incorporate, implement, and enforce state sage-grouse mitigation programs that meet a recognized set of principles. We recommend that these principles should be consistent with those laid out by The Nature Conservancy in its 2015 report, *Achieving Conservation and Development: Applying the Mitigation Hierarchy*. In addition, we support compensatory mitigation programs that seek to achieve a "reasonable relationship" between impacts and compensatory mitigation and adequately account for habitat quality, temporal losses, and risk of project failure. The amount and type of compensatory mitigation should be proportional to, and have a reasonable relationship to, direct and indirect impacts. A. Mitigation is a well-established tool that was relied upon in the 2015 Fish and Wildlife Service decision to support the decision to not list the Greater Sage-Grouse as threatened or endangered under the Endangered Species Act.

Case law confirms that multiple use/sustained yield principles do "not mandate that every use be accommodated on every piece of land; rather, delicate balancing is required." *New Mexico ex rel. Richardson v. BLM*, 565 F.3d 683, 710 (10th Cir. 2009). The mitigation hierarchy, including compensatory mitigation, provides an important tool for achieving a balance among the multiple uses allowed on public lands. BLM can authorize a consumptive use, like oil and gas development, but balance that use by providing compensatory mitigation for the unavoidable losses suffered by the fish and wildlife. In other words, the mitigation hierarchy can have the effect of expediting and defending authorized consumptive uses of the public lands while simultaneously protecting fish and wildlife resource values in perpetuity. Beside the principles of FLPMA and its multiple use/sustained yield standards, individual provisions of that Act confer additional authority on BLM to apply the mitigation hierarchy. In the section on land use plans, for example, FLPMA obliges BLM to consider environmental values, such as fish and wildlife like the sage grouse, in the development of such plans.³⁰ More particularly, BLM must also "consider the relative scarcity of the values involved and the availability of alternative means...and sites for realization of those values".³¹ Sage-grouse habitat is a wildlife value with relative scarcity, as evidenced by the Fish and Wildlife Service's consideration of the species for listing under the Endangered Species Act, its designation as a special status species by BLM, and its active management by numerous Western states. In the process of developing land use plans which account for this important and relatively scarce species, BLM can provide for the use of "alternative sites" in appropriate instances, thereby resulting in avoidance. Similarly, BLM can specify "alternative means," which can include minimization as well as compensatory mitigation under appropriate circumstances. In short, resources designated as "special" by BLM should be managed through a resource goal that may necessitate compensatory mitigation actions, as appropriate.

Moreover, in issuing project-specific authorizations, BLM may attach "such terms and conditions" as are consistent with FLPMA and other applicable law.³³ This general authority also confers broad discretion on BLM to impose mitigation requirements on project applicants, including compensatory mitigation in appropriate circumstances.³⁴

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,"³² 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

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."³⁵ 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*, 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*,

The Colorado Draft EIS contain language requesting comments on how BLM should consider and implement sage-grouse mitigation: The DOI and the BLM have 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 are evaluating whether the implementation of a compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities. We request 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.

It has recently been argued by several states that BLM may only use compensatory mitigation to prevent "unnecessary or undue degradation". Under this view, where the impacts of a proposed activity have not been demonstrated to rise to the level of "unnecessary or undue degradation," any authorization of that activity which requires either net benefit or no net loss for the actual impacts would violate FLPMA. The unnecessary or undue degradation standard, however, is just a minimum standard for BLM's land management policy; it does not restrain BLM's discretion to adopt or require mitigation in circumstances that do not rise to the level of "undue or unnecessary degradation" or to implement a higher mitigation standard. As explained above, BLM has numerous authorities supporting its use of mitigation more generally, including the policies and principles underlying FLPMA, the foundational multiple use, sustained yield standard, the authority to promulgate regulations, and the specific authorities applicable to land use plans and project-specific authorizations.

Sage-grouse is certainly one of the wildlife resources to be protected under the multiple use standard, and it is a resource whose annual and periodic output is to be achieved and maintained in perpetuity under the sustained yield standard. To protect the present and long-term use of the public land for "fish and wildlife" "without impairment of the quality of the environment," BLM has the authority to apply the mitigation hierarchy for sage grouse, including compensatory mitigation in appropriate circumstances. Thus, BLM has additional, clear authority to use the mitigation hierarchy in its land use plans for the protection of the sage-grouse and its habitat.

In sum, Plaintiffs fail to establish that BLM's challenged decisions under FLPMA are arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law. Both FLPMA and the case law thus establish that BLM has ample discretion to go beyond the prevention of unnecessary or undue

degradation to seek compensatory mitigation that will meet "the 12 Western Exploration, LLC v. U.S. Department of the Interior, at 34 (citations omitted). 38 43 U.S.C. § 1702(c). long-term needs of future generations for renewable and non-renewable resources, including, but not limited to, . . . wildlife and . . . natural scenic, scientific and historical values."38 None of these authorities distinguish between avoidance, minimization, and compensatory mitigation or prohibit or circumscribe compensatory mitigation; rather, the authorities are broad and support the use of each aspect of mitigation in appropriate circumstances. BLM's obligations, discretion and authority are particularly important in coordinating with states, especially where states lack ownership or authority to carry out needed mitigation. C. BLM has the authority to incorporate, implement, and enforce state sage-grouse mitigation programs that meet a recognized set of principles. Governor Hickenlooper previously requested that "if any changes are made to the current BLM Land Use Plans they should adopt and implement state-supported mitigation programs and policies to offset them. . . ." Accordingly, the Colorado Draft EIS proposed to retain the "net conservation gain" standard and "require mitigation . . . consistent with the State of Colorado's Habitat Exchange and mitigation strategy." Colorado Draft EIS, p. ES-4. The recent issuance of Instruction memorandum (IM) 2018-093 calls this commitment into question. The Colorado Draft EIS explicitly provides for working with the Colorado Habitat Exchange and the state's approach to mitigation, stating: During the scoping process, the State of Colorado recommended close coordination between BLM and CPW when evaluating projects that have a potential to impact Greater Sage-Grouse or its habitat in order to ensure consistent application of the mitigation hierarchy. This includes compensatory mitigation programs, such as the Colorado Habitat Exchange and local conservation programs developed by local working groups. To further clarify the coordination between the BLM and CPW and to identify the process for mitigation, MD SSS-3 (2.2.1 Special Status Species) from the 2015 ROD/ARMPA will be modified to: MD SSS-3: In all Greater Sage-Grouse habitat, in undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss or degradation, the BLM will require and ensure mitigation activities consistent with the recommendation of Colorado Parks and Wildlife in the programs. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions. If the BLM and Colorado Parks and Wildlife determine that there are unacceptable residual impacts on the Greater Sage-Grouse or Greater Sage-Grouse habitat, the BLM will require mitigation that provides a conservation uplift and achieves the outcome consistent with the principles outlined in Appendix H (Guidelines for Implementation and Adaptive Management), consistent with the State of Colorado's Habitat Exchange and mitigation strategy. Colorado Draft EIS, p. I-8. In addition, the Colorado Habitat Exchange commits to achieving a "net benefit" for habitat. See, e.g., Colorado Habitat Exchange Bylaws, Article II.B. We support coordination with Colorado Parks and Wildlife and achieving benefits to grouse habitat through mitigation, including through the Colorado Habitat Exchange. The 2015 Records of Decision for Greater sage-grouse included a commitment to develop compensatory mitigation strategies in each sage-grouse management zone. As the 2015 land use plans were completed and implementation efforts began, however, several states had already completed or had begun efforts to develop compensatory mitigation strategies to implement GRSG conservation measures on state and private lands. It thus became apparent that developing federal mitigation strategies for each management 13 See, e.g., ROD for the Rocky Mountain Region (September 15, 2015), pp. I-27-28. zone would be redundant and could, in fact, create conflicts between state and federal mitigation strategies. This recognition led to the establishment of the Greater Sage-Grouse Mitigation Work Group (2016 Work Group Mitigation Report), and its charge to identify key principles for compensatory mitigation strategies as well as mechanisms to support and institutionalize collaborative state and federal GRSG mitigation efforts. The 2018 DEISs state that the purpose of the

Work Group was "to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and/or conservation measures and DOI and BLM policy." The DEISs also state that, "The BLM will work to be consistent with or complementary to the management actions in [state] plans whenever possible." Given BLM's broad authority to adopt and impose mitigation to protect sage-grouse, at a minimum, BLM certainly can act to adopt, implement and enforce the state mitigation programs for use on federal land. In doing so, it is critical to ensure that the state mitigation programs employed by BLM follow commonly recognized principles, such as those laid out by The Nature Conservancy in its 2015 report, *Achieving Conservation and Development: Applying the Mitigation Hierarchy* (2015 TNC Report). These principles include: application of the mitigation hierarchy in a landscape context; policy goals that support conservation and drive accountability; inclusion of stakeholder engagement practices; long-term, durable options; additionality, equivalence, and protection against temporal losses.

However, IM 2018-093 prohibits BLM from requiring or enforcing compensatory mitigation measures, stating: BLM will not impose, and will not build mechanisms for it to enforce, mandatory compensatory mitigation into its official actions, authorizations to use the public lands, and any associated environmental review documents, including, but not limited to, permits, rights-of-ways, environmental impact statements, environmental assessments, and resource management plans. The IM seems to leave room for BLM to work with states and their compensatory mitigation programs stating: "This policy does not affect the ability of any State government or other non-federal party to require and enforce mandatory compensatory mitigation as authorized under state law."

it is not clear how BLM would be able to adopt and enforce state mitigation plans, such as the Nevada plan or the Colorado Habitat Exchange, as part of this sage-grouse management plan, which is essential for maintaining the "regulatory certainty" required by the 2015 "not warranted" determination. Therefore, in addition to completing the necessary supplemental NEPA to evaluate the impacts of the new guidance on the Colorado Plan, discussed below, BLM must also clarify how the IM permits it to continue to uphold its commitment to the states in terms of applying state mitigation plans and will allow BLM to provide the necessary "regulatory certainty" to avoid the need for an ESA listing.

Maintain a net conservation gain standard. For a species like grouse, which are declining, this standard is important to ensure long-term sustainability/recovery.

Compensatory Mitigation i. The BLM Has Conceded that Net Conservation Gain Was Unlawfully Inserted into the Colorado ARMPA Under NEPA For purposes of the proposed RMP changes: "At the request of the State, the Management Alignment Alternative in this Draft RMPA/EIS does not modify the net conservation gain standard for compensatory mitigation that the BLM incorporated into its plans in 2015." Colorado DEIS at ES-6. But as correctly stated in the Colorado DEIS, the public was not afforded the opportunity to comment on this mitigation standard to be applied for GRSG conservation because it came well after the DEIS was published and comment period closed. *Id.* Accordingly, the United States concedes this key feature of the 2015 RMP as fatally defective as a matter of NEPA process review.

Net Conservation Gain, as a Mitigation Requirement, Is Not Authorized Under FLPMA There is no lawful authority by the BLM to impose "net conservation gain" in an RMP, even if it is a desired environmental mitigation baseline by some constituencies to this BLM land use planning review. FLPMA represents a "balance of two vital - but often competing - interests": the "need for domestic sources of minerals, food, timber, and fiber from the public lands," and the protection of "the quality of scientific,

scenic, historical, ecological, environmental, air, and atmospheric, water resource, and archeological values." *Mineral Policy Center v. Norton*, 292 F. Supp. 2d 30, 33 (D.D.C. 2003) (quoting 43 U.S.C. §§ 1701(a)(12) and (a)(8)). FLPMA contemplates and accepts that authorized land uses can have impacts on Federal lands. The statute requires the Secretary to "take any action necessary to prevent unnecessary or undue degradation of the [public] lands," 43 U.S.C. § 1732(b), a provision referred to as the UUD standard. BLM's regulations define UUD, for mining purposes, as prohibiting "conditions, activities, or practices" that are "not reasonably incident to prospecting, mining, or processing operations." 43 C.F.R. § 3809.5 (quotation marks omitted). Even if desired, the UUD standard does authorize the BLM to limit the degradation of public land resources resulting from authorized uses. The agency may prohibit not only unnecessary impacts but also those impacts that, despite being necessary to an authorized land use, are undue or excessive. As directed by Congress, FLPMA accommodates reasonable public land development in order to fulfill the vision of the multiple use mission of Western public lands. Accordingly, flexibility within designated habitat management areas is accommodated through the unnecessary and undue degradation standard as a direct expression of Congress. GRSG conservation - range wide - can comfortably be implemented to compensate for reasonable land use within important GRSG habitat without confronting FLPMA's delicate balancing of land use and land stewardship.

Truly Voluntary Conservation Should be Accounted for in the Colorado Plan Amendment In Instructional Memorandum 2018-093, the BLM recently had cause to define the parameters of voluntary compensatory mitigation. According to IM 2018-093, compensatory mitigation as a condition of permitting is not authorized under any organic direction under FLPMA as a required condition to use public lands. However, compensatory mitigation that a project proponent proposes continues to be a tool, but, importantly, must be voluntary. According to the BLM, compensatory mitigation is "voluntary" when a project proponent's activities, payments, or in-kind contributions to conduct offsite actions to minimize the impacts of a proposed action are free of coercion or duress, including the agency's withholding of authorization for otherwise lawful activity, or the suggestion that a favorable outcome is contingent upon adopting the compensatory mitigation program. Indicia of voluntary compensatory mitigation are that the BLM not explicitly or implicitly suggest that project approval is contingent upon proposing compensatory mitigation or that doing so would reverse or avoid an adverse finding. If voluntary, a project proponent may proffer such mitigation and the BLM may consider such voluntary compensation as a means to reach a finding of no significant impact ("FONSI") or as a part of a proposed designed feature of a project. See IM 2018-093. Companies have engaged in voluntary ESA conservation activity, including candidate conservation agreement with assurances (CCAAs) on private surface and candidate conservation agreement (CCA, without assurances) on federal surface. The construct, operation, and funding of these agreements have been, and will continue to be, a fundamental part of the business model of companies whose activities may affect species with special status designations or their habitat. Accordingly, to the extent such voluntary conservation is reaffirmed and voluntarily implemented, they must be accounted for appropriately in these land use plan amendments as an asset to GRSG conservation.

Mitigation Strategy and Context for Use CCA/PLC believes that BLM, Fish and Wildlife Service and Department of the Interior continue to ignore the value of state-based strategies that will yield stronger species and habitat resilience. The Management Alignment Alternative seeks to allow commercial uses on federal lands while conserving the resources for multiple uses. CCA supports this approach. Recently, the Department of the Interior has very likely undermined states' ability to implement accountable voluntary mitigation in a reasoned and meaningful fashion. CCA/PLC has great concerns

over this new guidance and implications to states' ability to manage species and habitats. Colorado, through a diverse stakeholder process, is in the final stages of developing a mitigation approach called the Colorado Habitat Exchange that offers an equitable and voluntary approach to mitigation... only after avoidance and minimizations is not deemed adequate. We request that the agencies develop a more meaningful strategy for states to utilize mitigation without the federal agencies positioning energy production above all other federal lands users. A robust mitigation program should: * result in measurable, benefit to the GSG * apply a standardized, scientifically-based methodology for assessing and quantifying the habitat conditions and outcomes associated with impacts and offsets across the range of the species * utilize a transparent and clearly articulated process for accounting, administering, and tracking mitigation projects and outcomes * enable temporary and permanent conservation contracts * include verification of impacts, offsets, and performance; and * apply a monitoring and assessment framework that assures adaptive management of the mitigation program CCA and PLC strongly suggest BLM work with states to develop and administer mitigation programs that balance resource uses and habitat management across land ownership. Ultimately, CCA/PLC believe that mitigation can be of significant importance to all resource users in allowing their permitted uses and keeping species and its habitat in desirable condition. It should be noted, that numerous categories of resource users who have permanent land and business interests in Colorado GSG range, along with counties, support this approach. The detraction comes from those who do not live in these rural communities, generation after generation. In closing, CCA/PLC appreciate the opportunity to comment on the Northwest Colorado Greater Sage Grouse Draft Resource Management Plan Amendment and Environmental Impact Statement. We look forward to ongoing constructive engagement from the Department of the Interior and the open door policy our industry sector has been shown.

The Proposed RMPA should remove the compensatory mitigation standard of "net conservation gain. Because no mitigation framework or formalized mitigation mechanism exists in Colorado, BLM should provide parameters for appropriate compensatory mitigation mechanisms. These parameters should recognize the need for a menu of different mitigation options, that thirdparty mitigation mechanisms should be utilized by multiple land users, the need for flexibility in the timing of mitigation, and the need for predictable and reasonable mitigation costs.

BLM Should Eliminate the Compensatory Mitigation Standard of "Net Conservation Gain." BLM should eliminate the mitigation standard of "net conservation gain" that was established in the 2015 Record of Decision (ROD) and Northwest Colorado Approved Resource Management Plan Amendment (ARMPA). See Draft RMPA/EIS at ES-6 (explaining that BLM did not modify "net conservation gain" standard). First, federal policy no longer supports this mitigation standard. The Secretarial Order and Presidential Memorandum upon which this standard was premised have been rescinded and revoked and are no longer national policy or policy of the Department of the Interior. See Executive Order No. 13,783 of March 28, 2017, 82 Fed. Reg. 16,093 (Mar. 31, 2017) (rescinding Presidential Memorandum of November 3, 2015, Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment); Secretarial Order No. 3349 (Mar. 29, 2017) (revoking Secretarial Order 3330 (Oct. 31, 2013)). Second, this mitigation standard is inconsistent with the Federal Land Policy and Management Act, which only allows BLM to reject land users that will result in "unnecessary or undue degradation" to the public lands. See 43 U.S.C. § 1732(b). Third, BLM lacks authority to condition development of existing federal oil and gas leases on a requirement that lessees provide compensatory mitigation. Finally, the standard of "net conservation gain" requires compensatory mitigation that is disproportionate to the impacts of development. The impropriety of this standard is reinforced by the

fact that BLM has proposed to remove this mitigation standard from its greater sage-grouse RMPAs in other states, including Utah and Wyoming. See Utah Greater Sage-Grouse Draft RMPA/EIS at ES-8, 2-5; Wyoming Draft RMPA/EIS for Greater Sage-Grouse Conservation at ES-6, 2-4, 2-16. BLM justified its proposals to eliminate this standard by noting that the standard was finalized without adequate opportunity for public comment. See *id.* ("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."). Accordingly, the Proposed RMPA should eliminate the mitigation standard of "net conservation gain" in the Proposed RMPA.

BLM Should Provide Parameters for Compensatory Mitigation Mechanisms. BLM should provide additional parameters for compensatory mitigation that may form the basis of an exception to NSO stipulations in PHMA. The Draft RMPA/EIS proposes an exception to an NSO stipulation in PI-IMA when impacts would be fully offset through compensatory mitigation that meets the following principles of compensatory mitigation: achieving measurable outcomes for Greater Sage-Grouse habitat function that are at least equal to the lost or degraded values providing benefits that are in place for at least the duration of the impacts accounting for a level of risk that the mitigation action may fail or not persist for the full duration of the impact. Draft RMPA/EIS at 2-5 - 2-6. ConocoPhillips requests that the Proposed RMPA articulate additional principles or parameters for acceptable compensatory mitigation. Currently, no formalized compensatory mitigation mechanism exists for the greater sage-grouse in Colorado. In this respect, greater sage-grouse conservation differs from Wyoming, for example, where the State of Wyoming has developed a mitigation framework and a mitigation bank offers compensatory mitigation credits for sale. See State of Wyoming Revised Compensatory Mitigation Framework (2017) I, Pathfinder Ranches, at <https://www.pathfinderranches.com/sage-grouse-credits>. Oil and gas operators and other land users in Colorado seeking compensatory mitigation must develop their own mitigation or work with a third party to do so. To inform BLM's expectations of compensatory mitigation and to make compensatory mitigation more accessible to land users, the Proposed RMPA should endorse mitigation that meetings the following parameters: A menu of options. Compensatory mitigation is not a monopoly or one-size-fits-all. Land users should be able to select from or develop compensatory mitigation that best suits their needs. Therefore, BLM should encourage multiple mitigation mechanisms. Furthermore, even when third-party mitigation mechanisms exist, BLM should allow land users to develop compensatory mitigation tailored to their needs. Third-party mitigation mechanisms should be available to multiple land users. Third-party compensatory mitigation mechanisms, such as banks and exchanges, should have broad participation among different industries and land users. Compensatory mitigation mechanisms should not be aimed at one industry, such as only oil and natural gas exploration and production.

Flexibility in timing. BLM should not require that habitat improvements be executed prior to development occurring. The requirement is unnecessarily rigid and may delay development when habitat improvements have not been executed or secured. At times, this requirement may be impossible where habitat improvements are not yet available, such as when land cannot be secured to perform habitat improvements. This requirement also favors third-party mitigation mechanisms and, when demand is limited, may cause inflated and unreasonable prices. To promote flexibility, BLM should accept pay-as-you-offsite mitigation and allow land users to pay a fee to fund offsite mitigation when land use activities occur. Predictable and reasonable costs. BLM must promote mitigation that carries predictable and reasonable costs. Costs should be predictable and should not fluctuate because of market demand or other forces. Further, costs should be reasonable as measured by several barometers of other land use

costs. Preferably, costs should be consistent with the costs of habitat improvements funded by BLM and the United States Department of Agriculture Natural Resources Conservation Service (NRCS). Costs should also be consistent with NRCS reimbursement rates. Finally, costs should not exceed the value of the directly impacted lands for uses other than oil and gas development.

Requested Comment on Mitigation Policy for GrSG The BLM specifically requested public comment in the DRPMA about how it should consider and implement mitigation with respect to the GrSG, including alternative approaches to requiring compensatory mitigation in BLM land use plans. CPC believes BLM's issuance of IM 2018-93 to document its compensatory mitigation policy sets the framework for compensatory mitigation. CPC supports BLM's new policy and requests that additional guidance be provided, as needed, to support implementation of this policy. In terms of BLM's overall mitigation policy, CPC requests that the BLM recognize all types of practices that serve to mitigate potential impacts to GrSG. As previously mentioned, CPC recommends that BLM value the process and resources applied in conducting a siting analysis to avoid or minimize potential impacts in obtaining a NEPA project level approval as an effective mitigation practice. CPC also encourages BLM to recognize and value the implementation of operational BMPs that avoid or minimize potential impacts to GrSG populations or habitat. Recent technological advancements in drilling, completing and production are far superior than those applied even 10 years ago when significant research was being conducted on impacts to GrSG from oil and gas development. For additional information on the use of compensatory mitigation, CPC encourages the BLM to review the following joint response to comments by oil and gas industry trade groups: * Joint Comments on FWS's Compensatory Mitigation Policy in a letter dated January 5, 2018.² * National Endangered Species Act Reform Coalition Comments on FWS's Compensatory Mitigation Policy in a letter dated January 5, 2018.³ ² <https://www.ipaa.org/wp-content/uploads/2018/01/Associations-Comment-FWS-Compensatory-MitigationPolicy.pdf> ³ <https://www.acwa.com/wp-content/uploads/2018/01/NESARC-Comments-on-FWS-Mitigation-Policies01-05-18.pdf> ⁸ * Joint Comments on FWS's Draft Compensatory Mitigation Policy in a letter dated October 16, 2017.⁴

As we worked with your office on an administrative draft of the 2018 Draft RMPA/EIS we were hopeful that this goal could be met. We appreciate the efforts of your staff to include recommendations from the State in the Management Alignment Alternative (Alternative B). Unfortunately, BLM's new compensatory mitigation policy released on July 24 (Instruction Memorandum 2018-093) jeopardizes BLM's ability to implement or enforce critical components of the Management Alignment Alternative. During scoping, and as a cooperating agency, the State recommended relaxing some avoidance and minimization requirements while increasing compensatory mitigation requirements. The pairing of these changes were intended to give the BLM and Colorado Parks and Wildlife (CPW), the agency with authority to manage GrSG, flexibility to locate development facilities in areas that would provide better overall conservation for the species. We believe that IM 2018-093 makes it virtually impossible for the BLM to retain the requirements for compensatory mitigation included in the Management Alignment Alternative. Without the flexibility to compensate for impacts to GrSG in areas that most need conservation, changes to avoidance and minimization measures will not meet the conservation goals and objectives of the 2015 ARMPA. By limiting or removing completely BLM's ability to require compensatory mitigation IM 2018-093 leads us to conclude that the compensatory mitigation requirements in the Draft RMPA/EIS will not be left intact in the Final RMPA and associated Record of Decision (ROD). The removal of compensatory mitigation requirements would prevent the Management Alignment Alternative from meeting the BLM's purpose and need for this planning action

which is to align with state conservation plans. (See Draft RMPA/EIS at ES-2.) It would also, importantly, not meet the purpose and need of the 2015 RMPA to avoid, minimize, and compensate for unavoidable impacts to GrSG. For these reasons, we have no other choice but to recommend the BLM adopt the No Action Alternative as outlined in the 2018 Draft RMPA/EIS.

Compensatory Mitigation The mitigation hierarchy of avoid, minimize, and compensate plays an important role in wildlife conservation as it allows for necessary impacts to wildlife from development, but offsets unavoidable impacts through conservation actions that benefit the species at another location (off-site). The full suite of the mitigation hierarchy, including compensatory mitigation, advanced by BLM in the 2015 ARMPAs, provided regulatory certainty in support of the U.S. Fish and Wildlife Service (FWS) 2015 "not warranted" finding under the Endangered Species Act and is critical to the ultimate function and success of the land use plans in conserving GrSG. As mentioned above, we have great concern that IM 2018-093 prohibits the BLM from requiring or enforcing compensatory mitigation in a federal permit. At our recommendation, the Draft Management Alignment Alternative removes the prohibition on new leases within one mile of active leks and replaces it with a No Surface Occupancy (NSO) stipulation with limited opportunity for waivers or exceptions. We also recommended allowing limited opportunities for waivers, exceptions or modifications to the NSO stipulation in priority habitat primarily when there are opportunities for impacts from the proposed activity to be fully offset through compensatory mitigation. A limited reduction in avoidance and minimization requirements can be justified with an increased role for compensatory mitigation; combined, they give BLM and CPW flexibility to site projects on the ground that meet conservation goals for the bird. Flexibility is particularly important when dealing with a patchwork of land ownership like that which exists in many parts of GrSG range in Colorado. However, without confidence that BLM will require or enforce compensatory mitigation, including State requirements, we are no longer able to support the Management Alignment Alternative.

Compensatory Mitigation Standard Sections 2.3.2 (Management Alignment Alternative) and 2.6 (Preferred Alternative) in the 2018 Draft RMPA/EIS incorrectly states that, "At the request of the State, the Management Alignment Alternative...does not modify the net conservation gain standard for compensatory mitigation that BLM incorporated into its plans in 2015." The State of Colorado did not make this request. In fact, we worked with Colorado BLM staff to clarify Management Directive SSS-3 and Appendix H in the 2015 ROD/ARMPA. These clarifications refer to compensatory mitigation principles upheld in the Colorado Habitat Exchange (CHE), which provides a "net benefit" (See CHE Bylaws) and "conservation uplift" (See Agreement between Colorado Department of Natural Resources, Colorado BLM and the Colorado Habitat Exchange) for GrSG. Colorado does agree with the language in the Draft EIS that clarifies MD SSS-3 and Appendix H. That language states (p. I-8): "If the BLM and Colorado Parks and Wildlife determine that there are unacceptable residual impacts on the Greater Sage-Grouse or its habitat, the BLM will require mitigation that provides a conservation uplift and achieves the outcome consistent with the principles outlined in Appendix H (Guidelines for Implementation and Adaptive Management), consistent with the State of Colorado's Habitat Exchange and mitigation strategy." This is a reasonable and scientifically defensible standard for compensatory mitigation that allows for necessary development and conserves GrSG by offsetting unavoidable impacts. We appreciate that, at our request, the Draft RMPA/EIS incorporates references to the Colorado Habitat Exchange and conservation uplift, and would welcome this modification to MD SSS-3. Unfortunately, however, under the new guidance in IM 2018-093, we believe that BLM will not be

permitted to implement this modification and therefore will not be permitted to support Colorado's approach to sage-grouse conservation on federal lands.

Compensatory Mitigation/Conservation Uplift Caerus was pleased with the recently released Instruction Memorandum finding that "the BLM must not require compensatory mitigation from public land users , , . 35 Given the new policy directive, Caerus requests that the BLM remove the "net conservation gain standard for compensatory mitigation" and the reference to "conservation uplift" from the Proposed Plan. Caerus understands the State of Colorado has asked for that standard to be removed from the Proposed Plan. And other states-like the State of Wyoming-have made similar requests that were incorporated in the BLM's proposed amendment to their respective plans.³⁶ "Net conservation gain" should be removed because the standard comes from the now-rescinded 2015 Presidential Memorandum on Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment. 37 The 2015 Presidential Memorandum drastically impaired the economic viability of energy development across all sectors of natural resources development and created a system of commercial exploitation of the natural resources industries. President Trump made it clear that "net gain" is not the policy of the current administration. Even if the State of Colorado requested that the BLM keep the "net conservation gain standard", the federal government does not have the statutory authority to require that standard on federal lands. Operators are only required to "minimize adverse impacts to other resources". 38 The statutory language directing BLM's management practices allows for some disturbance as a result of energy development? 9 Additionally, the "net conservation gain standard" violates the BLM's multiple use and sustainable yields statutory mandate.

The BLM also needs to ensure that compensatory mitigation will not be used as a punitive tool in future administrations. The previous administration allowed, maybe even encouraged, compensatory mitigation to be arbitrarily employed to stall and completely kill energy development in many cases. BLM needs to develop a rulemaking on when and how mitigation should be implemented.

The finalized version of the Proposed Plan should be used to provide both BLM's own field staff and industry with a clear understanding of when and how compensatory mitigation will be required. 40 Compensatory mitigation should only be used in situations where the impacts from natural resource development go above and beyond the industry standards expected from development. Additionally, compensatory mitigation should be commensurate with the actual project and not some arbitrary mitigation ratio. Mitigation ratios are inappropriately established by third-parties who seek to benefit from industry. Furthermore, reference to the Colorado Habitat Exchange and the Habitat Quantification Tool should be removed from the Proposed Plan entirely. This program has not been finalized and currently incorporates compensatory mitigation ratios that far exceed any disturbance created by an oil and gas project. The program is unworkable for industry and, if required, would halt oil and gas development on the Western Slope.

The DEIS refers to mitigation that achieves a "conservation uplift" but this is not defined anywhere and it appears to require more than an equal trade-off of impact to mitigation such as was considered (but eliminated) as the term "net conservation gain." Moreover, there exist no clear, definition and means or methodology by which such equitable mitigation and management would occur. To avoid negative economic impacts to NW Colorado, this DEIS must incorporate ground disturbance mitigation. Utilizing mitigation efforts to create equal or better habitat in disturbed areas will ensure long-term grouse habitat. There needs be a well thought out definition of what mitigation is.

The concept of 3% Disturbance Caps created for the Sage Grouse EIS must be re-evaluated for functionality and scientific validity. Density and disturbance caps violate valid existing rights and have no credible scientific basis. The one disturbance per 640-acre density cap must be removed or re-defined. Currently a surface coal mine disturbing over a hundred acres is credited with the same density disturbance as an oil well pad that disturbs three acres. Garfield County continues to strongly disagree with the BLM's intent and desire to monitor activity on private land so that it penalizes activity on public lands. We believe this to be the very definition of government overreach that goes beyond the authority of the federal government and should be eliminated from this plan. To avoid negative economic impacts to NW Colorado, this DEIS must incorporate ground disturbance mitigation. Utilizing mitigation efforts to create equal or better habitat in disturbed areas will ensure long-term grouse habitat. Per number 5 above, there needs to be a well thought out definition of what mitigation is.

Section I.5.2 Oarification of Planning Decisions in the 2015 ROD/ ARMPA, (Section MD 555-3) refers to mitigation that achieves a "conservation uplift" but this is not defined anywhere and it appears to require more than an equal trade-off of impact to mitigation such as was considered (but eliminated) as the term "net conservation gain." Again, this needs to be defined and is consistent with an equitable 1:1 ratio of impact to required mitigation.

Encourage public agencies such as CPW, the BLM, and the USFWS to work with private land owners in areas of known Suitable Habitat to better understand the actual predation threat, then collaborate on the implementation of predator mitigation programs that discourage predators, reduce productivity and recruitment of predators, and reduce predator density.

Section H.2.4 Step 4 - Determine proposed Consistency with density and Disturbance Limitations Regarding Disturbance Cap Guidance and consistent with our previous comments to the BLM in the initial RMPA review, Garfield County continues to protest the use of the 3% disturbance caps concept as it is not founded in science and is arbitrary. More specifically, as determined in the Data Quality Act Challenge to the NTT Report, the NTT Report proposed a 3% cap on disturbance that is not scientifically supported. Instead it is based on opinions, selective citation, and invalid assumptions that temporary displacement of GRS in a developed area equates to a population decline, or that GRS avoidance of an area equates to a population decline. The NTT Report presented no scientific data that achieving less than 3% total disturbance is: (1) scientifically defensible; (2) achievable; (3) would result in stable GRS populations; (4) would not result in irreparable harm to other species; and (5) would not unnecessarily have a negative effect on local economies. Additionally, Garfield County continues to strongly disagree with the BLM's intent and desire to monitor activity on private land so that it penalizes activity on public lands. We believe this to be the very definition of government overreach that goes way beyond the authority of the federal government and should be eliminated from this plan. To avoid negative economic impacts to NW Colorado, this DEIS must incorporate ground disturbance mitigation. Utilizing mitigation efforts to create equal or better habitat in disturbed areas will ensure long-term grouse habitat.

Section H.4.2 Northwest Colorado Adaptive Management Plan - Triggers: In Chapter I, it states, "Population-based management was raised as an issue for consideration during scoping for this EIS"; yet, the BLM continues to include Soft and Hard Triggers in this EIS specifically in Section 2.6 where the BLM states, "The ARMPA also includes an adaptive management strategy that includes soft and hard triggers and responses. These triggers are not specific to any particular project but identify habitat and

population thresholds" (added for emphasis). Again, Garfield County requests the BLM eliminate these so-called "triggers" as they are an unfounded carry-forward that was injected into the preferred alternative during the last 60-90 days of that process. The Cooperating Agencies and the public effectively had no opportunity to review or comment on these significant changes as has been determined through our FOIA challenge. During this same time, however, it appears environmental groups such as Wild Earth Guardians, the Wilderness Society, National Wildlife Federation and Advocates for the West were corresponding with or meeting with 001 on these same topics.

Split Estate: Garfield County requests BLM modify the EIS language so that grouse stipulations do not apply and shall not be applied by BLM, regarding split estate properties with federal minerals and private surface. The fact exists that in the absence of private landowner opposition, BLM applies stipulations for surface management when BLM owns the minerals under the private surface. BLM will not mandate the surface recommendations IF the private landowner objects, but barring no private landowner response, BLM stipulations are applied to the operator leasing the federal minerals under private surface. The problem is magnified when Colorado Parks and Wildlife provide the same surface recommendations in split estate situation. No Surface Occupancy (NSO), timing stipulations, or seasonal stipulations are common stipulations that are applied to private surface with federal minerals underlying. We request BLM provide clarity in this EIS that BLM will not apply stipulations to private surface in split estate situations. The Garfield County Board of County Commissioners, representing Garfield County as a Cooperating Agency, appreciates the opportunity to provide comments during the BLM's Environmental impact Statement (EIS) process to revise the Northwest Colorado Resource Management Plan (RMP) for the Greater Sage Grouse. The 001 must understand that misplaced and unscientific management restrictions imposed by the 2018 LUPAs will negatively impact the economies and future viability of countless communities, small businesses, agriculture, and families as well as efforts to conserve GRSG. In an October 31, 2013 press release, you stated that "(g)iven the unique landscapes and natural resources in Colorado, a Coloradobased solution is more practical than one handed down by the federal government." We heartily agree and urge you to continue to promote the incorporation of state and local plans, data, and efforts in GRSG conservation.

The BLM has ample authority to apply the full mitigation hierarchy in the sage-grouse plans. Both FLPMA and case law provide BLM the discretion to seek compensatory mitigation to protect sage-grouse. The BLM also has the authority to incorporate, implement, and enforce state sage-grouse mitigation programs that meet a recognized set of principles. We recommend that these principles should be consistent with those laid out by The Nature Conservancy in its 2015 report, *Achieving Conservation and Development: Applying the Mitigation Hierarchy*. In addition, we support compensatory mitigation programs that seek to achieve a "reasonable relationship" between impacts and compensatory mitigation and adequately account for habitat quality, temporal losses, and risk of project failure. The amount and type of compensatory mitigation should be proportional to, and have a reasonable relationship to, direct and indirect impacts.

* Maintain a strong "net conservation gain" standard. Sage-grouse habitat is largely found on federally-managed public lands, and in order to offset development and properly manage these lands, the BLM must have a strong science-based plan that includes this standard so as to give the species a chance at long-term recovery. A no net loss of habitat merely prevents additional habitat loss and is not adequate to achieve long-term conservation of sage-grouse.

* Maintain or strengthen the mitigation policy. Good policy and practice is one of the best opportunities to achieve sustainable development and conservation goals. Where impacts cannot be avoided or minimized, well-designed compensatory mitigation programs can achieve the multiple-use, sustained yield objectives.

The DEIS refers to mitigation that achieves a "conservation uplift" but this is not defined anywhere and it appears to require more than an equal trade-off of impact to mitigation such as was considered (but eliminated) as the term "net conservation gain." Moreover, there exist no clear, definition and means or methodology by which such equitable mitigation and management would occur. To avoid negative economic impacts to NW Colorado, this DEIS must incorporate ground disturbance mitigation. Utilizing mitigation efforts to create equal or better habitat in disturbed areas will ensure long-term grouse habitat. There needs be a well thought out definition of what mitigation is.

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H-4 Mitigation The Plan Amendment states BLM's intent is to require Sage-grouse mitigation which a) avoids, and b) minimizes, impacts of a proposed project. However, we request BLM consider mitigation as a simultaneous and viable option to benefit habitat to a greater level than avoidance or minimization by itself could achieve. Programs such as the Colorado Habitat Exchange can provide this option, considering it is implemented fairly. Moffat County understands there are reports of excessive offset

ratios and inequitable requirements applied to the oil and gas industry and other ground disturbing activities, which have caused a polarization in mitigation discussions. We request BLM add a bullet point to H.2.7. which reflects BLM's intent to not penalize a project proponent beyond the disturbed habitat they must replace or hold hostage projects that have adequately avoided or minimized their impacts to Sage-grouse habitat. We also request a second bullet point be added which clarifies BLM's desire for simultaneous mitigation, avoidance, and minimization of impacts. While Moffat County supports mitigation efforts, largely because they are negotiated agreements with proponents of projects and largely focusin g on 1:1 ratios of mitigation to disturbance. Along with our support for mitigation, we are deeply concerned about BLM implementing authority they do not have requiring Net Conservation Gains and Conservation U pi i ft.

Compensatory mitigation standard. The Colorado Parks and Wildlife supports the principles of Net Conservation Gain found in the 2015 LUPA. BLM incorrectly defers to CPW allowing them to use mitigation to achieve net conservations gains and conservation uplift. BLM does not have the authority under the President's and the Interior Secretary's actions to revoke the underlying authority cited by BLM when it adopted Net Conservation Gain as a mitigation standard. Net Conservation Gain is inconsistent with statutory authority. The 2018 Plan continues this concept under new language (i.e. "beneficial mitigation actions," "conservation uplift"). A mitigation strategy that requires operators to improve the land beyond its resource condition or its capabilities exceeds BLM's statutory authority under FLPMA and NEPA. FLPMA mandates that federal land activities meet the standard of undue and unnecessary degradation of the lands. 43 U.S.C. * 1732(b). Thus, this section of FLPMA allows for some degradation so long as it is due and necessary. As the DC Court of Appeals held, there is no requirement that other resources be promoted or enhanced. See Theodore Roosevelt Coal Lease Partnership II. Salazar, 661 F.3d 66, 76-78 (D.C. Cir. 2011) (FLPMA's unnecessary or undue degradation standard must be read in light of BLM's responsibility under FLPMA to ensure public lands are managed under multiple use and sustained yield.); Gardner II. U.S. BLM v. Laidley, 638 F.3d 1217, 1222-1223 (9th Cir. 2011) (Section 1732(b) does not mandate BLM to adopt restrictions that would completely exclude off-road vehicle use in a specific area.).

The DEIS refers to mitigation that achieves a "conservation uplift" but this is not defined anywhere and it appears to require more than an equal trade-off of impact to mitigation such as was considered (but eliminated) as the term "net conservation gain." Moreover, there exist no clear, definition and means or methodology by which such equitable mitigation and management would occur. To avoid negative economic impacts to NW Colorado, this DEIS must incorporate ground disturbance mitigation. Utilizing mitigation efforts to create equal or better habitat in disturbed areas will ensure long-term grouse habitat. There needs be a well thought out definition of what mitigation is.

* Good mitigation policy and practice is also one of the best opportunities to achieve sustainable development and conservation goals. Where impacts cannot be avoided or minimized, well-designed compensatory mitigation programs can achieve the multiple-use, sustained yield objectives.)

During scoping, and as a cooperating agency, the State recommended relaxing some avoidance and minimization requirements while increasing compensatory mitigation requirements. The pairing of these changes were intended to give the BLM and Colorado Parks and Wildlife (CPW), the agency with authority to manage GrSG, flexibility to locate development facilities in areas that would provide better overall conservation for the species. We believe that IM 2018-093 makes it virtually impossible for the

BLM to retain the requirements for compensatory mitigation included in the Management Alignment Alternative. Without the flexibility to compensate for impacts to GrSG in areas that most need conservation, changes to avoidance and minimization measures will not meet the conservation goals and objectives of the 2015 ARMPA. By limiting or removing completely BLM's ability to require compensatory mitigation IM 2018-093 leads us to conclude that the compensatory mitigation requirements in the Draft RMPA/EIS will not be left intact in the Final RMPA and associated Record of Decision (ROD). The removal of compensatory mitigation requirements would prevent the Management Alignment Alternative from meeting the BLM's purpose and need for this planning action which is to align with state conservation plans. (See Draft RMPA/EIS at ES-2.) It would also, importantly, not meet the purpose and need of the 2015 RMPA to avoid, minimize, and compensate for unavoidable impacts to GrSG. For these reasons, we have no other choice but to recommend the BLM adopt the No Action Alternative as outlined in the 2018 Draft RMPA/EIS.

Compensatory Mitigation The mitigation hierarchy of avoid, minimize, and compensate plays an important role in wildlife conservation as it allows for necessary impacts to wildlife from development, but offsets unavoidable impacts through conservation actions that benefit the species at another location (off-site). The full suite of the mitigation hierarchy, including compensatory mitigation, advanced by BLM in the 2015 ARMPAs, provided regulatory certainty in support of the U.S. Fish and Wildlife Service (FWS) 2015 "not warranted" finding under the Endangered Species Act and is critical to the ultimate function and success of the land use plans in conserving GrSG. As mentioned above, we have great concern that IM 2018-093 prohibits the BLM from requiring or enforcing compensatory mitigation in a federal permit. At our recommendation, the Draft Management Alignment Alternative removes the prohibition on new leases within one mile of active leks and replaces it with a No Surface Occupancy (NSO) stipulation with limited opportunity for waivers or exceptions. We also recommended allowing limited opportunities for waivers, exceptions or modifications to the NSO stipulation in priority habitat primarily when there are opportunities for impacts from the proposed activity to be fully offset through compensatory mitigation. A limited reduction in avoidance and minimization requirements can be justified with an increased role for compensatory mitigation; combined, they give BLM and CPW flexibility to site projects on the ground that meet conservation goals for the bird. Flexibility is particularly important when dealing with a patchwork of land ownership like that which exists in many parts of GrSG range in Colorado. However, without confidence that BLM will require or enforce compensatory mitigation, including State requirements, we are no longer able to support the Management Alignment Alternative.

Compensatory Mitigation Standard Sections 2.3.2 (Management Alignment Alternative) and 2.6 (Preferred Alternative) in the 2018 Draft RMPA/EIS incorrectly states that, "At the request of the State, the Management Alignment Alternative...does not modify the net conservation gain standard for compensatory mitigation that BLM incorporated into its plans in 2015." The State of Colorado did not make this request. In fact, we worked with Colorado BLM staff to clarify Management Directive SSS-3 and Appendix H in the 2015 ROD/ARMPA. These clarifications refer to compensatory mitigation principles upheld in the Colorado Habitat Exchange (CHE), which provides a "net benefit" (See CHE Bylaws) and "conservation uplift" (See Agreement between Colorado Department of Natural Resources, Colorado BLM and the Colorado Habitat Exchange) for GrSG. Colorado does agree with the language in the Draft EIS that clarifies MD SSS-3 and Appendix H. That language states (p. I-8): "If the BLM and Colorado Parks and Wildlife determine that there are unacceptable residual impacts on the Greater Sage-Grouse or its habitat, the BLM will require mitigation that provides a conservation uplift and

achieves the outcome consistent with the principles outlined in Appendix H (Guidelines for Implementation and Adaptive Management), consistent with the State of Colorado's Habitat Exchange and mitigation strategy." This is a reasonable and scientifically defensible standard for compensatory mitigation that allows for necessary development and conserves GrSG by offsetting unavoidable impacts. We appreciate that, at our request, the Draft RMPA/EIS incorporates references to the Colorado Habitat Exchange and conservation uplift, and would welcome this modification to MD SSS-3. Unfortunately, however, under the new guidance in IM 2018-093, we believe that BLM will not be permitted to implement this modification and therefore will not be permitted to support Colorado's approach to sage-grouse conservation on federal lands.

1.4.8 Habitat Management Area

Sage-grouse mapping needs to be refined: Colorado Parks and Wildlife (CPW) has documented that the maps included in the 2015 EIS need to be refined to a more local scale and AGNC members are engaged in that effort now. Refined maps are being developed with CPW that more adequately reflect appropriate sage-grouse habitat. The Colorado maps currently included in the plan identify as priority and general habitat topography and vegetation that do not support sage-grouse. These mislabeled areas effectively remove access to land that could provide viable economic opportunities for member counties but will not further the viability of the sage-grouse. AGNC members believe it is important that the new local scale maps developed with AGNC and CPW be included in the management plan with a provision that, as habitat changes and more is known about the species use of habitat types improves, mapping be updated periodically on an administrative basis.

Many recommendations have the potential to result in fewer acres of priority and general sage-grouse habitat limiting management options for the species. We recommend that managers view the landscape holistically from the need to provide large, functional, connected habitat patches that include the diversity of resources sage-grouse require seasonally, and that sagegrouse habitat management boundaries or habitat designations consider the extent and diversity of habitats required by the species annually and generationally. Information reviewed by the USGS strengthens the need for this approach to identifying and managing landscapes required by the species. The importance of ensuring that areas designated to promote sage-grouse conservation (i.e., designated priority habitats [PHMA]) adequately consider all seasonal habitats; the importance of ensuring that the implementation of spatially-derived management approaches (e.g., lek buffers to identify important habitats) is based on the amount of usable habitat and incorporates all necessary seasonal habitats; and the importance of managing PHMA and general habitats (GHMA) collectively to account for indirect effects of management decisions were all conclusions of research reviewed by the USGS (Synthesis pgs. 8 and 11). Connectivity, and the genetic dispersal within and among priority areas afforded through that connectivity, is important for maintaining sage-grouse populations, and the loss of connectivity is a strong predictor of long-term population declines (Synthesis pgs. 7, 14, 25 and 29). To conserve sage-grouse, areas of management focus (i.e., PHMA) need to include all necessary seasonal ranges (e.g., breeding, summer and winter ranges), and these distinct habitats need to be effectively connected within and among priority areas (i.e., dispersal of individuals that results in gene flow within and among priority areas must be maintained). Amendments proposed to the LUPs reducing or eliminating management options in designated habitats - particularly proposed amendments in GHMA - limit the ability of agencies to manage at scales necessary to maintain these connections. The site-level approach to management promoted by the proposed amendments could result in situations where, for example, an impact could be minimized at the local scale yet remain an impact at larger scales (e.g., impacts to a critical travel corridor between seasonal

ranges or among priority habitats; impacts to a regionally-limiting seasonal habitat type), and these residual impacts would go unnoticed until priority populations suffer. We recommend that the BLM manage the landscape holistically and collectively, and that all sage-grouse habitats regardless of designation remain an integral component of that management approach.

Modifying Priority and General Habitat Management Areas CPC supports the use of a set of criteria by the CPW to identify priority and general habitat management areas. CPC encourages the BLM to continue relying on CPW's expertise and resources to develop and maintain state-wide maps in order to designate habitat quality, based on knowledge of field conditions in identifying active and inactive leks, vegetation cover and maturity, and impacts to habitat including those associated with intrusion by wildfire, cheat grass growth, conifer growth, and other criteria. COGCC's Rules state that maps showing the extent of sensitive wildlife habitat maps be subject to update on a periodic, but no more frequent than a biennial basis, and may be modified only through the Commission's rulemaking procedures. Appendix VIII of COGCC's Rules contains the Sensitive Wildlife Habitat Maps developed by CPW, including a map for GrSG production areas, which COGCC relies on to identify proposed oil and gas locations that are subject to CPW consultation. CPC recommends that BLM and COGCC both utilize similar maps developed from CPW's data and analysis to designate GrSG habitat in order to maintain consistency between federal and state regulatory programs to promote protection of GrSG populations and habitat. For these reasons, CPC supports the proposed clarification in the DRMPA that priority and general habitat management areas be identified using a set of criteria by CPW. CPC participated in the development of the Colorado Habitat Exchange (CHE) beginning in 2015, when CPC was first established as a division of API in Colorado. CPC and two other trade groups represented industry on the Oversight Committee of the CHE until July of 2018, when all three industry representatives tendered their resignation from this committee. Several of CPC/API's members participated in extensive discussions during the development of the CHE beginning with the kickoff meeting in 2011 and supported the recent decision to no longer participate in the CHE.

CPC and its members recognize the potential value of a habitat exchange as a voluntary tool to promote habitat conservation and compensatory mitigation. With that being said, after several years of participation in a contentious process to develop the CHE, including the creation of its Habitat Quantification Tool (HQT), the oil and gas industry is no longer willing to support the CHE, even as a voluntary tool, to provide a mechanism for compensatory mitigation for impacts to GrSG populations or habitat. The HQT was subject to pilot testing in 2017 by a Colorado oil and gas operator for a 10-well drilling program it had implemented. This followed consultations with CPW as part of the permitting process for this program, which involved 5 new and 5 existing well pad locations in GrSG habitat in Jackson County, CO. None of the proposed new wells were located within the 1 km buffer around an active lek. The HQT calculated a compensatory mitigation obligation of approximately 2700 functional acres for the impacts attributed to this development project, which disturbed less than 60 acres in total. These pilot testing results show the disparity in the valuation of credit and debit projects using the HQT. A major contributor to this disparity appears to be attributed to the calculation of "indirect" impacts over a 30-year life of a well. These "indirect" impacts are reportedly caused by traffic and noise associated with routine production activities, which can reportedly be "felt" by GrSG populations even outside the 1 km lek buffer. The HQT failed to account for the use of centralized production facilities as a BMP, whereby truck traffic to individual well pads is reduced overall by limiting traffic to a central production facility located in less sensitive habitat that services multiple well pads

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Habitat mapping and adaptive management: There are also major problems with the delineation and mapping of priority habitat areas. The mapping represents a broad-brush characterization of these areas with rationale not clearly defined. Mining operations are required by regulation to conduct wildlife monitoring and vegetation monitoring in the vicinity of the operations. This site-specific information provides far more detail than the current representations of Priority Habitat Management Areas (PHMA) and General Habitat Management Areas (GHMA). Peabody requests that where priority and/or general habitat overlaps with mining operations, that BLM coordinate with the mining operation for site-specific data and put emphasis on this rather than the general mapping associated with the PHMA and GHMA delineations.

The BLM went one step further in the 2015 RMP and defined the PHMA as "essential habitat" to maintain priority species under the suitability criteria in BLM regulations. BLM is clearly reaching beyond the original intent of the regulations. While the BLM regulations stipulate that active dancing and strutting grounds for sage grouse and sharp-tailed grouse may be considered unsuitable, the regulations allow a lease to be issued if, after consultation with the State, the BLM determines that the mining will not have a significant long-term impact on the species. This encompasses an adaptive management approach and is consistent with the regulatory framework under Surface Mining Control and

Reclamation Act (SMCRA). BLM must revise the suitability language and habitat restrictions to recognize their regulatory flexibility and adopt an adaptive management approach in designating and addressing PHMA and GHMA. As previously explained, the adaptive management approach should also recognize the exemplary controls already being implemented through SMCRA regulations when assessing potential impacts. BLM provided insight on this issue in I.M. 2018-093, which recognizes that the project approval standard of avoiding "unnecessary or undue degradation" infers that some level of impairment may be necessary and due under the BLM's multiple use mandate. This is where adaptive management will come into play.

Many recommendations have the potential to result in fewer acres of priority and general sage-grouse habitat limiting management options for the species. We recommend that managers view the landscape holistically from the need to provide large, functional, connected habitat patches that include the diversity of resources sage-grouse require seasonally, and that sagegrouse habitat management boundaries or habitat designations consider the extent and diversity of habitats required by the species annually and generationally. Information reviewed by the USGS strengthens the need for this approach to identifying and managing landscapes required by the species. The importance of ensuring that areas designated to promote sage-grouse conservation (i.e., designated priority habitats [PHMA]) adequately consider all seasonal habitats; the importance of ensuring that the implementation of spatially-derived management approaches (e.g., lek buffers to identify important habitats) is based on the amount of usable habitat and incorporates all necessary seasonal habitats; and the importance of managing PHMA and general habitats (GHMA) collectively to account for indirect effects of management decisions were all conclusions of research reviewed by the USGS (Synthesis pgs. 8 and 11). Connectivity, and the genetic dispersal within and among priority areas afforded through that connectivity, is important for maintaining sage-grouse populations, and the loss of connectivity is a strong predictor of long-term population declines (Synthesis pgs. 7, 14, 25 and 29). To conserve sage-grouse, areas of management focus (i.e., PHMA) need to include all necessary seasonal ranges (e.g., breeding, summer and winter ranges), and these distinct habitats need to be effectively connected within and among priority areas (i.e., dispersal of individuals that results in gene flow within and among priority areas must be maintained). Amendments proposed to the LUPs reducing or eliminating management options in designated habitats - particularly proposed amendments in GHMA - limit the ability of agencies to manage at scales necessary to maintain these connections. The site-level approach to management promoted by the proposed amendments could result in situations where, for example, an impact could be minimized at the local scale yet remain an impact at larger scales (e.g., impacts to a critical travel corridor between seasonal ranges or among priority habitats; impacts to a regionally-limiting seasonal habitat type), and these residual impacts would go unnoticed until priority populations suffer. We recommend that the BLM manage the landscape holistically and collectively, and that all sage-grouse habitats regardless of designation remain an integral component of that management approach.

addressed in the plan based on new information." Such actions, which do not involve formal public involvement or NEPA analysis, should only be used for small boundary adjustments of an existing individual habitat management area. We propose that an adjustment (adding or subtracting acreage) comprising not more than 3% of an existing polygon would qualify as appropriate for a maintenance action. For larger adjustments, NEPA and BLM planning rules and procedures should apply, requiring a plan amendment and public engagement, as well as the following provisions, before any adjustment of habitat management boundaries: * Federal, state, and local agencies, and other interested stakeholders, should have the opportunity to participate. * There should be public notice of proposed changes, and an

opportunity for the public to comment. * Adjustments should be based on the best available, science-based information, including all applicable peer-reviewed research papers. * Review of boundaries would occur every five years, unless more frequent adjustments are necessary, as determined by BLM and the relevant state agency * Boundaries would generally not be adjusted to exclude non-habitat areas if those areas are wholly contained within existing management boundaries. * Areas within habitat management boundaries not currently used by sage-grouse but ecologically capable of supporting sage-grouse would not be removed from existing management boundaries. As part of this process, states may convene working groups to recommend boundary adjustments, as long as the recommendations of those groups are made available to the public for comment. Because of the concern of a future listing under ESA, any changes should not represent a meaningful decrease in the current level of conservation under the 2015 Sage-grouse Plans. In the event that BLM wants to address the potential for broader habitat adjustments, then the agency can conduct additional analysis to evaluate the impacts of increasing and reducing habitat within a larger area (i.e., greater than 3% of the identified habitat management area polygon), which could then be tiered to for later adjustments.

HABITAT BOUNDARY ADJUSTMENTS SHOULD BE BASED ON BEST AVAILABLE SCIENCE AND DATA, AND MADE WITH FULL TRANSPARENCY. The Draft Colorado EIS provides for adjustment of sage-grouse habitat management boundaries. Colorado Draft EIS, p. I-9; Appendix H, p. H-10. We support transparent and consistent science-based efforts to ensure that any habitat management boundaries changes (1) represent the most available up-to-date and accurate information; and (2) do the most effective job possible of conserving sage-grouse habitat, and do not result in a meaningful decrease in the current level of conservation provided by the 2015 Colorado Plan. Moreover, boundary adjustments and complementary adjustments of related management prescriptions should only be made to reflect a changed understanding of the preferences of the species and/or data showing changed use and conditions of habitat; adjustments may not be made to accommodate a proposed use that might otherwise be prohibited or conditioned based on a different habitat classification. We recognize that some changes to boundaries will be so small that they do not require a plan amendment. Plain maintenance procedures are available to refine or clarify a previously approved decision. BLM's regulations and Land Use Planning Handbook provide that "land use plan decisions and supporting components can be maintained to reflect minor changes in data" but "[m]aintenance is limited to further refining, documenting, or clarifying a previously approved decision incorporated in the plan." Examples of appropriate plan maintenance provided in the BLM Land Use Planning Handbook include "correcting minor data, typographical, mapping, or tabular data errors in the planning records after a plan or plan amendment has been completed" and "refining the known habitat of a special status species

As contained in Kathleen Benedetto's response to Secretarial Order 3353 on August 4th, 2017, she specially identified and prioritized incorporating updated habitat boundaries into habitat management areas in her recommendation to improve the RMPA. Since the adoption of the 2015 RMPA ROD, Garfield County has worked closely with CPW to revise habitat maps in Garfield County. These maps have been approved by the CPW leadership and need to be incorporated into this DEIS. As an alternative, these new habitat maps should be incorporated through an administrative process as soon as the Associated Governments of Northwest Colorado (AGNC) project is complete.

Figure I-1 Northwest Colorado Planning Area (page I-3) is an old map that does not reflect the current best available revised mapping for habitat in Garfield County. As a testament to Garfield County's continued vigilance and significant investment in the issues, we recently worked through a process with

Colorado Parks and Wildlife (CPW) and the Associated Governments of Northwest Colorado (AGNC) to revise the habitat maps in not only Garfield County but also in the other counties in NW Colorado that host grouse populations. As a result, CPW has approved and endorsed the resulting habitat maps for Garfield County that better identify refined habitat for Greater SageGrouse consistent with direction provided by the BIM in Instructional Memorandum 12-044. Garfield County specifically requests the following: a) Garfield County requests the revised habitat map (attached as Exhibit A) replace the existing habitat map in this revised RMP. b) Garfield County requests the BIM adopt a prior notification tool/protocol that alerts local governments that the BIM is considering a change to habitat maps for the GSG and are invited to participate in the requested change.

Table I-3 Acres of Greater Sage Grouse Habitat by County in the Decision Area has wrong acreage for Garfield County. The recent mapping that was approved by CPW and AGNC have PHMA at 89,699 and GHMA at 95,730 acres. This is particularly important should calculating the disturbance caps remain in Garfield County. All of these numbers should be verified.

Table I-4 Acres of Greater Sage Grouse Habitat by BIM District / Field Office in the Decision Area has wrong acreage for both the Colorado River Valley Field Office and the Grand Junction Field Office. The recent mapping that was blessed by CPW and AGNC have PHMA at 89,699 and GHMA at 95,730 acres. This is particularly important should calculating the disturbance caps remain in Garfield County. All of these numbers should be verified.

Section H.4.3 - Adaptive Management - Habitat Boundaries: As a testament to Garfield County's continued vigilance on the issues regarding the Greater Sage Grouse, we recently worked through a process with Colorado Parks and Wildlife (CPW) and the Associated Governments of Northwest Colorado (AGNC) to revise the habitat maps in not only Garfield County but also in the other counties in NW Colorado that host grouse populations. As a result, CPW has approved and endorsed the resulting habitat maps for Garfield County that better identify areas not suitable for greater sage-grouse that can be used for existing and new economic development activities without reducing the level of greater sage-grouse conservation. Garfield County specifically requests these revised habitat maps (attached as Exhibit A) replace the existing habitat maps in this revised RMP. Garfield County requests the BLM adopt a prior notification tool/protocol that alerts local governments that the BLM is considering a change to habitat maps for the GSG and are invited to participate in the requested change.

Sage-grouse mapping needs to be refined: Colorado Parks and Wildlife (CPW) has documented that the maps included in the 2015 EIS need to be refined to a more local scale and AGNC members are engaged in that effort now. Refined maps are being developed with CPW that more adequately reflect appropriate sage-grouse habitat. The Colorado maps currently included in the plan identify as priority and general habitat topography and vegetation that do not support sage-grouse. These mislabeled areas effectively remove access to land that could provide viable economic opportunities for member counties but will not further the viability of the sage-grouse. AGNC members believe it is important that the new local scale maps developed with AGNC and CPW be included in the management plan with a provision that, as habitat changes and more is known about the species use of habitat types improves, mapping be updated periodically on an administrative basis.

The economic impact assessment from what I could see only captured the benefit from drilling and does not accurately reflect the economic value of recreation, tourism, and the value of land in its natural state. If anything given development and the lose of habitat resulting from increased fire activity

(resulting from warming caused by burning fossil fuels) the amount of protected habitat should be increased.

Figure I-1 Northwest Colorado Planning Area (page I-3) is an old map that does not reflect the current best available revised mapping for habitat in Garfield County. As a testament to Garfield County's continued vigilance and significant investment in the issues, we recently worked through a process with Colorado Parks and Wildlife (CPW) and the Associated Governments of Northwest Colorado (AGNC) to revise the habitat maps in not only Garfield County but also in the other counties in NW Colorado that host grouse populations. As a result, CPW has approved and endorsed the resulting habitat maps for Garfield County that better identify refined habitat for Greater SageGrouse consistent with direction provided by the BIM in Instructional Memorandum I2-044. Garfield County specifically requests the following: a) Garfield County requests the revised habitat map (attached as Exhibit A) replace the existing habitat map in this revised RMP. b) Garfield County requests the BIM adopt a prior notification tool/protocol that alerts local governments that the BIM is considering a change to habitat maps for the GSG and are invited to participate in the requested change.

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The Draft RMPA proposes to carry forward broad, outdated GIS mapping to establish overly broad habitat designations that are not representative of biologically-significant GrSG habitat. The ARMPA and the Draft RMPA fail to explain the data or assumptions of the GIS mapping for habitat. They further fail to disclose the potential variables that impact the viability and accuracy of such broad-scale GIS habitat mapping. BLM purports to have consulted with CPW with respect to habitat mapping but does not explain the outcome of this consultation on the habitat maps. In addition, BLM does not appear to have incorporated habitat data collected by various local

The final RMPA should rely on CPW's and local counties' GrSG habitat data and maps. These maps should be used as guidelines, with final habitat determinations based on sitespecific ground-truthing. In addition, any habitat map modification should include CPW and county input.

Solid Minerals - Coal Tri-State requests further amendment and/or clarification to MD MR-23 and MD MR-24 in the ARMPA. As was also covered in Tri-State's past comments, it remains unclear whether these MDs are an outright prohibition on new or modified surface coal leases in priority habitat management areas (PHMA) or whether it means that new leases in PI-IMA would be reviewed and possibly allowed according to the process outlined in 43 CFR, Part 3461.5. If MD MR-24 is an outright prohibition on new leases in PHMA, that would be overly restrictive compared to MDs for other types of land disturbing activities in the ARMPA. If MD MR-24 is an outright prohibition in PHMA, it should be

changed to allow for case by case review under an adaptive approach that would include the consideration of other factors such as mitigation and mine reclamation.

We know that grouse don't do well with energy development so Priority Habitat Management areas in CO should be avoided by energy developers. Focus should be to develop lower priority habitat areas, to minimize negative impacts to our grouse - as recent studies confirm that oil and gas development can harm both sage-grouse habitat and life-cycle activities (which can have population impacts)

I.4.9 Livestock Grazing

Livestock grazing is improperly treated as a primary GRSB threat.

In addition to the positive ecological effects of properly managed livestock grazing, maintaining viable ranching operations that include both NFS and private land helps to preserve more expansive and unfragmented landscapes that benefit wildlife.⁴ Loss of access to forage on NFS land negatively impacts the economic viability of ranching operations and could lead to conversion or development of private rangelands that would fragment wildlife habitat. There is a need for the planning effort to emphasize the positive impacts of properly managed livestock grazing to correct misinformed public opinions about livestock grazing.

I.4.10 Habitat Objectives

The 2015 sage-grouse plans are based on the best available science and responsibly balance energy development, recreation, grazing, and other activities on public lands. Proposed changes to the plans in these seven states would undermine the progress that has been made to ensure continued productivity of sagebrush habitat and allow for responsible development across the West on lands owned by all Americans.

Notably, the Habitat Objectives Table 2.2 ("Table 2.2") is unrealistic, unfounded, and should be struck in its entirety. Neither the BLM nor the U.S. Forest Service ("USFS") has any existing data to determine whether any allotment is capable of meeting the grass height and canopy cover requirements, and the development of such data would require excessive time and expense.

I.4.11 Preferred Alternative

CPC strongly supports the intent of the DRMPA to improve the alignment between individual state plans and/or conservation measures, and DOI and BLM policy. States have authority for managing wildlife populations and work with local governments and stakeholders to balance conservation and business development practices in consideration of their socioeconomic impacts. CPC believes through BLM's collaboration and cooperation with State agencies, that in turn collaborate with local governments and other stakeholders, conservation strategies will be better crafted and have more meaningful outcomes.

Section 2.3.2 Management Alignment Alternative, states in the first line that "This alternative is derived through coordination (highlighted for emphasis) with the State and cooperating agencies ... " We believe this should be replaced with cooperation as there was no meaningful "coordination" in terms of how FIPMA uses the word coordination. Further, and consistent with many of the comments made herein, there is no mention of any coordination with local plans. It discusses consistency between State and

Federal Plans but fails to coordinate with local plans despite requirements to do so in Section 202(c)(9) of FIPMA.

Further, consistent with the discussion above, we believe that if BLM were to choose the Management Alignment Alternative (Alternative B) as its preferred alternative but amend it to be consistent with IM 2018-093, a supplemental EIS would be required. Compensatory offsite mitigation is a critical element of the Management Alignment Alternative (see, for example, Table 2-2 on p. 2-5 and 2-6, and sections 4.3.2 and 4.5) and was presumed to be part of the alternative in the determination of its environmental impacts. Any attempt to remove compensatory requirements from the preferred alternative would result in a different assessment of environmental impacts. For the same reasons, we do not believe that BLM can use this plan amendment process to remove compensatory mitigation requirements from the No Action Alternative without a supplemental EIS. Additionally, the State of Colorado would strongly disagree with that action for reasons stated above. In closing, we very much appreciate the strong working relationship we have had with the BLM during this plan amendment process. Due to our significant concern that critical elements of the Management Alignment Alternative will not be required or enforced by BLM we must support the No Action Alternative at this time. We have received assurances from your staff that additional issues of concern raised in our December 2017 scoping comments can be clarified in the RMPA or addressed through plan maintenance.

Rather than indiscriminately constraining use within the restricted four mile No Surface Occupancy ("NSO") area, the proposed Management Alignment Alternative of opening leasing within one (1) mile of active leks, subject to NSO, combined with the incorporation of Waivers, Exceptions, and Modifications ("WEMs") should be adopted

1.4.12 Range of Alternatives

The range of alternatives is insufficient. The Draft EIS only considers one alternative, the "Management Alignment Alternative" and refers to the 2015 Sage-grouse Plans as the "No Action Alternative." This does not meet BLM's obligations under NEPA. 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. See 40 C.F.R. §§ 1502.14(a) and 1508.25(c). NEPA's requirement that alternatives be studied, developed, and described both guides the substance of environmental decision-making and provides evidence that the mandated decisionmaking process has actually taken place. Informed and meaningful consideration of alternatives -- including the no action alternative -- is thus an integral part of the statutory scheme. *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1228 (9th Cir. 1988), cert. denied, 489 U.S. 1066 (1989) (citations and emphasis omitted). "An agency must look at every reasonable alternative, with the range dictated by the nature and scope of the proposed action." *Northwest Env'tl Defense Center v. Bonneville Power Admin.*, 117 F.3d 1520, 1538 (9th Cir. 1997). An agency violates NEPA by failing to "rigorously explore and objectively evaluate all reasonable alternatives" to the proposed action. *City of Tenakee Springs v. Clough*, 915 F.2d 1308, 1310 (9th Cir. 1990) (quoting 40 C.F.R. § 1502.14). This evaluation extends to considering more environmentally protective alternatives and mitigation measures. See, e.g., *Kootenai Tribe of Idaho v. Veneman*, 313 F.3d 1094, 1122-1123 (9th Cir. 2002) (and cases cited therein). By only meaningfully considering one alternative and not considering alternatives that would be more environmentally protective, BLM has failed to consider a reasonable range of alternatives.

Alternatives are measured against purpose and need; BLM has not considered a reasonable range of alternatives in the Draft EIS based on the restated purpose and need. When developing an EIS, the "range of reasonable alternatives is measured against the 'Purpose and Need' section...." *Cal. ex rel. Lockyer v. U.S. Dep't. of Agriculture*, 459 F. Supp. 2d 874, 905 (N.D. Calif., 2006), *aff'd*, 2009 U.S. App. LEXIS 19219 (9th Cir. 2009). The statement of "purpose and need" is the basis upon "which the agency is responding in proposing the alternatives including the proposed action." 40 C.F.R. §1502.13 and *City of Carmel-by-the-Sea v. U.S. Dep't. of Transportation*, 123 F.3d 1142, 1155 (9th Cir. 1997). Therefore, if the purpose and need of the 2018 Draft EIS for the Greater Sage-Grouse changes from the purpose and need for the 2015 EIS, then the range of alternatives must necessarily change as well. Colorado Draft EIS recognizes that "BLM's purpose and need for this planning action helps define the scope of proposed alternative actions..." Colorado Draft EIS, p. ES-2. In *Lockyer*, the Forest Service argued that it could base its EIS for the new 2005 version of the "Roadless Rule" upon the EIS (and its alternatives) for 2001 Roadless Rule that it replaced. The court found: This argument fundamentally misconstrues the role of the consideration of reasonable alternatives, which lies at the heart of any NEPA analysis. Failure to consider reasonable alternatives thwarts the goals of informed decisionmaking and meaningful public comment before the environmental die is cast.

BLM must evaluate additional management alternatives. By failing to thoroughly evaluate more than one alternative, BLM is not complying with NEPA. See *TWVS v. Wisely*, 524 F. Supp. 2d 1285, 1312 (D. Colo. 2007) (BLM violated NEPA by failing to consider "middle-ground compromise between the absolutism of the outright leasing and no action alternatives"); *Muckleshoot Indian Tribe v. US Forest Serv.*, 177 F.3d 800, 813 (9th Cir. 1999) (NEPA analysis failed to consider reasonable range of alternatives where it "considered only a no action alternative along with two virtually identical alternatives"). BLM must consider additional alternatives, including alternatives that are more environmentally protective than the Management Alignment Alternative. The purpose and need of the 2015 Sage-grouse Plans is to "conserve, enhance, and restore GRS habitat by eliminating or minimizing threats to their habitat" (Rocky Mountain Record of Decision, p. 1-21), while the 2018 amendment is based on a purpose to "enhance cooperation with the states." BLM should consider an alternative that is explicitly focused on enhancing cooperation with the states while conserving, enhancing and restoring sage-grouse habitat. For instance, the projection of on-the-ground activities set out in Table ES-1 of the 2018 Colorado Draft EIS shows a reduction in restoration efforts, but a more conservation-oriented alternative would consider increasing these projects. Similarly, this alternative would evaluate how to enhance cooperation with the states while retaining more of the core protections and management approaches that made the previous plans the basis for the FWS determination that listing was no longer warranted under the ESA. This alternative would be more environmentally protective and provide more certainty. We have developed a proposed alternative that would accomplish these goals, set out in detail in Attachment 2, incorporated herein by reference.

BLM should also have considered alternatives to complete additional analysis of key protective provisions that it is proposing to eliminate through the Draft EIS, particularly net conservation gain. The Colorado Draft EIS states: 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 are evaluating whether the implementation of compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities. We request 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. Colorado Draft EIS, p. 2-3. While the Management Alternative in the Colorado Draft EIS does not propose to remove this standard, removal is clearly under consideration and Draft EISs for other states explicitly propose to remove it. See, e.g., Utah DEIS, p. ES-8; Wyoming DEIS, p. ES-6. Rather than seeking comments only on eliminating this approach, BLM should evaluate an alternative that would retain the approach, while leaving the agency flexibility to determine applicable standards by working with the states.

By proposing the "Management Alignment Alternative" as the only option to the status quo, BLM has failed to "consider a range of alternatives that covers the full spectrum of possibilities." *Id.* at 872

To this end, the BLM must manage existing leases under current regulations, which limit surface occupancy and disturbance. Research shows that sage-grouse do not do well in close proximity to energy development. Nor do Elk, Mule Deer and Pronghorn Antelope also dependent on these habitats. New development should be prioritized outside these priority population areas and strong buffers maintained around sage-grouse leks. No surface occupancy stipulations must be mandatory for sage-grouse habitat when leasing for energy development. Allowing exceptions, in light of what we know with the science, will result in poorly planned development that negatively impacts habitat and leads to fewer birds. And the BLM must improve plan monitoring and oversight, including providing training to field staff and the necessary incentives to ensure proper implementation. The plans should contain metrics by which conservation success can be measured. Conservation metrics will help in effective management of the habitat and reduce wasting personnel time and limited funds.

This can be accomplished through incorporating the standards in the conservation checklist which has been attached for your convenience into each of the draft resource management plans. We request that the Bureau withdraw and then revise the draft RMPA/EIS for Northwest Colorado to include this conservation alternative.

From our analysis, American Bird Conservancy believes the Bureau's proposed Northwest Colorado plan would weaken existing protection and fail to address foreseeable impacts of drilling. The plan leaves the Greater Sage-Grouse at greater risk of becoming endangered, and the Bureau's inclusion of a conservation alternative is urgently needed if grouse are to be conserved. We urge the Bureau to withdraw the draft RMPA/EIS to include a conservation alternative to reduce habitat loss and population declines of the Greater Sage-Grouse in Northwest Colorado.

energy development and provide uncertainty for industry because the BLM failed to consider the significant changes that are needed. The State of Colorado has repeatedly asked the BLM to adopt the local and state conservation measures. On October 31, 2013, Governor Hickenlooper issued a press release asking the BLM to ensure that any finalized federal plan did not infringe on existing economic activities, like oil and gas production, and that the best solution would be to rely on local and state conservation efforts to conserve the GRSG. The implementation of the 2015 Plan has resulted in the exact opposite result. It is Caerus' understanding that the State of Colorado has again asked BLM to recognize local and state conservation measures, to ensure protection of valid existing rights, to eliminate the buffer concept, and to delete reference to the conservation gain standard/conservation uplift.

The alternatives analyzed in the Proposed Plan provide two decision options that essentially produce the same outcome. BLM explains that the "Management Alignment Alternative was derived through

coordination with the State and cooperating agencies to align with the State conservation plan and to support conservation outcomes for the Greater Sage Grouse .19 It is not enough for the BLM to coordinate with the State and cooperating agencies, the Proposed Plan must analyze and incorporate actual conservation measures used by the State. Under NEPA, the alternatives are supposed to "rigorously explore and objectively evaluate all reasonable alternatives . One of the alternatives should include redrafting the 2015 Plan to include the successful conservation measures utilized by the State and incorporate the changes requested by the State. As it stands now, regardless of which alternative BLM chooses, the 2015 Plan will continue to impede

While all the issues and concerns contained in these comments are of paramount importance to Garfield County, Section 2.5 Comparison of Alternatives, Table 2-2 Comparison of Alternatives, highlights the most significant of these concerns. Specifically, Garfield County is concerned as to what type of restrictions (WEMs) are being considered by the BLM for areas within one (1) mile of a lek and areas from one (1) mile to four (4) miles of a lek in priority and general habitat. Garfield County's terrain that hosts the Piceance-Parachute-Roan (PPR) GSG population is an extremely naturally fragmented habitat that varies radically over short distances to include severely undulating topography, steep slopes and deep canyons, dark timber, sage brush on the ridges and a complex range of vegetation types. (As an example, please see Exhibit B as an example of terrain in Garfield County with a 4-mile NSO applied to a lek.) The net effect of this is that there are significant pockets of non-habitat that occur right next to leks much less miles away. Because of these highly variable conditions, it's critical that any restrictions put in the plan are not one-size-fits-all restrictions; rather, they are accurately responsive to these conditions so that there is flexibility built in to allow for activity to occur on a case-by-case basis with realistic understanding of what's on the ground. Based on these comments, we propose the following language and approach: A. Within One (1) mile of a lek: Shall be open to leasing subject to a No Surface Occupancy (NSO) designation where waivers, exceptions, or modifications are allowed when, in consultation with the State of Colorado, it can be demonstrated that there is minimal impact to GRSB based on one of the following: 1} Topography/areas of non-habitat create effective barrier to impacts specifically including: a. Topography b. Slope c. Distance to existing roads d. Habitat e. Proximity to existing infrastructure and development f. Agricultural lands g. Surface development allowed if no, or minimal disruption to lek would occur. 2} No additional impacts would be realized above those created by existing major infrastructure (for example: State Highway 13) 3} Precludes or offsets greater impacts proposed on adjacent parcels (for example: due to land ownership patterns) 4} A 30 day public notice is required before waiver of a stipulation. Waivers would require approval from the BLM's Northwest District Manager.

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The Alliance has significant concerns with both alternatives in the Draft RMPA, which suffers the same legal and scientific flaws as the ARMPA. BLM's Management Alignment Alternative fails to actually align with the State of Colorado's management of the GRSG, and the continued reliance on overbroad and inaccurate GRSG habitat maps and flawed science to impose overly restrictive operational measures is inappropriate. BLM should significantly revise the Draft RMPA to satisfy its legal mandates. We urge BLM to supplement its EIS to include analysis of the Colorado Alternative and to ultimately adopt the Colorado Alternative in the final RMPA.

1.4.13 Alternatives - Other

In order to bring the Sage-grouse RMP amendments up to scientific standards for road location and development, BLM must apply NTT (2011) recommendations as well as road density limits in accord with the best available science. BLM should adopt the following measures into the plan amendments: New primary, secondary, or high-activity roads should be excluded within 1.9 miles of leks, and all new road construction or location should be excluded within 0.6 miles of leks (with no exceptions, waivers, or modifications); limit new road construction to realignments of existing routes where realignment has minimal impact on sage grouse, and require travel management planning to designate routes within Priority Habitat Management Areas within 5 years of plan amendment adoption.

If sage grouse are unable to survive the winter season due to impacts to their wintering habitats, there will be no sage grouse in Priority Habitats or outside them in the planning area. BLM has already conceded that this is necessary: "Doherty et al. (2008) demonstrated that Greater Sage-Grouse in the Powder River Basin avoided otherwise suitable wintering habitats once they have been developed for energy production, even after timing and lek buffer stipulations had been applied." Buffalo RMP Revision DEIS at 367. In addition, Carpenter et al. (2010) found that wintering sage grouse avoided otherwise suitable habitats within a 1.2-mile radius of wellsites; Smith et al. (2014) also found winter avoidance of energy infrastructure. Dzialek et al. (2012: 12) confirmed these relationships for wintering sage grouse in Wyoming, and concluded: First, we can say with increasing confidence that the winter pattern of occurrence among sage-grouse shows consistency throughout disparate portions of its distribution. Second, avoidance of human activity appears to be a general feature of winter occurrence among sagegrouse. This indicates a broad consistency in sage grouse sensitivity to human development in wintering habitats throughout the species' range. The Nevada FEIS provided a literature review of

scientific studies on sage grouse winter habitat use, and concludes that distance from development and density of development are key factors. Holloran et al. (2015) determined that increasing wellpad density had a negative impact on sage grouse winter habitat use regardless of whether liquid gathering systems were used to reduce human activity levels or not, and also found a negative impact of distance to wellsites (within 2.8 km or 1.75 miles for wintering grouse) and distance to roads. Smith et al. (2016) found that density of major roads, lower slope, surface disturbance, and the proportion of big sagebrush were all key predictors for sage-grouse winter habitat selection. In Colorado, Walker et al. (2016) found that low slope and sagebrush abundance were key factors. In accordance with this review of the best available science, BLM should apply the following restrictions on development in designated winter habitats: (1) close all lands within 1.75 miles of winter habitats to future oil and gas leasing, coal location, non-energy minerals leasing, mineral materials sales, and seek withdrawal of these lands from locatable mineral entry; (2) for valid existing lease rights, apply a limit of 3% surface disturbance and one energy or mining site per square-mile section.

1.4.14 Adaptive Management

However, Alternative D does not place adequate limitations on Greater SageGrouse threats, like mineral mining. Despite claiming to give the input of conservation organizations and other interested individuals, like scientists, careful consideration, the elements of Alternative D that the Bureau has incorporated are insufficient because they only include state and industry suggestions. The Bureau has given the State and industries their alternative; American Bird Conservancy believes there needs to be a conservation alternative, as well, one that takes the input from scientists and conservation organizations to provide other options for the Bureau to incorporate into their plan. At this point, we are concerned the Bureau's coordination with the State and cooperating agencies to align with Colorado's conservation plan may set back Greater Sage-Grouse conservation efforts. This can be solved through incorporating a conservation alternative which has been attached for your convenience. We request that the Bureau withdraw and then revise the draft RMPA/EIS to include this conservation alternative. We would like to commend and highlight the Bureau's Adaptive Management process, also clarified in Appendix H. The inclusion of soft and hard triggers based on habitat loss and/or population losses of specific populations to identify thresholds is necessary to develop a response. The first step of the adaptive management process, soft triggers, represent an intermediate threshold indicating that management changes are needed to combat changes in populations. Hard triggers, the second step, is the threshold in place when the soft triggers and disturbance caps are ineffective. The hard triggers are based on Sage-Grouse lek counts and habitat loss. If soft triggers work as intended, a hard trigger should never be breached. Even though these triggers are set in place, lek counts and habitat loss thresholds must be breached simultaneous and compared to the 3-year running average of the high male count in order to breach the hard trigger. However, American Bird Conservancy believes the standard for tripping the trigger should be lowered to prevent as much damage as possible to the Greater Sage-Grouse and its habitat. The lower the trigger, the sooner preventive measures can be taken.

1.4.15 Assumptions and Methodology

Potential increase in oil and gas (O&G) development The Draft EIS did not include information on the anticipated level of O&G development and potential impacts for the newly leasable resources under greater sage-grouse leks. We recommend the Final EIS identify whether the increased drilling and O&G production would impact any general- or linkage habitat areas and consider whether there is mitigation available for such impacts. We note that most of the 2015 greater sage-grouse analysis was focused largely on lek habitat. However, BLM has also identified winter concentration, nesting, brood rearing and

linkage habitats as having the highest conservation value to maintain sustainable greater sage-grouse populations. We recommend the Final EIS include any new information on winter, nesting and brood rearing habitat in Colorado and consider whether additional mitigation measures are warranted to protect these seasonal habitats from impacts from O&G development. We also recommend the Final EIS include information on whether increased drilling and O&G production in greater sage-grouse habitat compared to the 2015 plan would specifically impact any general- or linkage habitat areas.

DOI Never Addressed Scientific Flaws with the Plan Amendments and the Listing Decision In addition to the missteps on process, the Plan Amendments are substantively flawed. The key agency reports (the Reports) underpinning the Plan Amendments, as well as the earlier warranted but precluded GRSG listing decision, were plagued with conflicts of interest, bias and selective citation. They ignored the most relevant factors to grouse populations (weather, predation and hunter harvest) in favor of draconian restrictions that will cost jobs and harm local communities without corresponding benefits to the species. The 2018 LUPAs fail to acknowledge the scientific shortcomings in the National Technical Team ("NTT") Report, the Conservation Objectives Team ("COT") Report, the U.S. Geological Society ("USGS") Monograph, and the Manier et al. Buffers Report (collectively, the "Reports"), much less redress the resulting inaccuracies in the agency decisions. DOI and the U.S. Department of Agriculture ("USDA") recognize critical errors in the Reports and the prescriptions they support. Because future agency management decisions and potential litigation continue to turn to the Reports for support, addressing the scientific foundation is crucial. Accordingly, DOI should include this statement in the forthcoming amendments and records of decision ("RODs"): The NTT Report, the COT Report, the USGS Monograph and Manier, et al. 2014 (collectively "the Reports") were heavily relied upon in the 2010 listing decision on GRSG as well as the LUPAs and corresponding RODs. Since then, the science and understanding on GRSG has evolved and some significant shortcomings with the Reports have come to light. Management prescriptions from the Reports should be viewed with caution and tempered with the best available information, including specifically state and local science and knowledge.

Detailed Data Quality Act challenges based on these issues were never adequately answered. In 2015, a coalition of 20 local governments (including the Counties) as well as diverse agricultural and energy interests (collectively, the Petitioners) undertook an independent scientific review of the Reports. The reviews uncovered significant errors, omissions and biases in the Reports that have contaminated subsequent policy and management actions based thereon. In several Data Quality Act challenges, (the Challenges), Petitioners documented hundreds of pages of flaws with: 3 percent disturbance caps * Density caps of 1 disturbance per 640 acres * Lek buffers * Required Design Features * No Surface Occupancy areas (NSOs) in priority habitat * Implementation of an avoid-minimize-compensate policy * Net conservation gains * Sagebrush canopy cover * The warranted but precluded listing decision for GRSG The Reports erroneously ignore accurate population data and adopt 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. The Reports ignore natural population fluctuations; single out human-driven activities for alleged declines (but exclude the significance of hunter harvest); and overlook actual threats to GRSG such as predation. The Reports fail to meet the standards of quality, integrity, objectivity and utility required by the Data Quality Act, as well DOI's standards of scientific integrity and transparency. DOI failed to address these shortcomings. The National Technical Team Challenge was 97 pages in length with four exhibits for a total of 197 pages of detailed issues. The COT Challenge was 88 pages with four exhibits for a total of

159 pages. The Monograph Challenge was 99 pages with three exhibits for a total of 332 pages. The Buffers Challenge was 41 pages. Nonetheless, the agencies virtually ignored these shortcomings and issued only a four-page response to the cumulative 729-page Challenges, and a two-page response to subsequent appeals. Moreover, in the NEPA documents, the agencies hardly recognized the existence of the Challenges, let alone addressed their merits. BLM and the USFS failed to address the substance and detail in these challenges and provided little if any rationale for their misplaced use of the Reports and the Monograph. No corrective actions were taken nor were adequate disclosures of these Oaws recognized or addressed as required by implementing regulations for NEPA. See 40 C.F.R. § 1502.9(b). In Still, these misplaced and unscientific management restrictions will negatively impact the economies and future viability of countless communities, small businesses, and family farms and ranches as well as efforts to conserve GRS and we request BLM address the above bulleted points.

Livestock Grazing: Table 2-2. Last week, during a cooperating agency meeting, the U.S. Forest Service stated that Table 2-2 will be removed from the Forest Service Plan. See Forest Service Teleconference July 12, 2018. This is particularly significant to the BLM since the Administrative Record produced during litigation of the 2015 Plan reveals that BLM adopted the table at the urging of Forest Service. The Forest Service now concedes that the science used to develop the objectives in Table 2-2 did not, and does not, support stubble height and canopy cover objectives. Moffat County recommends BLM follow the USFS lead in removing table 2.2. The following comments are the basis of the USFS decision to abandon Table 2-2: The first study of vegetation cover for sage-grouse habitat was published in 1994. See A. Gregg, et al., Vegetational Cover and Predation of Sage Grouse Nests in Oregon, *The Journal of Wildlife Management*, Vol. 58, No. 1, pp. 162- 166 (1994). That study found "a relationship between vegetation cover and predation of sage grouse nests. Non-predated nests had greater cover of tall, residual grasses and medium height shrubs than predated nests. No previous research demonstrated the value of residual grass cover at sage grouse nests, although its importance was suggested by Pyrah (1971) and Wakkinen (1990)." In 1997, Connelly and Braun speculated that "grass height and cover influence sage grouse nest site selection and success ... Thus, indirect evidence suggests that excessive grazing ... during the breeding season may have negative impacts on sage grouse populations." See Connelly, J.W. & Braun, C.E., *Long-term changes in sage grouse *Centrocercus urophasianus* populations in Western North America*, *Wildlife Biology*, 3(3-4), pp.229-234 (1997). Later, in 2000, Connelly published a study which included guidelines for sage-grouse habitat. This paper is widely cited for a 7" stubble height objective. Connelly, et al., *Guidelines to manage sage grouse populations and their habitats*, *Wildlife Society Bulletin*, 28(4): 967- 985 (2000). Notably Connelly did not define excessive grazing. Since 1997, BLM has implemented rangeland health standards for 22 years and, before that time, virtually all allotments were grazed on a deferred or rest-rotation system designed to avoid "excessive grazing." These grazing systems take virtually all of the FS and BLM allotments out of the category. Since Connelly published his guidelines, no less than 14 different studies have evaluated the effect of vegetation cover on sage-grouse nest survival. See Gibson, D., et al., *Evaluating vegetation effects on alluvial deltophysics: the role of plant phenology and soil/plant properties*, *Ecology and Evolution* (2016). Nine of those studies, however, are premised on comparing grass height of failed nests at the date of predation with grass height of failed nests at the date the nest hatches. See Joe Smith, *Does the height of grass influence nest success in sage-grouse?* (2017), Attachment 1. The obvious problem with this methodology is that grass around a successful nest is allowed to grow several more days or weeks than the grass around a predated nest. Of course, the grass near a predated nest will be less due to the earlier measurement date. See D. Gibson, et al., *Evaluating vegetation effects on alluvial deltophysics: the role of plant phenology and soil/plant bias*, *Ecology and Evolution* 6(11): 3621- 3631 (2016). This is exactly what the Forest Service

concluded during its cooperating agency meeting last week as a basis for abandoning Table 2-2. Moreover, new literature published after the 2015 LUPA that demonstrates the habitat objectives from the 2015 Plans are impossible in many of the priority habitat management areas. See Stringham, T. K. and D. Snyder 2017. Ecological Potential of Sagebrush Dominated Rangeland in Nevada and California: A Case Study Utilizing BLM Nevada ALM and NRCS Nevada NRI Monitoring Data, Major Land Resource Area 25 Nevada. University of Nevada Reno, Nevada Agricultural Experiment Station Research Report 2017-02. P.55.

IM Flawed Approaches CCA/PLC shares concern over the treatment of livestock grazing in the IM's. If direction is not accountable and clear, local field offices will have no direction or standardized treatment to rely upon. This lack of clarity and flawed approaches have, and will, result in livestock permittees receiving management decisions that are also flawed...such as AUM reductions or duration of grazing. An example of the flawed approaches in IM's is table 2-2 and the prescriptive one-size-fits-all nature of vegetation height. This approach does not consider site-specific conditions or plant community capabilities throughout differing environments. See IM 2018-025 (requiring use of Table 2-2 in assessing site-scale suitability to inform the Land Health Standards ("LHS"), and stating that the LHS evaluation will inform potential management actions). Under IM 2018-025, BLM offices are instructed to use Habitat Objectives Table indicators and values in assessing site-scale suitability of habitat, effectiveness evaluations, and in developing "measurable objectives for vegetation treatments and management actions within sage-grouse habitat areas."

Table 2-2 Adjustments IM's and the Amendment should direct BLM to manage land resources in GSG habitat to maintain the potential of the habitat to meet the desired conditions described in Table 2-2 for habitat objectives over time. BLM should evaluate management actions that are proposed in GSG habitat to ensure that trends, fuel loads, and other conditions are conducive to maintaining the potential of the ecosystem to produce or move toward the desired conditions. Details requiring inclusion in the IM's and Table 2-2, if kept, should include the following if realistic GSG management is achieved: *

- Management should focus on the ecosystem threats (invasive annual grasses, expanding conifer, increasing fire) that are defining the current and future potential of sage-grouse populations. These same problems are also the biggest threats to sustaining rangeland agriculture and other uses and values. Focusing on these threats creates a diverse and positive synergy that spans across agricultural, wildlife, and environmental interests. *
- It is not realistic to manage dynamic systems to fixed values *
- Multi-year trend is an appropriate objective, not fixed values *
- Funding and workload will not be sustainable, the agency needs to have flexibility to target intensive monitoring where needed, and less intensive monitoring when an intensive approach is not required; threat-based assessment has proven to be helpful in this regard *
- Fire is a primary threat, improper grazing is a secondary threat, creating a mechanism to bank fine fuels will be detrimental to Sage Grouse *
- HAF is a protocol for assessment, not a protocol to design grazing systems. HAF should be used to assess habitat; grazing system design is done through the large body of knowledge gained about how to manage native bunch grass systems for a stable or positive trend *
- Moderately-grazed pastures have largely intact undershrub herbaceous vegetation pertinent for nesting cover *
- Rangeland Health Assessment already contains mechanisms to ensure rangeland health, bringing in additional criteria under Special Status Species will interfere with balancing nesting cover with utilization, fine fuel management, creating, maintaining, and implementing viable grazing systems that permittees can use *
- If policies are adopted that make it difficult for permittees to stay in business, and there is a reduction in mother cows in the region: o Fire conditions

like 2012 will become more common o There will not be sufficient numbers of cattle to effectively do landscape treatments o Rangeland Fire Protection associations will lose critical mass as permittees exit

Disturbance Cap Methodology Limiting surface disturbance is a central component of the management of GSG as proposed in the Amendment. CCA/PLC has concerns about the methodology proposed for anthropogenic, specifically indirect anthropogenic impacts. While CCA also questions aspects of the literature that address these indirect impacts, it is clear more analysis and review is necessary to determine impacts to GSG. CCA/PLC also questions the apparent bias toward exempting impacts from energy development when the literature yields stronger concerns than Amendment considers. This Amendment does not have the strength of protection for livestock grazing as it does for energy production. Additionally, this area of concern expands the risk of successful litigation to list the GSG.

The habitat conservation framework established in the LUPs provides a critical foundation for realizing the longterm goal of increasing sage-grouse populations across the range of the species. In our view, the conservation measures in the current LUPs are reinforced by the USGS synthesis and there is no scientific evidence to support weakening them. 1. Many of the plan amendments proposed in the 2018 DEISs weaken landscape-scale management aspects of the LUPs by adopting project-level approaches. It is critical that Federal agencies retain measures outlined in the LUPs collectively focused on conserving the landscapes necessary to sustain sage-grouse populations. 2. Strictly adhering to adaptive management principles is critical for the effective management of sagebrush habitats long-term. We recommend that agencies incorporate data-driven decision support tools into their day-to-day management to ensure informed decision-making across spatial scales and to establish the framework necessary to manage adaptively at all of those scales.

Conclusion Many of the changes proposed in the 2018 DEISs to amend the 2015 LUPs promote management at project-level spatial scales and cumulatively could result in the ineffective management of the landscapes required to conserve sage-grouse populations. Failure to take into account large-scale dynamics when managing sage-grouse will likely lead to an overall loss of habitat quantity and quality resulting in population declines. We recognize that all conservation and management ultimately occurs at the local level. However, local-level decisions must be fully informed as to the potential consequences of those decisions at larger spatial scales. Science-based programs where local-level decisions empirically informed at the regional scale (i.e., the scale necessary to encompass the habitats required by the population(s) being managed, which in some areas may include tens of thousands of acres) and considering relationships at the range-wide scale are the most efficient way we can successfully and sustainably engage in proactive conservation and restoration of the sagebrush system and the wildlife and people dependent on this system. The 2015 LUPs provide the platform from which these local efforts can proceed; and developing approaches to maximizing the effectiveness of and participation in these local efforts is a real need (Synthesis pg. 23). Consideration of landscape-scale and range-wide population dynamics are critical aspects of local efforts addressed through Federal engagement in sage-grouse conservation efforts.

The Proposed Plan continues to rely on faulty assumptions that are not necessarily applicable in western Colorado. While one-mile- and two-mile-long horizontal laterals exist in certain shale plays, the predominate economic formation in the Piceance Basin is the Williams Fork-accessed by vertical gas wells. Inability to access the surface directly impacts the ability to access, develop and produce the underlying minerals and negatively impacts both the local economies and the State of Colorado, both of

whom depend largely on revenue from natural resources development. The differences in the various basins needs to be considered when drafting the finalized version of the Proposed Plan, and the NSC) stipulations need to be removed entirely. Instead, there should be a site-specific evaluation at the time of development. The appropriate time to evaluate the necessary management actions on new leases is at the time of development of those leases.

There is tremendous opportunity for increased natural gas production in western Colorado. The estimate for recoverable natural gas reserves in the Piceance Basin has increased "40-fold" over 2003 estimates, with 66 trillion cubic feet of natural gas and 45 million barrels of natural gas liquids in the Mancos Shale alone. However, the unpredictable federal regulatory environment discourages companies from investing in federal lands. Given the high up-front capital costs, companies need regulatory certainty to know that if a company purchases an asset, the company will be able to economically develop that asset. The uncertainty impacts small private operators, like Caerus, the most. The regulatory uncertainties that exist at the leasing stage also prohibit small operators from exploration of new formations and basins in western Colorado. The current federal regulatory environment continues to impede development, slow processing times for permits, create environmental hurdles and uncertainties, and limit job creation and economic growth, particularly in rural communities like those throughout western Colorado. Nothing in BLM's statutory mandate requires this type of regulatory environment that discourages rather than encourages already costly and risky oil and gas development.

This DEIS continues to include the adaptive management strategy of soft and hard triggers. The BLM states "these triggers are not specific to any particular project but identify habitat and population thresholds." Garfield County requests the BLM eliminate these so-called "triggers" as they are not based on science and an unfounded carry-forward that was injected into the preferred alternative during the last GO-90 days of that process of the 2015 RMPS FEIS and subsequently placed in the ROD. Moreover, this concept of triggers confuses jurisdictions and authorities where the BLM's responsibility is to manage habitat whereas Greater Sage Grouse population counts is left to Colorado Parks and Wildlife (CPW). Simply put, the purpose of the BLM's RMPA is to craft effective land use / management policies and not to count birds.

The concept of One (1) Disturbance per 640-acre Density Cap must be removed or re-defined. Currently a surface coal mine disturbing over a hundred acres, is credited as the same density disturbance as an oil well pad that disturbs 3 acres. This provision is purely arbitrary and not founded on any science.

Section I.4 Planning Criteria in the second paragraph indicates that the criteria were based on coordination ... with local agencies. Garfield County was provided with only one (1) opportunity and then only as a "Cooperating Agency" to work directly with the BIM in the development of the RMPA. There was no meaningful coordination between the BIM and Garfield County. Garfield County is specifically concerned with bullet point 5 which states: Garfield County appreciates the BLM's desire to include best available science that has become available since the original RMPA was completed in the ROD in 2015. However, this attempt to gather all relevant best available science appears to be radically thin. As noted above, the BLM only considered the reference of Carter, S. K., D. J. Manier, R. S. Arkle, A. N. Johnston, S. L. Phillips, S. E. Hanser, and Z. H. Bowen. 2018. Annotated bibliography of scientific research on greater sage-grouse published since January 2015: US Geological Survey Open-File Report. Garfield County believes that reference is incomplete and only "cherry-picked" a handful of new

scientific reports since 2015. To the contrary, there are vast amounts of new scientific references directly relevant to this revised RMP that are not included here. Since then, there have been a variety of newer publications and additions considered to be best available science that greatly inform and, in some cases, contradict earlier science regarding impacts to Greater Sage Grouse and adaptive management practices.

Section 2.7 Monitoring & Adaptive Management: On page 13, it states, "Population-based management was raised as an issue for consideration during scoping for this EIS"; yet, the BLM continues to include Soft and Hard Triggers in this EIS. Again, Garfield County requests the BLM eliminate these so-called "triggers" as they are an unfounded carry-forward that was injected into the preferred alternative during the last 60-90 days of that process. The Cooperating Agencies and the public effectively had no opportunity to review or comment on these significant changes as has been determined through our FOIA challenge. During this same time, however, it appears environmental groups such as Wild Earth Guardians, the Wilderness Society, National Wildlife Federation and Advocates for the West were corresponding with or meeting with DOI on these same topics.

Section H.2.2 Step 2 - Evaluate Proposal Consistency with LUPA: Garfield County protests the use of soft and hard triggers in the evaluation of projects. Please see earlier comments.

The Districts support including the following in realistic GRSG management and considerations to maintain and/or improve the health of the resources that all species rely upon: * Management should focus on the ecosystem threats (invasive annual grasses, expanding conifer, increasing fire) that are defining the current and future potential of sage-grouse populations. These same problems are also the biggest threats to sustaining rangeland agriculture and other uses and values. Focusing on these threats creates a diverse and positive synergy that spans across agricultural, wildlife, and environmental interests. * Rangeland Health Assessment already contains mechanisms to ensure rangeland health. Bringing in additional criteria under Special Status Species will interfere with balancing nesting cover with utilization, fine fuel management, creating, maintaining, and implementing viable grazing systems that permittees can use to help improve rangeland health. * Fixed values, such as Table 2-2, cannot be used to manage dynamic systems. * Multi-year trend is an appropriate objective. Fixed values are not. * Flexibility to target intensive monitoring where needed and less intensive monitoring when and where it is not required. Utilize threat-based assessment. * Fire is a primary threat, improper grazing is a secondary threat, creating a mechanism to bank fine fuels will be detrimental to Sage Grouse * HAP is a protocol for assessment, not a protocol to design grazing systems. HAP should be used to assess habitat, grazing system design is done through the large body of knowledge gained about how to manage native bunch grass systems for a stable or positive trend. * Moderately grazed pastures have undershrub herbaceous vegetation pertinent for nesting cover largely intact *If policies are adopted that make it difficult for grazing permittees to stay in business, and there is a reduction in mother cows in the region, o Fire conditions like 2012 will become more common o There will not be sufficient numbers of cattle to effectively do landscape treatments o Rangeland Fire Protection associations will lose critical mass as permittees exit

* improve plan monitoring and oversight, including providing training to field staff and the necessary incentives to ensure proper implementation. The plans should contain metrics by which conservation success can be measured. Conservation metrics will help in effective management of the habitat and reduce wasting personnel time and limited funds.

This DEIS continues to include the adaptive management strategy of soft and hard triggers. The BLM states "these triggers are not specific to any particular project but identify habitat and population thresholds." Garfield County requests the BLM eliminate these so-called "triggers" as they are not based on science and an unfounded carry-forward that was injected into the preferred alternative during the last 60-90 days of that process of the 2015 RMPS FEIS and subsequently placed in the ROD. Moreover, this concept of triggers confuses jurisdictions and authorities where the BLM's responsibility is to manage habitat whereas Greater Sage Grouse population counts is left to Colorado Parks and Wildlife (CPW). Simply put, the purpose of the BLM's RMPA is to craft effective land use / management policies and not to count birds.

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Further, the ARMPA and Draft RMPA do not adequately define 'facility' or 'disruptive facility,' so it may be unclear to operators and the BLM field offices how to apply the one pad per 640-acre density cap.

This ambiguity could lead to inconsistent application and regulatory uncertainty, and the density cap restriction directly conflicts with the 'cluster development' BMP. Consolidated development over a smaller footprint will have fewer impacts on GrSG compared with scattered development which would be required to meet the density cap requirements. BLM should remove the density cap concept. Finally, BLM does not have adequate tracking software to allow land users to determine existing surface disturbance levels in each management zone. The Surface Disturbance Analysis and Reclamation Tracking Tool and White River Field Office Data Management System are not functional and there is no other method to determine the current status of surface disturbance. There must a public, efficient means to track surface development before BLM can implement these restrictions.

Reclamation requirements should be flexible and tailored to site-specific conditions. BLM should refrain from mandating seed mixtures to allow flexibility based on site-specific conditions to maximize the potential for successful outcomes. Reclamation timing should be flexible to allow reclamation to occur when conditions are favorable for revegetation and to avoid surface use conflicts. For example, industry has demonstrated successful outcomes from year-round seeding. BLM should use nearby reference sites, instead of Ecological Site Descriptions or other reference materials, to evaluate a particular site's reclamation potential and reclamation outcomes. The Draft RMPA should clarify that any new reclamation requirements will apply to new projects only. New requirements should not be applied retroactively to existing projects, especially those already undergoing reclamation. BLM should clarify that reclamation requirements will be based on site-specific conditions and allow for flexible reclamation timing, remove references to mandated seed mixes, and state that new reclamation requirements will apply to new projects only.

Sage-grouse mapping needs to be refined: Colorado Parks and Wildlife (CPW) has documented that the maps included in the 2015 EIS need to be refined to a more local scale and AGNC members are engaged in that effort now. Refined maps are being developed with CPW that more adequately reflect appropriate sagegrouse habitat. The Colorado maps currently included in the plan identify as priority and general habitat topography and vegetation that do not support sage-grouse. These mislabeled areas effectively remove access to land that could provide viable economic opportunities for member counties but will not further the viability of the sage-grouse. AGNC members believe it is important that the new local scale maps developed with AGNC and CPW be included in the management plan with a provision that, as habitat changes and more is known about the species use of habitat types improves, mapping be updated periodically on an administrative basis.

This DEIS continues to include the adaptive management strategy of soft and hard triggers. The BLM states "these triggers are not specific to any particular project but identify habitat and population thresholds." Garfield County requests the BLM eliminate these so-called "triggers" as they are not based on science and an unfounded carry-forward that was injected into the preferred alternative during the last GO-90 days of that process of the 2015 RMPS FEIS and subsequently placed in the ROD. Moreover, this concept of triggers confuses jurisdictions and authorities where the BLM's responsibility is to manage habitat whereas Greater Sage Grouse population counts is left to Colorado Parks and Wildlife (CPW). Simply put, the purpose of the BLM's RMPA is to craft effective land use / management policies and not to count birds.

The concept of One (1) Disturbance per 640-acre Density Cap must be removed or re-defined. Currently a surface coal mine disturbing over a hundred acres, is credited as the same density

disturbance as an oil well pad that disturbs 3 acres. This provision is purely arbitrary and not founded on any science.

Section I.4 Planning Criteria in the second paragraph indicates that the criteria were based on coordination ... with local agencies. Garfield County was provided with only one (1) opportunity and then only as a "Cooperating Agency" to work directly with the BIM in the development of the RMPA. There was no meaningful coordination between the BIM and Garfield County. Garfield County is specifically concerned with bullet point 5 which states: Garfield County appreciates the BLM's desire to include best available science that has become available since the original RMPA was completed in the ROD in 2015. However, this attempt to gather all relevant best available science appears to be radically thin. As noted above, the BLM only considered the reference of Carter, S. K., D. J. Manier, R. S. Arkle, A. N. Johnston, S. L. Phillips, S. E. Hanser, and Z. H. Bowen. 2018. Annotated bibliography of scientific research on greater sage-grouse published since January 2015: US Geological Survey Open-File Report. Garfield County believes that reference is incomplete and only "cherry-picked" a handful of new scientific reports since 2015. To the contrary, there are vast amounts of new scientific references directly relevant to this revised RMP that are not included here. Since then, there have been a variety of newer publications and additions considered to be best available science that greatly inform and, in some cases, contradict earlier science regarding impacts to Greater Sage Grouse and adaptive management practices.

Section 2.7 Monitoring & Adaptive Management: On page 13, it states, "Population-based management was raised as an issue for consideration during scoping for this EIS"; yet, the BLM continues to include Soft and Hard Triggers in this EIS. Again, Garfield County requests the BLM eliminate these so-called "triggers" as they are an unfounded carry-forward that was injected into the preferred alternative during the last 60-90 days of that process. The Cooperating Agencies and the public effectively had no opportunity to review or comment on these significant changes as has been determined through our FOIA challenge. During this same time, however, it appears environmental groups such as Wild Earth Guardians, the Wilderness Society, National Wildlife Federation and Advocates for the West were corresponding with or meeting with 001 on these same topics.

Section H.2.2 Step 2 - Evaluate Proposal Consistency with LUPA: Garfield County protests the use of soft and hard triggers in the evaluation of projects. Please see earlier comments.

The Draft EIS did not include information on the anticipated level of O&G development and potential impacts for the newly leasable resources under greater sage-grouse leks. We recommend the Final EIS identify whether the increased drilling and O&G production would impact any general- or linkage habitat areas and consider whether there is mitigation available for such impacts.

Connection between the RMPA and greater sage grouse conservation status Section I.4 of the Draft EIS identifies the planning criteria associated with the proposed alternative and focuses on modifying protections for greater sage-grouse to conform with state plans and revised policies. We note that the new planning criteria do not include one of the criteria in from 2015 RMP, "maintaining the federal land management planning considerations to protect greater sage-grouse populations and habitats sufficiently so that the species does not warrant listing under the Endangered Species Act (ESA)." We recommend that BLM work with USFWS and Colorado Parks and Wildlife to assess the impacts from the management changes in this RMPA on greater sage grouse conservation status and include that assessment in the Final EIS.

Potential Changes to Mitigation Strategy The Draft RMPA/EIS does not modify the "net conservation gain standard for compensatory mitigation" (page 2-3) that BLM incorporated into its 2015 plan. Instead, the BLM requests public comment on mitigation approaches and implementation; including alternative approaches to requiring compensatory mitigation. If a change in mitigation approach and implementation is developed further in the Final EIS, we recommend including an analysis of Colorado's existing mitigation measures and standards, which include some aspects of compensatory mitigation.

1.4.16 Sage-Grouse

Connection between the RMPA and greater sage grouse conservation status Section 1.4 of the Draft EIS identifies the planning criteria associated with the proposed alternative and focuses on modifying protections for greater sage-grouse to conform with state plans and revised policies. We note that the new planning criteria do not include one of the criteria in from 2015 RMP, "maintaining the federal land management planning considerations to protect greater sage-grouse populations and habitats sufficiently so that the species does not warrant listing under the Endangered Species Act (ESA)." We recommend that BLM work with USFWS and Colorado Parks and Wildlife to assess the impacts from the management changes in this RMPA on greater sage grouse conservation status and include that assessment in the Final EIS.

Many recommendations have the potential to limit the ability of managers to effectively manage anthropogenic aspects of the sagebrush biome. Research published since 2015 corroborated negative relationships between oil and gas development and sagegrouse populations and life-history behaviors (Synthesis pg. 13), strengthening the importance of collectively maintaining oil and gas management approaches outlined in the LUPs in designated habitats range-wide. Many of the proposed amendments to the LUPs restrict management options to those identified through "project-level NEPA," for example, limiting long-term and large-scale management effectiveness. Proposed amendments that allow for waivers, exceptions and modifications to stipulations in designated habitats based on project-specific evaluations restrict the spatial-extent of impact assessments. Further, amendments that eliminate or weaken the need to prioritize the placement of anthropogenic impacts outside of designated habitats limit the effectiveness of landscape-scale conservation measures. Project-scale assessments generally take into account breeding habitats used by sage-grouse attending leks potentially disturbed by a project, and represent the agencies' approach to minimizing on-site impacts of development. These approaches do not effectively consider indirect or cumulative effects that may occur at larger spatial scales; these potential impacts for the most part are managed through the prioritization commitment. We recommend agencies retain oil and gas (and other anthropogenic disturbances) management approaches established in the LUPs collectively and only consider changing these approaches where analyses of regionally-specific sage-grouse data suggest that the changes will not negatively impact sage-grouse populations across all spatial scales.

Many recommendations have the potential to limit the ability of managers to effectively manage vegetative aspects of the sagebrush biome. We recommend that vegetation goals in sage-grouse habitats be established relative to ecological site conditions, and that managers strive towards restoring and maintaining vegetative conditions in the reference state long-term while addressing short-term goals of vegetative structure. In the context of managing livestock and implementing habitat enhancement projects to restore and/or maintain quality sage-grouse habitats, this is a product of addressing both the standing crop to provide needed vegetative structural conditions in the short-term while addressing species composition to sustain those vegetative conditions long-term. The USGS reviewed several

papers that emphasized the need to address both these short-term and long-term goals to consistently provide high quality habitats for sage-grouse (Synthesis pg. 17). It is important to reiterate from our original letter that much of western rangelands experienced a shift in understory grass and forb species composition more than 100 years ago necessitating that today's approaches to range management address vegetative species composition while maintaining the vegetative structural conditions required by sage-grouse (i.e., simultaneously managing the restoration of habitats to reference conditions while managing current conditions to maintain sage-grouse populations). Given these challenges and the need to pursue innovative management approaches to address these challenges, the process of how the LUPs are implemented and evolve is as important as the actual management actions outlined in the plans. In situations where site-specific habitat data are not available, we further recommend that the objectives established for vegetation structure, cover, and composition in the LUPs be maintained in priority habitats. This recommendation is supported by research summarized by the USGS suggesting that concealment provided by dense, tall shrubs and live and standing dead herbaceous vegetation (grasses and forbs) is important for sagegrouse especially during the nesting and brood-rearing seasons (Synthesis pg. 11). Although some recent research at the site scale questions the evidence for a ubiquitous positive relationship between grass height and sage-grouse nest success, the preponderance of information published since 2015 illustrated a positive relationship between measures of vertical cover (e.g., visual obstruction; herbaceous vegetation height) and nest and brood-rearing site selection and survival (Synthesis pg. 11). It is important to reiterate that the habitat objectives established in the LUPs represent one of the few places in the plans where vegetative degradation across the sagebrush biome is directly addressed, and as such represent an important aspect of the long-term management approach outlined in the LUPs.

Predation: BLM should consider increasing the ability of State and Local wildlife and pest management agencies to perform their duties in and around PHMA and non-PHMA leks. While wild life is in the exclusive jurisdiction of the State, removing access restrictions from land use plans, can effecti vely give the State and local agencies access to sage-grouse habitat on federal land to alleviate pressure from predators. The Fi nal Environmental Assessment for Predator Damage Management in Colorado (20 17) (available at https://www.aphis.usda.gov/wildlife_damage/downloads/nepaJ2017%20Fi%20Coiorado%20Predator%20EA.pdf) found that coyote removal projects dramaticall v improved sage-grouse chick production. It also documents discrete details of coyote behavior in Northwest Colorado. Coyotes travel miles from their den and subsist primarily on sage-grouse. The BLM may not ignore these significant findings. BLM should also consider the huge increases in coyote numbers si nce the 1990s. This fact raises an unexplored correlation between sage grouse popul ation declines and coyote population increases. New literature published this year shows thal ravens and coyoles arc the greatest cOlltributor to nest failure in orthwestern Wyoming. See Taylor, et al. Greater sage-grol/se llest sl/rvival ill NorthlVest Wyoll/illg (J une 14, 2017). 3% Disturbance Cap (H-I). 1:640 acre Density Cap (I-1.2.3). and Triggers and Thresholds Concept (I-1.4.2). Moffat County has repeatedly commented on our concerns over all three of the issues listed above. All three issues have a common thread of untested as well as limited functionality and a lack of scientific dependability. More importantly there is a minimal level of confidence / surety that, if implemented, will protect Sage-grouse. Moffat County has not changed its position that all three of these tools wi ll eventually stifle, di srupt, or stop projects that would otherwise be deemed compatible with Sage-grouse as well as provide economic benefit to our community. We continue to request that mitigation, a proven tool for protection of wildlife, be uti lized more robustly, and remove or minimize the requirements designed around the above three unproven tools.

Reduce manageable impacts in sage-grouse habitat. Some threats to sage-grouse are difficult to manage, such as wildfire and invasive species. The federal conservation strategy should compensate for those impacts by emphasizing management of land uses that we can control, such as improperly managed livestock grazing, which contributes to unnatural fire and the spread of invasive species.

Grass Height Related to Nest Success While adequate grass height for hiding cover has been heavily emphasized as a critical element of the GSG, new findings suggest otherwise. Historic research has been deemed biased in consideration of nesting success per a report of studies published by the Sage Grouse Initiative 2017. Taking the Bias Out of Grass Height Measurements. Science to Solutions Series Number 15. The newly-evaluated "studies suggest that the common practice of measuring grass height around nests directly following nest failure or hatch can lead to a false positive signal that indicates grass height is correlated with nest success, even when they are unrelated. This is because hatched nests are measured later in the season than failed nests, which gives grasses more time to grow. The studies went on to state, "After correcting the data to account for grass growth, researchers found no relationship between grass height and nest fate, confirming a sampling bias in two of three re-analyzed datasets, and a reduced but still significant association in the third". "Researchers recommend that field sampling methods be adjusted to ensure unbiased measurement of grass height at predicted hatch date, and that site-scale habitat management guidelines that include grass height as an indicator of nesting habitat quality be revisited."

The habitat conservation framework established in the LUPs provides a critical foundation for realizing the longterm goal of increasing sage-grouse populations across the range of the species. In our view, the conservation measures in the current LUPs are reinforced by the USGS synthesis and there is no scientific evidence to support weakening them. 1. Many of the plan amendments proposed in the 2018 DEISs weaken landscape-scale management aspects of the LUPs by adopting project-level approaches. It is critical that Federal agencies retain measures outlined in the LUPs collectively focused on conserving the landscapes necessary to sustain sage-grouse populations. 2. Strictly adhering to adaptive management principles is critical for the effective management of sagebrush habitats long-term. We recommend that agencies incorporate data-driven decision support tools into their day-to-day management to ensure informed decision-making across spatial scales and to establish the framework necessary to manage adaptively at all of those scales.

Adaptive Management Achieving long-term conservation success requires strict adherence to adaptive management principles when managing sagebrush habitats for sage-grouse. Following these principles will increase the likelihood of attaining long-term conservation goals across the sage-grouse range. The USGS described several decision support tools and monitoring approaches that, if employed, would facilitate the adaptive implementation of sage-grouse management strategies (Synthesis pgs. 25 and 29). The BLM has not integrated these tools in their day-to-day decision-making processes, and does not outline an approach for the integration of these types of tools in the DEISs. For example, the majority of Environmental Assessments for oil and gas lease sales in the Intermountain West developed by the BLM since adoption of the LUPs do not include analytically-derived forecasts of the response of sage-grouse to the foreseeable development of those leases. Beyond the fact that this results in the BLM making management decisions with incomplete information, the lack of an analytical framework from which to monitor management activities limits the ability of the agency to manage sagebrush habitats adaptively at the scales necessary to sustain sage-grouse populations. We recommend that the BLM integrate empirically-derived decision support tools necessary to inform day-to-day management decisions into

their approaches to implementing the LUPs to ensure informed decision-making and to establish the framework necessary to manage adaptively.

To conserve sage-grouse, areas of management focus (i.e., PHMA) need to include all necessary seasonal ranges (e.g., breeding, summer and winter ranges), and these distinct habitats need to be effectively connected within and among priority areas (i.e., dispersal of individuals that results in gene flow within and among priority areas must be maintained). Amendments proposed to the LUPs reducing or eliminating management options in designated habitats - particularly proposed amendments in GHMA - limit the ability of agencies to manage at scales necessary to maintain these connections. The site-level approach to management promoted by the proposed amendments could result in situations where, for example, an impact could be minimized at the local scale yet remain an impact at larger scales (e.g., impacts to a critical travel corridor between seasonal ranges or among priority habitats; impacts to a regionally-limiting seasonal habitat type), and these residual impacts would go unnoticed until priority populations suffer. We recommend that the BLM manage the landscape holistically and collectively, and that all sage-grouse habitats regardless of designation remain an integral component of that management approach.

Section I.S.3 -Issues and related Resource Topics not carried Forward for Additional Analysis on page I-9, it states, "Because the issues listed below were analyzed under resource topics in the 2015 Final EIS, and no significant new information has emerged since the publication of that document, they do not require additional analysis in this RMPA/EIS." Garfield County disagrees that there has been no new science developed on these topics since the 2015 decision. The BLM has failed to recognize important research on predation including the following: The significance of this paper to the Northwestern Colorado RMP is twofold. First, the authors report that reducing anthropogenic subsidies (Le. food and water sources, open landfills) is likely to be most effective in reducing raven densities over the long term, and thus decrease raven predation on sage-grouse nests and chicks. And second, the authors report that because livestock and animal husbandry operations provide indirect food and water subsidies that are exploited by ravens, increasing their distance from sage-grouse nesting and brood rearing habitat will further decrease predation on sage-grouse and increase overall population productivity. These recommendations are critical to Northwestern Colorado where the threat of predation from ravens is under-addressed and other restrictive land management measures are favored by the BLM.

Encourage and review applicant's use of anti-perch devices, burying of powerlines, closed rubbish bins, removal of road kill and dead livestock, and other methods to discourage predators on sage-grouse and limit excess predation. If predation on sage-grouse is documented to have a deleterious effect on the PPR Area sage-grouse population, then allow for appropriate mitigation of predation under USDA guidance.

Section H.2.S Step 5 - Determine Projected Sage Grouse Population and Habitat Impacts: It appears that this proposed step and analysis based on the use of Manier at 0/2014 contradicts the analysis suggested through the WEM analysis depicted in Chapter 2 and lacks scientific validity.

Encourage and review applicant's use of anti-perch devices, burying of powerlines, closed rubbish bins, removal of road kill and dead livestock, and other methods to discourage predators on sage-grouse and limit excess predation. If predation on sage-grouse is documented to have a deleterious effect on the PPR Area sage-grouse population, then allow for appropriate mitigation of predation under USDA guidance.

Viable agricultural operations are critical because of the habitat they provide for the Greater Sage-Grouse.

Perch discouragers Tri-State continues to be concerned regarding the ARMPA Management Decisions (MD) to use perch discouragers found within MD LR-8, MD-IR-4 and Required Design Feature (RDF) #32 in Appendix C and that no changes to these requirements are included within the MAA. Tri-State's past comments clarify that perch deterrents were originally designed to move birds to safe perching locations to prevent electrocutions rather than to prevent perching altogether. Perch discouragers are not effective at preventing perching by raptors and corvids because they are able to perch on the wires and other hardware on power poles. Perch discouragers can increase avian electrocution risk on certain structure types and are no longer a best practice for utilities operating in sage-grouse habitats. The Avian Power Line Interaction Committee (APLIC) drafted and issued a Best Management Practices Electric Utilities in Sage-Grouse Habitat in June of 2015 (available at: [http://www.aplic.org/uploads/files/15646/SAGR%20BMP%20FINAL June%202015.pdf](http://www.aplic.org/uploads/files/15646/SAGR%20BMP%20FINAL%20June%202015.pdf)). This document goes into detail regarding the limitation of the use of perch discouragers as mitigation for special status species. Tri-State requests that the BLM clarify that perch discouragers are one tool in the tool box and their use should be reviewed on a case by case basis, rather than being a blanket recommendation or requirement. For the reasons presented above and in Tri-State's past comments, the BLM should delete or substantially revise the above-referenced MDs on perch discouragers during the ongoing plan amendment process. As an example, the 2015 plan amendments by BLM in Wyoming reference APLIC and the BLM should consider doing something similar in Colorado.

Populations Management at the local level of the timing and intensity of grazing on BLM lands of GRSG have been shown to increase levels of grouse GRSG populations, by allowing for grazing later in the growing seasons. Allowing for grazing later in the growing season removes dead vegetation, thereby enhancing additional plant growth. Short-term modifications at the local level to livestock management can benefit GRSG.

Second, the 2015 Plan focuses on protecting the sage brush habitat on which the GrSG is obligate, which has the positive benefit of protecting many other species that depend on the same habitat. The changes proposed in the 2018 draft plan focus on the birds, not the habitat. Even though the 2018 Plan is not final, this change in direction has already driven agencies to capture and move birds from one part of NW CO to another to enhance small populations. This has been shown to fail in the past, due to the lek fidelity of the birds.

1.4.17 Non Sage-Grouse

H-2 Wildfire should not be counted as a disturbance. BLM and the Counties had years of discussions determining that wildfire in priority habitat was on a completely different level than the Great Basin States, and would NOT be counted toward the 30/0 disturbance cap. This EIS allows consideration of wildfire as a disturbance in the site-specific analysis ... as proposals" are brought forward. The ambiguity and uncertainty of case-by-case analysis leaves a floating target for what fire level is acceptable and what is not. We insist BLM return to not considering wildfire while calculating its disturbance cap, as the Threshold Concept has plenty of protections calculated in to provide regulatory certainty to US Fish and Wildlife Service. If wildfire continues to count against the disturbance cap, BLM must place clarifying language around what constitutes disturbance of habitat from fire, and what does not. This clarification is necessary because many wildfires are managed to achieve Sage-grouse habitat objectives

General Observations Related to Grazing as a Threat: CCA/PLC are primarily focused on ensuring proper grazing administration, and encourages that in this Amendment, grazing is absolutely not considered a "disturbance" to the vegetative communities that the GSG is dependent upon. CCA/PLC does not find adequate literature citation or research that substantiates the claim of "disturbance", and further finds this claim disproportionate to findings surrounding the GSG. CCA/PLC's findings indicate that BLM must take corrective action in the Amendment to reclassify grazing, as the preponderance of the literature and regulatory community has - either "proper" or "improper" grazing. The determination lies within the analysis at a local level and is substantiated with a valid monitoring protocol. Grazing is not necessarily a threat to the conservation of GSG or GSG habitat. In fact, grazing by domestic and wild ungulates plays an important role in maintaining vegetative communities in GSG range. The BLM's Conservation Objectives Team report for the Greater Sage-Grouse notes that "livestock grazing is the most widespread type of land use across the sagebrush biome and almost all sagebrush areas are managed for livestock grazing" (COT 2013, p. 44). In fact, Fish and Wildlife Service has officially been on the record to many western states reiterating, "We do not consider grazing as an activity to be a significant threat to the Greater Sage-Grouse as a Species".

We would acknowledge that certain livestock grazing practices may cause degradation to GSG habitat at a localized level. The responsibility of livestock grazers and BLM is to determine, isolate and correct these grazing practices... again at the local level. The USFWS categorizes these practices with the terminology "improper grazing". In all cases, grazing practices are evaluated on local ecological conditions... therefore a one-size-fits-all approach for "improper grazing" does not exist. Rather, the overriding theme of the literature indicates that if locally monitored, evaluated and managed, herbaceous resources are complimentary to grazing and grouse. Scientists agree that "grazing management is important as it affects the height and density of herbaceous material available for cover and food", (Cagney, 2010). BLM is charged with a multiple-use mandate. Implementing best available science on grazing management for GSG AND livestock grazing can and will achieve the mandate in a planned and balanced fashion. BLM must address GSG management variables with the understanding of the species dependency on localized management that deliver desired results, not broad sweeping assumptions that don't meet GSG objectives and castigate livestock grazing. Specifically, BLM must develop feedback mechanisms that analyze seasons of use and habitat type that achieve conservation objects through attention to local ecological conditions; including soil types, precipitation, vegetation composition and drought conditions, to name a few. In turn, livestock management can be adaptively managed, in partnership with permittees, to achieve desired outcomes.

The body of scientific literature encompassing Greater Sage Grouse Conservation Planning and the Conservation Objectives Team Report reiterates the importance of education, continuous monitoring, and adaptive management. One avenue advanced by Colorado livestock grazers is the Colorado Rangeland Monitoring Guide, developed and endorsed by academic institutions, federal and state agencies (BLM, NRCS, USFS), the Colorado Association of Conservation Districts, and Colorado Cattlemen's Association; and provides detailed guidance for both short and long-term rangeland monitoring. As noted in that document, monitoring is only valuable when it is conducted within the context of defined goals. CCA/PLC is opposed to retiring permits or pulling them from active status for purposes of GSG or GSG habitat conservation. This opposition extends to allowing individual permittees being allowed to make retirement or voluntary livestock grazing reductions which will curtail grazing for the future.

Wild Horses Wild horses are a manageable element of BLM resource use and should be kept at an objective level that meets with adaptive management of GSG. Special considerations or classifications for wild horses is unacceptable and management should be limited to Wild Horse Management Areas and within defined objectives for population and range condition.

Fuels Management CCA/PLC supports the use of livestock grazing for fuels management. CCA/PLC witnessed numerous instances of single-species approaches toward fuels management, rather than an ecological approach. In doing so, ultimate resource conditions are likely to be imbalanced and contribute to other GSG impacts such as wildfire, plant community imbalance, etc.

Many recommendations have the potential to limit the ability of managers to effectively manage vegetative aspects of the sagebrush biome. We recommend that vegetation goals in sage-grouse habitats be established relative to ecological site conditions, and that managers strive towards restoring and maintaining vegetative conditions in the reference state long-term while addressing short-term goals of vegetative structure. In the context of managing livestock and implementing habitat enhancement projects to restore and/or maintain quality sage-grouse habitats, this is a product of addressing both the standing crop to provide needed vegetative structural conditions in the short-term while addressing species composition to sustain those vegetative conditions long-term. The USGS reviewed several papers that emphasized the need to address both these short-term and long-term goals to consistently provide highquality habitats for sage-grouse (Synthesis pg. 17). It is important to reiterate from our original letter that much of western rangelands experienced a shift in understory grass and forb species composition more than 100 years ago necessitating that today's approaches to range management address vegetative species composition while maintaining the vegetative structural conditions required by sage-grouse (i.e., simultaneously managing the restoration of habitats to reference conditions while managing current conditions to maintain sage-grouse populations). Given these challenges and the need to pursue innovative management approaches to address these challenges, the process of how the LUPs are implemented and evolve is as important as the actual management actions outlined in the plans.

In situations where site-specific habitat data are not available, we further recommend that the objectives established for vegetation structure, cover, and composition in the LUPs be maintained in priority habitats. This recommendation is supported by research summarized by the USGS suggesting that concealment provided by dense, tall shrubs and live and standing dead herbaceous vegetation (grasses and forbs) is important for sagegrouse especially during the nesting and brood-rearing seasons (Synthesis pg. 11). Although some recent research at the site scale questions the evidence for a ubiquitous positive relationship between grass height and sage-grouse nest success, the preponderance of information published since 2015 illustrated a positive relationship between measures of vertical cover (e.g., visual obstruction; herbaceous vegetation height) and nest and brood-rearing site selection and survival (Synthesis pg. 11). It is important to reiterate that the habitat objectives established in the LUPs represent one of the few places in the plans where vegetative degradation across the sagebrush biome is directly addressed, and as such represent an important aspect of the long-term management approach outlined in the LUPs.

long-term grouse habitat. Eliminating grazing grounds will have negative impacts on western ranching operations. Populations Management at the local level of the timing and intensity of grazing on BLM lands of GRSG have been shown to increase levels of grouse GRSG populations, by allowing for grazing later in the growing seasons. Allowing for grazing later in the growing season removes dead vegetation,

thereby enhancing additional plant growth. Short-term modifications at the local level to livestock management can benefit GRSG. Mesa County believes grazing and western ranching operations management at the local level can positively affect sage-grouse populations. A study was conducted by Adrian Monroe, a CSU research scientist, and found the effects of grazing on sage-grouse populations may depend on plant productivity. The study evaluates multiple, real-world livestock grazing operations across the entire state. There is a direct correlation between plant growth, when and how much livestock graze, and the effects on wildlife, and a way to sustain ranching while simultaneously sustaining wildlife populations.

H-2 Wildfire should not be counted as a disturbance. BLM and the Counties had years of discussions determining that wildfire in priority habitat was on a completely different level than the Great Basin States, and would NOT be counted toward the 30/0 disturbance cap. This EIS allows consideration of wildfire as a disturbance in the site-specific analysis ... as proposals" are brought forward. The ambiguity and uncertainty of case-by-case analysis leaves a floating target for what fire level is acceptable and what is not. We insist BLM return to not considering wildfire while calculating its disturbance cap, as the Threshold Concept has plenty of protections calculated in to provide regulatory certainty to US Fish and Wildlife Service. If wildfire continues to count against the disturbance cap, BLM must place clarifying language around what constitutes disturbance of habitat from fire, and what does not. This clarification is necessary because many wildfires are managed to achieve Sage-grouse habitat objectives.

Even assuming an entire grazing allotment—or even a particular site on an allotment—is capable of meeting the habitat objectives (in itself an unrealistic and impossible assumption), it is virtually impossible for any permittee to meet those requirements due to drought and other factors.

FIRE is the Friends of NW Colorado's most serious reason for protecting the 2015 NSO lek protections. Three weeks ago a restarting fire burned out Moffat County's five (5) largest, most mature-male-visited leks. Ranchers have found a full 2018 season of chick broods burned and full of dead. among several ranches, about 20 hens and chicks shrunk remain, eating normally inedible late-simmer weeds. Excessive heat will make reviving damaged land harder, and the connect between wild organisms and their ecosystems are frayed. If fire reburns that best-priority habitat before new growth regenerates in spring 2019, the best of all Colorado's GRSG habitat will be of less value for up to 25 years. So climate-change fire events, in intensity and number, give our Public Lands an altered role in preservation of the nearly 350 plant insect, invertebrate and vertebrate species those lands protect from private holdings, development, mining and industrialization. Fire, alone, has erased or delayed for uncertain periods our public lands' natural roles.

1.4.18 Fluid Minerals

[FIGURE: CO DECEMBER 2018 LEASE PARCELS AND OIL & GAS DEVELOPMENT POTENTIAL]

Explicitly considering the value of habitat and the potential for actual energy production would unquestionably help the agency prioritize the right parcels for leasing.

The inter-agency, expert Conservation Objectives Team (COT) Report confirms the need to prioritize development outside habitat, finding that: Sage-grouse populations can be significantly reduced, and in some cases locally extirpated, by non-renewable energy development activities, even when mitigative measures are implemented (Walker et al. 2007). The persistent and increasing demand for energy resources is resulting in their continued development within sage-grouse range, and may cause further

habitat fragmentation. . . . Both non-renewable and renewable energy developments are increasing within the range of sage-grouse, and this growth is likely to continue given current and projected demands for energy. As a result, the COT Report recommended the following objective for energy development: "Energy development should be designed to ensure that it will not impinge upon stable or increasing sage-grouse population trends."⁶ In order to ensure adequate conservation of sage-grouse and sage-grouse habitat, prioritization of oil and gas leasing and development cannot be based solely on whether BLM has sufficient resources to process leasing nominations or applications for permits to drill in sage-grouse habitat. Rather, there must be a thorough consideration of opportunities to protect habitat. These opportunities include deferring proposed leasing that would unnecessarily harm habitat or where leasing is not the best use of agency resources (both internal resources and in terms of allocating our public lands), such as where there is low or no potential for leasing, high quality habitat and no surrounding infrastructure or development. BLM is not obligated to lease every parcel that is proposed nor is there a requirement that any deferral be replaced with another parcel to somehow maintain the same number of parcels or acres up for lease. See, e.g., *New Mexico ex. rel. Richardson v. BLM*, 565 F.3d 683, 710 (10th Cir. 2009) ("It is past doubt that the principle of multiple use does not require BLM to prioritize development over other uses."). Rather, the agency can take into account relevant factors and the importance of conserving grouse habitat to meaningfully prioritize leasing where it is most appropriate and least harmful to sage-grouse habitat. The impact such factors could have on leasing decisions is demonstrated by the map below, which shows the distribution of proposed lease sale parcels for the December 2018 sale in sagegrouse habitat in the Kremmling (Colorado) Field Office:

Clarification on the Use of Required Design Features The imposition of required design features ("RDFs") was an effort by the previous Administration to seek uniformity across most, if not all, of the 2015 GRSG land use plans in the West. As noted above in the discussion on the need to revisit uniform lek buffers, the preexisting regulations at 43 Code of Federal Regulations Subpart 3809 cannot be ignored as a regulatory framework to guide project management on Federal lands that play a role in GRSG conservation. In the Colorado LUPA, BLM must acknowledge that in proscribing RDFs, such design features are applicable to BLM decisions under 43 C.F.R. Subpart 3809 only to the extent practicable and may not be imposed to deny approval of a notice of operations under those regulations.

The Proposed RMPA should remove the compensatory mitigation standard of "net conservation gain. Because no mitigation framework or formalized mitigation mechanism exists in Colorado, BLM should provide parameters for appropriate compensatory mitigation mechanisms. These parameters should recognize the need for a menu of different mitigation options, that thirdparty mitigation mechanisms should be utilized by multiple land users, the need for flexibility in the timing of mitigation, and the need for predictable and reasonable mitigation costs.

Disturbance Caps and Density Limitations Caerus is concerned by the heavy reliance of the 2015 Plan on "A Report on National Greater Sage-Grouse Conservation Measures" (also known as the "NTT Report"). The 2015 Plan applies arbitrary restrictions that are not supported by scientific justification and those restrictions have been carried over to the Proposed Plan. No sound science supports the NTT's thresholds of a 3% disturbance cap and one disturbance per 640-acre.⁴⁴ Further, many of these concepts were taken from studies that were completed in Wyoming, a state whose topography differs vastly from Colorado. Even in 2011, the NTT Report relied on older research and failed to consider technological advancements in extracting oil and gas. The report was drafted with a bias that supported

overly burdensome conservation measures. Further, unlike the state and local conservation measures that consider the local conditions, the NTT report did not consider local conditions. Neither the 2015 Plan nor the Proposed Plan provide a clear understanding as to exactly how the BLM plans to manage surface use conflicts under the density and disturbance caps. If the caps are close to their maximum, how is BLM prioritizing one land user/project over another? This needs to be outlined in the Proposed Plan so that BLM field staff will not arbitrarily prioritize certain land users/projects over others. Moreover, the density cap restriction directly conflicts with the "cluster development" design feature in the 2015 Plan. Developing an area quickly is a much better practice for protecting the GRSG as opposed to scattering development over a larger area as would be required to meet the one pad per 640-acre density cap. Caerus requests that the one pad per 640-acre density cap be removed from the finalized version of the Proposed Plan.

Further, the Proposed Plan continues to inappropriately include private land in the disturbance and density caps. The BLM must manage their surface according to the multiple-use and sustainable yield mandate. If BLM takes private land into consideration and halts development on federal lands to compensate for the disturbance on private land, BLM will inevitably violate their multiple-use mandate by closing land to energy development and other disturbance causing uses, such as livestock grazing or other infrastructure projects. As the federal government is not authorized to monitor disturbances on private surface, the BLM cannot know the extent of disturbances on private surface to adjust the caps as necessary. Additionally, compensating for private land disturbances prevents development on federal land and thus inhibits the federal government from collecting revenues and taxes, negatively impacting both the state and local economies as well. Lastly, the BLM does not have sufficient tracking software to allow land users to accurately determine the location of disturbance and density caps in each management zone. The SDARTTS and WRDMS systems do not work and there is no other way to determine the current status of the caps. BLM must develop a public and efficient way to determine the current status of caps in place before the BLM can implement these restrictions. Therefore, Caerus asks that the disturbance and density caps be removed from the finalized version of the Proposed Plan and asks that BLM incorporate the state and local conservation measures in their place.* The BLM should restore No Surface Occupancy stipulations as mandatory for sage-grouse habitat when leasing for energy development. Allowing exceptions, in light of what we know with the science, will result in poorly planned development that negatively impacts habitat and leads to fewer birds.

Appendix B of the Colorado Greater Sage-Grouse Conservation Plan outlines guidelines for habitat disturbance. The guidelines address the designation of seasonal habitats for the Greater Sage-Grouse in unmapped seasonal habitats vs. mapped seasonal habitats. According to these guidelines, if these seasonal habitats are not mapped and field validated, the habitats should be designated by 2 concentric circles around active lekS. The first circle is a 0.6 mile radius and encompasses the "lek habitat" or the portion of the breeding habitat. The 4 mile radius encompasses the nesting, early-broad-rearing, and summer-fall habitat. The plan goes on to say that on federal lands, the 0.6 mile radius area around a lek in breeding habitat could be defined as an area of no surface occupancy (NSO) or an avoidance area (M). The 4 mile radius is not an NSO or M. The 4 mile radius is an area of consideration where disturbance guidelines should be applied, when and if, possible. If the habitats have been mapped and field validated, then the automatic drawing of the 2 concentric circles do not apply. The management of the habitats are based on the seasonal habitats that have been mapped and field validated. This mapping/field validation approach allows for on-site disturbance analysis on a case by case basis.

Development on existing leases should be managed under current regulations, which limit surface occupancy and disturbance. Years of research leave no doubt that sage-grouse do not do well in close proximity to energy development.

Restore No Surface Occupancy stipulations as mandatory for sage-grouse habitat when leasing for energy development. Allowing exceptions, in light of what we know with the science, will result in poorly planned development that negatively impacts habitat and leads to fewer birds.

1.4.19 Socioeconomics

Section 2.2 Varying Constraints on land Uses and Development Activities This paragraph eliminated a previous paragraph presented during the Cooperating Agency review that discussed the importance of local socio-economics and impacts from this plan. Additionally, this paragraph states nothing about local concerns and, again, refers to only coordination with the states. It gives no mention or intent to align with local concerns which is directly contradictory to the Secretary's Order 3353 wherein it states in Section 4(a) "the strategy will include a partnership that allows the DOI and the eleven western states to maintain healthy populations of Sage Grouse and improve collaboration and integration of state and local concerns (emphasis added) and approaches into sagebrush management. .. "

Concern for Economic Opportunities: Operations that contribute to the economies of the NW Colorado region must be allowed to continue in a manner that minimizes impact to the sage-grouse. Accurate habitat mapping is important to this goal as well as accurate science relating to the impact of this activity as it relates to the bird's use of habitat. Grazing, when managed properly, can be beneficial to the habitat. Habitat usage of irrigated agricultural fields is extremely minimal in the interior of these fields although SOME populations utilize the area where irrigated fields run into areas with sage brush cover; these producers should be allowed to manage their fields without stipulation as this activity supports the overall health of the species. Natural resource development is critical to the economic well-being of the communities in the region and can result in improved habitat for the species. One of the largest leks in NW Colorado is located on a natural gas well pad. Mitigation for natural resource development needs to be a 1:1 ratio. There have been instances of significant mitigation requirements that remove land from county tax roles and eliminate opportunities for agricultural or resource development, often in conflict with county land use plans. Disturbance caps need to be eliminated from the plan. Our region can find no scientific basis of support for the establishment of disturbance caps in NW Colorado and they serve to reduce and eliminate the opportunity for economic activity in the region. The caps disadvantage new producers next to existing producers in natural resource development and current tracking tools (White River Data Management System - DMS and the Surface Disturbance Analysis and Reclamation Tracking Tool - SDARTT) do not work. As noted by energy producer, Careus, the density cap of 1/640 acres should be removed from the plan. For these reasons: * The word 'disruptive' is currently not defined in the RMPA and is being subjectively interpreted to mean 'any O&G' location or activity. A production location or lay down yard could be treated the same as a drilling or completions location under the current subjective interpretation of the Plan. * This restriction is in direct conflict with the Fluid Mineral Development "Required Design Features, Preferred Design Features, and Suggested Design Features - Appendix C Table C-1" Item 12 - "PDF (PHMA) Cluster disturbances, operations (e.g. fracture stimulation and liquids gathering) and facilities.' It makes more sense to have an operator use existing infrastructure, complete all activity in a given area and then get to reclamation vs. scattering the activity about to meet the 1/640 requirement. * Up to 2/3 of the minerals could be left undeveloped with this management strategy. * This line item was put on a wish list by sage

grouse activists. Studies were completed in WY (NOT CO) and were conducted by those that supported a theory about 1 pad per section. This data was not collected scientifically, and this data would not apply to the birds or the habitat in CO. This is bad science. * Because of the topography in CO, there should not be a designated number of well pads/640. 4 pads could be placed in a section and only one of them may exist within actual occupied habitat. AGNC members also support the request that the RMPA clearly specify requirements for valid existing lease rights. If an NSO prevents access to existing leased minerals, then BLM needs to specify the process for lease holders in the Plan - if this is a taking or results in cancellation of leases, the counties in NW Colorado must be "held harmless" when it comes to refunding any leases or associated payments. BLM should make every effort possible to allow for development of resources under valid existing lease rights. AGNC members support BLM working with energy producers on a case by case basis to identify appropriate mitigation strategies for each project. Allow producers to drill out multiple well pads year-round so as to reduce cycle time, disturbances and associated impacts.

Economic Analysis The Proposed Plan's evaluation of impacts on socioeconomics defers to the analysis in the 2015 Plan and concludes that "the impacts to overall employment and earnings projections would be relatively minor . 22 The BLM also states that "since 2015, the BLM, in discussion with partners, recognized several refinements and policy updates that would help strengthen conservation efforts, while providing increased economic opportunity to local communities If BLM has recognized refinements and policy updates that will increase economic opportunity in Northwest Colorado, these updates should have been considered, analyzed or included in the Proposed Plan. BLM should explain how it has reached its conclusion regarding economic projections and why the potential for increased economic opportunities was not considered or analyzed in the Proposed Plan. The Proposed Plan purports to allow fluid mineral leasing on 224,200 acres of previously closed lands under the Management Alignment Alternative, but these leases will include a no surface occupancy ("NSO") stipulation at the onset. While the Proposed Plan does offer waivers, exceptions or modifications of the NSO stipulations, companies cannot reasonably commit upfront capital to obtain leases where there is no certainty that the company will be able to access and develop the minerals. The Proposed Plan states "it is difficult to predict if these changes to availability of leases and increased flexibility of the WEIMs [Waivers, Exceptions, and Modifications] would lead to additional oil and gas development or a varied approach to the same level of development,,

If BLM chooses not to use this opportunity to redraft the 2015 Plan and provide certainty and a workable regulatory environment for industry, western Colorado will continue to see the all too familiar "boom and bust" cycles. The Proposed Plan underestimates the job loss rates in the counties that benefit from oil and gas and overestimates the impact of oil and gas price fluctuations as being the cause of unsteady employment?8 While there are increases and decreases in job opportunities in the oil and gas industry that result from price fluctuations, the inability to operate year-round and the high cost of drilling on federal lands due to the regulatory obstacles and timing stipulations are major factors. The stringent restrictions on federal lands add cost to development and strain the economics of drilling in western Colorado compared to largely non-federal surface and minerals in places like

The Permian Basin and the Marcellus and Utica Shales. Short drilling timeframes create instability in the work force; companies hire contractors during the periods they are able to drill and then release them until they can drill again. Year-round drilling and relief on timing stipulations in certain circumstances

allows for continuous employment, making it possible for families to stay in one place and integrate themselves socially and economically into the community.

Section 3.3.3 Socia-economics. The narrative, as written, does not fully capture the robust natural gas reserves in Garfield County. For example, the United States Department of the interior's Geologic Survey released a report in June, 2016 that now estimates that the Piceance Basin contains 66 trillion cubic feet of shale natural gas, 74 million barrels of shale oil and 45 million barrels of natural gas liquids that are undiscovered and technically recoverable resources in the Mancos Shale. This resource was once believed to only be 1.6 trillion cubic feet as recently as 2003.) This would conservatively place this basin as the second largest producible shale basin in North America. (The USGS map below provides the area of the study and highlights Garfield County in the center of the basin.) Garfield County estimates there are approximately \$34 billion in natural gas of production revenue in Greater sage grouse priority habitat of which 94% is currently leased. Based on this production, we estimate \$200 million in future County ad valorem tax revenue. Please refer to the attachments (Exhibit C) which provide a more detailed breakdown on job creation relative to oil and gas development in Garfield County.

Oil and gas leasing and mineral development is an Important part of the local economy. CFCD applauds the modifications being made in the draft document that would allow for companies to apply to receive an exemption or modification to place well pads in areas where it won't negatively impact grouse due to topography, existing infrastructure, etc. This approach better coincides with the disturbance guidelines in the Colorado Greater Sage-Grouse Conservation Plan.

Disturbance caps need to be eliminated from the plan. Our region can find no scientific basis of support for the establishment of disturbance caps in NW Colorado and they serve to reduce and eliminate the opportunity for economic activity in the region. The caps disadvantage new producers next to existing producers in natural resource development and current tracking tools (White River Data Management System - DMS and the Surface Disturbance Analysis and Reclamation Tracking Tool - SDARTT) do not work. As noted by energy producer, Careus, the density cap of 1/640 acres should be removed from the plan. For these reasons: * The word 'disruptive' is currently not defined in the RMPA and is being subjectively interpreted to mean 'any O&G' location or activity. A production location or lay down yard could be treated the same as a drilling or completions location under the current subjective interpretation of the Plan. * This restriction is in direct conflict with the Fluid Mineral Development "Required Design Features, Preferred Design Features, and Suggested Design Features - Appendix C Table C-1" Item 12 - "PDF (PHMA) Cluster disturbances, operations (e.g. fracture stimulation and liquids gathering) and facilities." It makes more sense to have an operator use existing infrastructure, complete all activity in a given area and then get to reclamation vs. scattering the activity about to meet the 1/640 requirement. * Up to 2/3 of the minerals could be left undeveloped with this management strategy. * This line item was put on a wish list by sage grouse activists. Studies were completed in WY (NOT CO) and were conducted by those that supported a theory about 1 pad per section. This data was not collected scientifically, and this data would not apply to the birds or the habitat in CO. This is bad science. * Because of the topography in CO, there should not be a designated number of well pads/640. 4 pads could be placed in a section and only one of them may exist within actual occupied habitat. AGNC members also support the request that the RMPA clearly specify requirements for valid existing lease rights. If an NSO prevents access to existing leased minerals, then BLM needs to specify the process for lease holders in the Plan - if this is a taking or results in cancellation of leases, the

counties in NW Colorado must be "held harmless" when it comes to refunding any leases or associated payments. BLM should make every effort possible to allow for development of resources under valid existing lease rights. AGNC members support BLM working with energy producers on a case by case basis to identify appropriate mitigation strategies for each project. Allow producers to drill out multiple well pads year-round so as to reduce cycle time, disturbances and associated impacts.

These changes would also erode fundamental land use planning prescriptions intended to avoid the need to list the sage-grouse for protection under the Endangered Species Act.

Appendix H Comments Overarching Concern for Local Government Involvement in Appendix H. Moffat County continues to comment on BLM's seemingly intentional effort to avoid local government involvement and defer management decisions to a joint BLM/CPW determination. Virtually every point from disturbance caps, to reclamation, to mitigation continue to reflect BLM/CPW participation, but not local government participation. As projects are denied, deferred, or delayed because of BLM/CPW advice (subdelegation), it is the County Commissioners and its citizens most directly affected, both socially and financially. We insist Federal Lands Policy Management Act be adhered to and County Commissioners are consulted, coordinated with, and cooperatively incorporated into disturbance cap, mitigation, and general sage grouse decision impacts. Nowhere in Appendix H is local government participation mentioned and we request Appendix H be saturated with deference to local governments.

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Appendix 2

Cumulative Effects Supporting Information

Appendix 2. Cumulative Effects Supporting Information

2.1 RANGEWIDE IMPACTS FROM PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS

Table 1 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 1
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
Great Basin		
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.
Northwest Colorado		
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.

Action	Type	Effects
Continued oil and gas development	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	-
Idaho		
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.
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.

Action	Type	Effects
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	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: Future 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.
Nevada and Northeast California		
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.
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.

Action	Type	Effects
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	85 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.
Geothermal	BLM: Past and Present	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. 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.
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.

Action	Type	Effects
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.
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.
Oregon		
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).
Utah		
Fire and Fuels		
Wildland Fires 2015-2017	Acres burned on BLM administered land	Approximately 61,262 acres of PHMA/GHMA burned between 2015-2017. Post-fire restoration is being implemented across all population areas that are affected. Effects: Potential loss of habitat value due to the removal of vegetation by fire.

Action	Type	Effects
Fire Restoration (Emergency Stabilization and Rehabilitation)	Acres of habitat restoration following wildland fires	<p>Approximately 173,100 acres of HMA were treated/restored between 2015-2017. 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>
Vegetation		
Habitat Treatments	Acres of habitat improvement projects	<p>Past: Over 219,000 acres of Greater Sage-Grouse habitat was treated between 2015-2017 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>

Action	Type	Effects
Lands and Realty		
Land Use and Realty (issued and pending) 2015-2018	ROWs issued or pending on BLM land	<p>Past: 841 ROWs were issued in the planning area between 2015 and 2017.</p> <p>Effect: 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.</p> <p>Future: 380 ROW applications are pending review and analysis.</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>
Parker Knoll Pump Storage Hydroelectric Federal Energy Regulatory Commission Project	Create electricity using a two-reservoir, gravity-fed system; approximately 200 acres of Greater Sage-Grouse habitat would be lost; mitigation involves Greater Sage-Grouse habitat-improvement work in areas adjacent to the lost habitat.	<p>Still in planning and pre-NEPA stages – could impact the Parker Mountain population.</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>

Action	Type	Effects
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 the Uintah population.</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>
Leasable Minerals (Oil and Gas, Non-energy Leasable Minerals, Coal, and Oil Shale and Tar Sands)		
Oil and Gas Leases	Acres of BLM land leased for Oil and Gas development	<p>Past: From 2105-2017 the BLM has leased approximately 25,000 acres in HMAs, of which approximately 25 of those acres were located in PHMA. Lease stipulations apply as described in the leases according to HMA category.</p> <p>Effects: The act of leasing would have no direct effect.</p> <p>Future: The BLM is required to conduct quarterly lease sales which could include parcels in HMA. Lease stipulations would still be as described in 2015 until a decision is made on this RMPA/EIS.</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>

Action	Type	Effects
Oil and Gas Wells	Oil and Gas exploration and development	<p>Based upon the reasonable and foreseeable development assumptions in Chapter 4, 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.</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>
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>

Action	Type	Effects
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. Lease and development of the mine still pending – could impact 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.</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>
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: 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>
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>

Action	Type	Effects
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 area 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>
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>
Other Items		
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>

Action	Type	Effects
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>
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>
Grand Staircase-Escalante National Monument Management Plan	Development of a resource management plan	<p>Draft EIS issued in August 2018. Still in planning stages for this area that overlaps the Panguitch population.</p> <p>Effect: This action would provide a framework to manage both the remaining monument areas and the areas no longer within the monument boundaries. It is too early in the process to determine a cumulative effect since the proposed plan is unknown.</p>
Forest Service Greater Sage-Grouse Planning	Forest Service and Utah Division of Wildlife Resources	<p>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. 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>

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 Conservation Plan for Greater Sage-Grouse in Utah was finalized in 2013; it was designed to be updated every 5 years. While it requires a 4:1 mitigation ratio in the State's Sage-Grouse Management Areas (SGMA), there was no established approach to implement that mitigation process to the State's 11 SGMA's.</p> <p>Effect: The plan establishes the management actions necessary for the State of Utah to continue to enhance and conserve the Greater Sage-Grouse while still allowing for economic opportunities.</p> <p>Future: The State is updating their Greater Sage-Grouse plan and 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 effort will help to refine and identify 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 will also provide an opportunity for economic development to occur while offsetting the impacts to habitat quality.</p>
Wyoming		
Wildland Fires 2015-2017	BLM: Past – Acres burned on BLM administered land	Approximately 137,000 acres of HMA burned between 2015 and 2017. 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 4,030 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.

Action	Type	Effects
Habitat Treatments	BLM: Past – Habitat improvement projects	More than 96,000 acres of Greater Sage-Grouse habitat were treated between 2015 and 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	BLM Wyoming issued approximately 3,000 ROWs 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 by the management prescriptions in the RMPs and ARMPA.
	BLM: Future pending	There are approximately 590 ROW applications pending review and analysis. New ROWs under the 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.
Oil and Gas	BLM: Past	BLM Wyoming has offered for lease 861,634 acres; 812,123 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 June 2018 that will offer 198,588 acres for lease. The actions in the Proposed Plan to not propose to change stipulations analyzed in the 2014 and 2015 plans.

Action	Type	Effects
Locatable Mineral Projects	BLM: Past and Present	Between 2015-2017, the BLM has approved 17 new mines and/or expansions within the planning area (including non-habitat). The Proposed Plan does not propose changes to any decisions associated with locatable minerals, which were sufficiently analyzed on the existing plans.
	BLM: Future pending	The BLM is currently reviewing 26 plans of operation for new mines, mine expansions and notice-level activities. This number also includes 10 pending mine patents, which are in the process of being patented into private ownership. The 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 4 coal lease applications/modifications totaling 10,148.56 acres. No management decisions for leasable minerals are proposed for change under the Proposed Plan.
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.

2.2 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 1**) 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 1**, 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

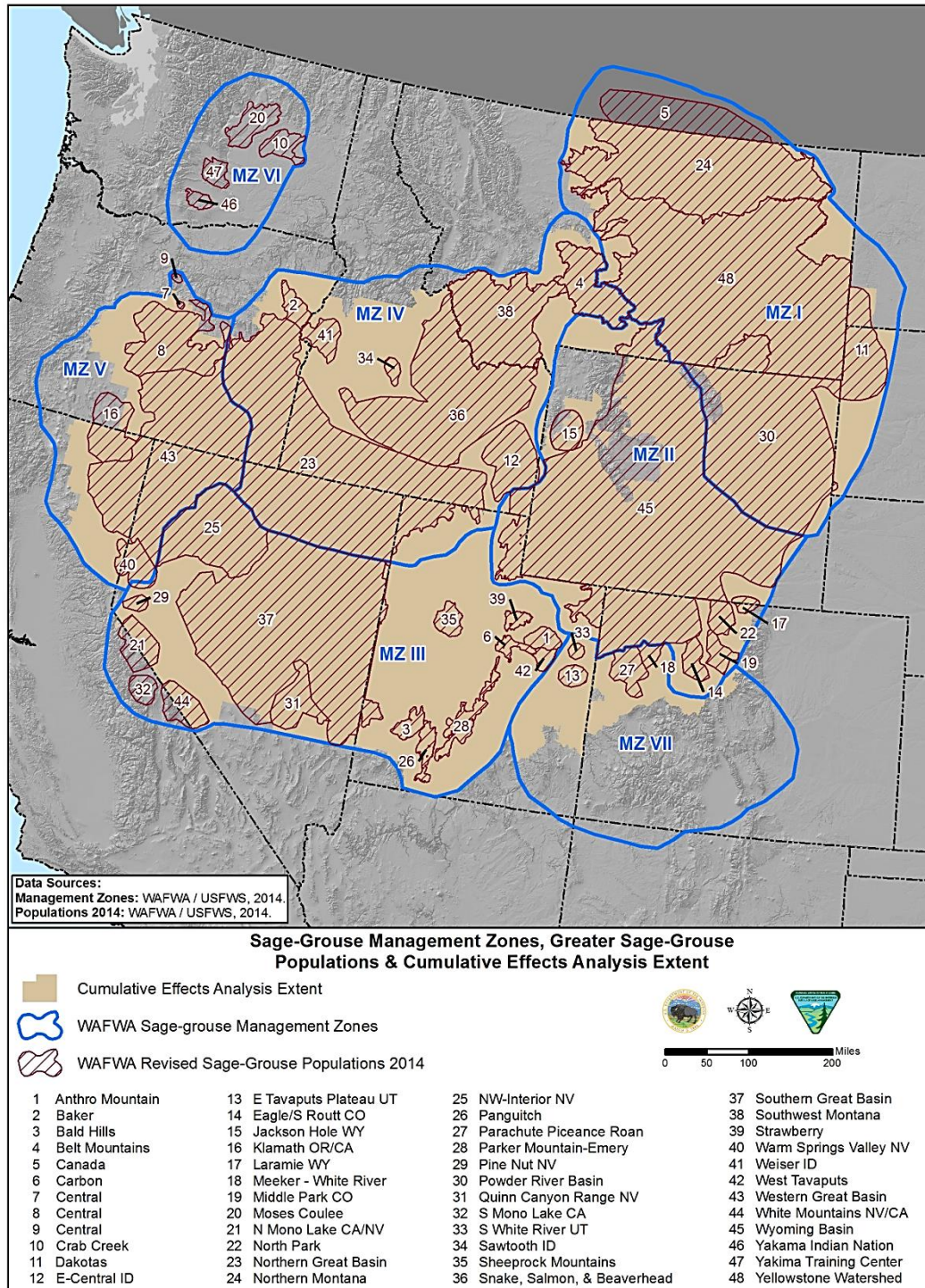


Figure I – Cumulative Effects Analysis Extent, Sage-Grouse Management Zones and Populations

2.2.1 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 ¹	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**

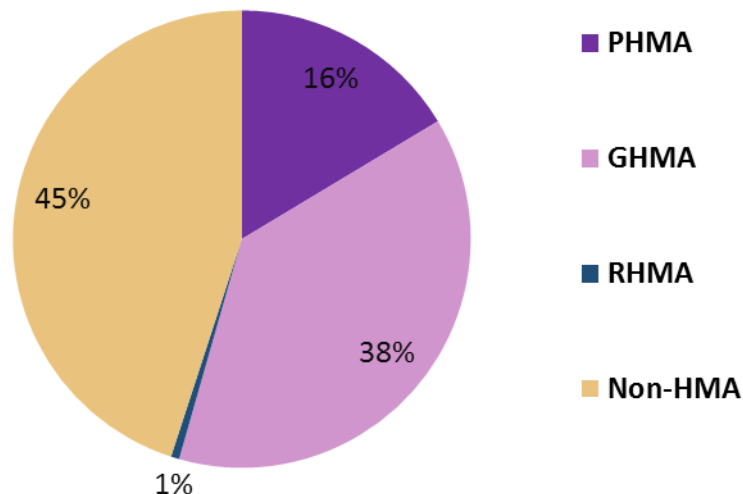


Figure 2 - Habitat Management Areas within MZ I

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.

¹ 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.

¹ 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.

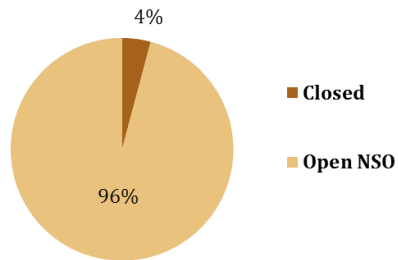
They represent data available at the time of consolidation and may be revised as Plans are finalized.

Consult each individual EIS for final/official acreages.

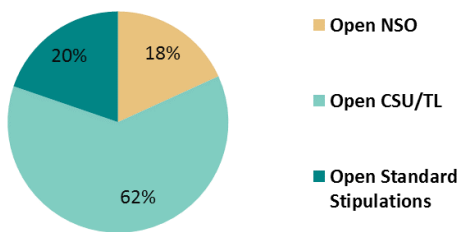
Approximate Acres of Geothermal Decisions¹ in MZ I by Habitat Management Area Type					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	86,000	0	NA	86,000	172,000
Open NSO	1,988,000	130,000	NA	230,000	2,349,000
Open CSU/TL	0	443,000	NA	1,071,000	1,514,000
Open Standard Stipulations	0	141,000	NA	372,000	514,000
Total	2,074,000	714,000	NA	1,760,000	4,548,000

Approximate % of Habitat Management Area by Geothermal Decision¹ within Habitat in MZ I					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	4%	0%	NA	5%	4%
Open NSO	96%	18%	NA	13%	52%
Open CSU/TL	0%	62%	NA	61%	33%
Open Standard Stipulations	0%	20%	NA	21%	11%
Total	100%	100%	NA	100%	100%

**No Action & Management Alignment -
PHMA - Geothermal Energy**



**No Action & Management Alignment - GHMA -
Geothermal Energy**



**No Action & Management Alignment - Non-
HMA - Geothermal Energy**

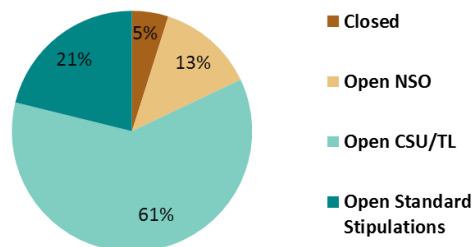


Figure 3 – Geothermal Energy Decisions within MZ I

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. ¹ 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

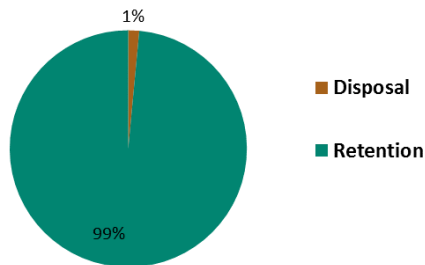
Table 5 – Land Tenure Decisions within MZ I

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.

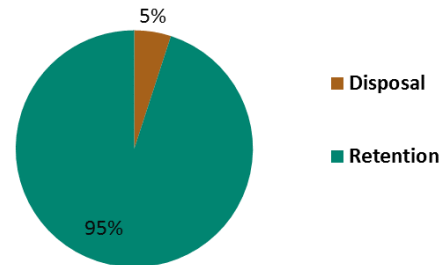
Approximate Acres of Land Tenure Decisions in MZ I by Habitat Management Area Type					
Land Tenure	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Disposal	49,000	167,000	0	143,000	359,000
Retention	3,259,000	2,997,000	159,000	1,538,000	7,953,000
Total	3,308,000	3,164,000	159,000	1,681,000	8,312,000

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%
Total	100%	100%	100%	100%	100%

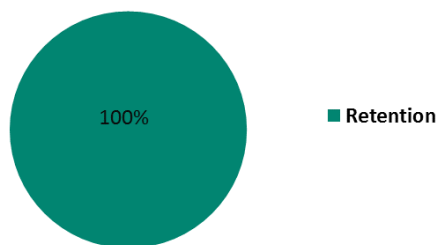
No Action & Management Alignment - PHMA
- Land Tenure



No Action & Management Alignment - GHMA - Land Tenure



No Action & Management Alignment - RHMA - Land Tenure



No Action & Management Alignment - Non-HMA - Land Tenure

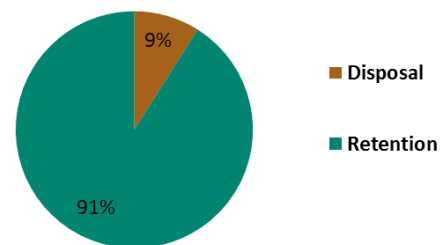


Figure 4 – Land Tenure Decisions within MZ I

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

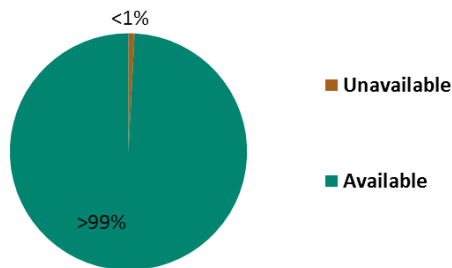
Table 6 – Livestock Grazing Decisions within MZ I

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.

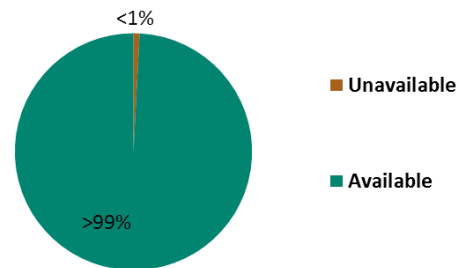
Approximate Acres of Livestock Grazing Decisions in MZ I by Habitat Management Area Type					
Livestock Grazing	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Unavailable	3,000	8,000	0	12,000	23,000
Available	3,303,000	3,186,000	158,000	1,632,000	8,279,000
Total	3,306,000	3,194,000	158,000	1,644,000	8,302,000

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%
Total	100%	100%	100%	100%	100%

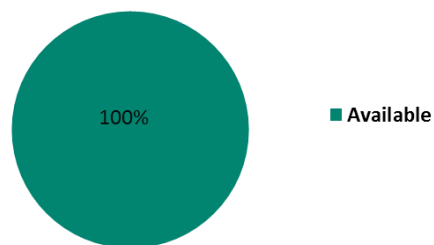
No Action & Management Alignment -
PHMA - Livestock Grazing



No Action & Management Alignment -
GHMA - Livestock Grazing



No Action & Management - RHMA -
Livestock Grazing



No Action & Management - Non-HMA -
Livestock Grazing

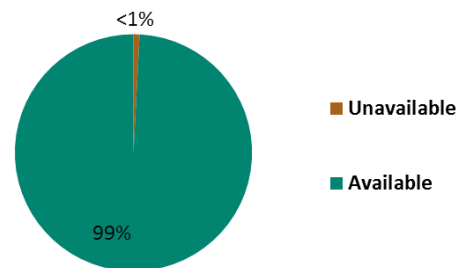


Figure 5 – Livestock Grazing Decisions within MZ I

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. ² MT Recommended Withdrawals Decisions in PHMA will be removed via plan maintenance.

Approximate Acres of Locatable Minerals Decisions² in MZ I by Habitat Management Area Type					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Existing Withdrawals	22,000	203,000	0	240,000	465,000
Recommended Withdrawals	1,094,000	166,000	0	46,000	1,306,000
Open	4,053,000	7,132,000	164,000	2,688,000	14,037,000
Total	5,169,000	7,501,000	165,000	2,974,000	15,808,000

Approximate % of Habitat Management Area by Locatable Minerals Decisions² within Habitat in MZ I					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Existing Withdrawals	<1%	3%	<1%	8%	3%
Recommended Withdrawals	21%	2%	0%	2%	8%
Open	79%	95%	100%	90%	89%
Total	100%	100%	100%	100%	100%

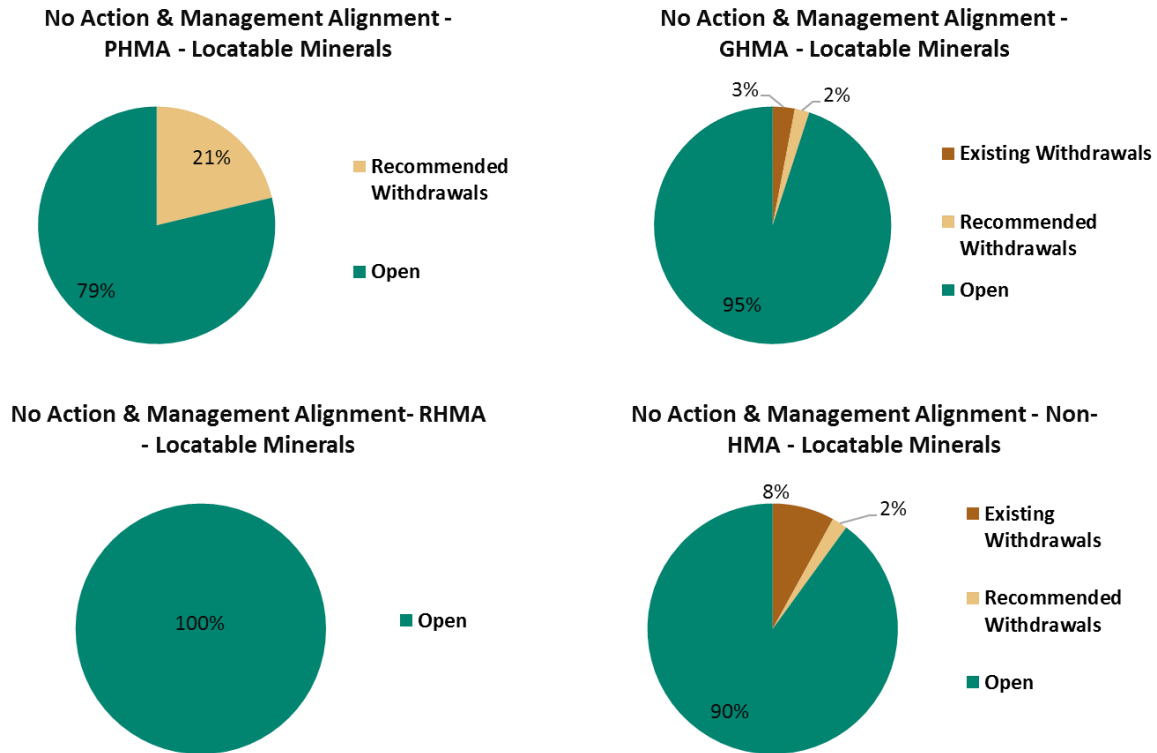


Figure 6 – Locatable Mineral Decisions within MZ I

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. ² 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.

³ 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.

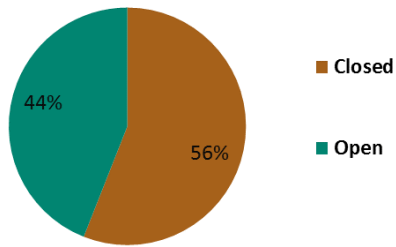
They represent data available at the time of consolidation and may be revised as Plans are finalized.

Consult each individual EIS for final/official acreages.

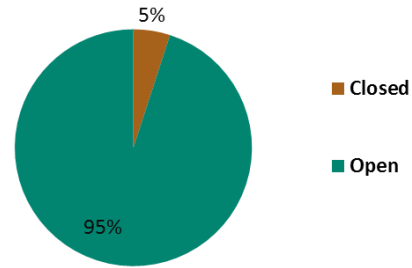
Approximate Acres of Non-Energy Leasable Minerals³ Decisions in MZ I by Habitat Management Area Type					
Livestock Grazing	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	2,432,000	296,000	NA	355,000	3,083,000
Open	1,900,000	6,205,000	NA	2,463,000	10,568,000
Total	4,332,000	6,501,000	NA	2,818,000	13,651,000

Approximate % of Habitat Management Area by Non-Energy Leasable Minerals³ Decision within Habitat in MZ I					
Livestock Grazing	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	56%	5%	NA	13%	23%
Open	44%	95%	NA	87%	77%
Total	100%	100%	NA	100%	100%

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

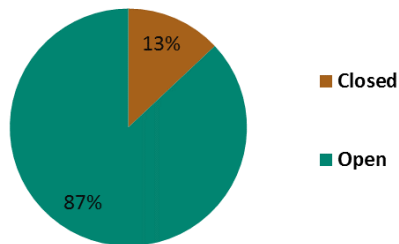


Figure 7 – Non-Energy Leasable Minerals Decisions within MZ I

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. ³ 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.

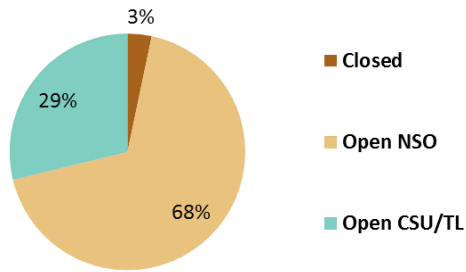
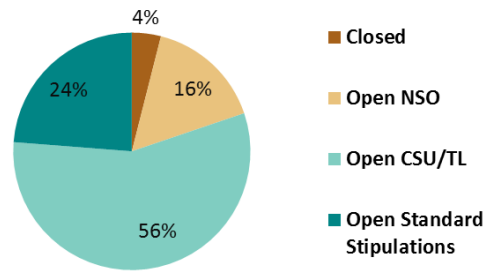
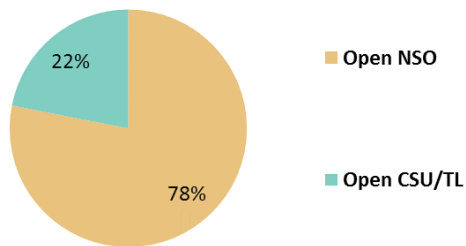
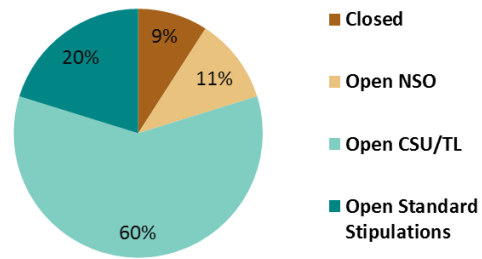
VII. Fluid Minerals (Oil & Gas)**Table 9 – Fluid Minerals (Oil & Gas) Decisions within MZ I**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding.

⁴Data 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.

Approximate Acres of Fluid Minerals (Oil a& Gas) Decisions⁴ in MZ I by Habitat Management Area Type					
Fluid Minerals (Oil and Gas)	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	196,000	328,000	0	346,000	870,000
Open NSO	3,730,000	1,485,000	228,000	406,000	5,849,000
Open CSU/TL	1,582,000	5,280,000	64,000	2,155,000	9,082,000
Open Standard Stipulations	0	2,223,000	0	744,000	2,967,000
Total	5,508,000	9,316,000	292,000	3,651,000	18,768,000

Approximate % of Habitat Management Area by Fluid Minerals (Oil a& Gas) Decision⁴ within Habitat in MZ I					
Fluid Minerals (Oil and Gas)	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	3%	4%	0%	9%	5%
Open NSO	68%	16%	78%	11%	31%
Open CSU/TL	29%	57%	22%	59%	48%
Open Standard Stipulations	0%	24%	0%	20%	16%
Total	100%	100%	100%	100%	100%

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. ⁴Data 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.

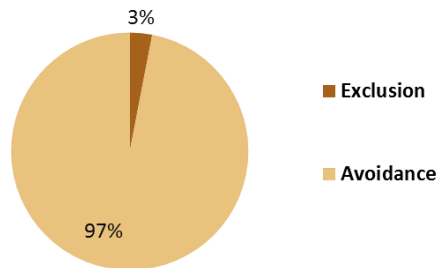
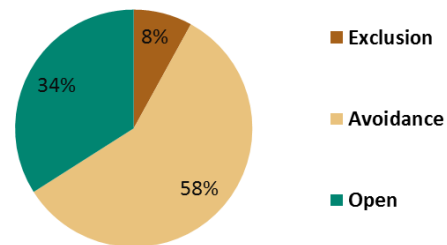
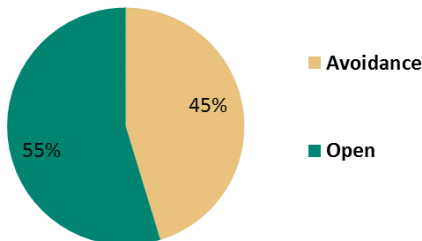
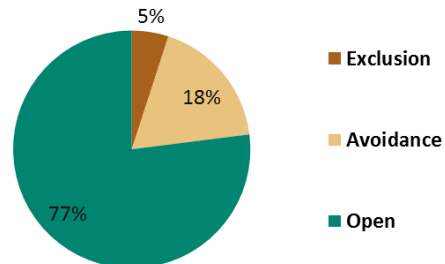
VIII. Rights-of-Ways

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					
Geothermal Energy	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
Total	3,278,000	3,126,000	159,000	1,574,478	8,136,478

Approximate % of Habitat Management Area by Rights-of-Ways Decision within Habitat in MZ I					
Geothermal Energy	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%
Total	100%	100%	100%	100%	100%

No Action & Management Alignment -
PHMA - Rights of WaysNo Action & Management Alignment -
GHMA - Rights of WaysNo Action & Management Alignment -
RHMA - Rights of WaysNo 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.

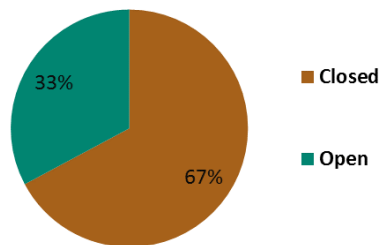
IX. Salable Minerals Materials**Table 11 – Salable Minerals Decisions within MZ I**

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.

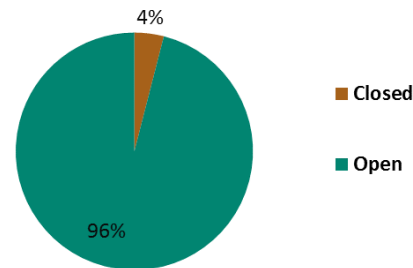
Approximate Acres of Salable Minerals Materials Decisions in MZ I by Habitat Management Area Type					
Livestock Grazing	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	3,870,000	402,000	9,000	424,000	4,705,000
Open	1,882,000	8,787,000	267,000	2,990,000	13,926,000
Total	5,752,000	9,189,000	276,000	3,414,000	18,631,000

Approximate % of Habitat Management Area by Salable Minerals Materials Decision within Habitat in MZ I					
Livestock Grazing	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	67%	4%	3%	12%	25%
Open	33%	96%	97%	88%	75%
Total	100%	100%	100%	100%	100%

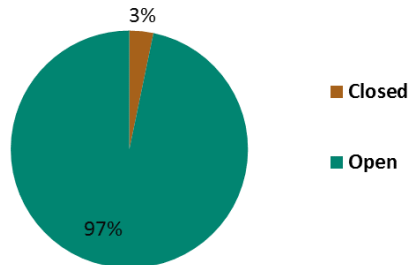
No Action & Management Alignment -
PHMA - Salable Minerals Materials



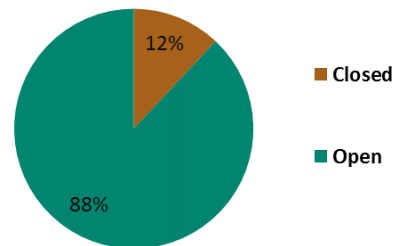
No Action & Management Alignment -
GHMA - Salable Minerals Materials



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.

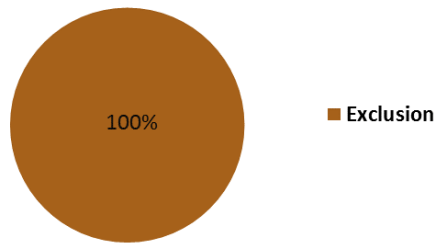
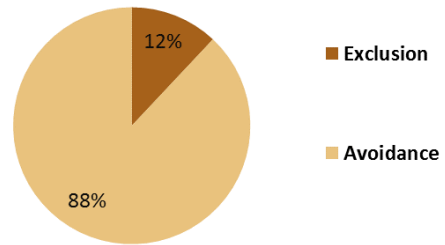
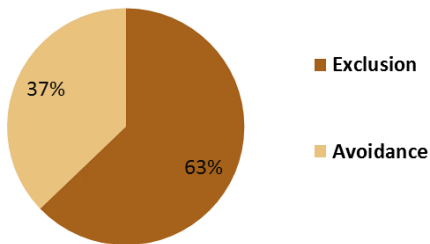
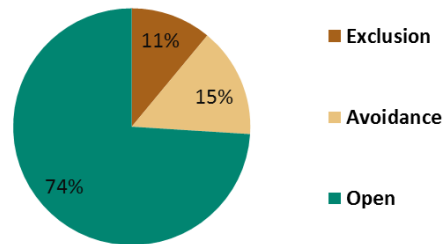
X. Solar Energy**Table 12 – Solar Energy Decisions within MZ I**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding.

⁵ 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.

Approximate Acres of Solar Energy Decisions⁵ in MZ I by Habitat Management Area Type					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Exclusion	2,709,000	249,000	93,000	239,000	3,290,000
Avoidance	0	1,844,000	55,000	172,000	2,071,000
Open	0	0	0	1,144,000	1,145,000
Total	2,709,000	2,093,000	148,000	1,555,000	6,506,000

Approximate % of Habitat Management Area by Solar Energy Decision⁵ within Habitat in MZ I					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Exclusion	100%	12%	63%	11%	51%
Avoidance	0%	88%	37%	15%	32%
Open	0%	0%	0%	74%	18%
Total	100%	100%	100%	100%	100%

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.

⁵ 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.

Approximate Acres of Trails and Travel Management Decisions in MZ I by Habitat Management Area Type					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	2,000	39,000	0	11,000	52,000
Limited	3,306,000	3,125,000	159,000	1,655,000	8,245,000
Open	0	0	0	0	0
Total	3,308,000	3,164,000	159,000	1,666,000	8,297,000

Approximate % of Habitat Management Area by Trails and Travel Management Decision within Habitat in MZ I					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	0%	1%	0%	1%	1%
Limited	100%	99%	100%	99%	99%
Open	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%

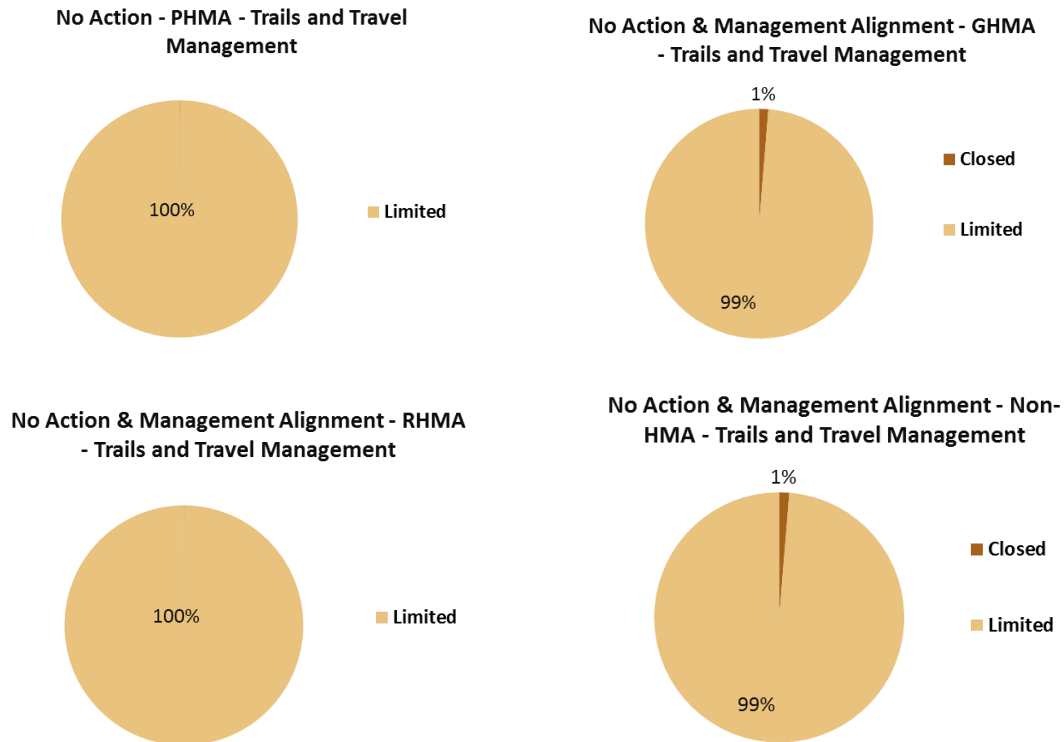


Figure 12 – Trails and Travel Management Decisions within MZ I

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

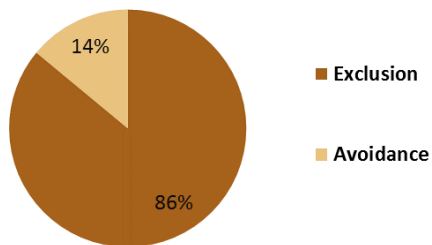
Table 14 – Wind Energy Decisions within MZ I

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.

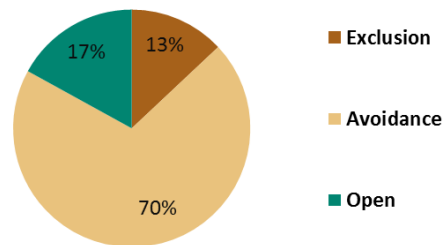
Approximate Acres of Wind Energy Decisions in MZ I by Habitat Management Area Type					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Exclusion	2,966,000	384,000	93,000	419,000	3,862,000
Avoidance	493,000	2,090,000	55,000	594,000	3,232,000
Open	0	513,000	0	655,000	1,168,000
Total	3,459,000	2,987,000	148,000	1,668,000	8,262,000

Approximate % of Habitat Management Area by Wind Energy Decision within Habitat in MZ I					
Geothermal 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%
Total	100%	100%	100%	100%	100%

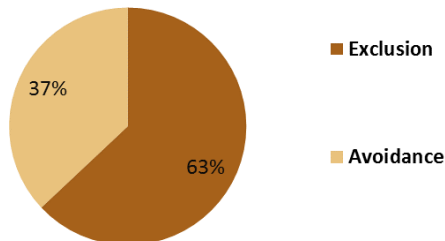
No Action & Management Alignment -
PHMA - Wind Energy



No Action & Management Alignment -
GHMA - Wind Energy



No Action & Management Alignment -
RHMA - Wind Energy



No Action & Management Alignment - Non-
HMA - Wind Energy

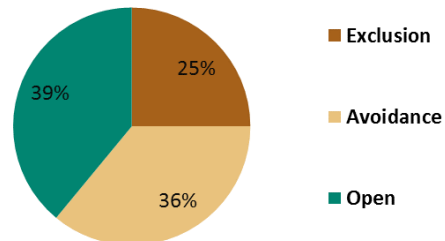


Figure 13 – Wind Energy Decisions within MZ I

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.

2.2.2 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.

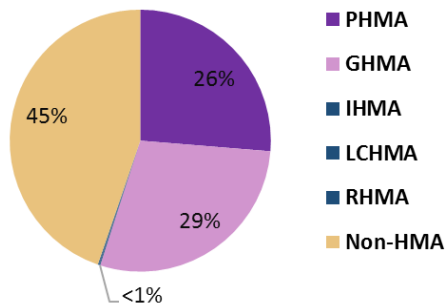
Approximate Acres of HMA in MZs II/VII					
No Action					
PHMA	IHMA	GHMA	LCHMA ²	RHMA	Non-HMA
16,699,000	69,000	18,220,000	295,000	8,000	28,409,000

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

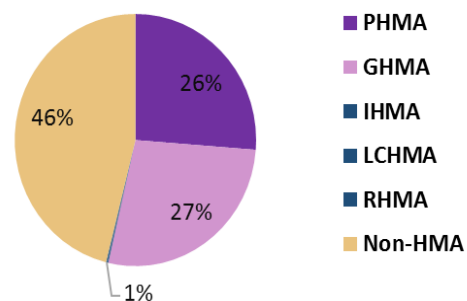


Figure 14 – Habitat Management Areas within MZs II/VII

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.

² 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.

⁶ 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.

Approximate Acres of Geothermal Energy Decisions⁶ in MZ II/VII by Habitat Management Area Type							
Geothermal Energy	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	781,000	1,000	285,000	1,000	NA	2,342,000	3,409,000
Open NSO	2,271,000	29,000	342,000	54,000	NA	1,917,000	4,615,000
Open CSU/TL	983,000	0	1,316,000	81,000	NA	3,511,000	5,891,000
Open Standard Stipulations	0	0	245,000	8,000	NA	2,407,000	2,660,000
Total	4,037,000	29,000	2,187,000	144,000	NA	10,179,000	16,575,000

Geothermal Energy	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	565,000	1,000	260,000	1,000	NA	2,355,000	3,181,000
Open NSO	2,451,000	29,000	348,000	54,000	NA	1,923,000	4,804,000
Open CSU/TL	983,000	0	1,109,000	81,000	NA	3,719,000	5,891,000
Open Standard Stipulations	0	0	140,000	8,000	NA	2,512,000	2,660,000
Total	4,000,000	29,000	1,857,000	144,000	NA	10,509,000	16,538,000

Approximate % of Habitat Management Area by Geothermal Energy Decision⁶ in MZ II/VII							
Geothermal Energy	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	19%	<1%	13%	1%	NA	23%	21%
Open NSO	56%	100%	16%	38%	NA	19%	28%
Open CSU/TL	24%	0%	60%	56%	NA	34%	36%
Open Standard Stipulations	0%	0%	11%	6%	NA	24%	16%
Total	100%	100%	100%	100%	NA	100%	100%

Geothermal Energy	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	14%	<1%	14%	1%	NA	22%	19%
Open NSO	61%	100%	19%	38%	NA	18%	29%
Open CSU/TL	25%	0%	60%	56%	NA	35%	36%
Open Standard Stipulations	0%	0%	8%	6%	NA	24%	16%
Total	100%	100%	100%	100%	NA	100%	100%

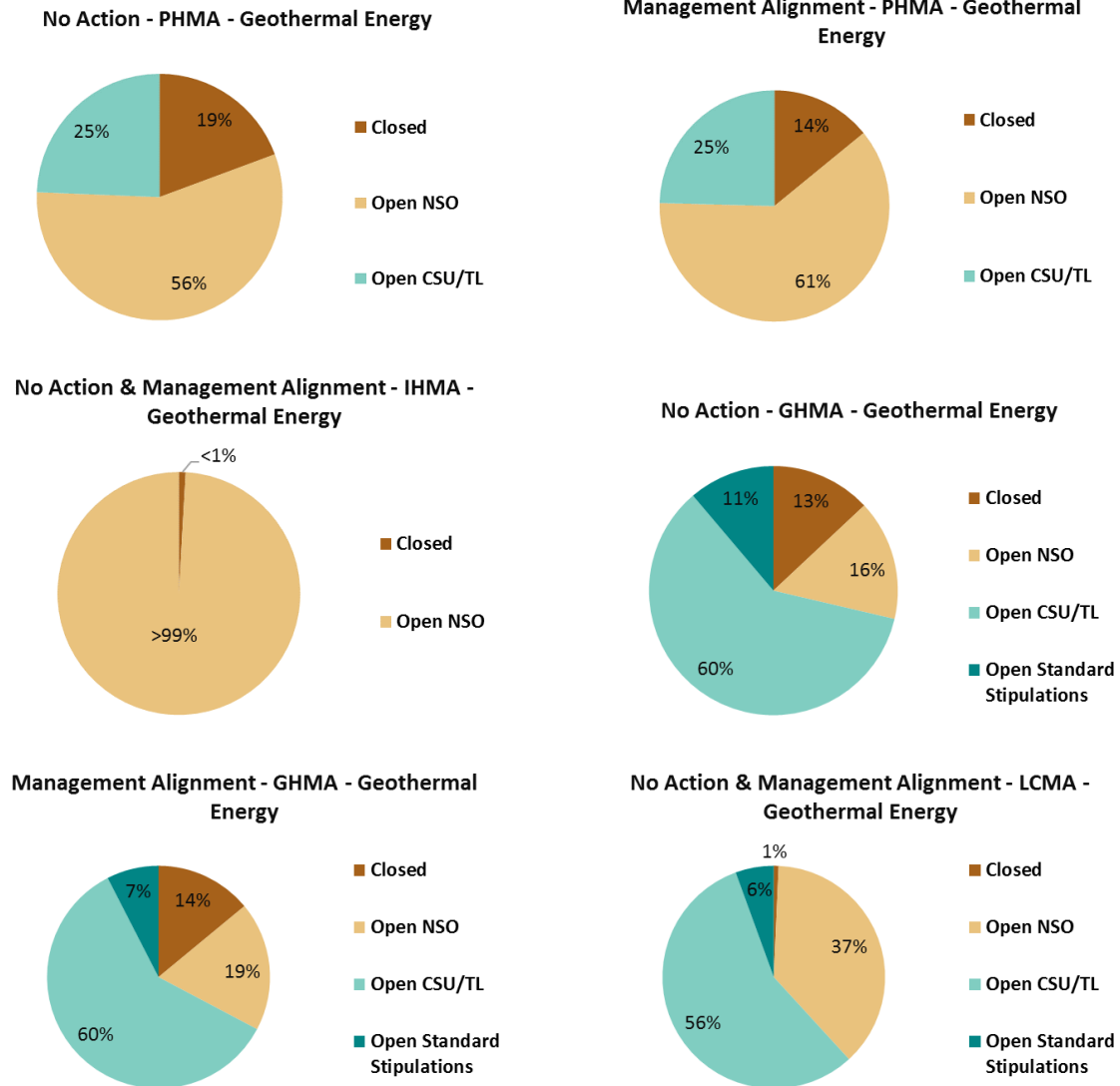
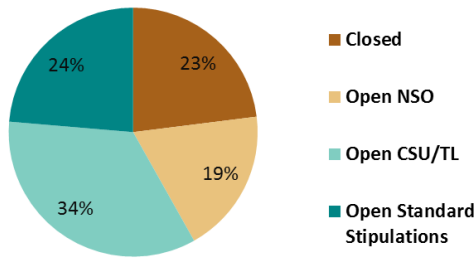


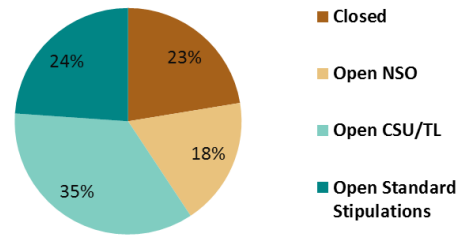
Figure 15 – Geothermal Energy Decisions within MZ II/VII

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. ⁶ 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. ⁶ 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
Total	8,951,000	18,000	9,126,000	82,000	7,000	11,952,000	30,136,000

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
Total	8,951,000	18,000	8,839,000	82,000	7,000	12,239,000	30,136,000

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%
Total	100%	100%	100%	100%	100%	100%	100%

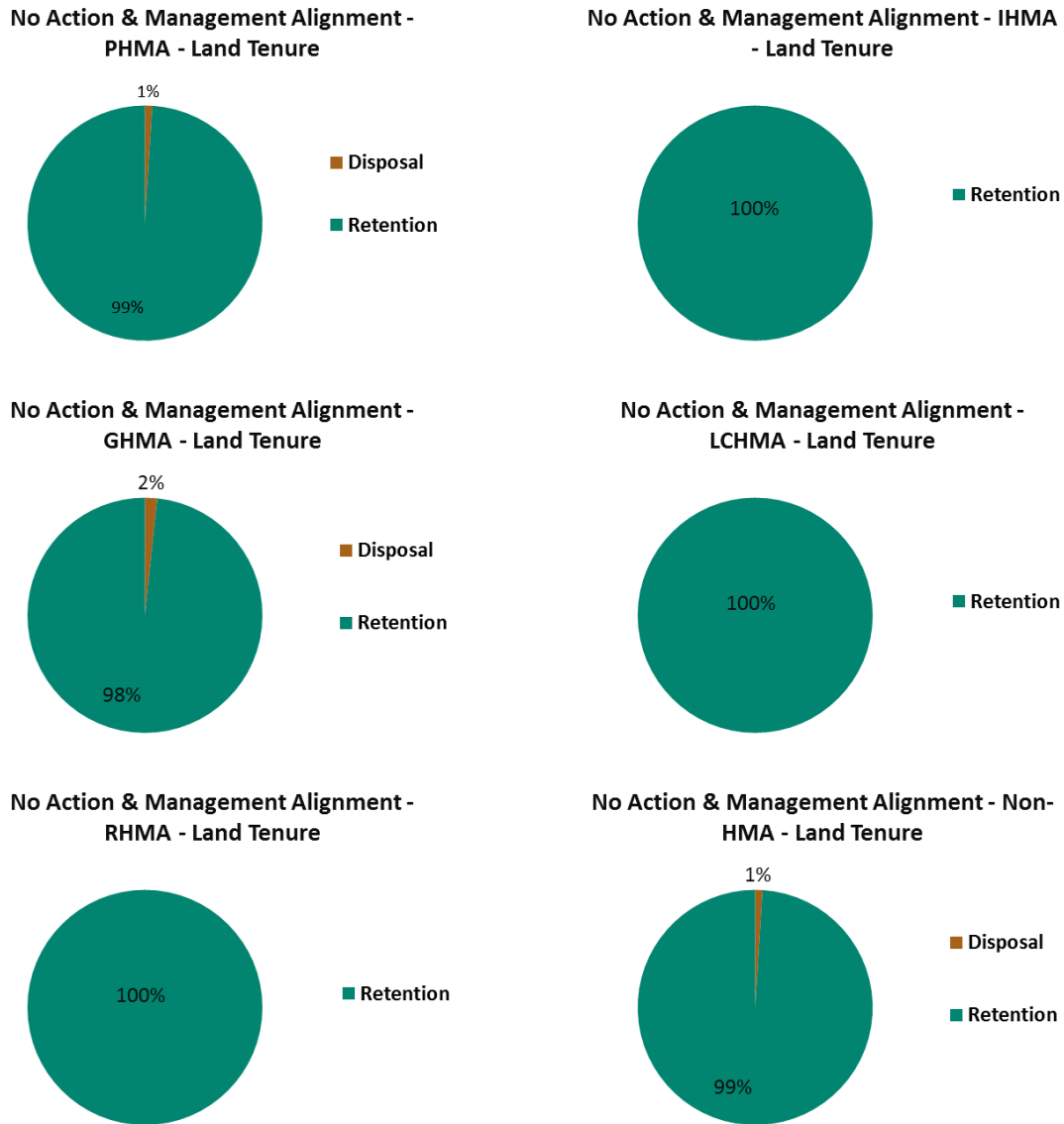


Figure 16 – Land Tenure Decisions within MZ II/VII

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.

Approximate Acres of Livestock Grazing Decisions in MZ II/VII by Habitat Management Area Type							
Livestock Grazing	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Unavailable	40,000	0	40,000	0	0	316,000	395,000
Available	8,872,000	18,000	9,069,000	81,000	7,000	8,193,000	26,241,000
Total	8,912,000	18,000	9,109,000	81,000	7,000	8,508,000	26,635,000

Livestock Grazing	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Unavailable	40,000	0	40,000	0	0	316,000	395,000
Available	8,872,000	18,000	8,784,000	81,000	7,000	8,479,000	26,241,000
Total	8,912,000	18,000	8,824,000	81,000	7,000	8,794,000	26,635,000

Approximate % of Habitat Management Area by Livestock Grazing Decision in MZ II/VII							
Livestock Grazing	No Action & Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Unavailable	<1%	0%	<1%	0%	0%	4%	1%
Available	100%	100%	100%	100%	100%	96%	99%
Total	100%	100%	100%	100%	100%	100%	100%



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**

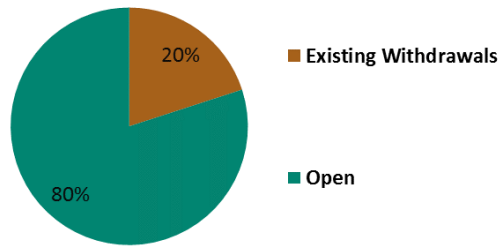
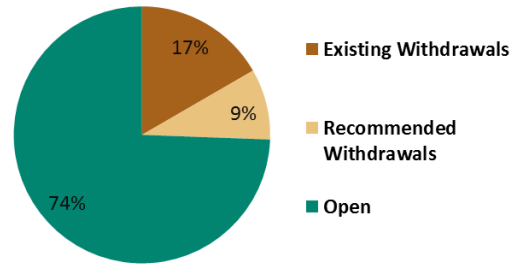
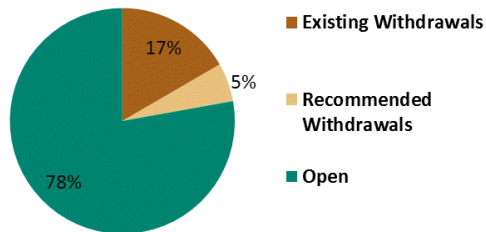
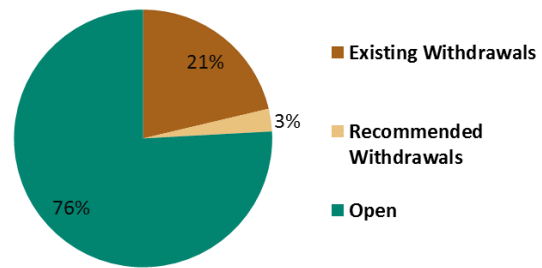
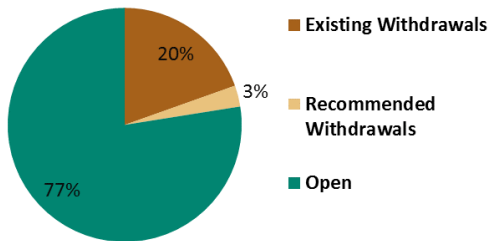
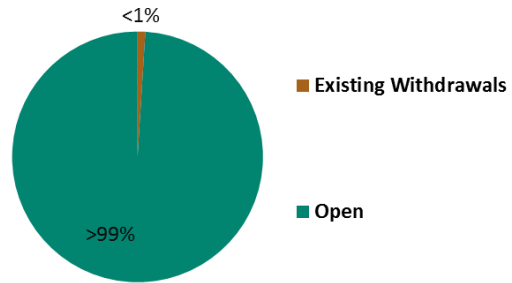
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Locatable Minerals Decisions in MZ II/VII by Habitat Management Area Type							
Locatable Minerals	No Action						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Existing Withdrawals	1,863,000	7,000	2,394,000	1,000	0	4,804,000	9,068,000
Recommended Withdrawals	998,000	0	320,000	0	0	302,000	1,620,000
Open	8,323,000	27,000	8,529,000	137,000	7,000	10,250,000	27,273,000
Total	11,185,000	33,000	11,243,000	137,000	7,000	15,357,000	37,962,000

Locatable Minerals	Management Alignment						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Existing Withdrawals	1,863,000	7,000	2,125,000	1,000	0	5,072,000	9,068,000
Recommended Withdrawals	618,000	0	318,000	0	0	302,000	1,238,000
Open	8,703,000	27,000	8,420,000	137,000	7,000	10,361,000	27,656,000
Total	11,185,000	33,000	10,863,000	137,000	7,000	15,736,000	37,962,000

Approximate % of Habitat Management Area by Locatable Minerals Decision in MZ II/VII							
Locatable Minerals	No Action						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Existing Withdrawals	17%	20%	21%	<1%	0%	31%	24%
Recommended Withdrawals	9%	0%	3%	0%	0%	2%	4%
Open	74%	80%	76%	100%	100%	67%	72%
Total	100%	100%	100%	100%	100%	100%	100%

Locatable Minerals	Management Alignment						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Existing Withdrawals	17%	20%	20%	<1%	0%	32%	24%
Recommended Withdrawals	6%	0%	3%	0%	0%	2%	3%
Open	78%	80%	78%	100%	100%	66%	73%
Total	100%	100%	100%	100%	100%	100%	100%

**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.

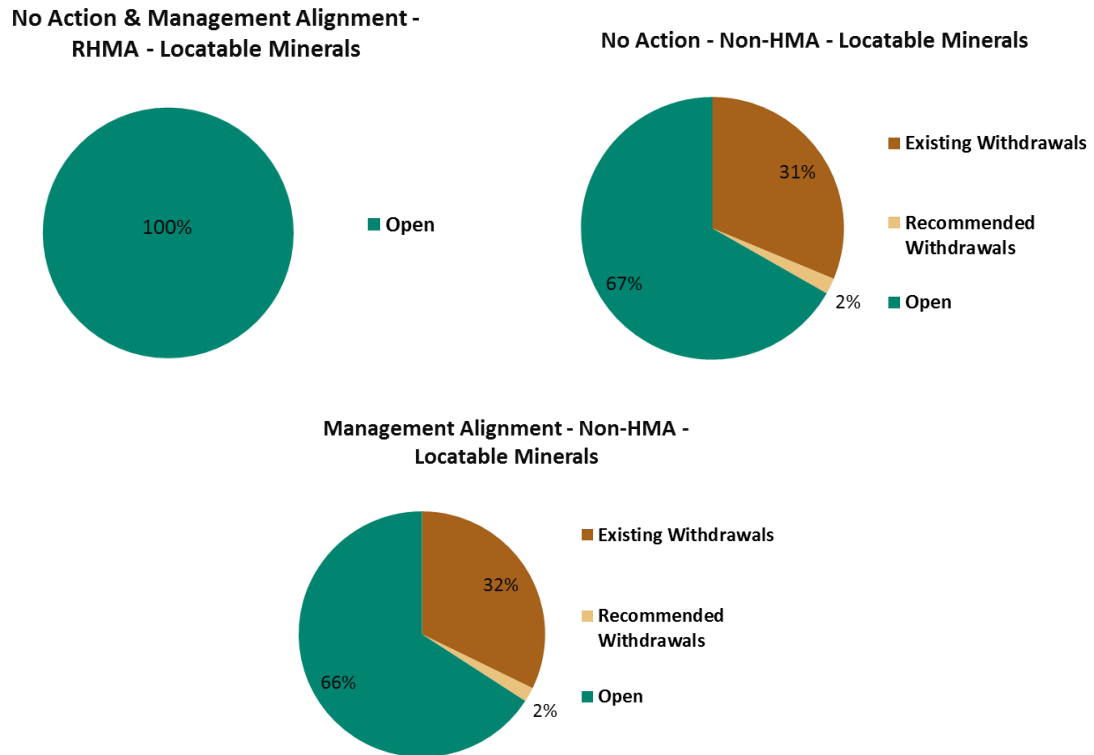


Figure 18 (cont'd) – Locatable Minerals Decisions within MZ II/VII

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. ⁷Data 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.

Approximate Acres of Non-Energy Leasable Minerals Decisions ⁷ in MZ II/VII by Habitat Management Area Type							
Non-Energy Leasable Minerals	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	3,617,000	7,000	1,256,000	1,000	NA	4,591,000	9,471,000
Open	6,052,000	23,000	7,330,000	137,000	NA	10,221,000	23,763,000
Total	9,669,000	30,000	8,586,000	137,000	NA	14,812,000	33,233,000

Non-Energy Leasable Minerals	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	3,581,000	7,000	1,244,000	1,000	NA	4,603,000	9,436,000
Open	6,052,000	23,000	6,972,000	137,000	NA	10,614,000	23,799,000
Total	9,633,000	30,000	8,216,000	137,000	NA	15,217,000	33,233,000

Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision ⁷ in MZ II/VII							
Non-Energy Leasable Minerals	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	37%	23%	15%	<1%	NA	31%	28%
Open	63%	77%	85%	100%	NA	69%	72%
Total	100%	100%	100%	100%	NA	100%	100%

Non-Energy Leasable Minerals	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	37%	23%	15%	<1%	NA	30%	28%
Open	63%	77%	85%	100%	NA	70%	72%
Total	100%	100%	100%	100%	NA	100%	100%



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. ⁷Data 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

Approximate Acres of Fluid Minerals (Oil & Gas) Decisions in MZ II/VII by Habitat Management Area Type							
Fluid Minerals (Oil & Gas)	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	1,294,000	7,000	1,178,000	1,000	0	4,773,000	7,252,000
Open NSO	4,399,000	23,000	1,425,000	54,000	5,000	2,628,000	8,535,000
Open CSU/TL	5,689,000	0	6,517,000	81,000	2,000	4,748,000	17,036,000
Open Standard Stipulations	0	0	2,297,000	8,000	0	2,895,000	5,200,000
Total	11,382,000	29,000	11,416,000	144,000	8,000	15,046,000	38,024,000

Fluid Minerals (Oil & Gas)	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	1,078,000	7,000	1,153,000	1,000	0	4,787,000	7,024,000
Open NSO	4,578,000	23,000	1,430,000	54,000	5,000	2,634,000	8,725,000
Open CSU/TL	5,689,000	0	6,310,000	81,000	2,000	4,956,000	17,036,000
Open Standard Stipulations	0	0	2,193,000	8,000	0	3,000,000	5,200,000
Total	11,345,000	29,000	11,086,000	144,000	8,000	15,376,000	37,988,000

Approximate % of Habitat Management Area by Fluid Minerals (Oil & Gas) Decision in MZ II/VII							
Fluid Minerals (Oil & Gas)	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	11%	21%	10%	<1%	0%	32%	19%
Open NSO	39%	79%	12%	38%	63%	17%	22%
Open CSU/TL	50%	0%	57%	56%	37%	32%	45%
Open Standard Stipulations	0%	0%	20%	6%	0%	19%	14%
Total	100%	100%	100%	100%	100%	100%	100%

Fluid Minerals (Oil & Gas)	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	10%	21%	10%	<1%	0%	31%	18%
Open NSO	40%	79%	13%	38%	63%	17%	23%
Open CSU/TL	50%	0%	57%	56%	37%	32%	45%
Open Standard Stipulations	0%	0%	20%	6%	0%	20%	14%
Total	100%	100%	100%	100%	100%	100%	100%

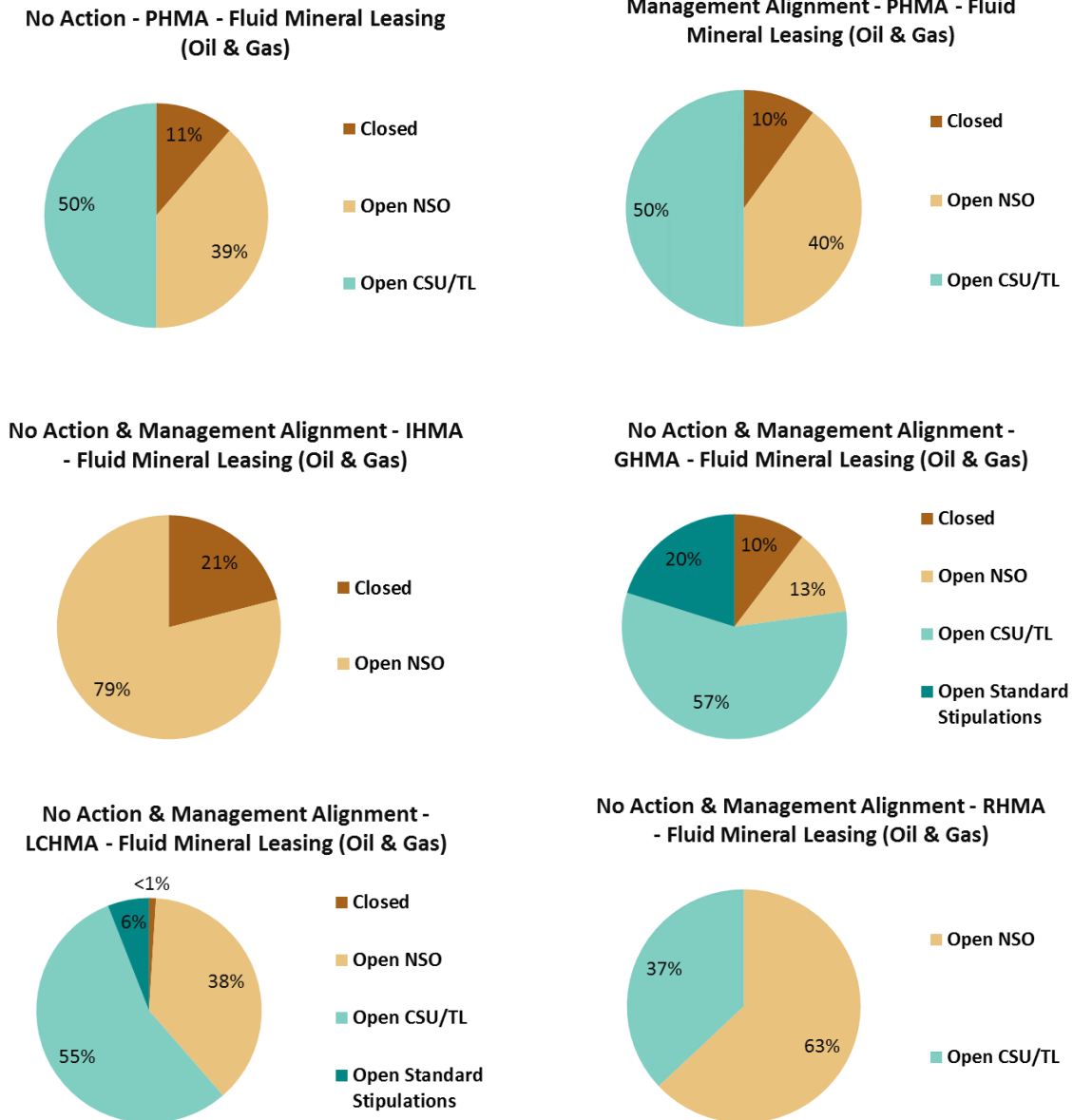
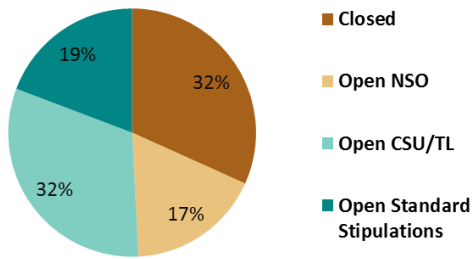
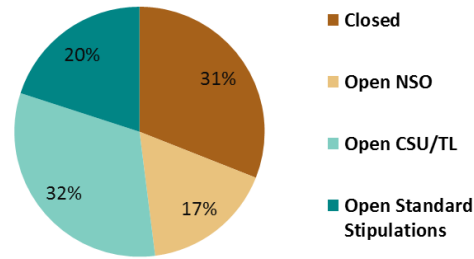


Figure 20 – Fluid Minerals (Oil & Gas) Decisions within MZ II/VII

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 & 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						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
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
Total	8,752,000	34,000	9,041,000	67,000	7,000	7,494,000	25,395,000

Rights-of-Ways	Management Alignment						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
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
Total	8,752,000	34,000	8,754,000	67,000	7,000	7,781,000	25,395,000

Approximate % of Habitat Management Area by Rights-of-Ways Decision in MZ II/VII							
Rights-of-Ways	No Action						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Exclusion	6%	0%	7%	0%	0%	17%	10%
Avoidance	93%	53%	35%	24%	100%	16%	49%
Open	1%	47%	58%	76%	0%	68%	41%
Total	100%	100%	100%	100%	100%	100%	100%

Rights-of-Ways	Management Alignment						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Exclusion	6%	0%	7%	0%	0%	16%	10%
Avoidance	93%	53%	36%	24%	100%	15%	49%
Open	1%	47%	57%	76%	0%	69%	41%
Total	100%	100%	100%	100%	100%	100%	100%

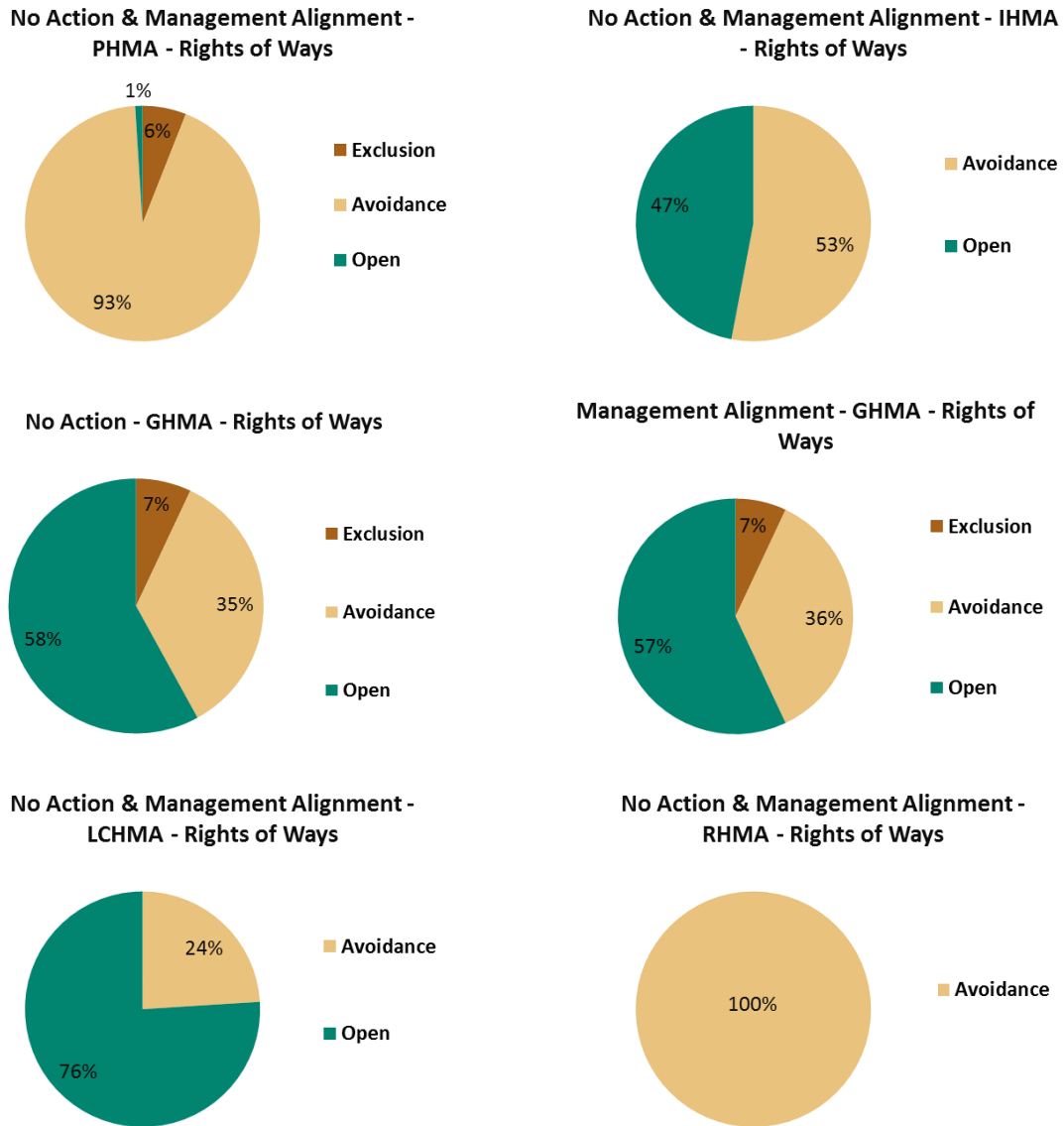


Figure 21 – Rights-of-Ways Decisions within MZ II/VII

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

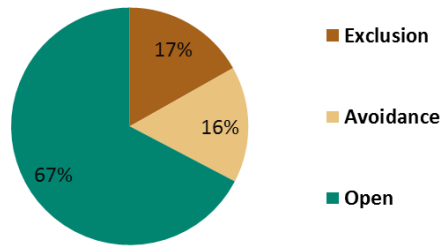


Figure 21 (cont'd) – Rights-of-Ways Decisions within MZ II/VII

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.

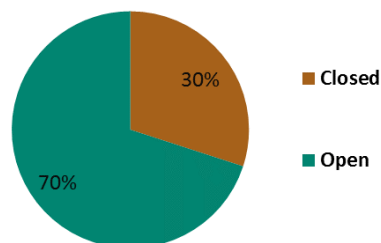
Approximate Acres of Salable Minerals Materials Decisions in MZ II/VII by Habitat Management Area Type							
Salable Minerals Materials	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	3,241,000	0	1,401,000	27,000	0	3,592,000	8,263,000
Open	7,671,000	28,000	9,745,000	115,000	7,000	9,675,000	27,239,000
Total	10,912,000	28,000	11,145,000	142,000	7,000	13,268,000	35,502,000

Salable Minerals Materials	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	3,241,000	0	1,399,000	27,000	0	3,594,000	8,263,000
Open	7,671,000	28,000	9,413,000	115,000	7,000	10,006,000	27,239,000
Total	10,912,000	28,000	10,813,000	142,000	7,000	13,600,000	35,502,000

Approximate % of Habitat Management Area by Salable Minerals Materials Decision in MZ II/VII							
Salable Minerals Materials	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	30%	0%	13%	19%	0%	26%	23%
Open	70%	100%	87%	81%	100%	74%	77%
Total	100%	100%	100%	100%	100%	100%	100%

Salable Minerals Materials	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	30%	0%	13%	19%	0%	27%	23%
Open	70%	100%	87%	81%	100%	73%	77%
Total	100%	100%	100%	100%	100%	100%	100%

No Action & Management Alignment -
PHMA - Salable Minerals Materials



No Action & Management Alignment - IHMA
- Salable Minerals Materials

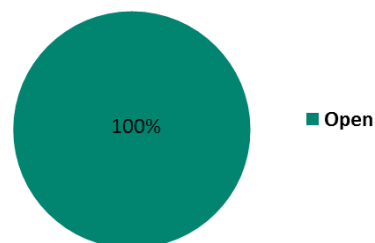


Figure 22 – Salable Minerals Materials Decisions within MZ II/VII

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.

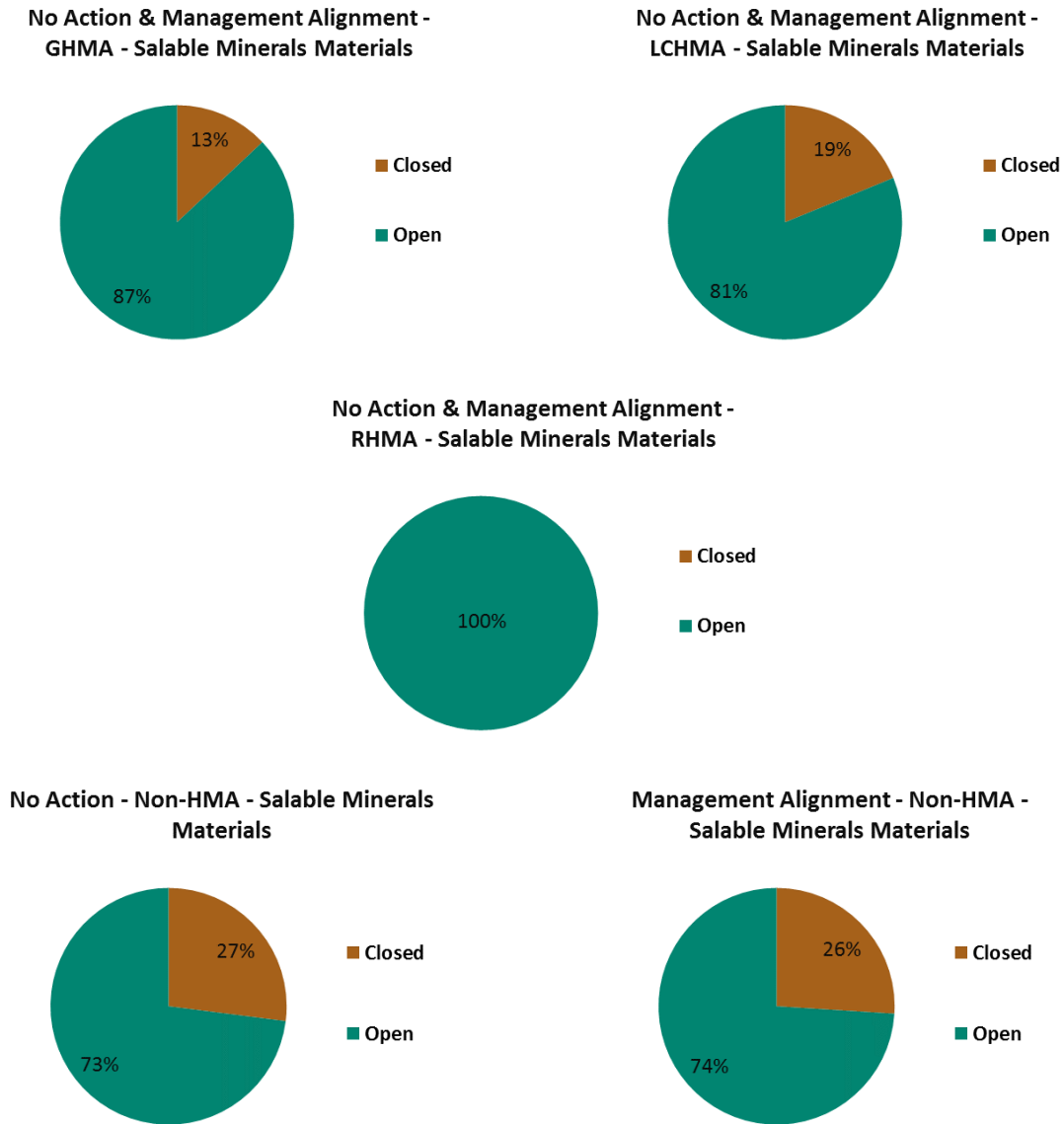


Figure 22 (cont'd) – Salable Minerals Materials Decisions within MZ II/VII

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. ⁸ 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.

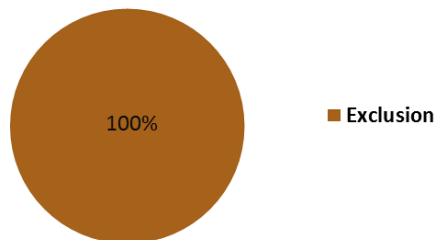
Approximate Acres of Solar Energy Decisions ⁸ in MZ II/VII by Habitat Management Area Type							
Solar Energy	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Exclusion	1,494,000	0	317,000	0	7,000	4,352,000	6,169,000
Avoidance	2,000	18,000	764,000	83,000	0	742,000	1,610,000
Open	0	0	1,000	0	0	2,170,000	2,171,000
Total	1,496,000	18,000	1,082,000	83,000	7,000	7,265,000	9,950,000

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
Total	1,496,000	18,000	795,000	83,000	7,000	7,551,000	9,950,000

Approximate % of Habitat Management Area by Solar Energy Decision ⁸ 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%
Total	100%	100%	100%	100%	100%	100%	100%

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%
Total	100%	100%	100%	100%	100%	100%	100%

No Action & Management Alignment -
PHMA - Solar Energy



No Action & Management Alignment -
IHMA - Solar Energy

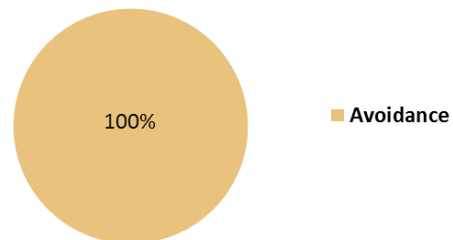


Figure 23 – Solar Energy Decisions within MZ II/VII

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. ⁸ 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.

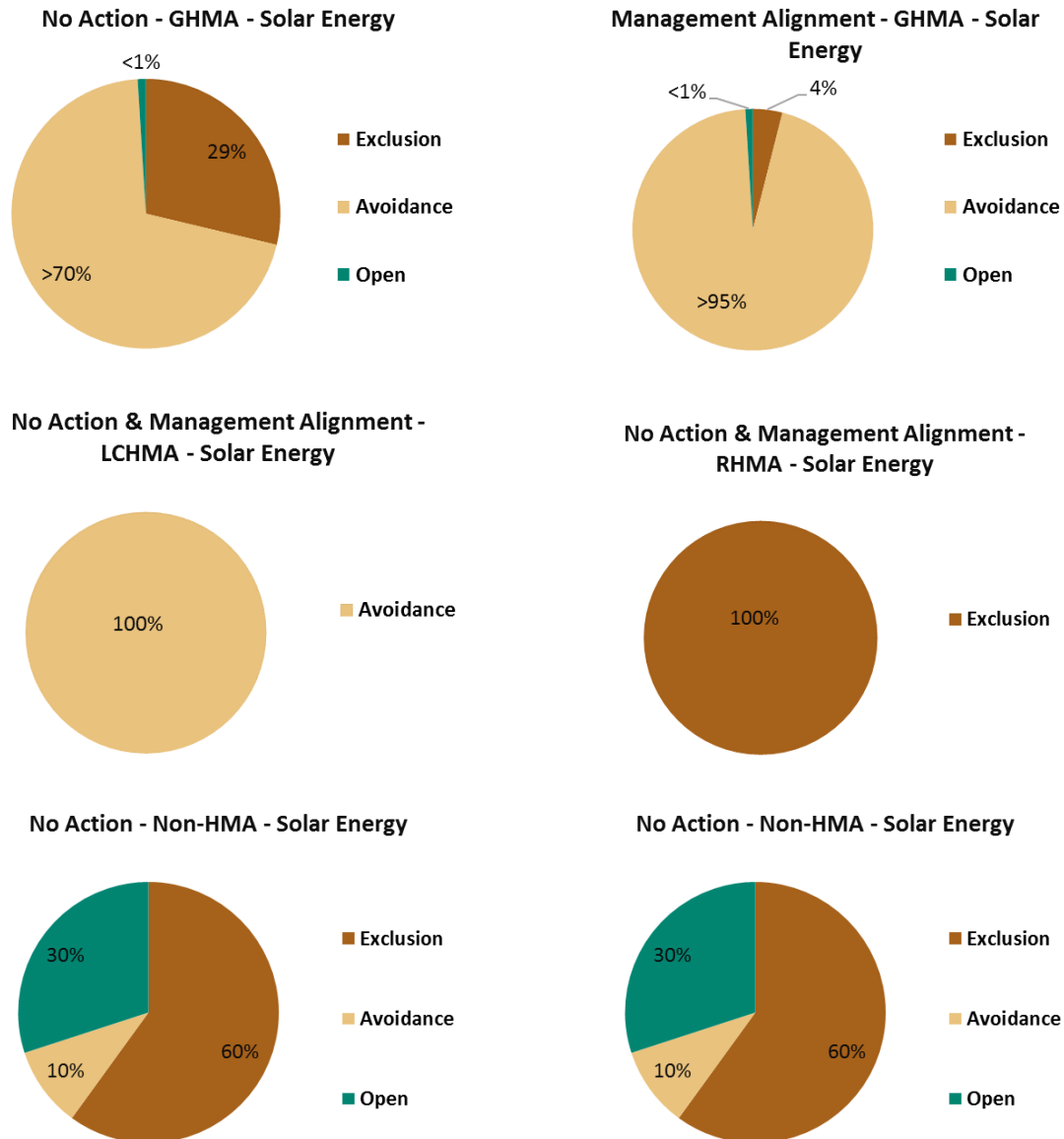


Figure 23 (cont'd) – Solar Energy Decisions within MZ II/VII

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. ⁸ 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.

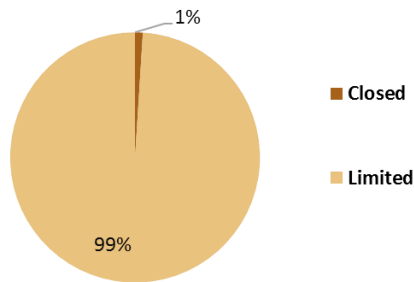
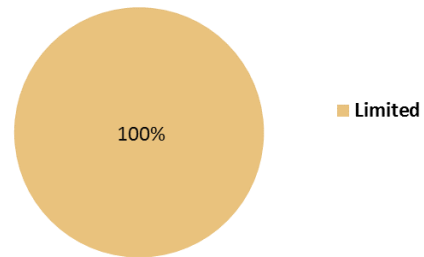
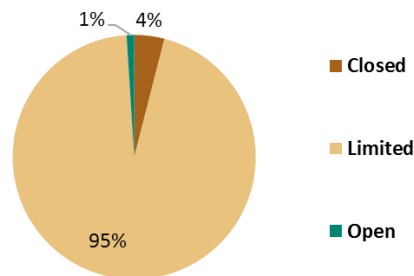
XI. Trails and Travel Management**Table 25 – Trails and Travel Management Decisions within MZ II/VII**

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.

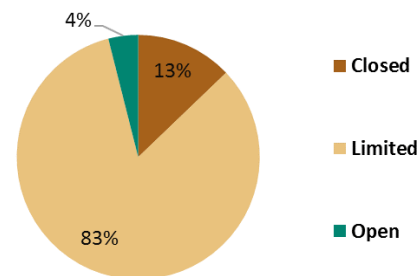
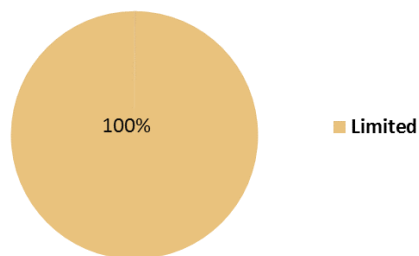
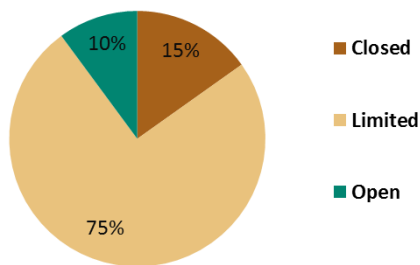
Approximate Acres of Trails and Travel Management Decisions in MZ II/VII by Habitat Management Area Type							
Trails and Travel Management	No Action						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	103,000	0	369,000	11,000	0	1,304,000	1,787,000
Limited	8,840,000	18,000	8,696,000	69,000	7,000	6,337,000	23,966,000
Open	4,000	0	54,000	3,000	0	891,000	953,000
Total	8,947,000	18,000	9,121,000	82,000	7,000	8,531,000	26,706,000

Trails and Travel Management	Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	103,000	0	366,000	11,000	0	1,307,000	1,787,000
Limited	8,840,000	18,000	8,413,000	69,000	7,000	6,620,000	23,966,000
Open	4,000	0	54,000	3,000	0	891,000	953,000
Total	8,947,000	18,000	8,834,000	82,000	7,000	8,819,000	26,706,000

Approximate % of Habitat Management Area by Trails and Travel Management Decision in MZ II/VII							
Trails and Travel Management	No Action & Management Alignment						
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	Total
Closed	1%	0%	4%	13%	0%	15%	7%
Limited	99%	100%	95%	84%	100%	74%	90%
Open	0%	0%	1%	4%	0%	10%	4%
Total	100%	100%	100%	100%	100%	100%	100%

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 & 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.

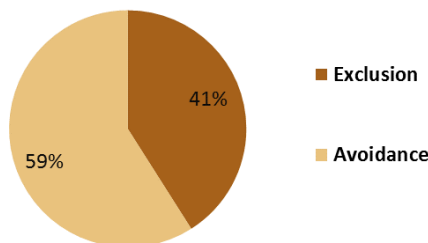
Approximate Acres of Wind Energy Decisions in MZ II/VII by Habitat Management Area Type							
Wind Energy	No Action						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Exclusion	3,660,000	0	1,041,000	0	7,000	1,327,000	6,035,000
Avoidance	5,294,000	18,000	2,805,000	83,000	0	1,103,000	9,304,000
Open	0	0	5,272,000	0	0	5,045,000	10,317,000
Total	8,953,000	18,000	9,119,000	83,000	7,000	7,476,000	25,656,000

Wind Energy	Management Alignment						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
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
Total	8,953,000	18,000	8,831,000	83,000	7,000	7,763,000	25,656,000

Approximate % of Habitat Management Area by Wind Energy Decision in MZ II/VII							
Wind Energy	No Action						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Exclusion	41%	0%	11%	0%	100%	18%	24%
Avoidance	59%	100%	31%	100%	0%	15%	36%
Open	0%	0%	58%	0%	0%	67%	40%
Total	100%	100%	100%	100%	100%	100%	100%

Wind Energy	Management Alignment						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Exclusion	41%	0%	12%	0%	100%	17%	24%
Avoidance	59%	100%	32%	100%	0%	14%	36%
Open	0%	0%	56%	0%	0%	69%	40%
Total	100%	100%	100%	100%	100%	100%	100%

No Action & Management Alignment -
PHMA - Wind Energy



No Action & Management Alignment - IHMA
- Wind Energy

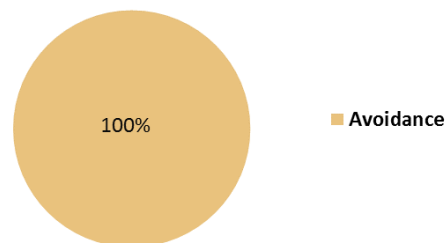


Figure 25 – Wind Energy Decisions within MZ II/VII

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.

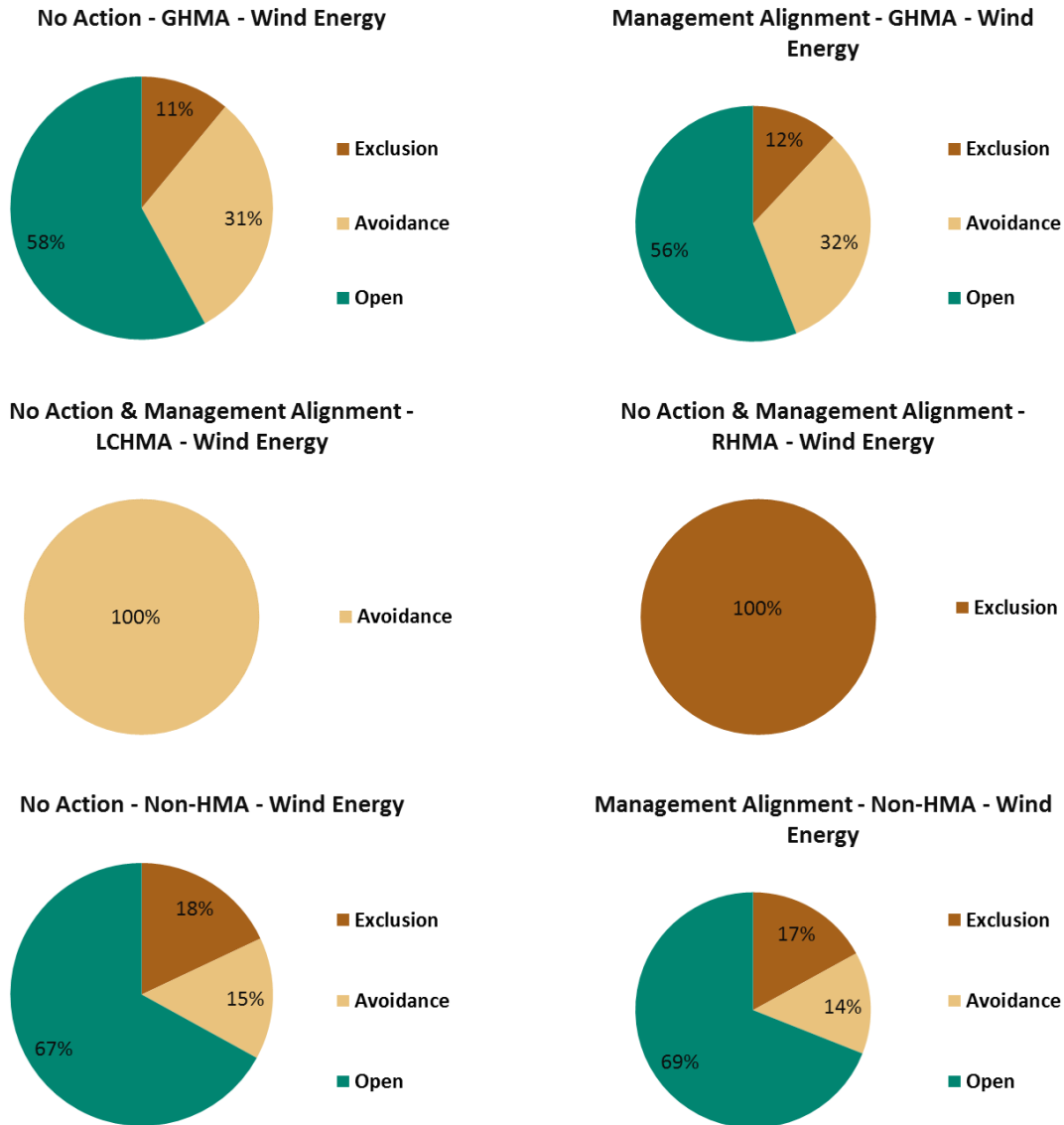


Figure 25 (cont'd) – Wind Energy Decisions within MZ II/VII

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.

2.2.3 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%

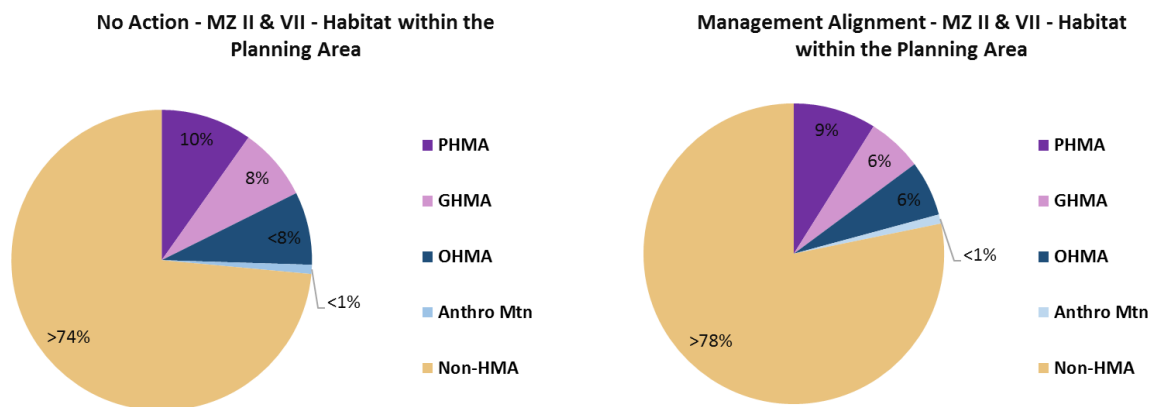


Figure 26 – Habitat Management Areas within MZ III

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.

Approximate Acres of Geothermal Energy Decisions in MZ III by Habitat Management Area Type						
Geothermal Energy	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	126,000	165,000	230,000	7,000	4,948,000	5,476,000
Open NSO	5,358,000	23,000	0	35,000	3,939,000	9,354,000
Open CSU/TL	0	3,628,000	0	0	2,135,000	5,763,000
Open Standard Stipulations	0	86,000	4,042,000	0	26,065,000	30,193,000
Total	5,484,000	3,902,000	4,272,000	42,000	37,087,000	50,787,000

Geothermal Energy	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	124,000	176,000	159,000	7,000	4,990,000	5,457,000
Open NSO	5,483,000	0	0	35,000	3,961,000	9,479,000
Open CSU/TL	0	3,565,000	0	0	2,191,000	5,756,000
Open Standard Stipulations	0	0	3,534,000	0	26,554,000	30,088,000
Total	5,607,000	3,741,000	3,693,000	42,000	37,696,000	50,780,000

Approximate % of Habitat Management Area by Geothermal Energy Decision in MZ III						
Geothermal Energy	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	2%	4%	5%	17%	13%	11%
Open NSO	98%	1%	0%	83%	11%	18%
Open CSU/TL	0%	93%	0%	0%	6%	11%
Open Standard Stipulations	0%	2%	95%	0%	70%	59%
Total	100%	100%	100%	100%	100%	100%

Geothermal Energy	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	2%	5%	4%	17%	13%	11%
Open NSO	98%	0%	0%	83%	11%	19%
Open CSU/TL	0%	95%	0%	0%	6%	11%
Open Standard Stipulations	0%	0%	96%	0%	70%	59%
Total	100%	100%	100%	100%	100%	100%

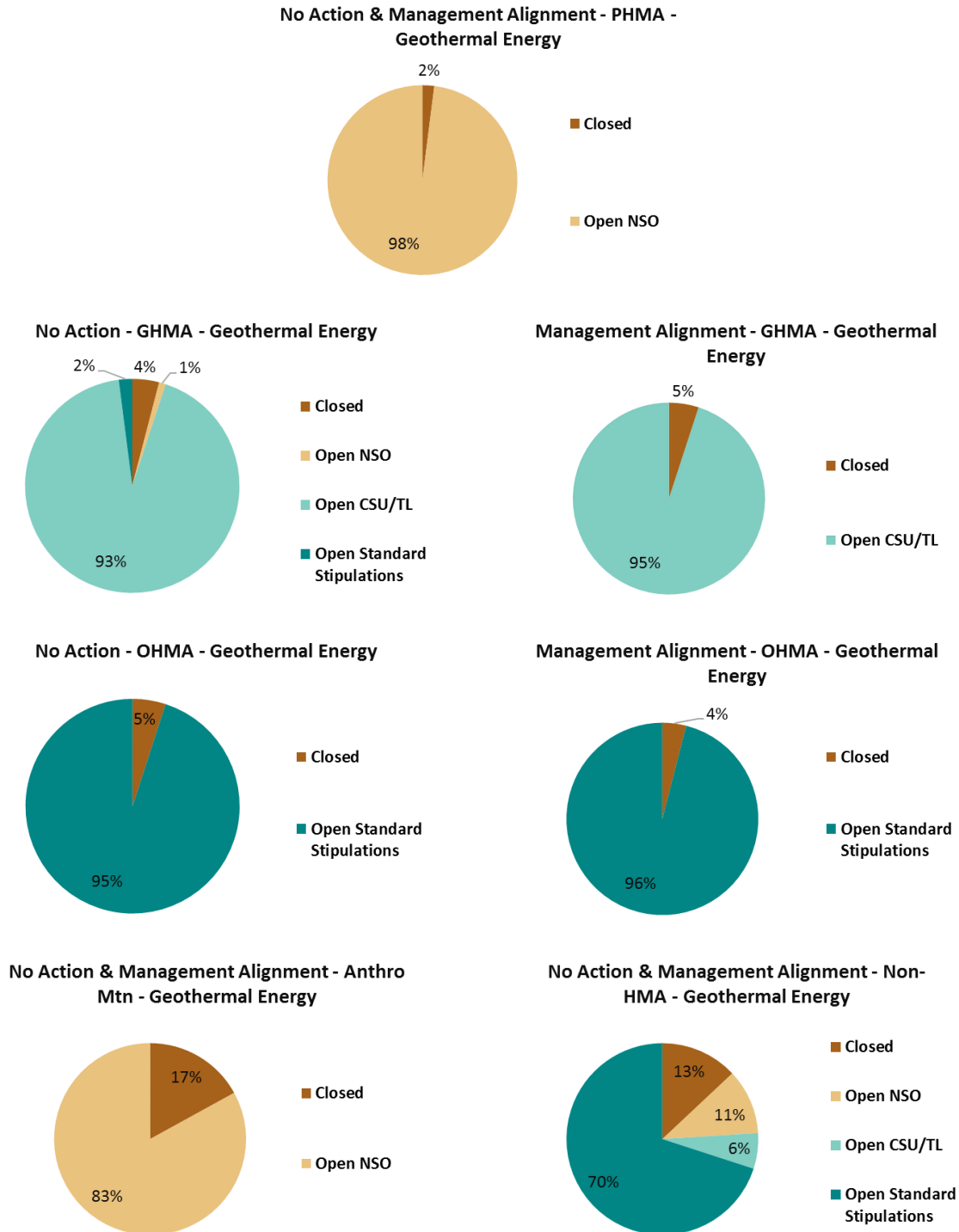


Figure 27 – Geothermal Energy Decisions within MZ III

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.

Approximate Acres of Land Tenure Decisions in MZ III by Habitat Management Area Type						
Land Tenure	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Disposal	0	0	280,000	NA	2,178,000	2,458,000
Retention	4,722,000	3,875,000	3,992,000	NA	30,234,000	42,824,000
Total	4,722,000	3,875,000	4,272,000	NA	32,413,000	45,283,000

Land Tenure	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Disposal	3,000	62,000	304,000	NA	2,214,000	2,583,000
Retention	4,844,000	3,679,000	3,389,000	NA	30,782,000	42,694,000
Total	4,847,000	3,741,000	3,693,000	NA	32,996,000	45,277,000

Approximate % of Habitat Management Area by Land Tenure Decision in MZ III						
Land Tenure	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Disposal	0%	0%	7%	NA	7%	5%
Retention	100%	100%	93%	NA	93%	95%
Total	100%	100%	100%	NA	100%	100%

Land Tenure	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Disposal	0%	2%	8%	NA	7%	6%
Retention	100%	98%	92%	NA	93%	94%
Total	100%	100%	100%	NA	100%	100%

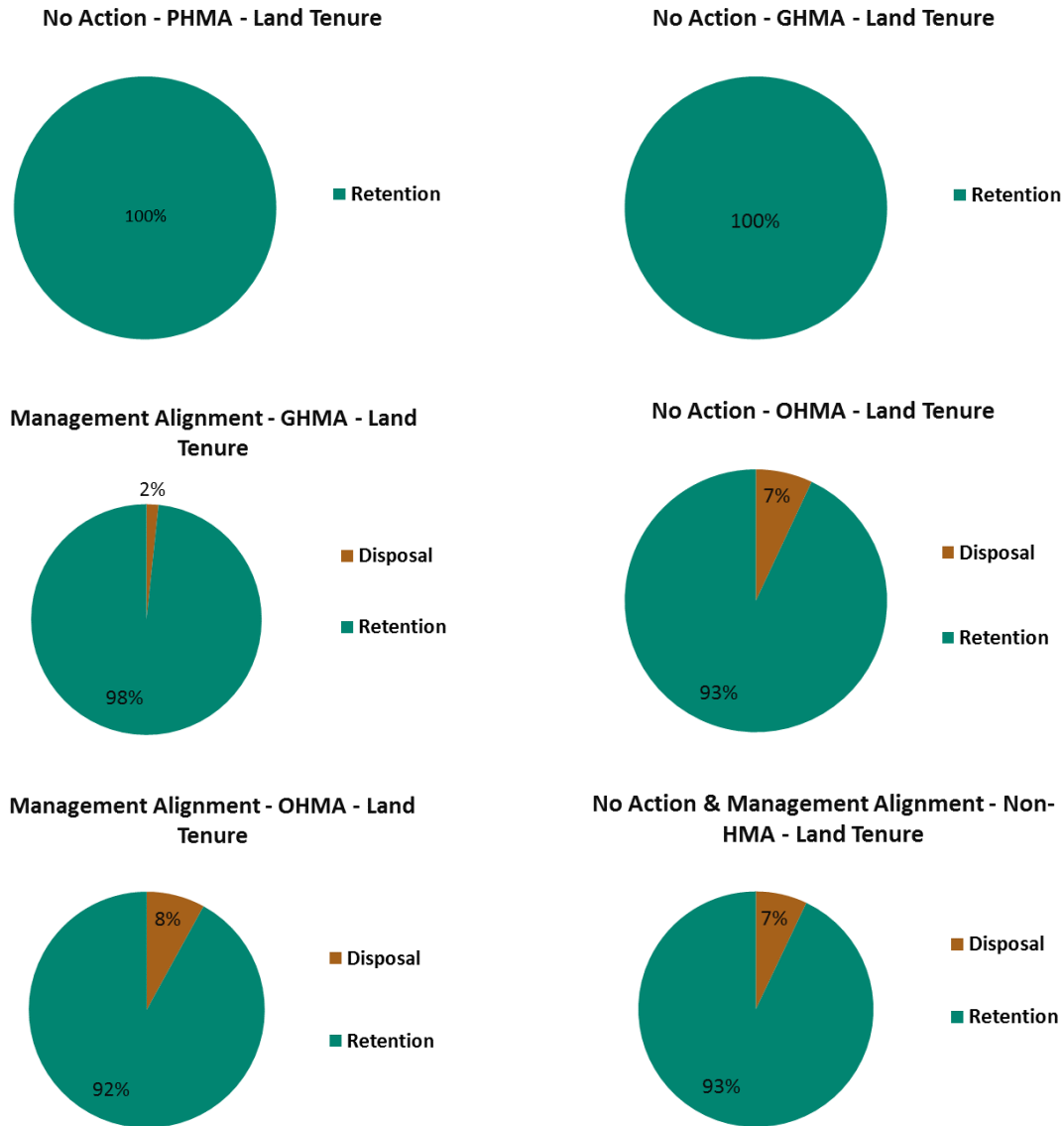


Figure 28 – Land Tenure Decisions within MZ III

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**

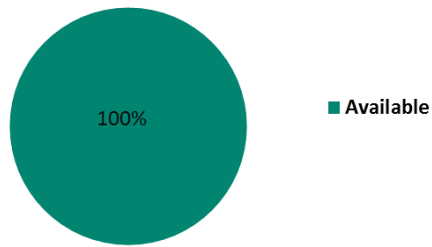
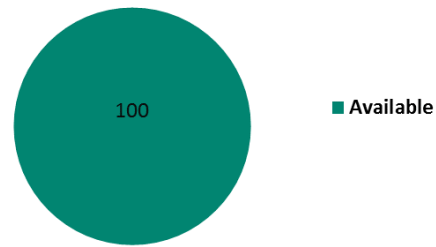
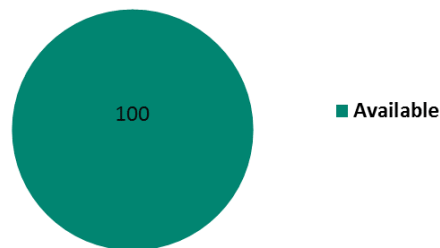
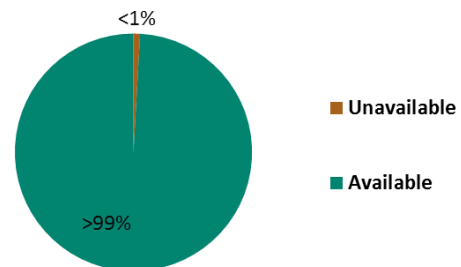
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Livestock Grazing Decisions in MZ III by Habitat Management Area Type						
Livestock Grazing	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
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
Total	4,722,000	3,868,000	4,265,000	NA	31,688,000	44,544,000

Livestock Grazing	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
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
Total	4,845,000	3,741,000	3,690,000	NA	32,264,000	44,539,000

Approximate % of Habitat Management Area by Livestock Grazing Decision in MZ III						
Livestock Grazing	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Unavailable	0%	0%	0%	NA	<1%	<1%
Available	100%	100%	100%	NA	100%	100%
Total	100%	100%	100%	NA	100%	100%

Livestock Grazing	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Unavailable	0%	0%	0%	NA	<1%	<1%
Available	100%	100%	100%	NA	100%	100%
Total	100%	100%	100%	NA	100%	100%

**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.

Approximate Acres of Locatable Minerals Decisions in MZ III by Habitat Management Area Type						
Locatable Minerals	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Existing Withdrawals	56,000	143,000	52,000	0	3,350,000	3,602,000
Recommended Withdrawals	4,000	0	0	0	49,000	53,000
Open	5,429,000	3,788,000	4,219,000	42,000	34,853,000	48,332,000
Total	5,489,000	3,931,000	4,272,000	42,000	38,253,000	51,987,000

Locatable Minerals	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Existing Withdrawals	61,000	100,000	42,000	0	3,398,000	3,601,000
Recommended Withdrawals	4,000	0	0	0	50,000	53,000
Open	5,552,000	3,641,000	3,650,000	42,000	35,444,000	48,330,000
Total	5,617,000	3,741,000	3,693,000	42,000	38,892,000	51,985,000

Approximate % of Habitat Management Area by Geothermal Energy Decision in MZ III						
Locatable Minerals	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Existing Withdrawals	1%	4%	1%	0	9%	7%
Recommended Withdrawals	<1%	0%	0%	0%	<1%	<1%
Open	99%	96%	99%	100%	91%	93%
Total	100%	100%	100%	100%	100%	100%

Locatable Minerals	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Existing Withdrawals	1%	3%	1%	0%	9%	7%
Recommended Withdrawals	<1%	0%	0%	0%	0%	<1%
Open	99%	97%	99%	100%	91%	93%
Total	100%	100%	100%	100%	100%	100%

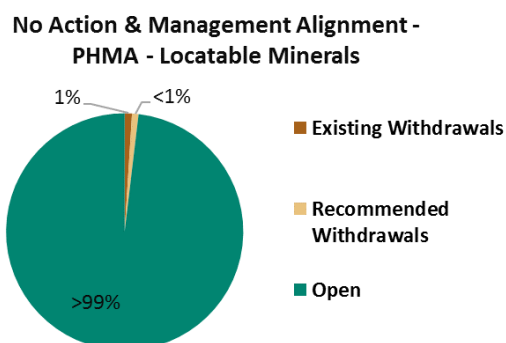


Figure 30 – Locatable Minerals Decisions within MZ III

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.

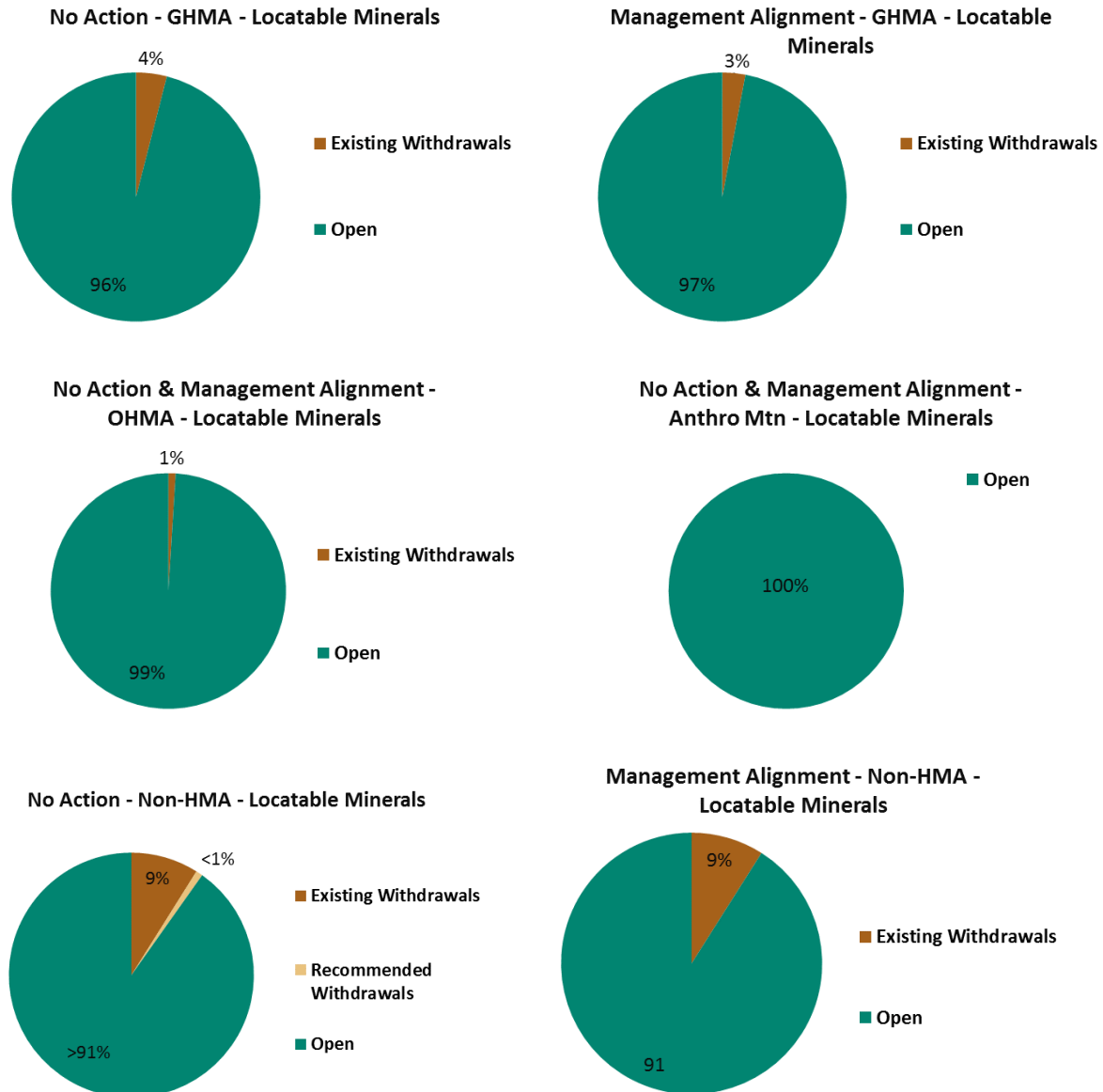


Figure 30 (cont'd) – Locatable Minerals Decisions within MZ III

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
Total	5,486,000	3,931,000	4,272,000	42,000	38,256,000	51,987,000

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
Total	5,611,000	3,741,000	3,693,000	42,000	38,894,000	51,981,000

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%
Total	100%	100%	100%	100%	100%	100%

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%
Total	100%	100%	100%	100%	100%	100%

No Action & Management Alignment -
PHMA - Non-Energy Leasable Minerals

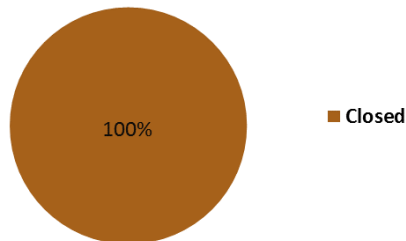


Figure 31 – Non-Energy Leasable Minerals Decisions within MZ III

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.

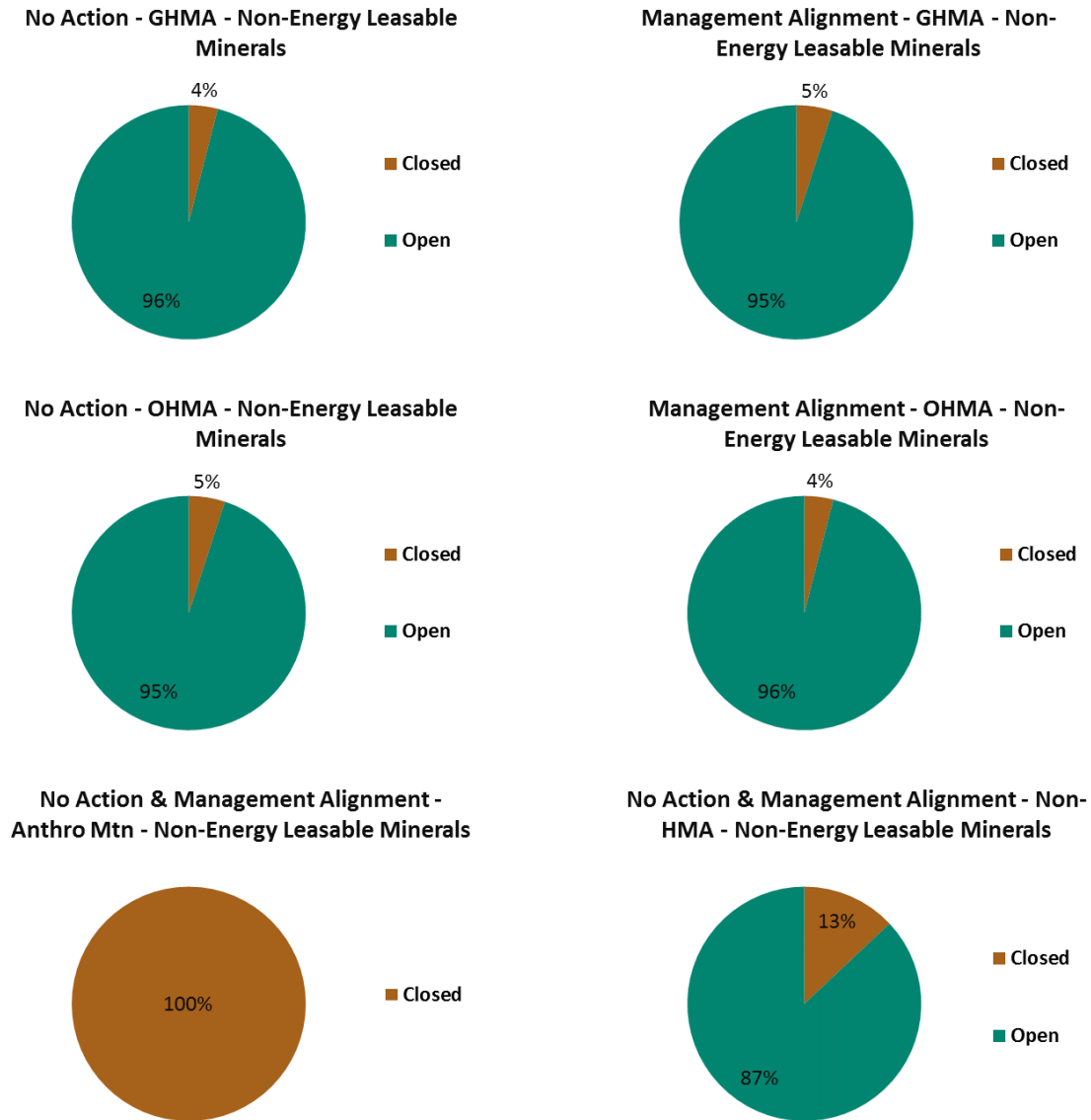


Figure 3I (cont'd) – Non-Energy Leasable Minerals Decisions within MZ III

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**

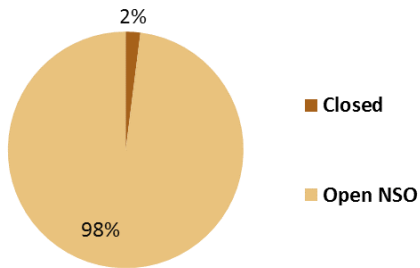
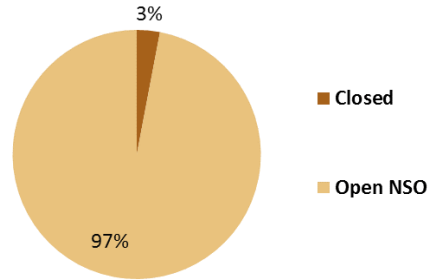
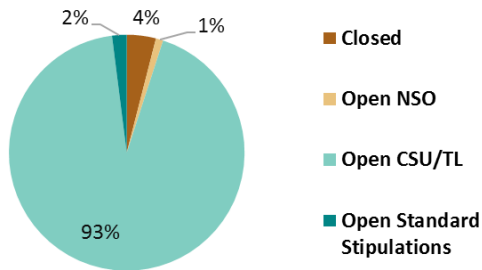
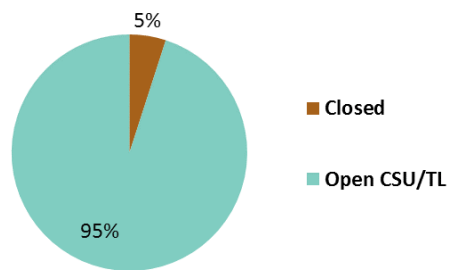
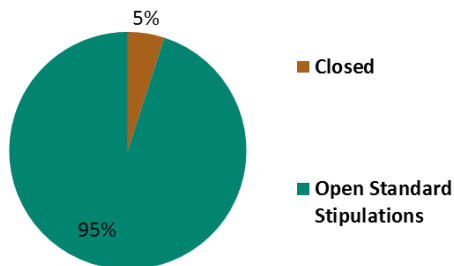
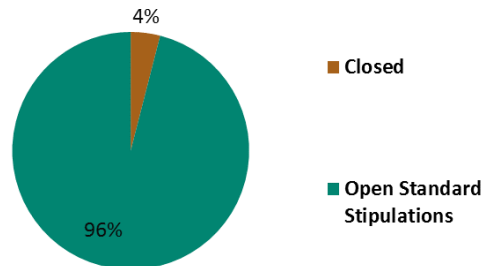
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Fluid Mineral (Oil & Gas) Decisions in MZ III by Habitat Management Area Type						
Fluid Mineral (Oil & Gas) Decisions	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	126,000	165,000	230,000	7,000	4,948,000	5,476,000
Open NSO	5,358,000	23,000	0	35,000	3,431,000	8,847,000
Open CSU/TL	0	3,628,000	0	0	2,135,000	5,763,000
Open Standard Stipulations	0	86,000	4,042,000	0	26,502,000	30,630,000
Total	5,484,000	3,902,000	4,272,000	42,000	37,016,000	50,716,000

Fluid Mineral (Oil & Gas) Decisions	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	144,000	176,000	159,000	7,000	4,990,000	5,476,000
Open NSO	5,464,000	0	0	35,000	3,454,000	8,952,000
Open CSU/TL	0	3,565,000	0	0	2,191,000	5,756,000
Open Standard Stipulations	0	0	3,534,000	0	26,991,000	30,525,000
Total	5,607,000	3,741,000	3,693,000	42,000	37,626,000	50,710,000

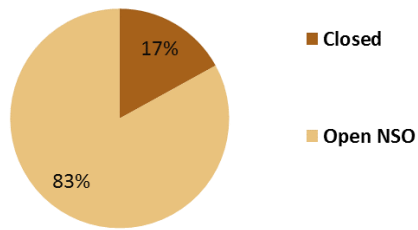
Approximate % of Habitat Management Area by Fluid Mineral (Oil & Gas) Decision in MZ III						
Fluid Mineral (Oil & Gas) Decisions	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	2%	4%	5%	17%	13%	11%
Open NSO	98%	1%	0%	83%	9%	17%
Open CSU/TL	0%	93%	0%	0%	6%	11%
Open Standard Stipulations	0%	2%	95%	0%	72%	60%
Total	100%	100%	100%	100%	100%	100%

Fluid Mineral (Oil & Gas) Decisions	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	3%	5%	4%	17%	13%	11%
Open NSO	97%	0%	0%	83%	9%	18%
Open CSU/TL	0%	95%	0%	0%	6%	11%
Open Standard Stipulations	0%	0%	96%	0%	72%	60%
Total	100%	100%	100%	100%	100%	100%

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)**

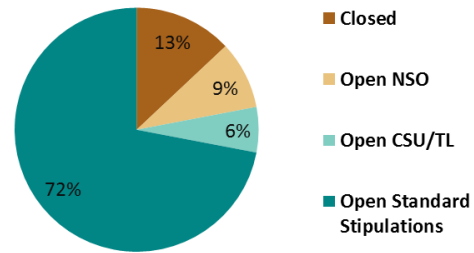


Figure 32 (cont'd) – Fluid Mineral (Oil & Gas) Decisions within MZ III

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

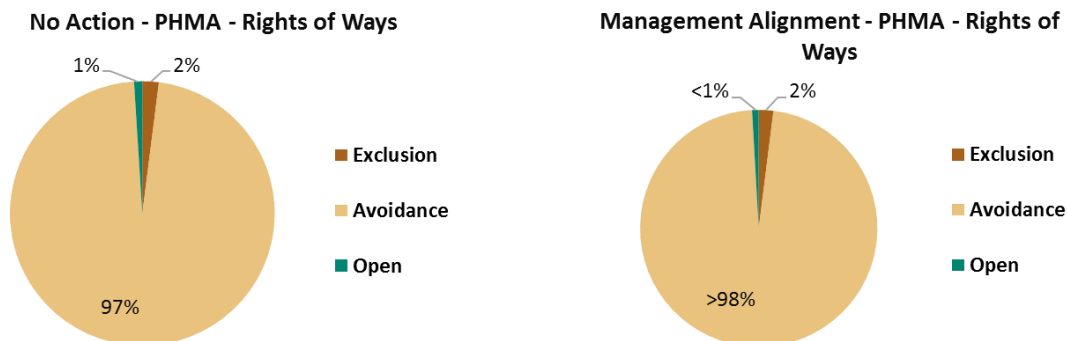
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Rights-of-Ways Decisions in MZ III by Habitat Management Area Type						
Rights-of-Ways	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	86,000	164,000	230,000	NA	3,794,000	4,274,000
Avoidance	4,591,000	3,495,000	0	NA	799,000	8,884,000
Open	46,000	216,000	4,043,000	NA	27,890,000	32,195,000
Total	4,722,000	3,875,000	4,272,000	NA	32,483,000	45,353,000

Rights-of-Ways	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	104,000	176,000	159,000	NA	3,837,000	4,275,000
Avoidance	4,726,000	3,565,000	0	NA	373,000	8,664,000
Open	17,000	0	3,534,000	NA	28,857,000	32,408,000
Total	4,847,000	3,741,000	3,693,000	NA	33,066,000	45,348,000

Approximate % of Habitat Management Area by Rights-of-Ways Decision in MZ III						
Rights-of-Ways	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	2%	4%	5%	NA	12%	9%
Avoidance	97%	90%	0%	NA	2%	20%
Open	1%	6%	95%	NA	86%	71%
Total	100%	100%	100%	NA	100%	100%

Rights-of-Ways	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	2%	5%	4%	NA	12%	9%
Avoidance	98%	95%	0%	NA	1%	19%
Open	<1%	0%	96%	NA	87%	71%
Total	100%	100%	100%	NA	100%	100%

**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.

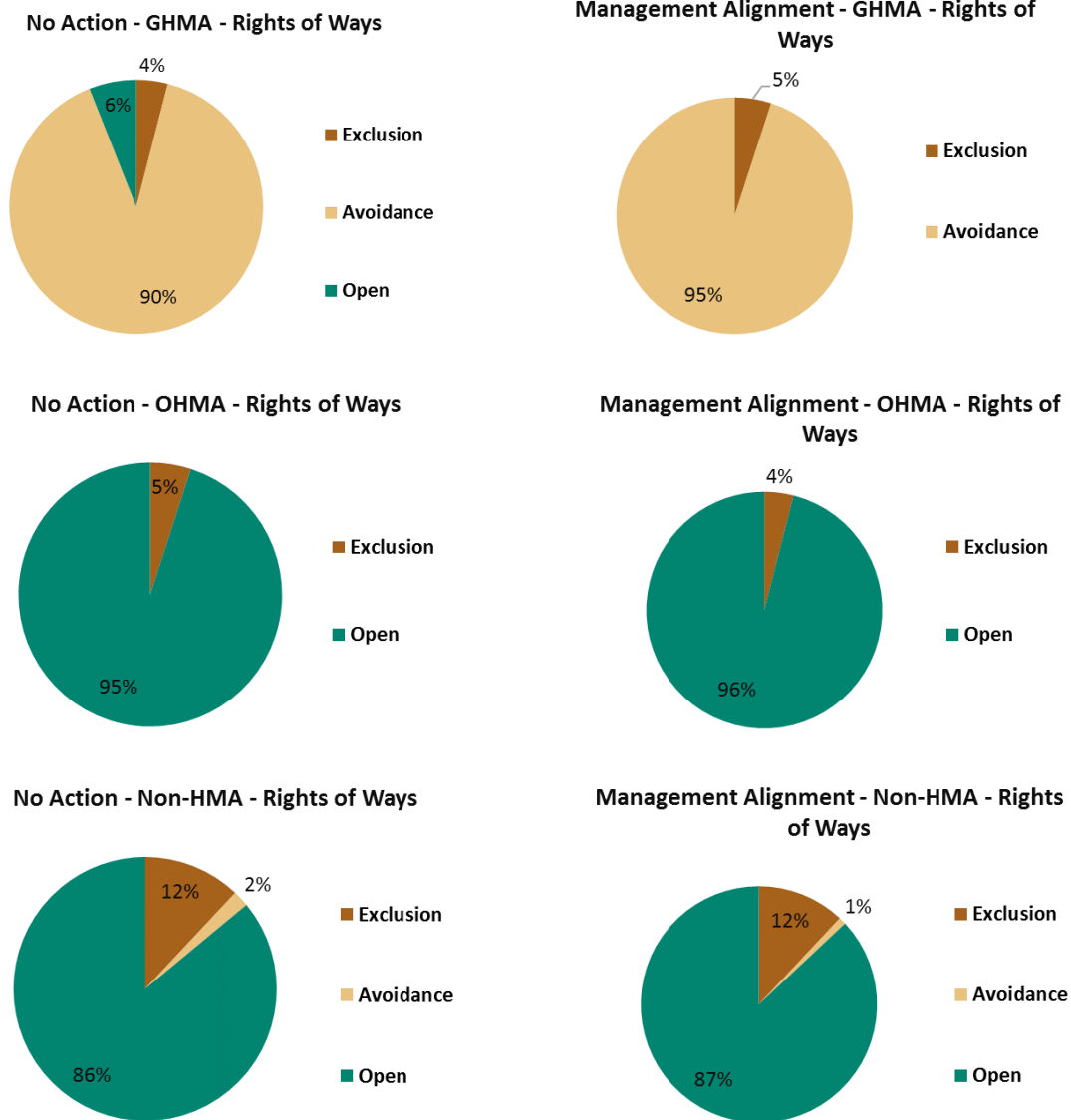


Figure 33 (cont'd) – Rights-of-Ways Decisions within MZ III

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.

Approximate Acres of Salable Minerals Materials Decisions in MZ III by Habitat Management Area Type						
Salable Minerals Materials	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	4,722,000	172,000	230,000	NA	4,646,000	9,770,000
Open	0	3,707,000	4,042,000	NA	27,834,000	35,583,000
Total	4,723,000	3,878,000	4,272,000	NA	32,479,000	45,353,000

Salable Minerals Materials	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	4,847,000	176,000	159,000	NA	4,694,000	9,876,000
Open	0	3,565,000	3,534,000	NA	28,372,000	35,471,000
Total	4,847,000	3,741,000	3,693,000	NA	33,066,000	45,347,000

Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision in MZ III						
Salable Minerals Materials	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	100%	4%	5%	NA	14%	22%
Open	0%	96%	95%	NA	86%	78%
Total	100%	100%	100%	NA	100%	100%

Salable Minerals Materials	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	100%	5%	4%	NA	14%	22%
Open	0%	95%	96%	NA	86%	78%
Total	100%	100%	100%	NA	100%	100%



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**

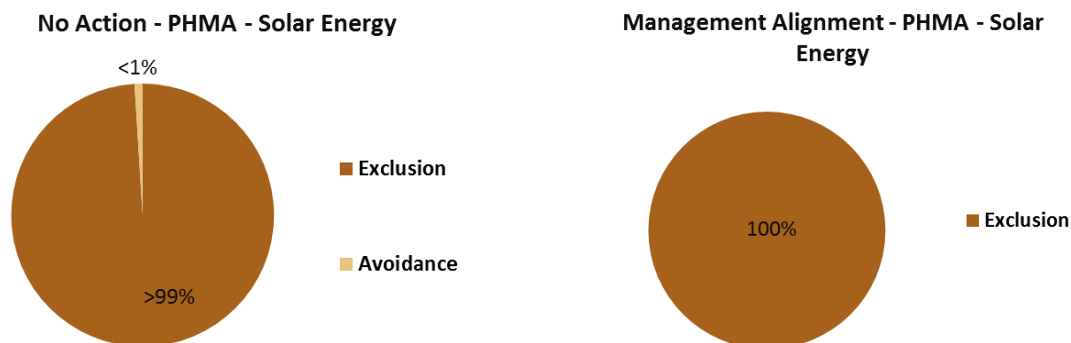
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual 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
Total	4,732,000	3,889,000	4,274,000	NA	32,398,000	45,294,000

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
Total	4,858,000	3,748,000	3,699,000	NA	32,983,000	45,288,000

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%
Total	100%	100%	100%	NA	100%	100%

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%
Total	100%	100%	100%	NA	100%	100%

**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.

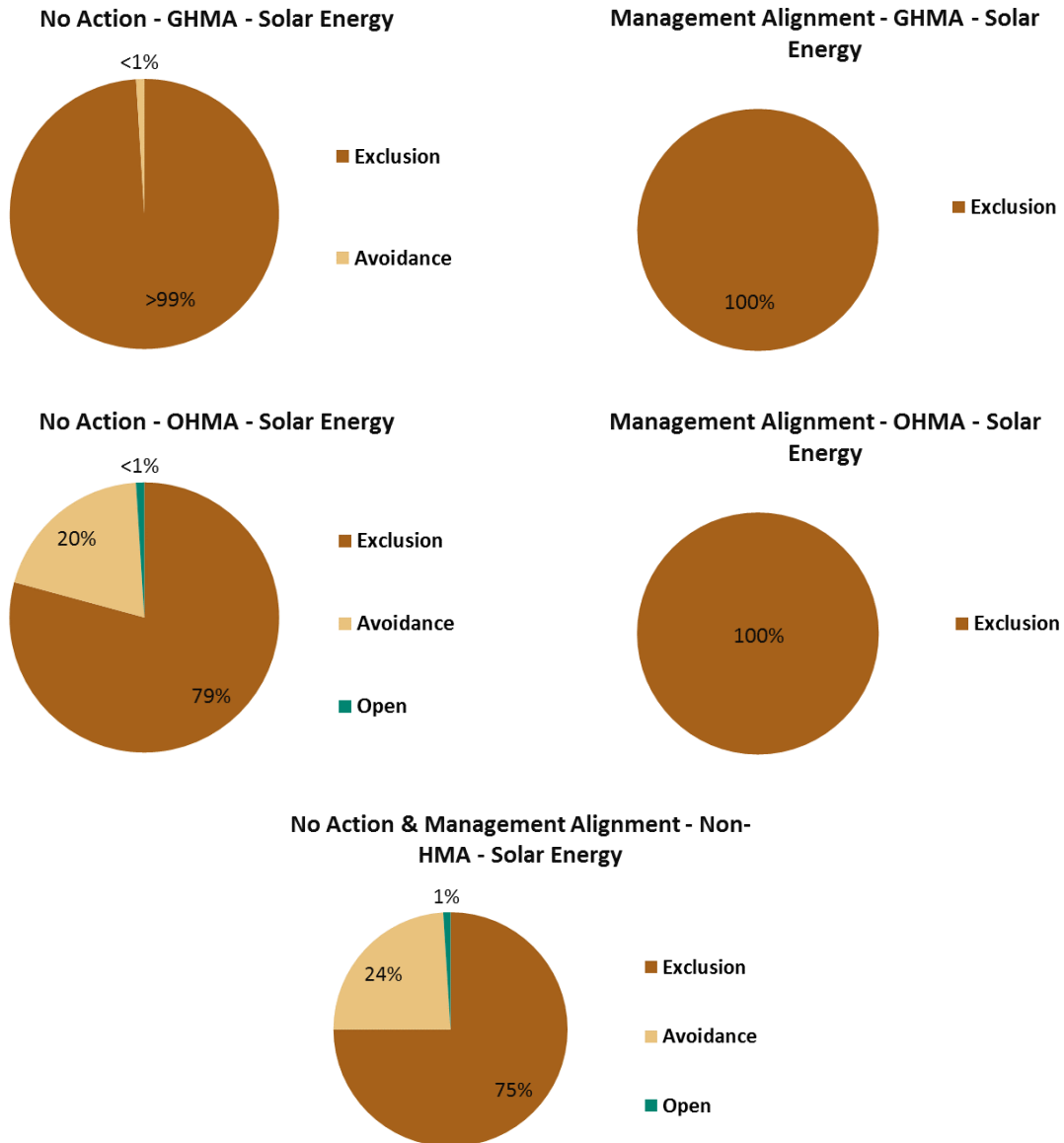


Figure 35 (cont'd) – Solar Energy Decisions within MZ III

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.

Approximate Acres of Trails and Travel Management Decisions in MZ III by Habitat Management Area Type						
Trails and Travel Management Decisions	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	16,000	84,000	52,000	NA	2,517,000	2,669,000
Limited	4,702,000	3,791,000	1,000	NA	5,791,000	14,285,000
Open	0	0	4,219,000	NA	24,153,000	28,372,000
Total	4,718,000	3,875,000	4,273,000	NA	32,461,000	45,326,000

Trails and Travel Management Decisions	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	21,000	100,000	42,000	NA	2,505,000	2,668,000
Limited	4,821,000	3,642,000	14,000	NA	6,095,000	14,572,000
Open	0	0	3,637,000	NA	24,429,000	28,066,000
Total	4,842,000	3,741,000	3,693,000	NA	33,030,000	45,307,000

Approximate % of Habitat Management Area by Trails and Travel Management Decisions Decision in MZ III						
Trails and Travel Management Decisions	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	<1%	2%	1%	NA	8%	6%
Limited	100%	98%	0%	NA	18%	32%
Open	0%	0%	99%	NA	74%	63%
Total	100%	100%	100%	NA	100%	100%

Trails and Travel Management Decisions	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Closed	<1%	3%	1%	NA	8%	6%
Limited	100%	97%	0%	NA	18%	32%
Open	0%	0%	98%	NA	74%	62%
Total	100%	100%	100%	NA	100%	100%

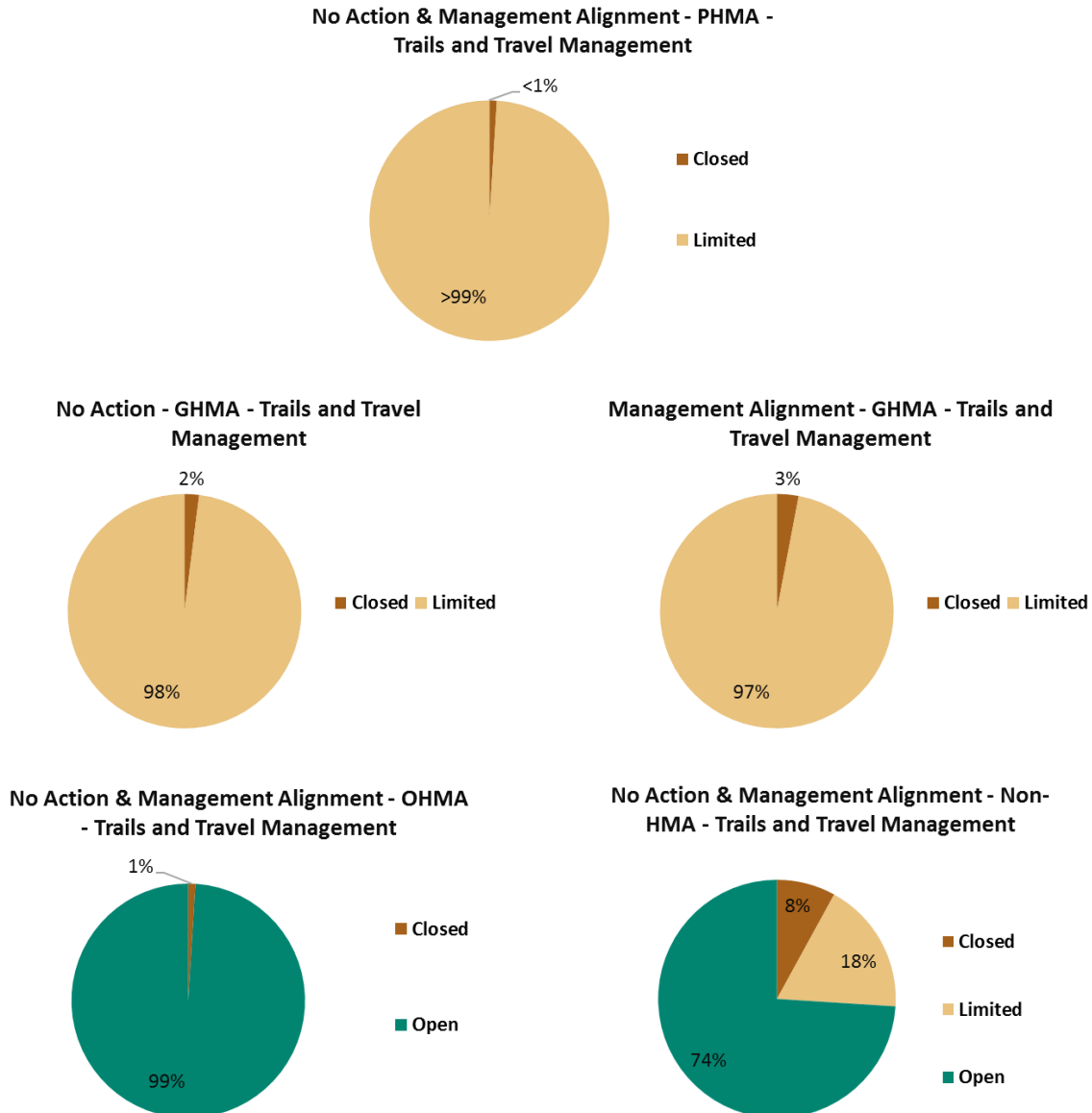


Figure 36 – Trails and Travel Management Decisions within MZ III

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.

Approximate Acres of Wind Energy Decisions in MZ III by Habitat Management Area Type						
Wind Energy	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	4,669,000	166,000	230,000	NA	3,939,000	9,004,000
Avoidance	0	3,572,000	0	NA	212,000	3,784,000
Open	54,000	137,000	4,042,000	NA	28,265,000	32,498,000
Total	4,723,000	3,876,000	4,272,000	NA	32,415,000	45,286,000

Wind Energy	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	4,793,000	176,000	159,000	NA	3,982,000	9,110,000
Avoidance	0	3,565,000	0	NA	212,000	3,777,000
Open	54,000	0	3,534,000	NA	28,805,000	32,393,000
Total	4,847,000	3,741,000	3,693,000	NA	32,999,000	45,280,000

Approximate % of Habitat Management Area by Wind Energy Decision in MZ III						
Wind Energy	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	0%	92%	0%	NA	1%	8%
Avoidance	99%	4%	5%	NA	12%	20%
Open	1%	4%	95%	NA	87%	72%
Total	100%	100%	100%	NA	100%	100%

Wind Energy	Management Alignment					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Exclusion	0%	95%	0%	NA	1%	8%
Avoidance	99%	5%	4%	NA	12%	20%
Open	1%	0%	96%	NA	87%	72%
Total	100%	100%	100%	NA	100%	100%

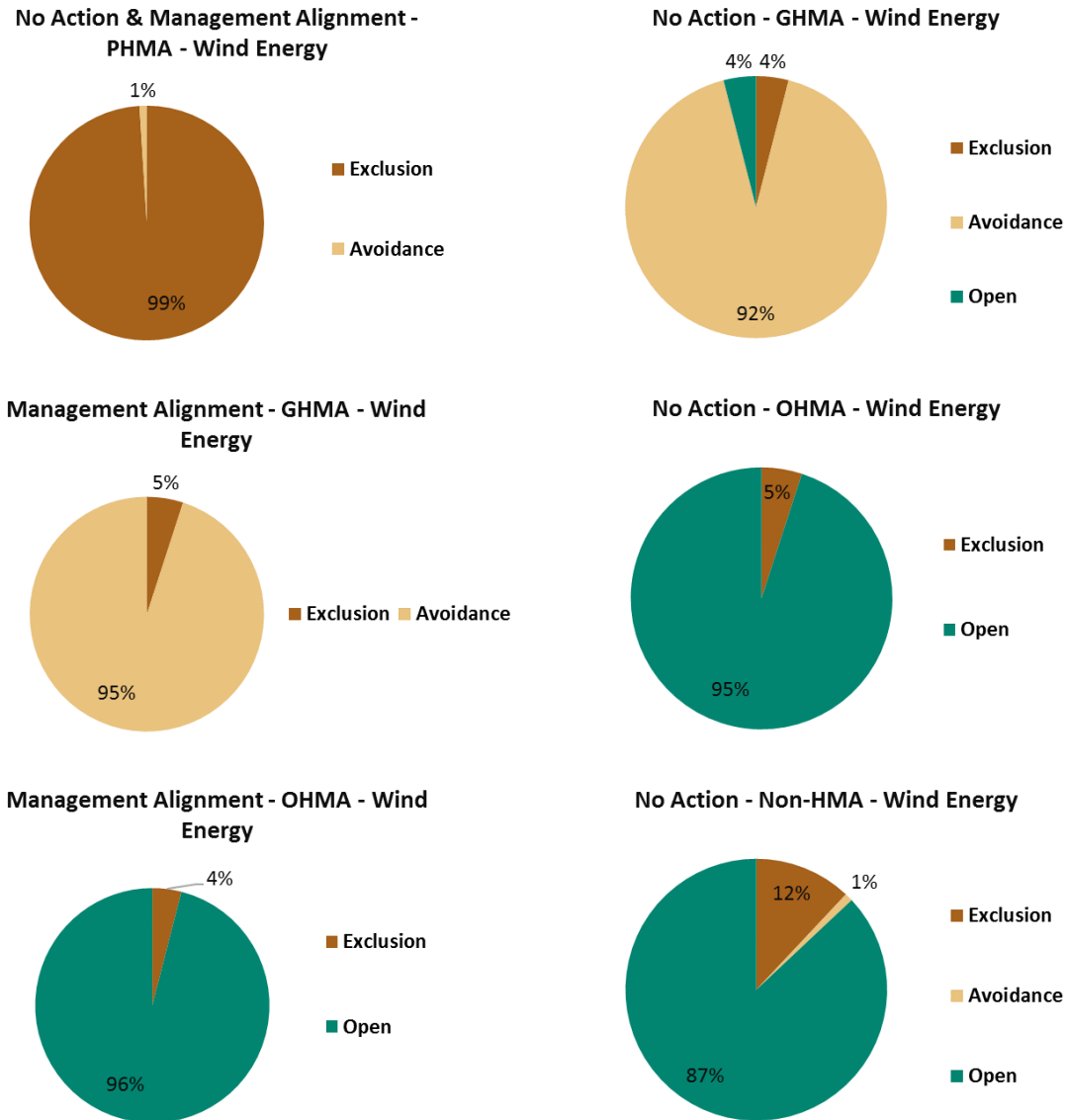


Figure 37 – Wind Energy Decisions within MZ III

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.

2.2.4 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%

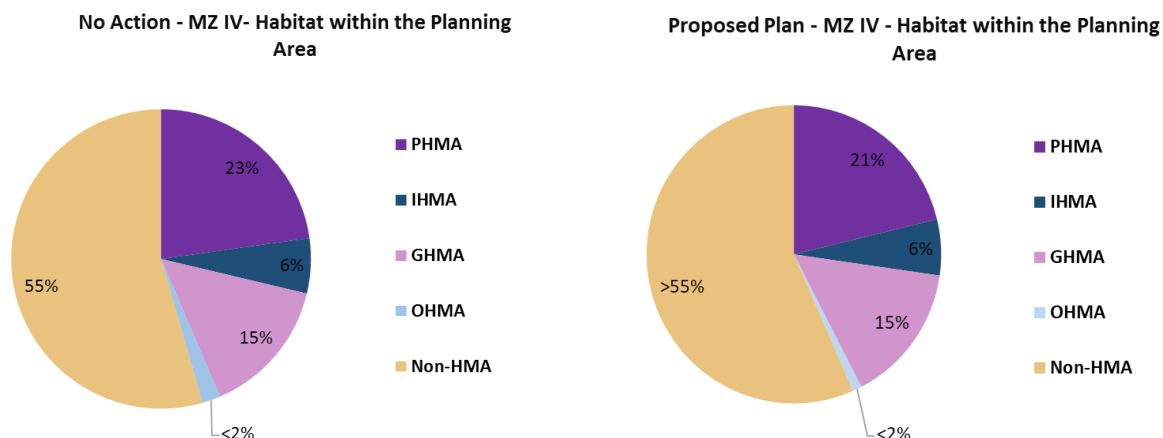


Figure 38 – Habitat Management Areas within MZ IV

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

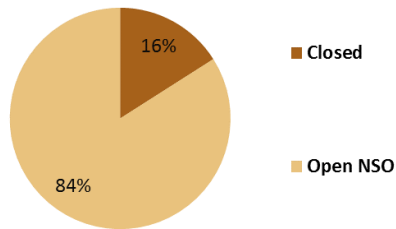
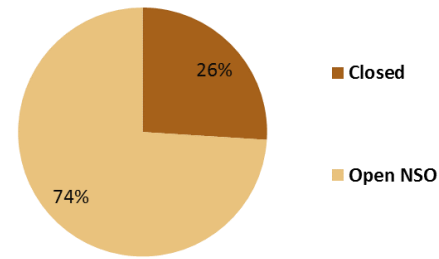
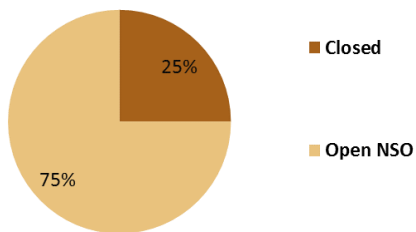
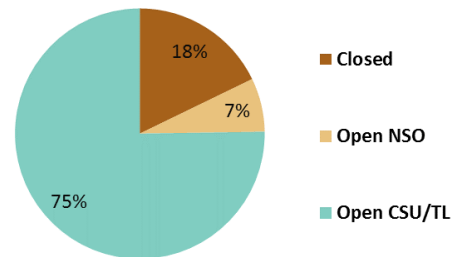
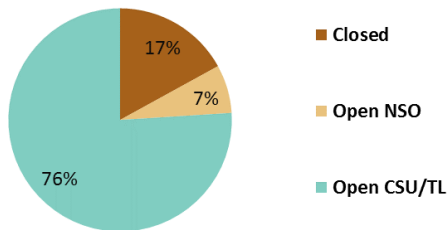
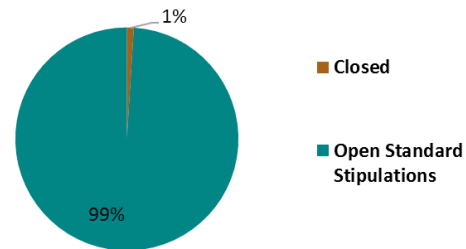
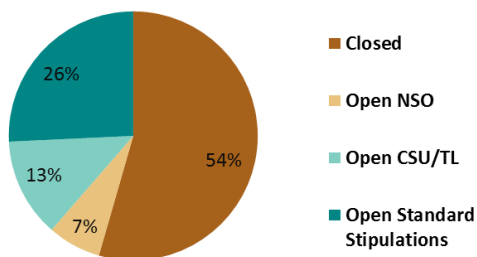
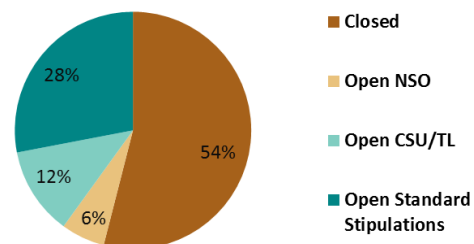
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Geothermal Energy Decisions in MZ IV by Habitat Management Area Type						
Geothermal Energy	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	1,923,000	918,000	1,130,000	4,000	9,440,000	13,415,000
Open NSO	10,256,000	2,638,000	424,000	0	1,125,000	14,443,000
Open CSU/TL	0	0	4,881,000	0	2,196,000	7,077,000
Open Standard Stipulations	0	3,000	20,000	704,000	4,529,000	5,257,000
Total	12,178,000	3,560,000	6,455,000	708,000	17,290,000	40,191,000

Geothermal Energy	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	1,913,000	918,000	1,133,000	6,000	9,439,000	13,410,000
Open NSO	9,848,000	2,702,000	424,000	0	1,125,000	14,099,000
Open CSU/TL	0	0	4,974,000	0	2,196,000	7,169,000
Open Standard Stipulations	0	3,000	20,000	616,000	4,855,000	5,494,000
Total	11,762,000	3,624,000	6,550,000	622,000	17,615,000	40,173,000

Approximate % of Habitat Management Area by Geothermal Energy Decision in MZ IV						
Geothermal Energy	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	16%	26%	18%	1%	55%	33%
Open NSO	84%	74%	7%	0%	7%	36%
Open CSU/TL	0%	0%	76%	0%	13%	18%
Open Standard Stipulations	0%	0%	0%	99%	26%	13%
Total	100%	100%	100%	100%	100%	100%

Geothermal Energy	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	16%	25%	17%	1%	54%	33%
Open NSO	84%	75%	6%	0%	6%	35%
Open CSU/TL	0%	0%	76%	0%	12%	18%
Open Standard Stipulations	0%	0%	0%	99%	28%	14%
Total	100%	100%	100%	100%	100%	100%

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 41 – 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
Total	10,727,000	2,719,000	4,949,000	708,000	4,935,000	24,038,000

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
Total	10,325,000	2,780,000	5,043,000	622,000	5,261,000	24,032,000

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%
Total	100%	100%	100%	100%	100%	100%

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%
Total	100%	100%	100%	100%	100%	100%

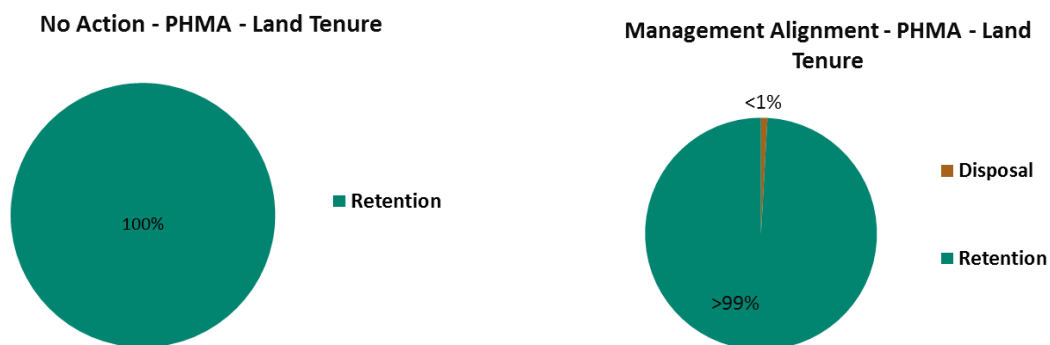
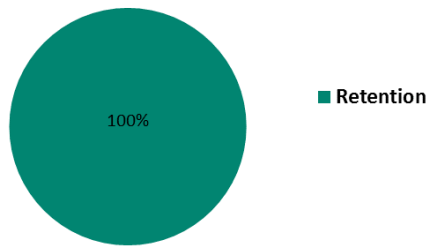
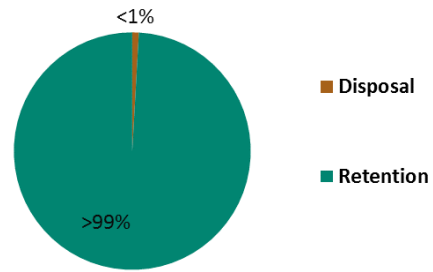


Figure 40 – Land Tenure Decisions within MZ IV

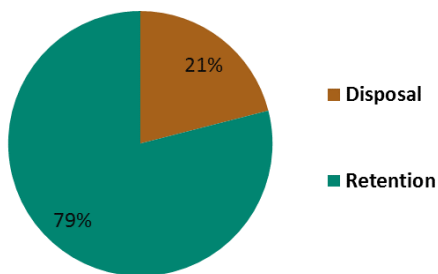
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

No Action & Management Alignment - IHMA
- Land Tenure

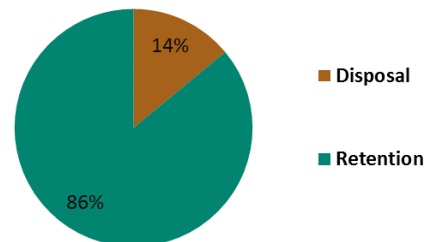
No Action & Management Alignment - GHMA - Land Tenure



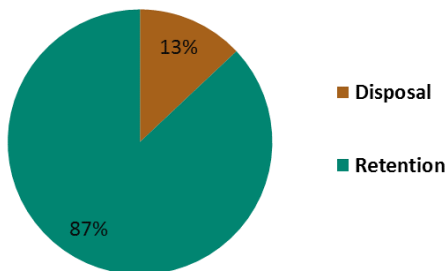
No Action - OHMA - Land Tenure



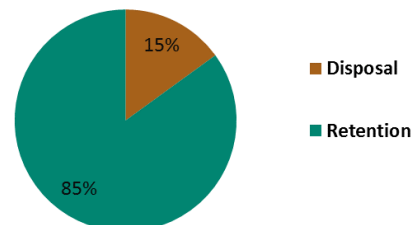
Management Alignment - OHMA - Land Tenure



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.

Approximate Acres of Livestock Grazing Decisions in MZ IV by Habitat Management Area Type						
Livestock Grazing	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
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
Total	10,697,000	2,719,000	4,966,000	709,000	4,655,000	23,746,000

Livestock Grazing	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
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
Total	10,294,000	2,780,000	5,072,000	620,000	4,975,000	23,740,000

Approximate % of Habitat Management Area by Livestock Grazing Decision in MZ IV						
Livestock Grazing	No Action & Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Unavailable	2%	1%	1%	0%	2%	1%
Available	98%	99%	99%	100%	98%	99%
Total	100%	100%	100%	100%	100%	100%

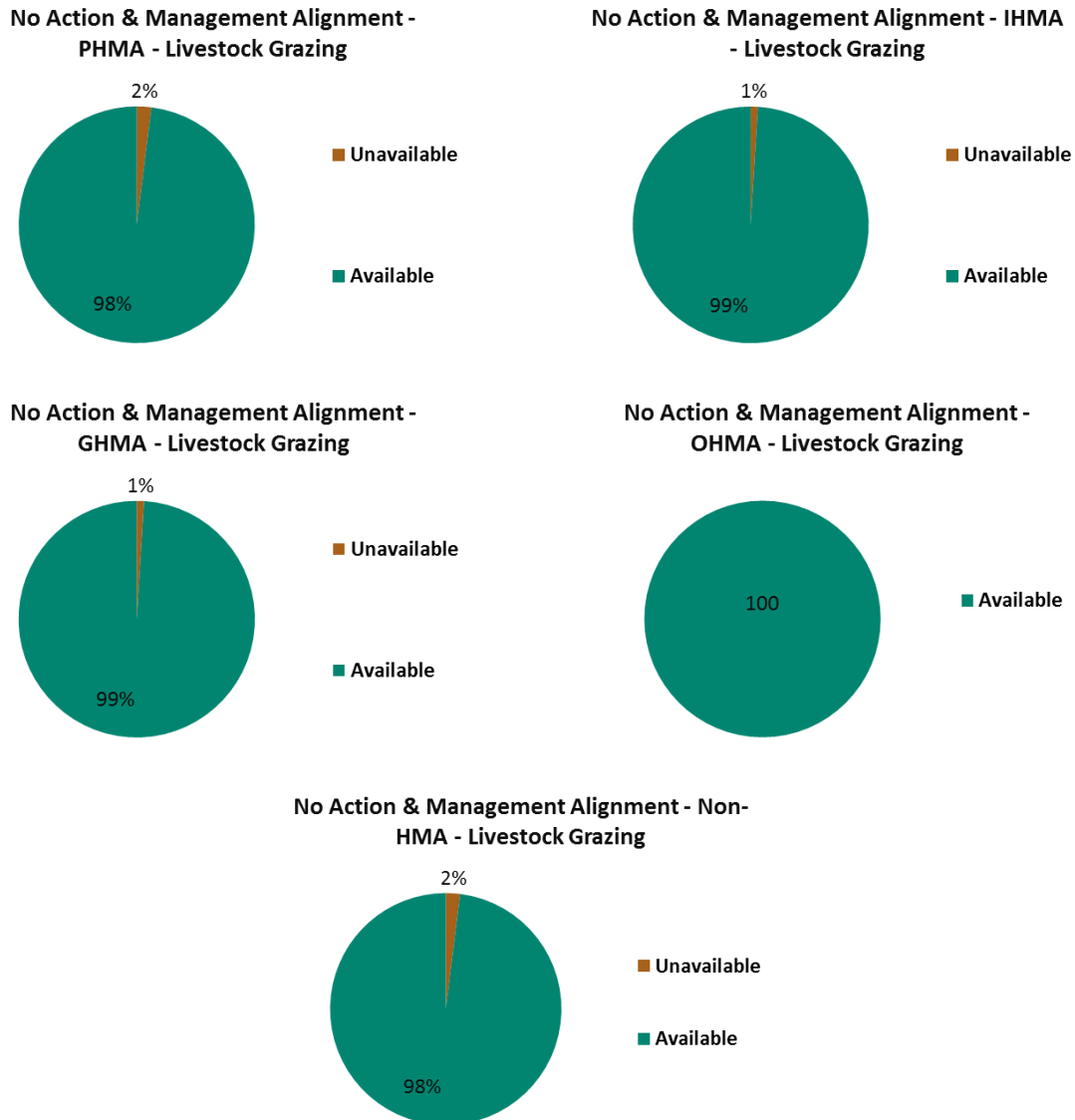


Figure 41 – Livestock Grazing Decisions within MZ IV

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.

Approximate Acres of Locatable Minerals Decisions in MZ IV by Habitat Management Area Type						
Locatable Minerals	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Existing Withdrawals	1,079,000	442,000	432,000	0	3,606,000	5,560,000
Recommended Withdrawals	4,836,000	0	2,000	0	0	4,838,000
Open	6,074,000	2,858,000	6,055,000	708,000	13,798,000	29,492,000
Total	11,990,000	3,300,000	6,489,000	708,000	17,404,000	39,891,000

Locatable Minerals	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Existing Withdrawals	1,078,000	442,000	431,000	0	3,605,000	5,556,000
Recommended Withdrawals	0	0	2,000	0	0	2,000
Open	10,518,000	2,923,000	6,151,000	622,000	14,113,000	34,327,000
Total	11,597,000	3,364,000	6,584,000	622,000	17,718,000	39,885,000

Approximate % of Habitat Management Area by Geothermal Energy Decision in MZ IV						
Locatable Minerals	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Existing Withdrawals	9%	13%	7%	0%	21%	14%
Recommended Withdrawals	40%	0%	0%	0%	0%	12%
Open	51%	87%	93%	100%	79%	74%
Total	100%	100%	100%	100%	100%	100%

Locatable Minerals	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Existing Withdrawals	9%	13%	9%	0%	20%	14%
Recommended Withdrawals	0%	0%	<1%	0%	0%	0%
Open	91%	87%	91%	100%	80%	86%
Total	100%	100%	100%	100%	100%	100%



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**

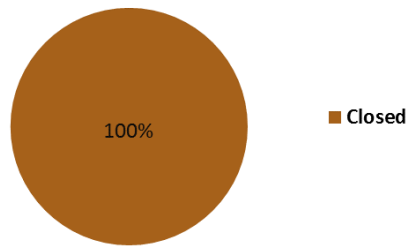
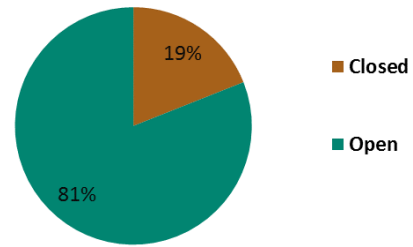
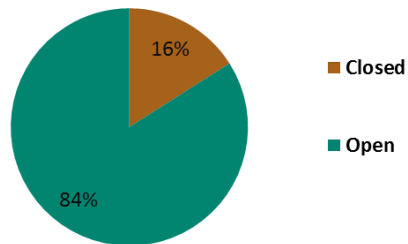
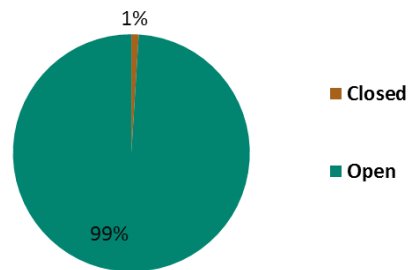
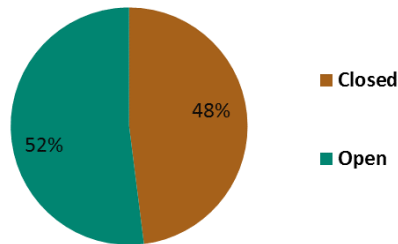
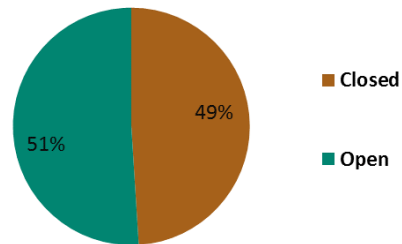
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Non-Energy Leasable Minerals Decisions in MZ IV by Habitat Management Area Type						
Non-Energy Leasable Minerals	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	12,180,000	682,000	1,059,000	4,000	9,139,000	23,064,000
Open	0	2,877,000	5,413,000	704,000	8,375,000	17,369,000
Total	12,180,000	3,559,000	6,472,000	708,000	17,514,000	40,433,000

Non-Energy Leasable Minerals	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	11,775,000	682,000	1,062,000	6,000	9,138,000	22,663,000
Open	0	2,941,000	5,505,000	616,000	8,701,000	17,763,000
Total	11,775,000	3,624,000	6,567,000	622,000	17,839,000	40,426,000

Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision in MZ IV						
Non-Energy Leasable Minerals	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	100%	19%	16%	1%	52%	57%
Open	0%	81%	84%	99%	48%	43%
Total	100%	100%	100%	100%	100%	100%

Non-Energy Leasable Minerals	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	100%	19%	16%	1%	51%	56%
Open	0%	81%	84%	99%	49%	44%
Total	100%	100%	100%	100%	100%	100%

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.

Approximate Acres of Fluid Mineral (Oil & Gas) Decisions in MZ IV by Habitat Management Area Type						
Fluid Mineral (Oil & Gas) Decisions	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	1,924,000	1,136,000	1,136,000	4,000	9,542,000	13,523,000
Open NSO	10,245,000	436,000	436,000	0	1,164,000	14,493,000
Open CSU/TL	18,000	4,947,000	4,947,000	0	2,266,000	7,230,000
Open Standard Stipulations	1,000	3,000	3,000	704,000	4,729,000	5,437,000
Total	12,187,000	6,522,000	6,522,000	708,000	17,701,000	40,683,000

Fluid Mineral (Oil & Gas) Decisions	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	1,917,000	917,000	1,138,000	6,000	9,541,000	13,520,000
Open NSO	9,846,000	2,712,000	436,000	0	1,176,000	14,171,000
Open CSU/TL	17,000	0	5,039,000	0	2,266,000	7,322,000
Open Standard Stipulations	1,000	0	3,000	616,000	5,043,000	5,663,000
Total	11,782,000	3,629,000	6,616,000	622,000	18,027,000	40,676,000

Approximate % of Habitat Management Area by Fluid Mineral (Oil & Gas) Decision in MZ IV						
Fluid Mineral (Oil & Gas) Decisions	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	16%	26%	17%	1%	54%	33%
Open NSO	84%	74%	7%	0%	7%	36%
Open CSU/TL	<1%	0%	76%	0%	13%	18%
Open Standard Stipulations	<1%	0%	<1%	99%	27%	13%
Total	100%	100%	100%	100%	100%	100%

Fluid Mineral (Oil & Gas) Decisions	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	16%	25%	17%	1%	53%	33%
Open NSO	84%	75%	7%	0%	7%	35%
Open CSU/TL	<1%	0%	76%	0%	13%	18%
Open Standard Stipulations	<1%	0%	<1%	99%	28%	14%
Total	100%	100%	100%	100%	100%	100%

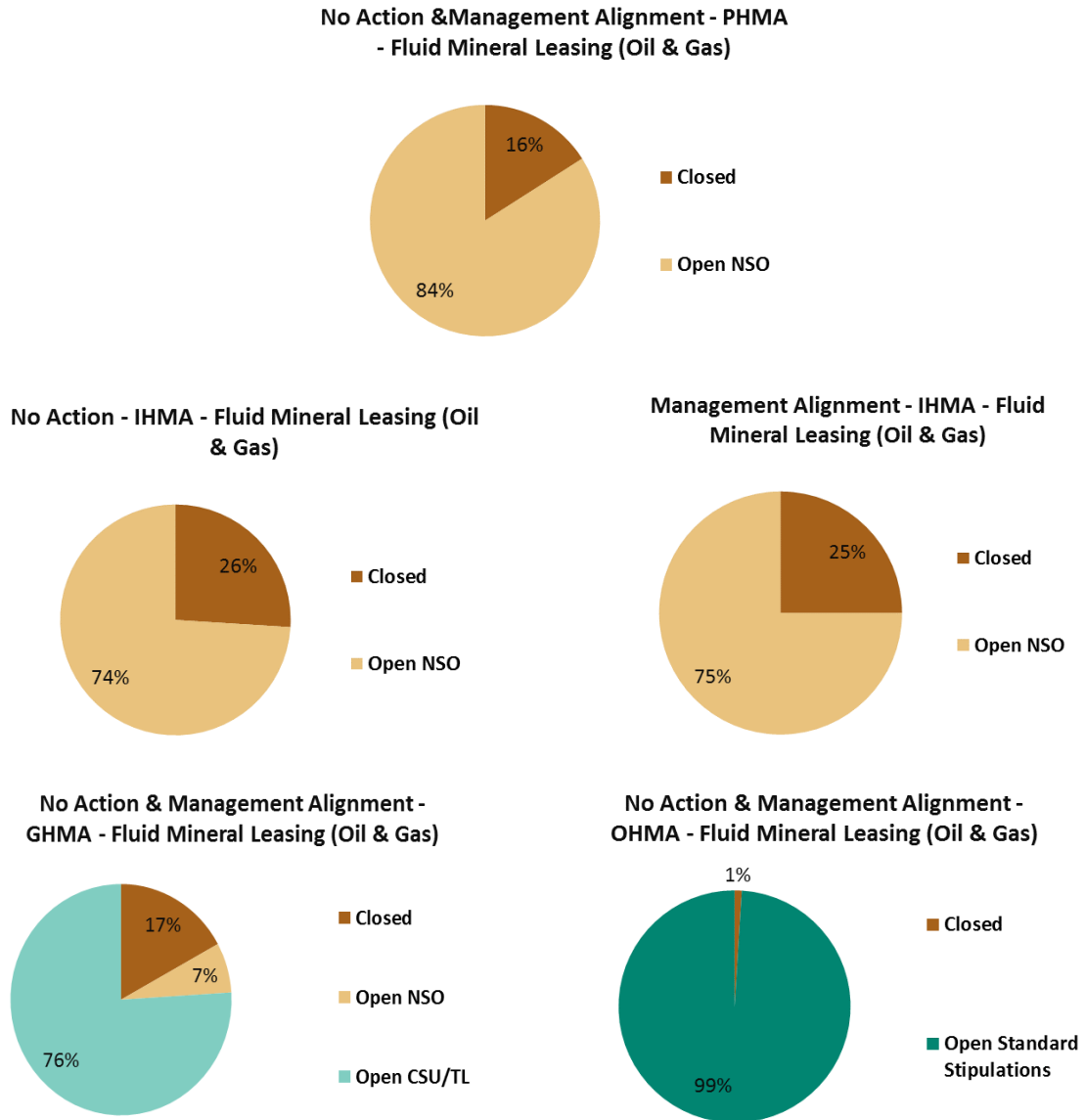
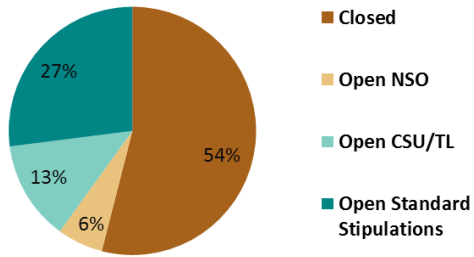
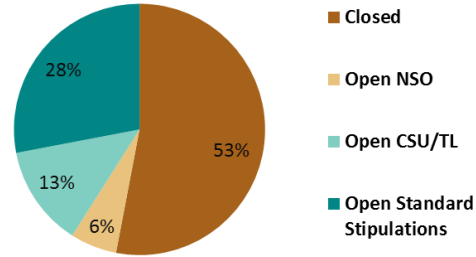


Figure 44 – Fluid Mineral (Oil & Gas) Decisions within MZ IV

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 & 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

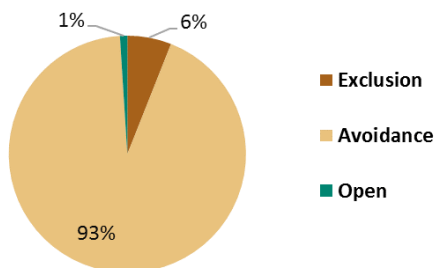
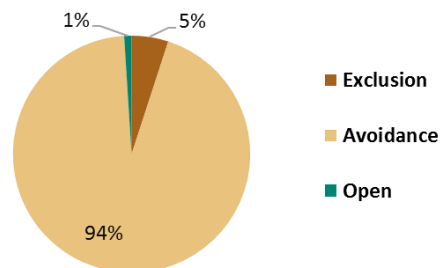
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for 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
Total	10,728,000	2,719,000	5,192,000	708,000	5,088,000	24,435,000

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
Total	10,322,000	2,780,000	5,286,000	621,000	5,420,000	24,429,000

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%
Total	100%	100%	100%	100%	100%	100%

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%
Total	100%	100%	100%	100%	100%	100%

No Action & Management Alignment -
PHMA - Rights of WaysNo 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.

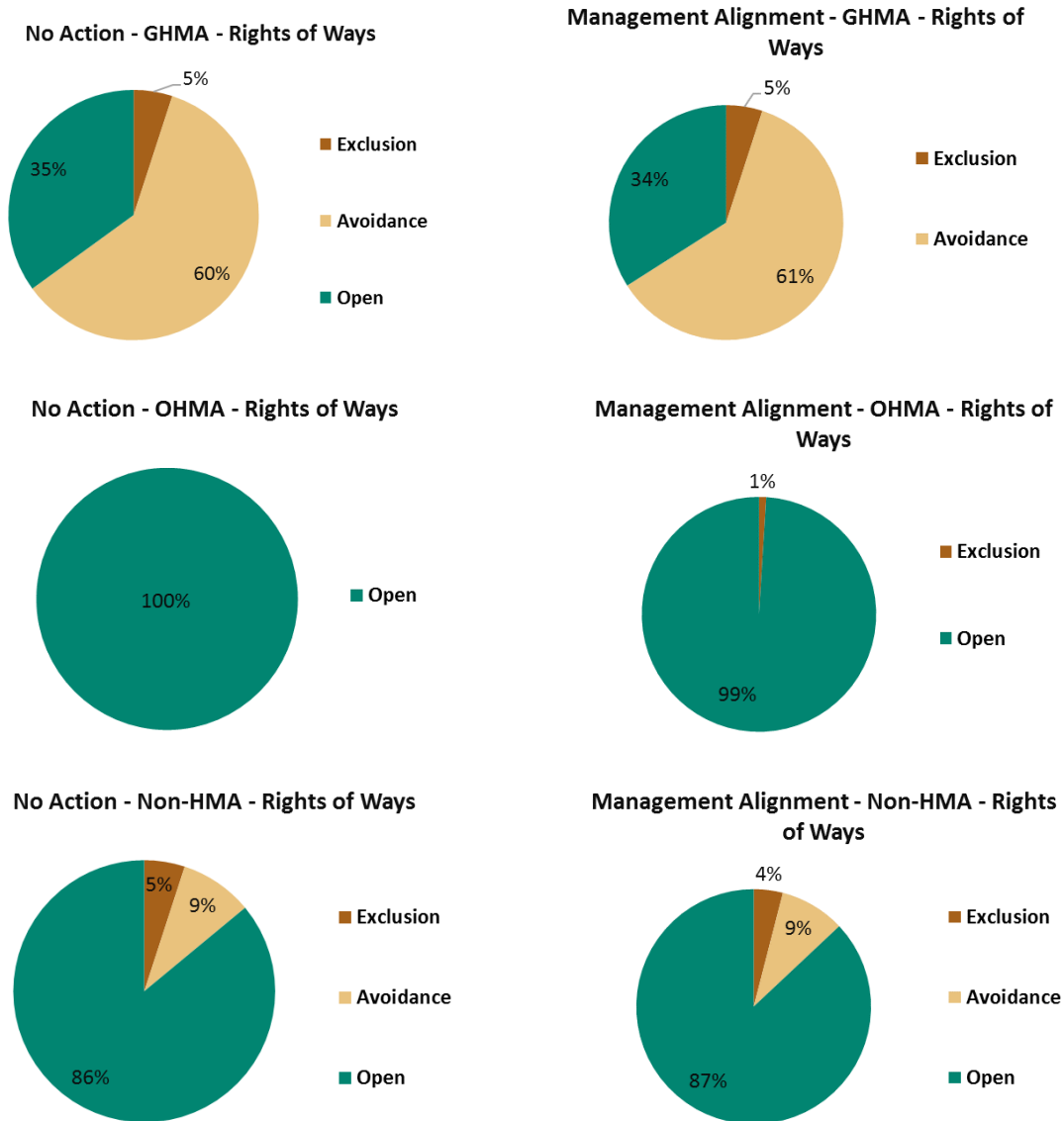


Figure 45 (cont'd) – Rights-of-Ways Decisions within MZ IV

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.

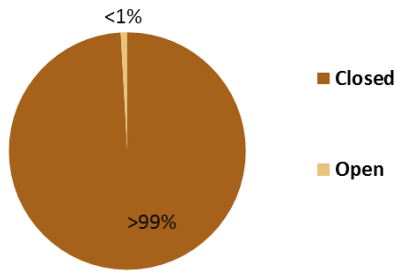
Approximate Acres of Salable Minerals Materials Decisions in MZ IV by Habitat Management Area Type						
Salable Minerals Materials	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	11,494,000	313,000	682,000	4,000	830,000	13,323,000
Open	4,000	2,878,000	5,250,000	704,000	5,504,000	14,339,000
Total	11,497,000	3,191,000	5,932,000	708,000	6,334,000	27,662,000

Salable Minerals Materials	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	11,089,000	313,000	684,000	6,000	829,000	12,922,000
Open	4,000	2,942,000	5,343,000	616,000	5,830,000	14,734,000
Total	11,093,000	3,255,000	6,027,000	622,000	6,659,000	27,656,000

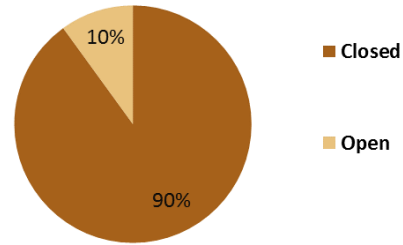
Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision in MZ IV						
Salable Minerals Materials	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	100%	10%	11%	1%	13%	48%
Open	<1%	90%	89%	99%	87%	52%
Total	100%	100%	100%	100%	100%	100%

Salable Minerals Materials	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	100%	10%	11%	1%	12%	47%
Open	<1%	90%	89%	99%	88%	53%
Total	100%	100%	100%	100%	100%	100%

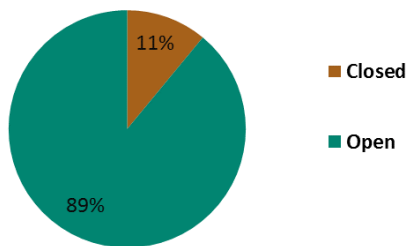
No Action & Management Alignment -
PHMA - Salable Minerals Materials



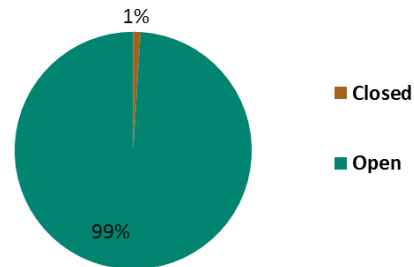
No Action & Management Alignment - IHMA
- Salable Minerals Materials



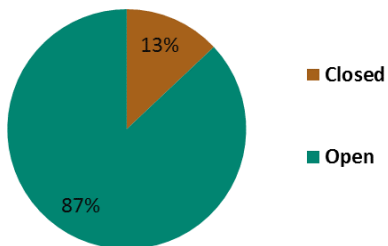
No Action & Management Alignment -
GHMA - Salable Minerals Materials



No Action & Management Alignment -
OHMA - Salable Minerals Materials



No Action - Non-HMA - Salable Minerals
Materials



Management Alignment - Non-HMA -
Salable Minerals Materials

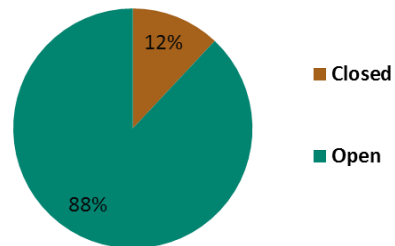


Figure 46 – Salable Minerals Materials Decisions within MZ IV

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.

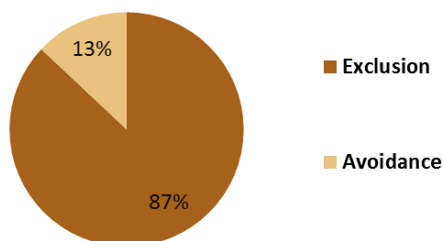
Approximate Acres of Solar Energy Decisions in MZ IV by Habitat Management Area Type						
Solar Energy	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	9,341,000	363,000	1,210,000	706,000	2,275,000	13,895,000
Avoidance	1,390,000	2,357,000	2,235,000	0	123,000	6,105,000
Open	0	0	1,500,000	1,000	2,521,000	4,022,000
Total	10,731,000	2,719,000	4,945,000	707,000	4,919,000	24,021,000

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
Total	10,326,000	2,780,000	5,039,000	622,000	5,248,000	24,015,000

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%
Total	100%	100%	100%	100%	100%	100%

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%
Total	100%	100%	100%	100%	100%	100%

No Action & Management Alignment -
PHMA - Solar Energy



No Action & Management Alignment -
IHMA - Solar Energy

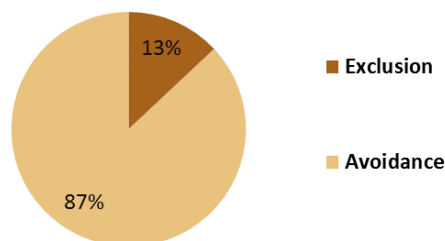


Figure 47 – Solar Energy Decisions within MZ IV

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.

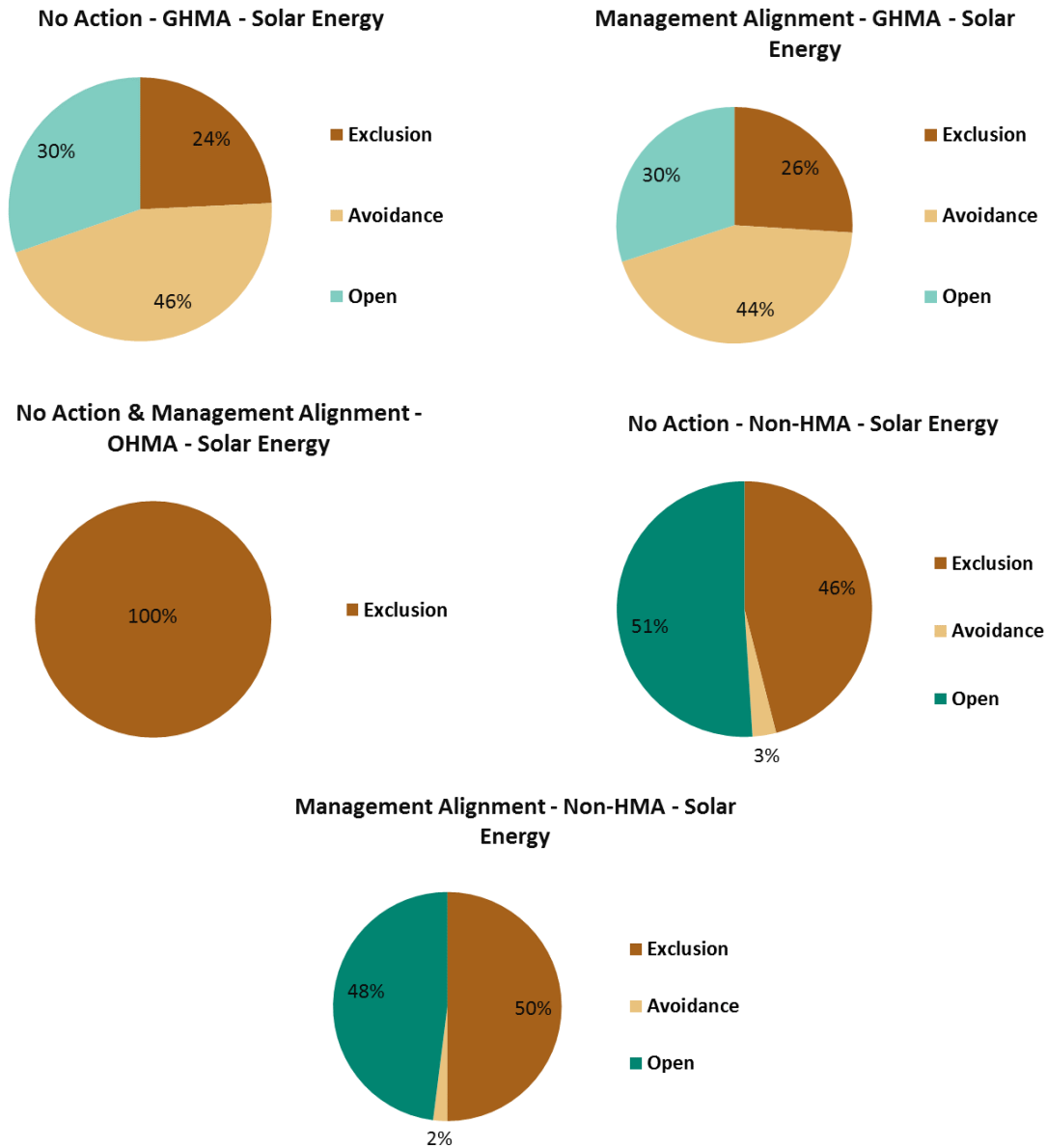


Figure 47 (cont'd) – Solar Energy Decisions within MZ IV

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**

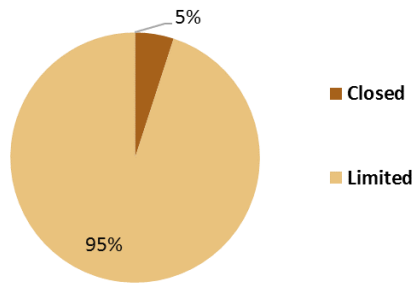
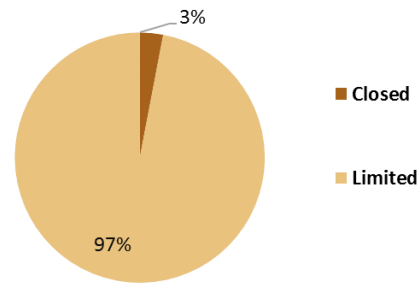
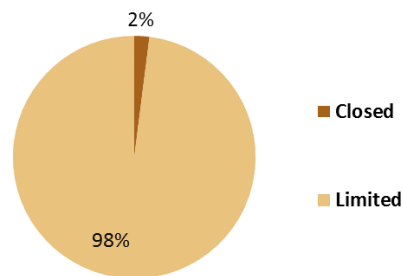
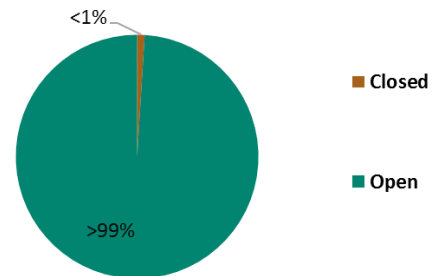
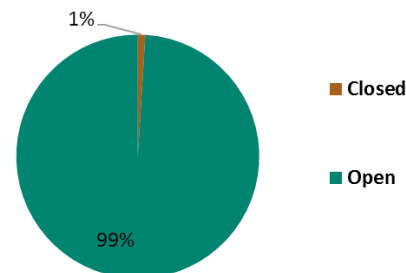
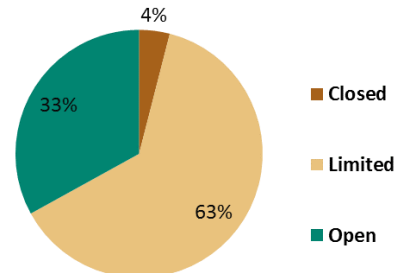
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Trails and Travel Management Decisions in MZ IV by Habitat Management Area Type						
Trails and Travel Management Decisions	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	560,000	83,000	85,000	1,000	215,000	943,000
Limited	10,169,000	2,633,000	4,866,000	1,000	3,101,000	20,770,000
Open	0	3,000	0	707,000	1,619,000	2,329,000
Total	10,729,000	2,719,000	4,951,000	708,000	4,935,000	24,042,000

Trails and Travel Management Decisions	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	559,000	83,000	84,000	0	214,000	940,000
Limited	9,768,000	2,694,000	4,961,000	5,000	3,188,000	20,617,000
Open	0	3,000	0	617,000	1,859,000	2,479,000
Total	10,327,000	2,780,000	5,046,000	622,000	5,261,000	24,036,000

Approximate % of Habitat Management Area by Trails and Travel Management Decisions Decision in MZ IV						
Trails and Travel Management Decisions	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	5%	3%	2%	<1%	4%	4%
Limited	95%	97%	98%	<1%	63%	86%
Open	0%	<1%	0%	100%	33%	10%
Total	100%	100%	100%	100%	100%	100%

Trails and Travel Management Decisions	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Closed	5%	3%	2%	0%	4%	4%
Limited	95%	97%	98%	1%	61%	86%
Open	0%	0%	0%	99%	35%	10%
Total	100%	100%	100%	100%	100%	100%

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

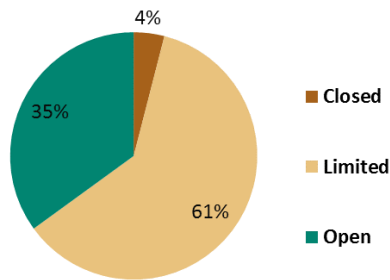


Figure 48 (cont'd) – Trails and Travel Management Decisions within MZ IV

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.

Approximate Acres of Wind Energy Decisions in MZ IV by Habitat Management Area Type						
Wind Energy	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	9,339,000	363,000	392,000	4,000	1,035,000	11,133,000
Avoidance	1,390,000	2,357,000	3,051,000	0	123,000	6,920,000
Open	0	0	1,501,000	704,000	3,769,000	5,973,000
Total	10,728,000	2,719,000	4,944,000	708,000	4,926,000	24,026,000

Wind Energy	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	8,938,000	363,000	395,000	6,000	1,046,000	10,748,000
Avoidance	1,390,000	2,417,000	3,144,000	0	123,000	7,073,000
Open	0	0	1,501,000	616,000	4,083,000	6,199,000
Total	10,327,000	2,780,000	5,039,000	622,000	5,252,000	24,020,000

Approximate % of Habitat Management Area by Wind Energy Decision in MZ IV						
Wind Energy	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	87%	13%	8%	1%	21%	46%
Avoidance	13%	87%	62%	0%	2%	29%
Open	0%	0%	30%	99%	77%	25%
Total	100%	100%	100%	100%	100%	100%

Wind Energy	Management Alignment					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	87%	13%	8%	1%	20%	45%
Avoidance	13%	87%	62%	0%	2%	29%
Open	0%	0%	30%	99%	78%	26%
Total	100%	100%	100%	100%	100%	100%

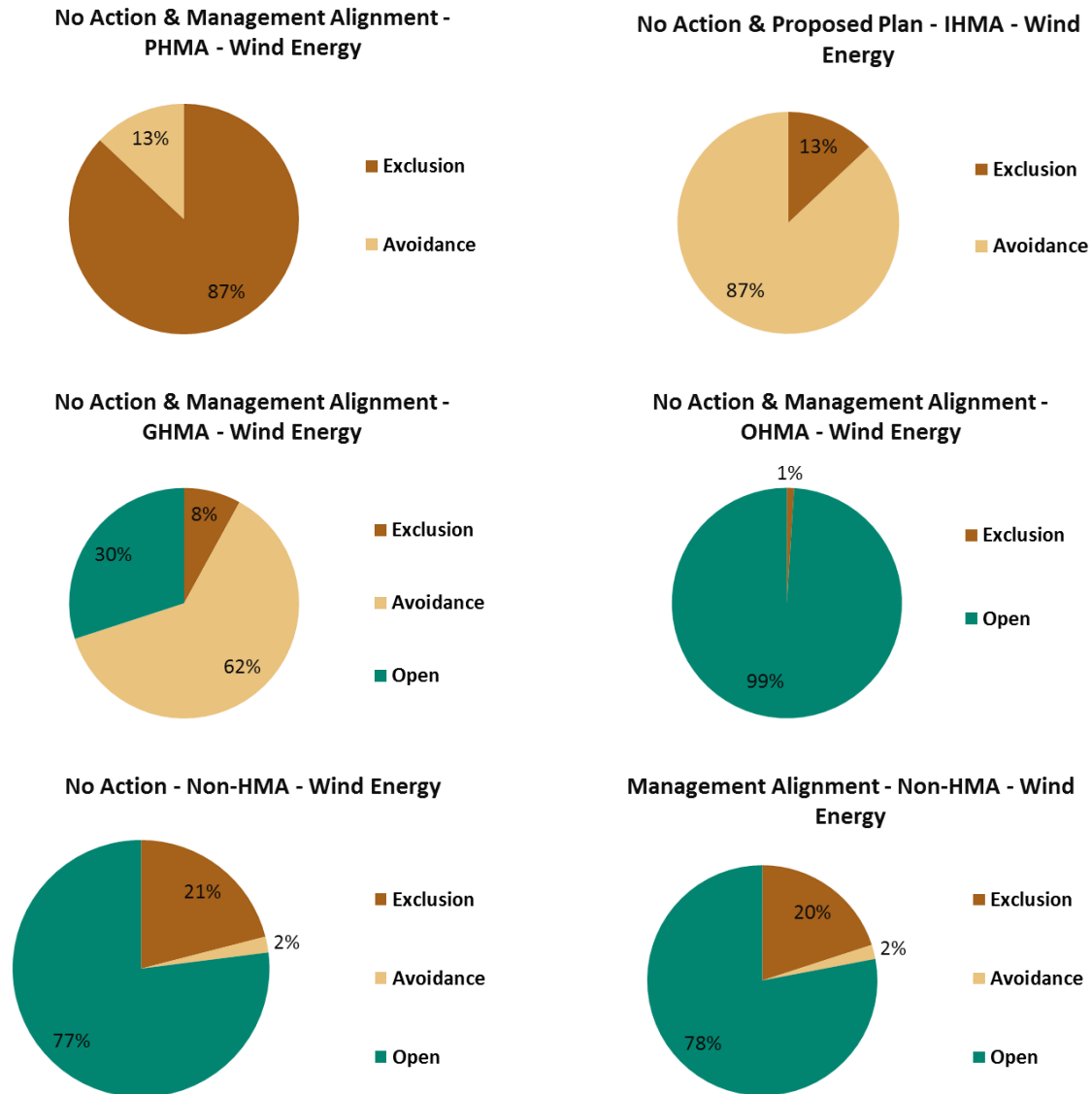


Figure 49 – Wind Energy Decisions within MZ IV

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.

2.2.5 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%

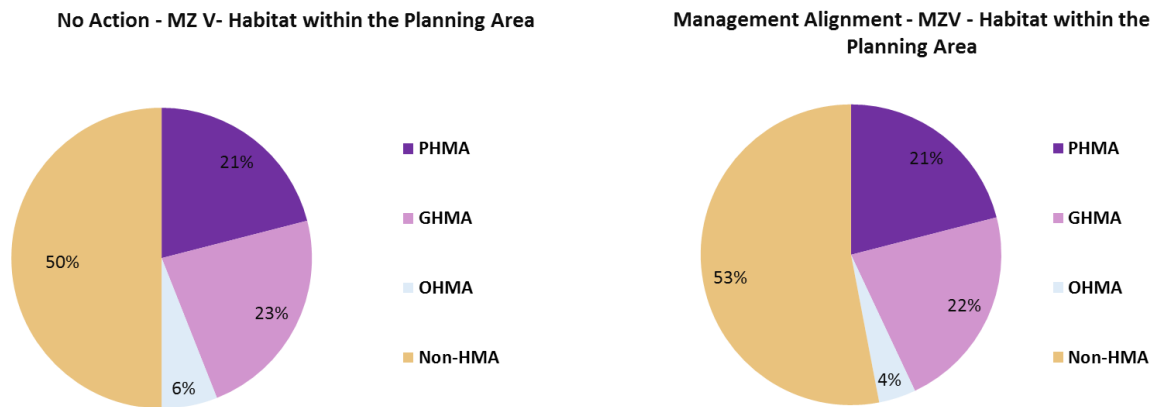


Figure 50 – Habitat Management Areas within MZ V

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.

Approximate Acres of Geothermal Energy Decisions in MZ V by Habitat Management Area Type					
Geothermal Energy	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	1,626,000	1,359,000	158,000	898,000	4,042,000
Open NSO	3,350,000	379,000	0	164,000	3,893,000
Open CSU/TL	0	3,287,000	0	335,000	3,622,000
Open Standard Stipulations	5,000	0	744,000	2,367,000	3,117,000
Total	4,982,000	5,026,000	903,000	3,764,000	14,674,000

Geothermal Energy	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	1,569,000	1,373,000	141,000	935,000	4,018,000
Open NSO	3,566,000	379,000	0	164,000	4,110,000
Open CSU/TL	0	3,185,000	0	335,000	3,520,000
Open Standard Stipulations	0	0	423,000	2,598,000	3,021,000
Total	5,136,000	4,937,000	564,000	4,032,000	14,668,000

Approximate % of Habitat Management Area by Geothermal Energy Decision in MZ V					
Geothermal Energy	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	33%	27%	17%	24%	28%
Open NSO	67%	8%	0%	4%	27%
Open CSU/TL	0%	65%	0%	9%	25%
Open Standard Stipulations	<1%	0%	82%	63%	21%
Total	100%	100%	100%	100%	100%

Geothermal Energy	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	31%	28%	25%	23%	27%
Open NSO	69%	8%	0%	4%	28%
Open CSU/TL	0%	65%	0%	8%	24%
Open Standard Stipulations	0%	0%	75%	64%	21%
Total	100%	100%	100%	100%	100%

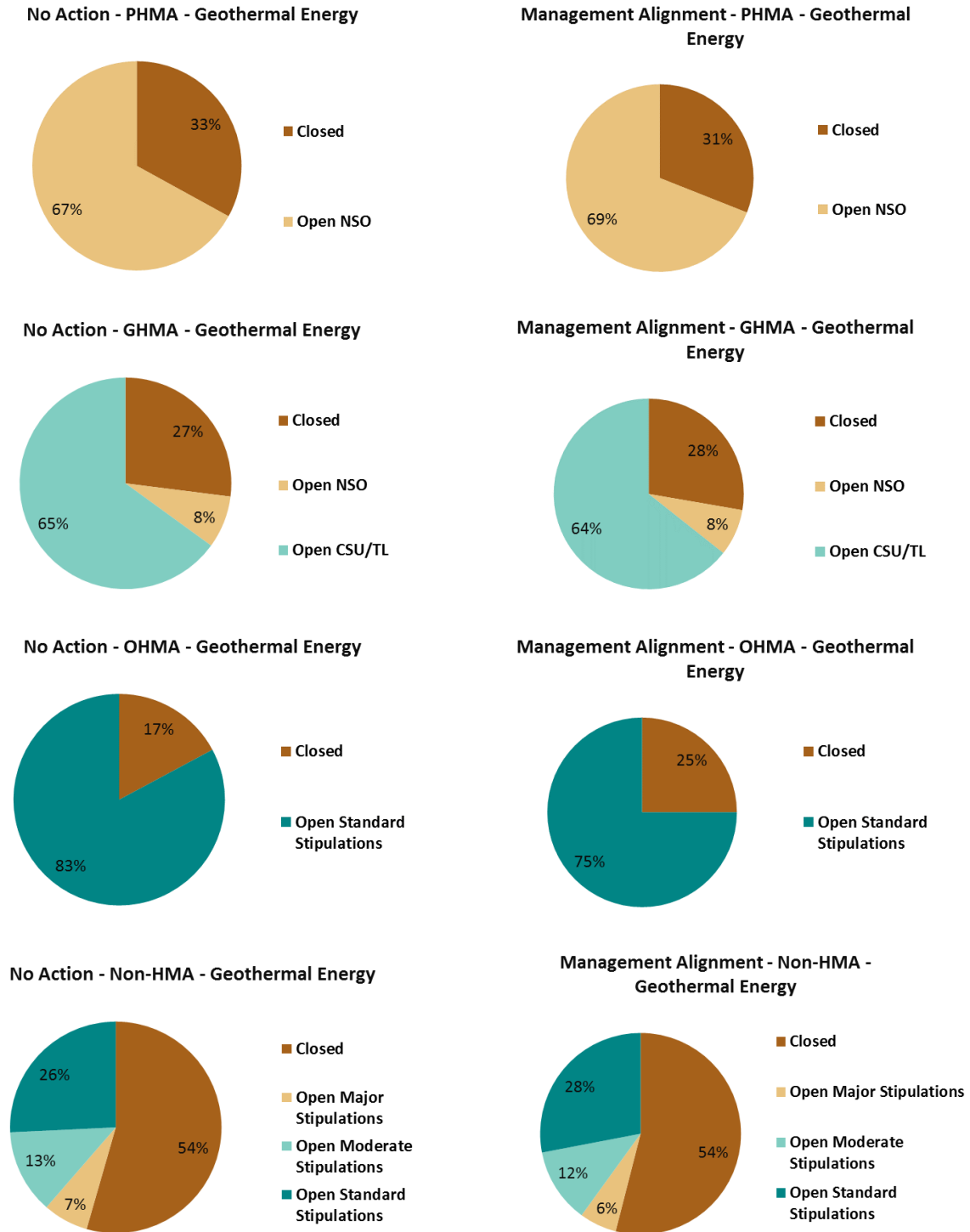


Figure 51 – Geothermal Energy Decisions within MZ V

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
Total	4,649,000	4,896,000	901,000	3,565,000	14,011,000

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
Total	4,804,000	4,806,000	562,000	3,833,000	14,005,000

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%
Total	100%	100%	100%	100%	100%

Land Tenure	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Disposal	<1%	<1%	6%	15%	5%
Retention	100%	100%	94%	85%	95%
Total	100%	100%	100%	100%	100%

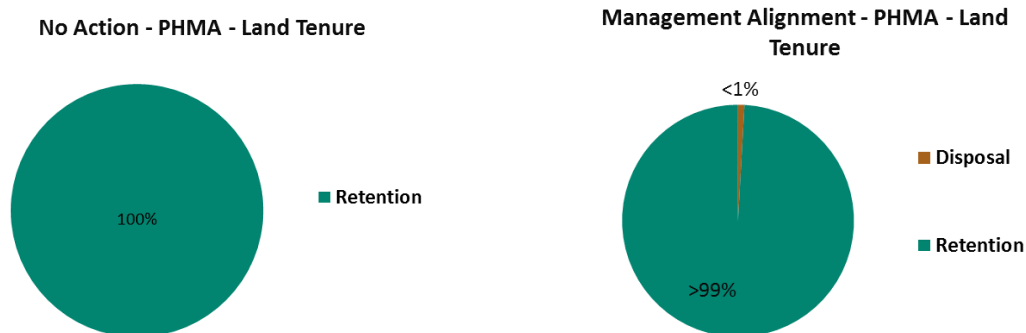


Figure 52 – Land Tenure Decisions within MZ V

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.

Approximate Acres of Livestock Grazing Decisions in MZ V by Habitat Management Area Type					
Livestock Grazing	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Unavailable	47,000	102,000	0	84,000	232,000
Available	4,582,000	4,762,000	883,000	3,233,000	13,461,000
Total	4,629,000	4,864,000	883,000	3,317,000	13,694,000

Livestock Grazing	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Unavailable	47,000	102,000	0	84,000	232,000
Available	4,736,000	4,671,000	550,000	3,493,000	13,450,000
Total	4,783,000	4,772,000	550,000	3,577,000	13,682,000

Approximate % of Habitat Management Area by Livestock Grazing Decision in MZ V					
Livestock Grazing	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Unavailable	1%	2%	0%	3%	2%
Available	99%	98%	100%	97%	98%
Total	100%	100%	100%	100%	100%

Livestock Grazing	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Unavailable	1%	2%	0%	2%	2%
Available	99%	98%	100%	98%	98%
Total	100%	100%	100%	100%	100%



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.

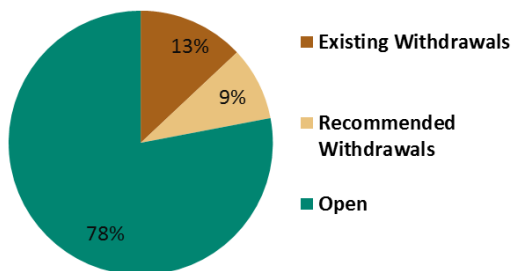
Approximate Acres of Locatable Minerals Decisions in MZ V by Habitat Management Area Type					
Locatable Minerals	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Existing Withdrawals	631,000	687,000	59,000	486,000	1,864,000
Recommended Withdrawals	435,000	5,000	0	0	440,000
Open	3,885,000	4,329,000	842,000	3,048,000	12,104,000
Total	4,951,000	5,022,000	901,000	3,534,000	14,408,000

Locatable Minerals	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Existing Withdrawals	626,000	687,000	64,000	487,000	1,864,000
Recommended Withdrawals	12,000	5,000	0	0	17,000
Open	4,469,000	4,240,000	499,000	3,314,000	12,522,000
Total	5,106,000	4,932,000	562,000	3,801,000	14,403,000

Approximate % of Habitat Management Area by Geothermal Energy Decision in MZ V					
Locatable Minerals	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Existing Withdrawals	13%	14%	7%	14%	13%
Recommended Withdrawals	9%	0%	0%	0%	3%
Open	78%	86%	93%	86%	84%
Total	100%	100%	100%	100%	100%

Locatable Minerals	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Existing Withdrawals	12%	14%	11%	13%	13%
Recommended Withdrawals	0%	0%	0%	0%	0%
Open	88%	86%	89%	87%	87%
Total	100%	100%	100%	100%	100%

No Action - PHMA - Locatable Minerals



Management Alignment - PHMA - Locatable Minerals

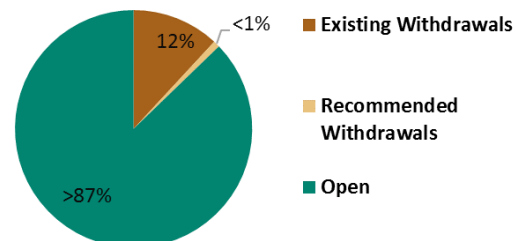


Figure 54 – Locatable Minerals Decisions within MZ V

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.

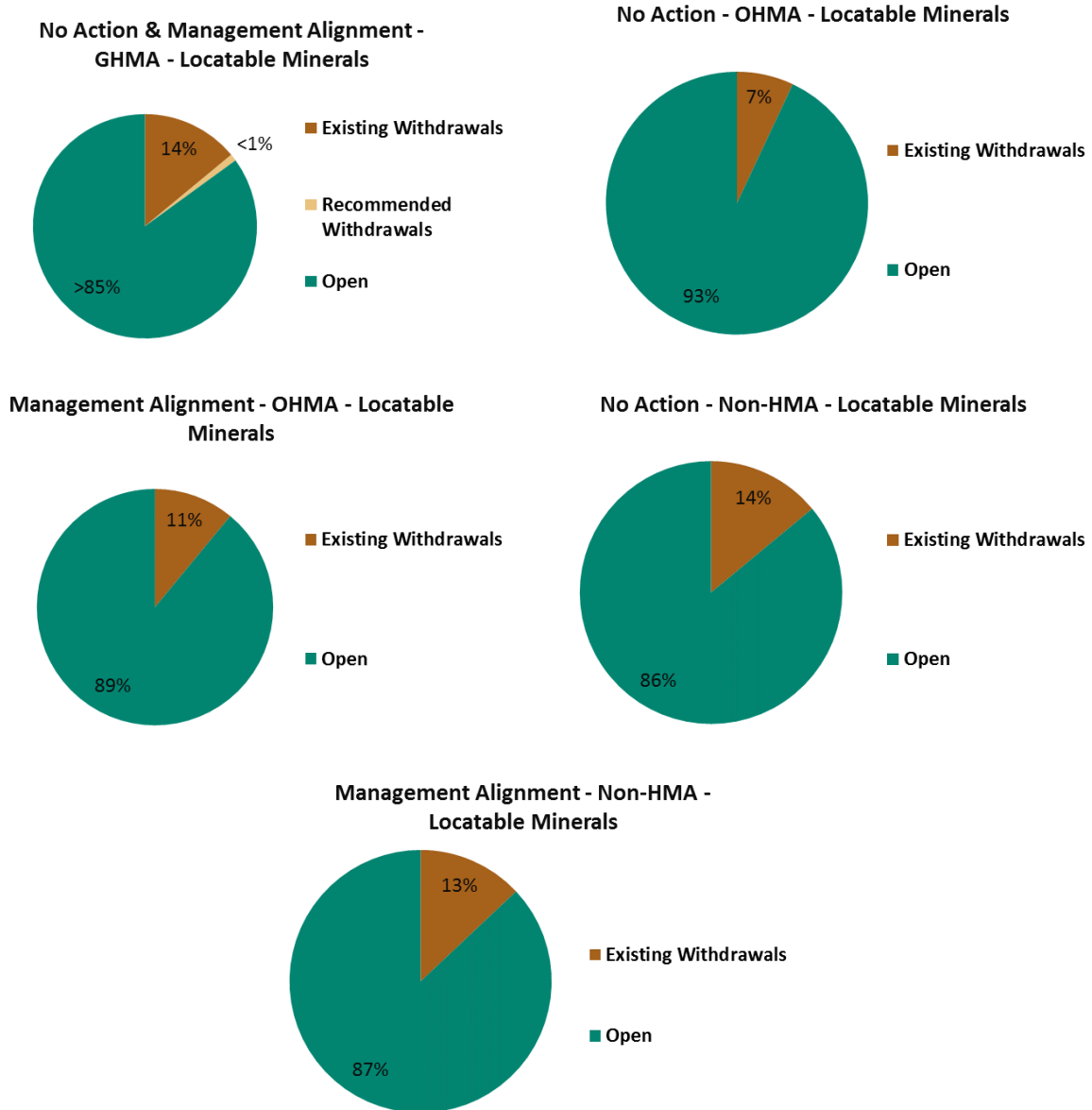


Figure 54 (cont'd) – Locatable Minerals Decisions within MZ V

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.

Approximate Acres of Non-Energy Leasable Minerals Decisions in MZ V by Habitat Management Area Type					
Non-Energy Leasable Minerals	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	4,980,000	1,388,000	158,000	898,000	7,423,000
Open	0	3,635,000	744,000	2,866,000	7,247,000
Total	4,980,000	5,024,000	903,000	3,764,000	14,671,000

Non-Energy Leasable Minerals	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	5,135,000	1,402,000	141,000	935,000	7,613,000
Open	0	3,532,000	423,000	3,097,000	7,052,000
Total	5,135,000	4,934,000	564,000	4,032,000	14,665,000

Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision in MZ V					
Non-Energy Leasable Minerals	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	100%	28%	17%	24%	51%
Open	0%	72%	82%	76%	49%
Total	100%	100%	100%	100%	100%

Non-Energy Leasable Minerals	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	100%	28%	25%	23%	52%
Open	0%	72%	75%	77%	48%
Total	100%	100%	100%	100%	100%

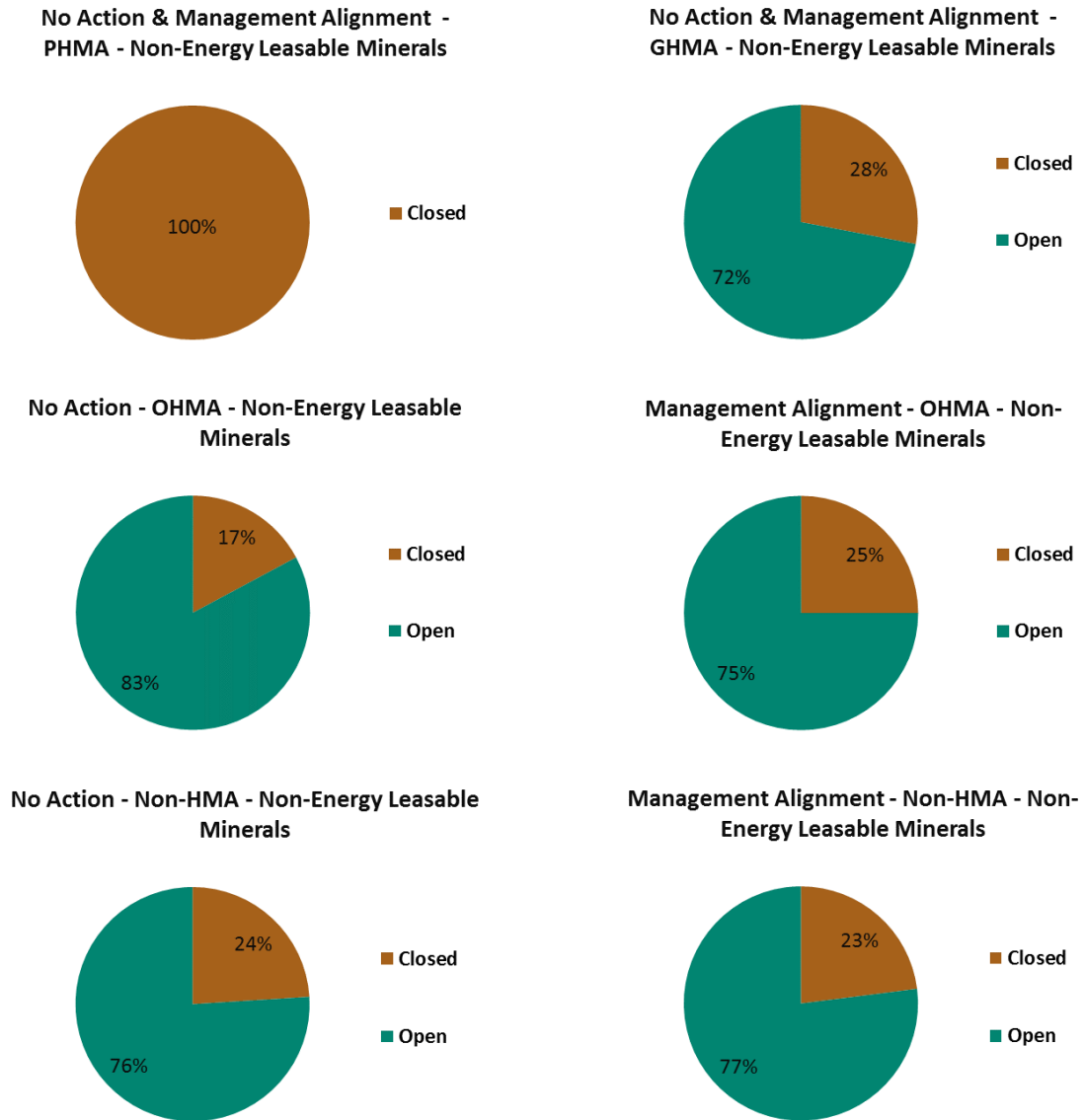


Figure 55 – Non-Energy Leasable Minerals Decisions within MZ V

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**

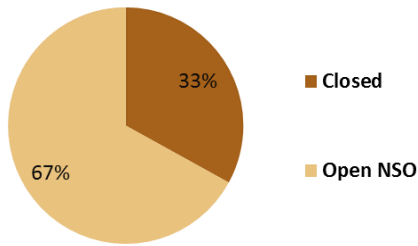
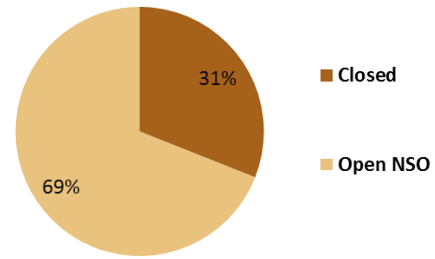
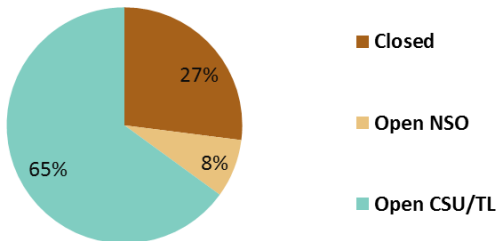
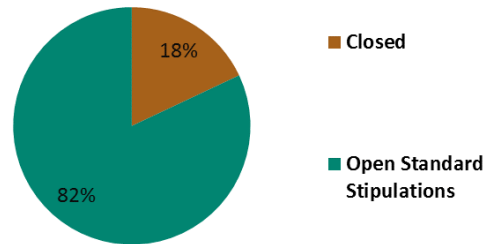
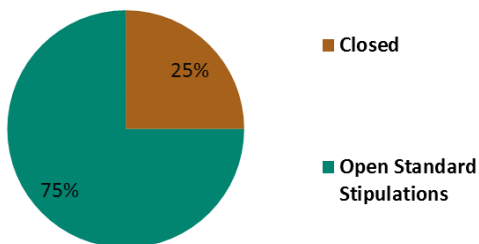
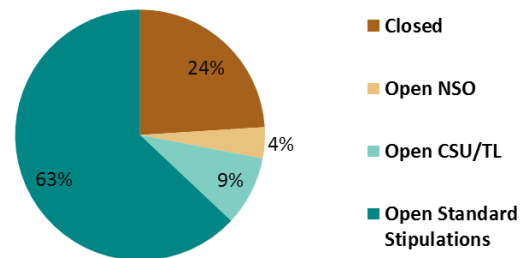
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Fluid Mineral (Oil & Gas) Decisions in MZ V by Habitat Management Area Type					
Fluid Mineral (Oil & Gas) Decisions	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	1,590,000	1,373,000	141,000	935,000	4,039,000
Open NSO	3,542,000	379,000	0	164,000	4,085,000
Open CSU/TL	0	3,184,000	0	335,000	3,519,000
Open Standard Stipulations	0	0	423,000	2,598,000	3,021,000
Total	5,133,000	4,936,000	564,000	4,032,000	14,664,000

Fluid Mineral (Oil & Gas) Decisions	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	1,626,000	1,359,000	158,000	898,000	4,042,000
Open NSO	3,354,000	379,000	0	164,000	3,898,000
Open CSU/TL	0	3,287,000	0	335,000	3,622,000
Open Standard Stipulations	0	0	743,000	2,365,000	3,108,000
Total	4,981,000	5,026,000	902,000	3,762,000	14,670,000

Approximate % of Habitat Management Area by Fluid Mineral (Oil & Gas) Decision in MZ V					
Fluid Mineral (Oil & Gas) Decisions	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	33%	27%	18%	24%	28%
Open NSO	67%	8%	0%	4%	27%
Open CSU/TL	0%	65%	0%	9%	25%
Open Standard Stipulations	0%	0%	82%	63%	21%
Total	100%	100%	100%	100%	100%

Fluid Mineral (Oil & Gas) Decisions	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	31%	28%	25%	23%	28%
Open NSO	69%	8%	0%	4%	28%
Open CSU/TL	0%	65%	0%	8%	24%
Open Standard Stipulations	0%	0%	75%	64%	21%
Total	100%	100%	100%	100%	100%

**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.

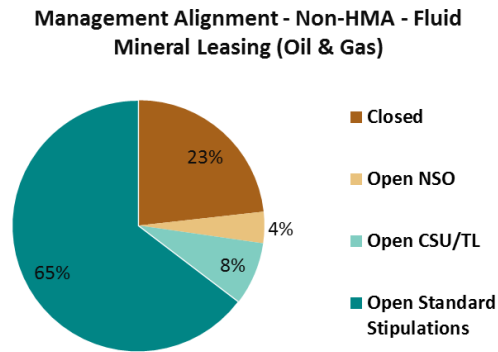


Figure 56 (cont'd) – Fluid Mineral (Oil & Gas) Decisions within MZ V

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

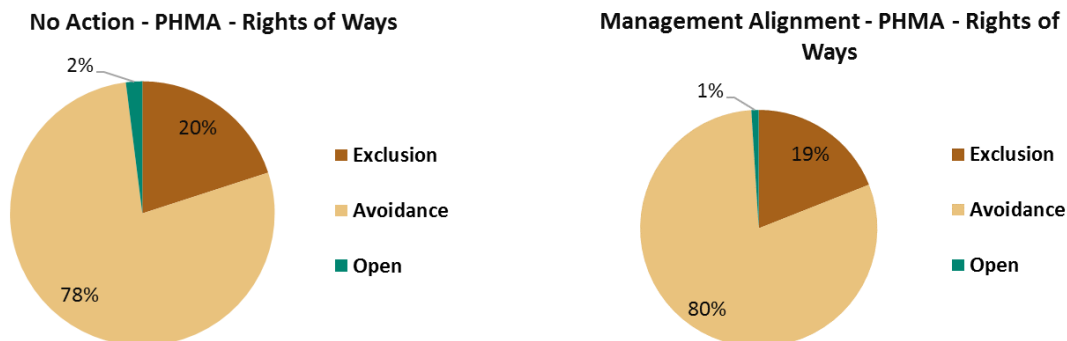
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

Approximate Acres of Rights-of-Ways Decisions in MZ V by Habitat Management Area Type					
Rights-of-Ways	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
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
Total	4,677,000	4,900,000	902,000	3,561,000	14,040,000

Rights-of-Ways	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
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
Total	4,827,000	4,809,000	564,000	3,834,000	14,034,000

Approximate % of Habitat Management Area by Rights-of-Ways Decision in MZ V					
Rights-of-Ways	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	78%	89%	0%	9%	59%
Avoidance	20%	9%	18%	22%	17%
Open	2%	2%	82%	69%	24%
Total	100%	100%	100%	100%	100%

Rights-of-Ways	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	80%	89%	0%	8%	60%
Avoidance	19%	10%	25%	21%	17%
Open	1%	1%	75%	70%	23%
Total	100%	100%	100%	100%	100%

**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.

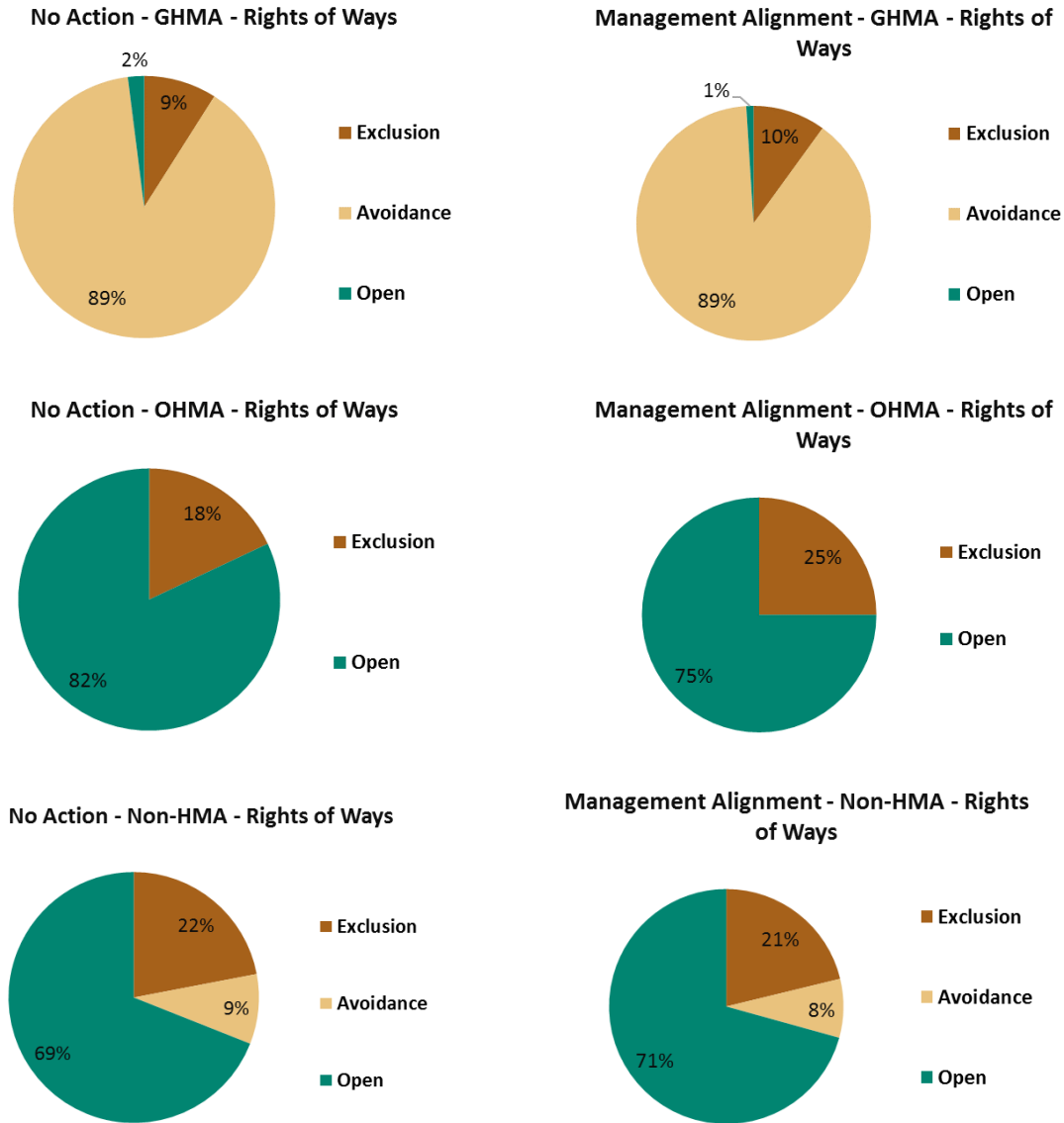


Figure 57 (cont'd) – Rights-of-Ways Decisions within MZ V

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.

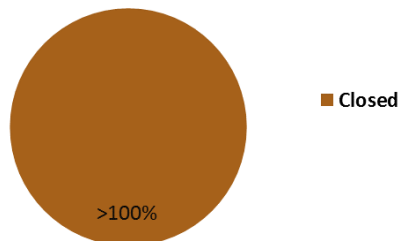
Approximate Acres of Salable Minerals Materials Decisions in MZ V by Habitat Management Area Type					
Salable Minerals Materials	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	4,980,000	1,402,000	158,000	935,000	7,475,000
Open	1,000	3,621,000	744,000	2,827,000	7,194,000
Total	4,980,000	5,024,000	903,000	3,762,000	14,669,000

Salable Minerals Materials	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	5,135,000	1,416,000	141,000	972,000	7,664,000
Open	0	3,518,000	423,000	3,057,000	6,998,000
Total	5,135,000	4,934,000	564,000	4,030,000	14,663,000

Approximate % of Habitat Management Area by Non-Energy Leasable Minerals Decision in MZ V					
Salable Minerals Materials	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	100%	28%	17%	25%	51%
Open	<1%	72%	83%	75%	49%
Total	100%	100%	100%	100%	100%

Salable Minerals Materials	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	100%	29%	25%	24%	52%
Open	0%	71%	75%	76%	48%
Total	100%	100%	100%	100%	100%

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

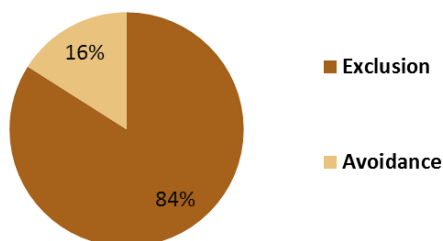


Figure 59 – Solar Energy Decisions within MZ V

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.

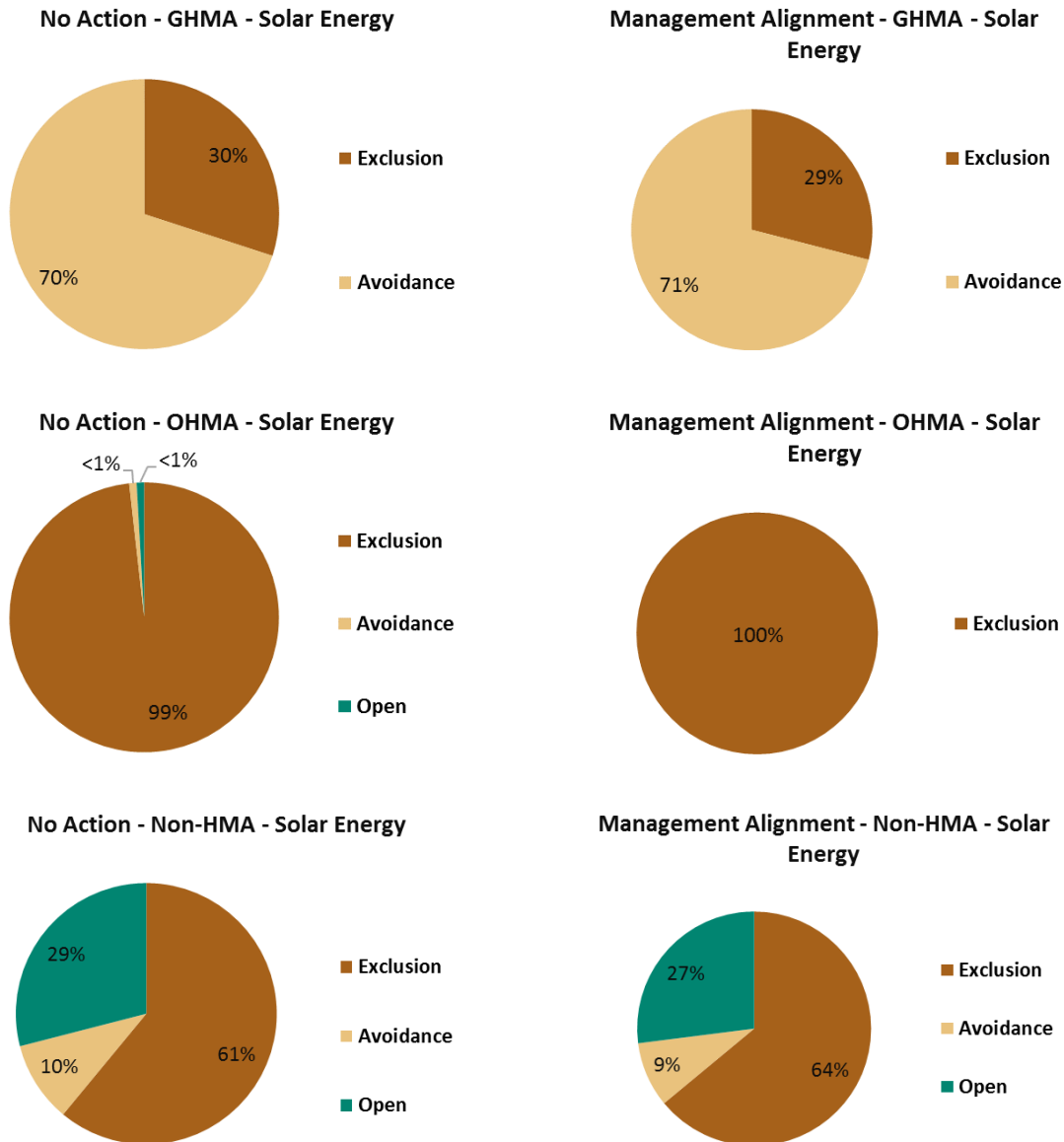


Figure 59 (cont'd) – Solar Energy Decisions within MZ V

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.

Approximate Acres of Trails and Travel Management Decisions in MZ V by Habitat Management Area Type					
Trails and Travel Management Decisions	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	220,000	215,000	59,000	423,000	917,000
Limited	4,452,000	4,681,000	428,000	1,257,000	10,818,000
Open	0	2,000	414,000	1,888,000	2,304,000
Total	4,672,000	4,897,000	901,000	3,568,000	14,038,000

Trails and Travel Management Decisions	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	215,000	214,000	64,000	424,000	917,000
Limited	4,613,000	4,591,000	290,000	1,280,000	10,774,000
Open	0	2,000	209,000	2,131,000	2,342,000
Total	4,828,000	4,807,000	562,000	3,836,000	14,032,000

Approximate % of Habitat Management Area by Trails and Travel Management Decisions Decision in MZ V					
Trails and Travel Management Decisions	No Action				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	5%	4%	7%	12%	7%
Limited	95%	96%	48%	35%	77%
Open	0%	<1%	46%	53%	16%
Total	100%	100%	100%	100%	100%

Trails and Travel Management Decisions	Management Alignment				
	PHMA	GHMA	OHMA	Non-HMA	Total
Closed	4%	4%	11%	11%	7%
Limited	96%	96%	52%	33%	77%
Open	0%	<1%	37%	56%	17%
Total	100%	100%	100%	100%	100%

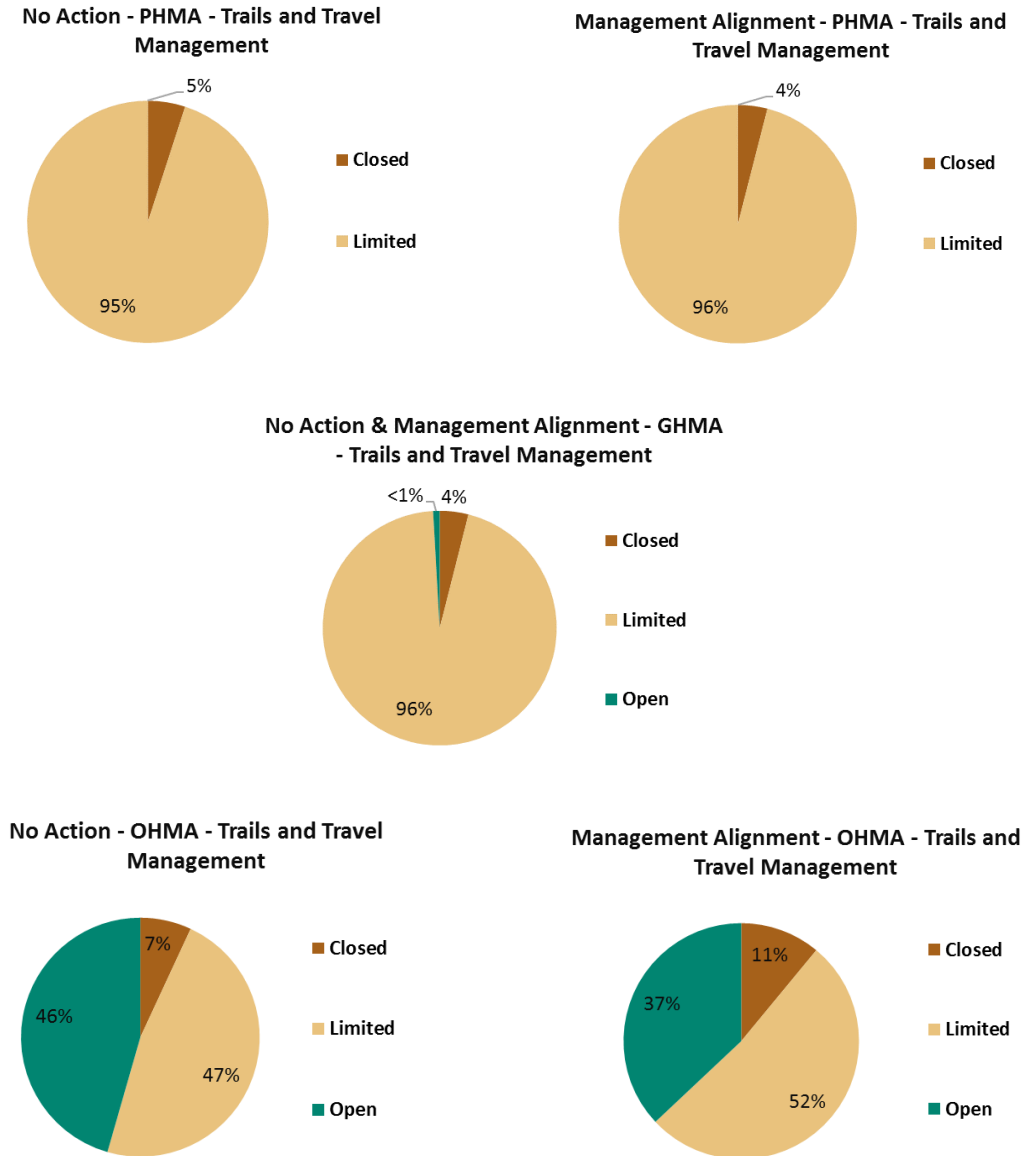
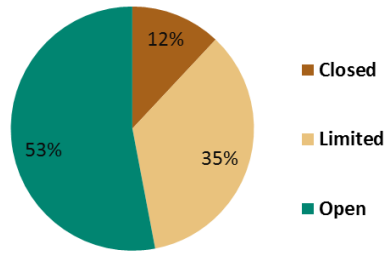
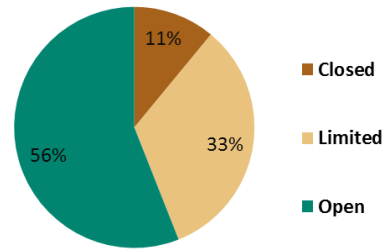


Figure 60 – Trails and Travel Management Decisions within MZ V

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
Total	4,678,000	4,900,000	903,000	3,568,000	14,048,000

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
Total	4,833,000	4,809,000	564,000	3,836,000	14,042,000

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%
Total	100%	100%	100%	100%	100%

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%
Total	100%	100%	100%	100%	100%

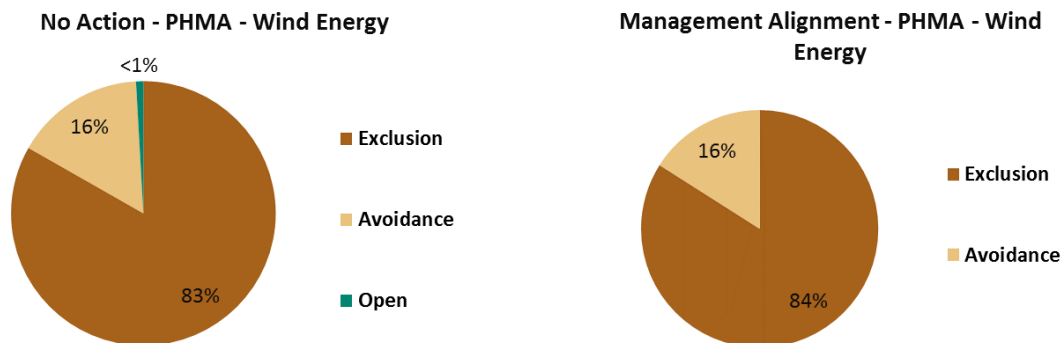


Figure 61 – Wind Energy Decisions within MZ V

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.

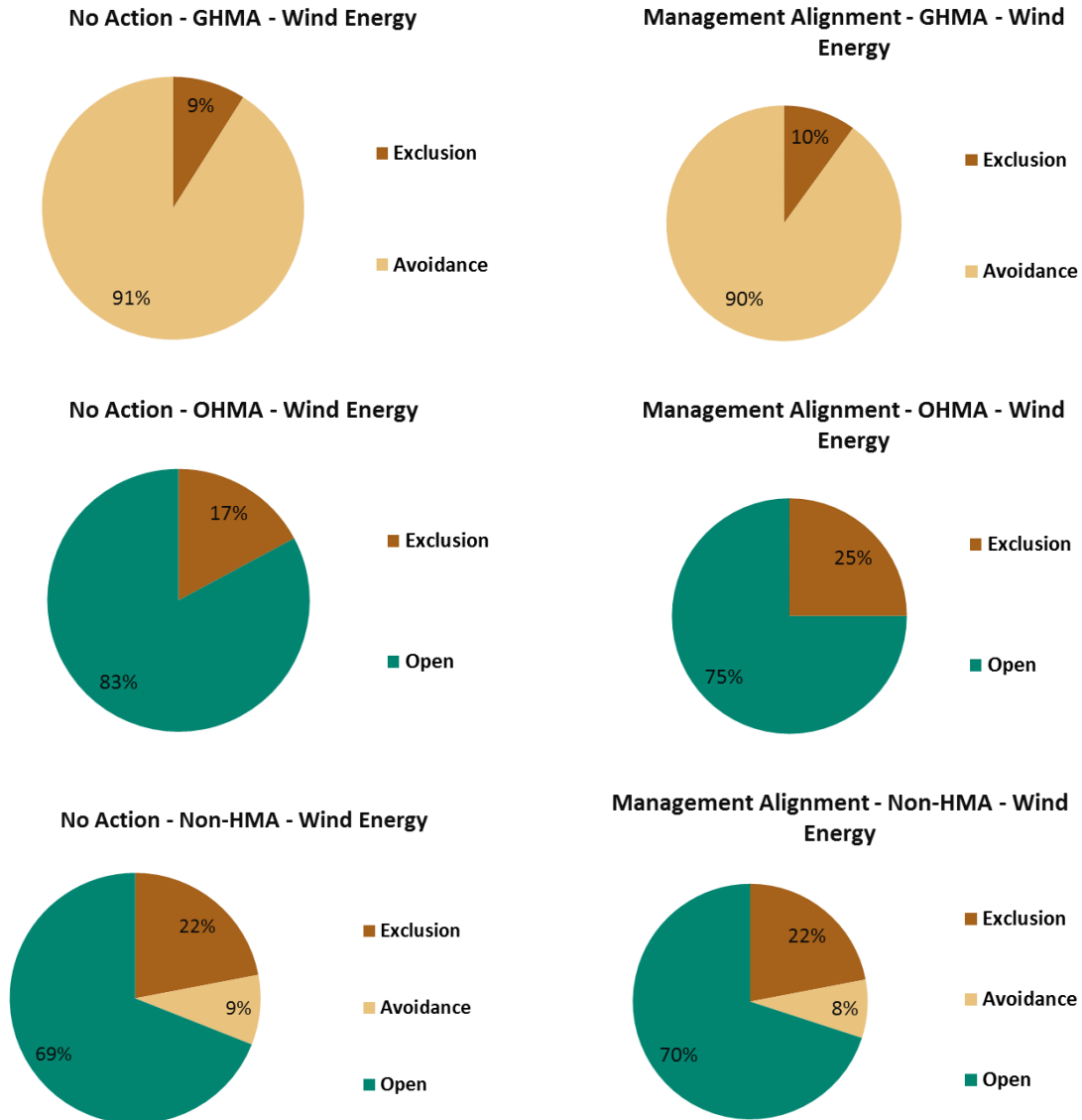


Figure 6I (cont'd) – Wind Energy Decisions within MZ V

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.

Appendix 3

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
Colorado Planning Process

Appendix 3. 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 Colorado 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 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 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 sage-grouse conservation measures. Variability between 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 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. 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” (Federal Land Policy and Management Act {FLPMA}, Section 202 (c)(9)).

Other laws, regulations, and policies were not taken into account by the NTT as they developed their conservation measures. For example, the NTT Report’s conservation measure that recommends that

priority 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 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 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 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 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 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 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 Greater Sage-Grouse in the Utah 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 sought to identify 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 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 is not itself science, but includes objectives, measures, and options that were developed based on science.

- 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 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 CO 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 US Geological Survey (USGS), to coordinate with the 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 better balance the BLM's multiple-use mission, as directed by SO 3349.
 - **Section 1.4 Planning Criteria. p. 1-6.** The BLM has identified these planning criteria:
 - It will comply with all laws, regulations, policies, and guidance related to public lands management and implementing the National Environmental Policy Act 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, Colorado Parks and Wildlife 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 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), a report that synthesized and outlined the potential management implications of this new science (Hanser et al. 2018), and other best available science.
 - 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 land health standards.
- This RMPA/EIS will not amend more restrictive land use allocations or decisions for other resources under existing RMPs, such as wilderness study areas, areas of critical environmental concern, cultural resources, and riparian areas.
- **Chapter 2: Alternatives**
 - **Section 2.2.1 Varying Constraints on Land Uses and Development Activities. p. 2-1 - 2.** This planning process does not revisit every issue that the BLM evaluated in 2015. Instead, the BLM now addresses refinements to the 2015 ROD/ARMPA decisions, consistent with the BLM's purpose and need for action. Accordingly, this RMPA/EIS has its foundation in the comprehensive 2015 Final EIS and ROD/ARMPA and incorporates those documents by reference, including the entire range of alternatives evaluated through the 2015 planning process:
 - Alternative A would have retained the current management goals, objectives, and direction specified in the existing BLM RMPs.
 - Alternative B was based on the conservation measures developed by the National Technical Team (NTT) planning effort in Washington Office IM Number 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 process and NEPA by all BLM state and field offices that contain occupied Greater Sage-Grouse habitat. Most management actions included in Alternative B would be applied to PHMA.
 - 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 limit commodity development in areas of occupied Greater Sage-Grouse habitat and would close or designate portions of the planning area to some land uses.
 - Alternative D, which was identified as the Preferred Alternative in the Draft EIS, balanced opportunities to use and develop the planning area and ensures protection of Greater Sage-Grouse habitat based on scoping comments and input from cooperating agencies involved in the alternatives development process. Protective measures would be applied to Greater Sage-Grouse habitat.
 - The Proposed RMPA incorporated guidance from specific State Conservation strategies, as well as additional management based on the NTT recommendations. This alternative emphasized management of Greater Sage-Grouse seasonal habitats and maintaining habitat connectivity to support population objectives.
 - **Section 2.2.1 Varying Constraints on Land Uses and Development Activities. p. 2-2.** 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 partnered with the USGS to review the best available information published since January 2015, develop an annotated bibliography of the Greater Sage-Grouse science (Carter et al. 2018; see **Section 3.1**) and incorporated the information into this EIS. 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 4.24, Social and Economic Impacts), 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.

- **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 GRSB Plans and 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 Introduction. p. 3-1 – 2.** Based on available information, including the USGS reports described below, the BLM has concluded that the existing condition is not substantially different from that of 2015; therefore, the data and information presented in the 2015 Final EIS are incorporated into this RMPA/EIS.

Actions that have been authorized since the 2015 plan were consistent with the 2015 Final EIS. The BLM would continue to implement the decisions in the 2015 plan unless those decisions are amended.

Acreage figures and other numbers were approximated using geographic information system (GIS) technology; they do not reflect exact measurements or precise calculations.

USGS Reports 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).

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:

- Multiscale 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 4.8 Cumulative Effects. p. 4-9.** The Management Alignment Alternative's (and Proposed Plan Amendment's) impacts are effectively within the range of effects analyzed by the 2015 and 2016 EISs. The 2015 Final EIS is quite recent, and the BLM has determined that conditions in the Northwestern Colorado Sub-region have not changed significantly based, in part, on the USGS science review (see Chapter 3), as well 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 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 EISs regarding reasonably foreseeable future actions and effects.
 - **Section 4.8.1 Range-wide Cumulative Effects Analysis – Greater Sage-Grouse. p. 4-12.** 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.
- **Chapter 5: Consultation and Coordination**
 - NTT, COT, USGS does not appear.
- **Appendix I: Responses to Substantive Public Comments on the Draft EIS**
 - NTT, COT, and USGS appear.
 - National Technical Team and US Geological Survey appear.
- **Appendix 2: Cumulative Effects Supporting Information.**
 - NTT, COT, and USGS appear.
- **Appendix H: Guidelines for Implementation and Adaptive Management**
 - USGS appears; NTT and COT do not appear.
 - Conservation Objectives Team and US Geological Survey appear.
- **Acronyms and Abbreviations**
 - USGS appears; NTT and COT do not appear.
- **Dear Reader, Abstract, Executive Summary, Chapter 6, Glossary, Index**
 - NTT, COT, and USGS do not appear.
 - US Geological Survey appears in Chapter 6 (References)

EXCERPTS FROM CHAPTER 2 CO FINAL EIS JUNE 2015 FOR NTT AND COT:

Page	NTT	COT	USGS
2-2	-	-	USGS Buffer Study—The Proposed LUPA includes a management action to incorporate the lek buffer distances identified in the USGS report, <i>Conservation Buffer Distance Estimates for Greater Sage Grouse—A Review: USGS Open File Report 2014-1239</i> (Mainer et al. 2014), during NEPA analysis at the implementation stage. Although the buffer report was not available at the time of the Draft EIS, applying these buffers was addressed in the Draft EIS and is qualitatively within the spectrum of alternatives analyzed. Accordingly, the management decision to require analysis of lek buffers for development within certain habitat types is within the range of alternatives analyzed.
2-6	Developed one No Action Alternative (Alternative A) and two 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)	-	-
2-12 - 13	-	The action alternatives are directed toward responding to USFWS-identified issues and threats to GRSG and its habitat. The USFWS threats do not necessarily align with BLM and Forest Service resource program areas, and are often integrated into several different agency resource program areas. Table 2.1 provides a cross-walk between each of the USFWS listing decision and COT identified threats and the BLM and the Forest Service resource program areas and shows how those threats were addressed in the BLM and the Forest Service LUP.	-

Appendix 3. 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 Colorado Planning Process

Page	NTT	COT	USGS
2-14	-	-	The BLM/Forest Service Proposed Plan/LUPA considers documents related to the conservation of GRSG that have been released since the publication of the Draft LUPA/EIS. For example, this Proposed LUPA/Final EIS considers the US Geological Survey November 21, 2014, report <i>Conservation Buffer Distance Estimates for Greater Sage-Grouse—A Review</i> (Manier et al. 2014).
2-27	-	<p>If prescribed fire is used in GRSG habitat, the NEPA analysis for the burn plan will address:</p> <ul style="list-style-type: none"> • why alternative techniques were not selected as viable options • how GRSG goals and objectives would be met by its use • how the COT report objectives would be addressed and met • a risk assessment to address how potential threats to GRSG habitat would be minimized 	-

Appendix 3. 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 Colorado Planning Process

Page	NTT	COT	USGS
2-54	<p>GRSG conservation measures in <i>A Report on National Greater Sage-Grouse Conservation Measures</i> (NTT 2011) were used to form BLM management direction under Alternative B. Management actions by the BLM in concert with other state and federal agencies, and private land owners play a critical role in the future trends of GRSG populations. To ensure BLM management actions are effective and based on the best available science, the National Policy Team created a NTT in August 2011. The BLM's objective for chartering this planning strategy effort was to develop new or revised regulatory mechanisms, through RMPs, to conserve and restore GRSG and its habitat on BLM-administered lands on a range-wide basis over the long term. Conservation measures included in Alternative B focus primarily on GRSG PHMA and include a 3 percent disturbance cap in PHMA. PHMA have the highest conservation value to maintaining or increasing GRSG populations.</p>	-	-

Appendix 3. 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 Colorado Planning Process

Page	NTT	COT	USGS
2-54 - 55	Alternative D is the Northwest Colorado Sub-region's adjustments alternative, which emphasizes balancing resources and resource use among competing human interests, land uses, and the conservation of natural and cultural resource values, while sustaining and enhancing ecological integrity across the landscape, including plant, wildlife, and fish habitat. This alternative incorporates adjustments to the NTT report (NTT 2011) to provide a balanced level of protection, restoration, enhancement, and use of resources and services to meet ongoing programs and land uses. Anthropogenic surface disturbance would be managed not to exceed 5 percent in ecological sites that support sagebrush within PHMA (Figure 2-1 in Appendix A, Figures). Under Alternative D, the WRFO Reclamation Plan (Appendix G in the Draft LUPA, Surface Reclamation Plan) would be followed for reclamation of lands to go back into rotation under the disturbance caps.	-	-
2-210	-	<p>If prescribed fire is used in GRSG habitat, the NEPA analysis for the burn plan will address:</p> <ul style="list-style-type: none"> • why alternative techniques were not selected as viable options; • how GRSG goals and objectives would be met by its use; • how the COT report objectives would be addressed and met; • a risk assessment to address how potential threats to GRSG habitat would be minimized. 	-

– End of tables of excerpts from the CO Greater Sage-Grouse 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 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. 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

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 sage-grouse experts to review all of the best available science on 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 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. (NOTE – do we need to mention that the COT Report was published in February and the draft EISs were published in August?)

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 (does this mean – incorporated into the 2015 ROD?):

The 2015 Proposed LUPA incorporated management based on the National Technical Team recommendations.

2 USGS 2018 Annotated Bibliography: Research on 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

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 listing sage-grouse as threatened or endangered was partially based on the 2015 ARMPAs incorporating management that reduced or minimized threats. This section summarizes an assessment of how the 2019 ARMPA management changes affect alignment with the COT Report objectives. Based on this assessment, the management in the 2019 ARMPA does not change alignment of the BLM Colorado's plan with the COT objectives and the corresponding support of 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).

1. Issue: Modifying Mitigation Strategy

The COT Report recommends the pursuit of a "no net loss" goal for sage-grouse habitat, noting that "when avoidance is not possible, meaningful minimization and mitigation of the impacts should be implemented" (page 31). It also recommends that "efforts should be made to restore the components lost within the PAC (e.g., redundancy or representation) in other areas such that there is no net loss of sage-grouse or their habitats" (page 37). The 2019 ARMPA implements this recommendation by adopting a goal and objective to "undertake planning decisions, actions and authorizations 'to minimize or eliminate threats affecting the status of [GRSG] or to improve the condition of [GRSG] habitat'" (MD SSS – 3).

The COT Report does not specify how to achieve its objective of "no net loss" of sage-grouse habitat. The approach taken by the BLM in the 2019 ARMPA, which includes the goal and objective described above (Objective SSS-I, see also MD SSS-3), while relying on avoidance and minimization, implementation of state mitigation requirements and standards, and voluntary mitigation undertaken by project proponents, as well as additional BLM and State investments to protect and restore sage-grouse habitat, is fully consistent with the COT report's recommendation to pursue a "no net loss" objective for sage-grouse habitat.

2. 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 and GHMA boundary adjustments through the process of collecting and incorporating new information. Additional detail on this is included in **Appendix H, Section H.4.3**. This clarification in the 2019 ARMPA is consistent with the COT objectives.

3. Issue: Application of Lek Buffers

Buffers are not mentioned in any COT objectives or conservation measures. They are, however, mentioned in the COT Report in the energy development section. That section states, that “if avoidance is not possible within PACs...development should only occur in non-habitat areas...with an adequate buffer that is sufficient to preclude impacts to sage-grouse habitat from noise, and other human activities” (COT Report, page 43).

Avoidance is the primary tool in both the 2015 and 2019 ARMPAs. In addition to the NSO stipulation for development associated with new developments, both plans contain a disturbance cap, density requirements, (MD MR-5, MD MR-6, MD MR-8, MD MR-20, MD MR-25, MD LR-5, and MD TTM-5), noise restrictions (MD MR-8), above ground structure restrictions (MD LR-3), seasonal restrictions (MD MR-3, MD MR-7, MD MR-10, and MD LR-6), and required design features. Additionally, both ARMPAs include management for areas already leased for fluid minerals to minimize impacts to the extent consistent with existing lease rights (see MD-MR-8, MD MR-9, MD MR-10, MD MR-11, MD MR-12, MD MR-13, and MD MR-14). Given the direct and limited use of buffers in the COT Report, the changes to buffers in the 2019 ARMPA are consistent with the COT objectives for fluid minerals.

The 2015 ARMPA provided direction to apply lek buffer-distances. However, the appendix describing how to apply the buffers was not clear or consistent on whether the buffers were an analysis tool to “evaluate impacts to leks” or “address the impacts to leks as identified in the NEPA analysis” or were a more restrictive tool within which any development would be precluded (e.g., “relocate [projects] outside the applicable lek buffer-distances”). The 2015 ARMPA planning process clearly did not use the buffers as land use plan allocations – areas mapped where development was to be strictly precluded. If that was the intent, such closures or exclusion areas would have been shown on the various minerals and ROW maps. Instead, the 2015 ARMPA appendix includes specific language that “justifiable departures to decrease or increase from [the] distances, based on local data, best available science, landscape features, and other existing protections (e.g., land use allocations, state regulations) may be appropriate for determining activity impacts” (2015 ARMPA, Appendix B, page B-1 – emphasis added). This indicates the flexibility to adjust buffers sizes, as well as whether or not buffers were even needed, given the potential presence of “other existing protections.”

The 2019 ARMPA clarifies how to “apply” the lek buffers. The 2019 ARMPA carries forward the land use plan allocations from the 2015 ARMPA (e.g., NSO for fluid minerals, closure to mineral materials and non-energy leasable minerals, avoidance for ROWs), as well as the other management actions that minimize threats. Application of restrictive buffers would be duplicative given that land use plan allocations avoid impacts from most new development, and that the minimizing measures address specific aspects of development (e.g., disturbance cap, density restrictions, noise restrictions, tall structure restrictions, seasonal restrictions). Instead, the 2019 ARMPA clarifies that the buffers are tools, within which to assess and address “impacts on leks and associated nesting habitats” and to only apply “additional conservation measures... (e.g., locating the action outside of the applicable lek buffer-distance(s))” if the impacts resulting from the activity, in context of “local data, best available science, landscape features, and other existing protections” could affect lek persistence.

The COT objectives for disturbances from minerals, mining, or infrastructure is to avoid the activity in PACs. The 2019 ARMPA mainly accomplishes this through land use plan allocations, applying management to specific aspects of impact to Greater Sage-Grouse for activities that are not otherwise precluded. The buffers provide a tool to analyze specific projects to determine how the entire suite of management protects sensitive breeding and nesting areas, while also providing a failsafe if impacts remain that could result in the loss of leks. This is consistent with the COT objectives for avoiding impacts to Greater Sage-Grouse populations and their habitats.

Appendix H

Guidelines for Implementation and Adaptive Management

Appendix H. Guidelines for Implementation and Adaptive Management

H.1 INTRODUCTION

This appendix provides guidelines for the implementation of the Northwest Colorado ARMPA, including Adaptive Management. The goals and objectives of the ARMPA address threats to Greater Sage-Grouse and Greater Sage-Grouse habitat and include management actions designed to maintain and enhance populations and distribution of Greater Sage-Grouse. The specific management actions provide details by resource program. BLM programs include objectives designed to avoid direct disturbance of Greater Sage-Grouse habitat or displacement of Greater Sage-Grouse, and conditions under which it is necessary to minimize and mitigate the loss of habitat and habitat connectivity. To implement the ARMPA, the BLM would assess all proposed land uses or activities in PHMA and GHMA that potentially could result in direct habitat disturbance.

The following steps identify the screening process by which the BLM will review proposed activities or projects in PHMA and GHMA. This process will provide a consistent approach and ensure that authorization of these projects, if granted, will appropriately mitigate impacts and be consistent with the ARMPA goals and objectives for Greater Sage-Grouse. The following steps provide for a sequential screening of proposals. However, Steps 2 through 6 can be done concurrently.

The screening process is meant to apply to externally generated projects that would cause discrete anthropogenic disturbances. See **Section H.3**, Restoration/Reclamation of Landscape-Scale Disturbances – Objectives for Greater Sage-Grouse Habitat, for guidelines regarding landscape-scale disturbances such as wildfire and habitat restoration.

H.2 SCREENING PROCESS

H.2.1 Step 1 – Determine Proposal Adequacy

This screening process is initiated upon formal submittal of a proposal for authorization for use of BLM-administered lands to the field office. 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. Upon a determination that the proposed project would affect Greater Sage-Grouse or Greater Sage-Grouse habitat, the project lead would initiate a land use plan conformance worksheet.

H.2.2 Step 2 – Evaluate Proposal Consistency with LUPA

The Greater Sage-Grouse Coordinator and the field office interdisciplinary team would evaluate whether the proposal would be allowed as prescribed in the ARMPA. For example, some activities or types of development are prohibited in PHMA or GHMA. Evaluation of projects will also include an assessment of the current state of the adaptive management hard and soft triggers (see Adaptive Management, below). 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 an allowable use, regardless of the design of the project.

H.2.3 Step 3 – Determine if Greater Sage-Grouse Habitat Can be Avoided

If the project can be relocated so that it would not have an impact on Greater Sage-Grouse and Greater Sage-Grouse habitat and still achieve objectives of the proposal, relocate the proposed activity and proceed with the appropriate process for review, decision, and implementation (NEPA and decision record).

H.2.4 Step 4 – Determine Proposal Consistency with Density and Disturbance Limitations

If the proposed activity occurs within PHMA and is subject to the disturbance cap (see **Disturbance Cap Guidance**), the Greater Sage-Grouse Coordinator would evaluate whether the disturbance from the activity would exceed 3 percent in the Colorado Management Zone using the Disturbance Analysis and Reclamation Tracking Tool (SDARTT) or a local disturbance database. If current disturbance within the activity area or the anticipated disturbance from the proposed activity exceeds this threshold, the project would be deferred until such time as the amount of disturbance within the area has been reduced below the threshold (see **Section H.3**), redesigned so as to not result in any additional surface disturbance (collocation), or redesigned to move it outside of PHMA.

Colorado BLM has completed an inventory of all PHMA by Colorado MZ and would track actual disturbance using a local data management system and/or SDARTT. The data management system would be used to inventory, prioritize, and track disturbance data within the decision area, including those projects that cross field office boundaries. The data would be used to determine the actual disturbance by Colorado Management Zone.

Disturbance Cap Guidance

The disturbance cap would apply to anthropogenic disturbances in PHMA on new leases and land use authorizations (such as ROWs). Anthropogenic disturbance refers to physical removal of habitat, including, but not limited to, paved highways, graded gravel roads, transmission lines, substations, wind turbines, oil and gas wells, pipelines, and mines. The disturbance cap is limited to 3 percent and would be calculated for each Colorado Greater Sage-Grouse MZ. Only physical disturbance would counted for the 3 percent disturbance cap. Disruptive impacts, such as wildfire, would be considered in the site-specific analysis when surface-disturbing proposals are being considered.

Types of anthropogenic disturbance that *would be* counted toward the disturbance cap under the ARMPA include the following:

- Any anthropogenic disturbance on BLM surface lands
- Projects on private land in the public record because they entail a federal nexus due to funding or authorizations. Specifically included would be energy development, rights-of-way, or range projects approved by the BLM because they have components on both public and private land. Also included would be anthropogenic disturbance on private surface attributable to the authorized recovery of federal minerals
- Industrial operations on any surface ownership with a readily apparent impact on Greater Sage-Grouse habitat
- Any disturbance data volunteered by private landowners

Types of projects that *would not* be counted toward the disturbance cap under the ARMPA include the following:

- Disturbance on individual sites such as stands of pinyon/juniper determined lacking in Greater Sage-Grouse habitat potential
- Disturbance on private lands other than what has been described above. The BLM would not inventory or evaluate private property not linked to a specific project with a federal nexus. Private residences would not be inventoried or evaluated. Infrastructure on private land associated with family farm or ranch operations would not constitute “an industrial operation with a readily apparent impact on Greater Sage-Grouse habitat.” Base property associated with grazing permits would not be considered a federal nexus in this context. Conservation easements would not trigger a federal nexus, and be cause for inventory of private lands. Conservation-oriented activities associated with the US Department of Agriculture, Natural Resources Conservation Service would also not be counted.

Reclamation Criteria for Anthropogenic Disturbances

In order for disturbance to be considered reclaimed and no longer counted against the Northwest Colorado disturbance cap, the following requirements would be insisted upon:

- Reclamation requirements would be consistent with the existing Northwest Colorado land use decisions and regulations.
- Reclamation success criteria in Greater Sage-Grouse habitat would be contingent on evidence of successful establishment of desired forbs and sagebrush. Reclaimed acreage would be expected to progress without further intervention to a state that meets Greater Sage-Grouse cover and forage needs (see **Table H-1**) based on site capability and seasonal habitat, as described in the Colorado Greater Sage-Grouse Conservation Plan (Colorado Greater Sage-Grouse Steering Committee 2008).
- Depending on site condition, the BLM may require a specific seed component and/or sagebrush (i.e., material collected on-site or seed propagated from “local” collections) where appropriate to accelerate the redevelopment of sagebrush.

H.2.5 Step 5 – Determine Projected Greater Sage-Grouse Population and Habitat Impacts

If it is determined that the proposed project may move forward, based on Steps 1 through 3, above, then the BLM would analyze whether the project would have a direct or indirect impact on Greater Sage-Grouse populations or habitat within PHMA or GHMA. The analysis would include an evaluation of the following:

- Review of Greater Sage-Grouse Habitat delineation maps
- Use of the USGS report *Conservation Buffer Distance Estimates for Greater Sage-Grouse—A Review* (Manier et al. 2014) to assess potential project impacts based upon the distance to the nearest lek, using the most recent active lek (as defined by CPW; see Glossary) data available from the state wildlife agency. This assessment would be based upon the buffers identified below for the following types of projects:
 - Linear features within 3.1 miles of leks

- Infrastructure related to energy development within 3.1 miles of leks
 - Tall structures (e.g., communication or transmission towers and transmission lines) within 2 miles of leks
 - Low structures (e.g., rangeland improvements) within 1.2 miles of leks
 - All other surface disturbance not associated with linear features, energy development, tall structures, or low structures within 3.1 miles of leks
- Noise and related disruption activities (including those that do not result in habitat loss) at least 0.25 miles from leks
- Review and application of current science recommendations
- Consultation with state wildlife agency biologist
- Evaluating consistency with (at a minimum) state Greater Sage-Grouse regulations
- 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 analysis and proceed with the appropriate process for review, decision, and implementation of the project.

H.2.6 Step 6 – Determine Minimization Measures

If impacts on Greater Sage-Grouse or Greater Sage-Grouse habitat cannot be avoided by relocating the project, then consider the tools above to apply appropriate minimization measures. Minimization measures could include timing limitations, noise restrictions, and design modifications.

H.2.7 Step 7 – Apply Compensatory Mitigation or Reject/Defer Proposal

If it is determined after screening of the proposal (Steps 1 through 6) that there are unacceptable residual impacts, the BLM can approve of the project if CPW's recommendation for compensatory mitigation is followed, which achieves the following:

- Achieves measurable outcomes for habitat function that can be documented
- Results in conservation actions that remove or ameliorate a potential threat to Greater Sage-Grouse, have a positive influence on and lead to improvement of habitat function and the overall conservation status of the species, are scientifically sound, and are conservation actions above what would have occurred absent the mitigation action
- Provides habitat/conservation values, services, and functions that are at least equal to the lost or degraded values, services, and functions caused by the impact
- Incorporates measures to account for a level of risk that a particular mitigation action may fail or not achieve its stated objectives, and uncertainty about the level and duration of the estimated impacts
- Provides benefits that are durable and in place for at least the duration of the residual impacts
- Encourages the application of offsets prior to the impact occurring to ensure no lag time occurs between impacts and offsets
- Offers transparency and certainty to developers and regulators

H.3 RESTORATION/RECLAMATION OF LANDSCAPE-SCALE DISTURBANCES – OBJECTIVES FOR GREATER SAGE-GROUSE HABITAT

For landscape-scale disturbances, including wildfire, livestock grazing, and habitat treatments, the objective is to maintain a minimum of 70 percent of lands capable of producing sagebrush with a minimum of 15 percent sagebrush canopy cover, or a similar standard consistent with specific ecological site conditions in PHMA. See **Table H-1**.

Table H-1
Seasonal Habitat Desired Conditions for Greater Sage-Grouse

ATTRIBUTE	INDICATORS	DESIRED CONDITON
BREEDING AND NESTING^{1,2,3} (Seasonal Use Period March 1–June 15) Apply 4 miles from active leks.¹⁵		
Lek Security	Proximity of trees ⁴	Trees or other tall structures are none to uncommon within 1.86 miles of leks ^{5,6}
	Proximity of sagebrush to leks ⁵	Adjacent protective sagebrush cover within 328 feet of lek ⁵
Cover	Seasonal habitat extent ⁶	>80% of the breeding and nesting habitat
	Sagebrush canopy cover ^{5,6,7,17} Arid sites Mesic sites	15 to 30% 20 to 30% ¹⁷
	Sagebrush height ^{6,17} Arid sites ^{5,6,9} Mesic sites ^{5,6,10}	11.8 to 31.5 inches (30 to 80 cm) 15.7 to 31.5 inches (40 to 80 cm)
	Predominant sagebrush shape ⁵	>50% in spreading ¹¹
	Perennial grass canopy cover ^{5,6,17} Arid sites ^{6,9} Mesic sites ^{6,10,17}	≥10% ≥20% ¹⁷
	Perennial grass and forb height ^{5,6,7}	>6 inches ^{6,16,17}
	Perennial forb canopy cover ^{5,6,7} Arid sites ⁹ Mesic sites ¹⁰	≥5% ^{5,6,17} ≥15% ^{5,6,17}
BROOD-REARING/SUMMER¹ (Seasonal Use Period June 16–October 31)		
Cover	Seasonal habitat extent ⁶	>40% of the brood-rearing/summer habitat
	Sagebrush canopy cover ^{5,6,7,17} Arid sites Mesic sites	10 to 25% 10 to 25%
	Sagebrush height ^{6,7,17} Arid sites Mesic sites	11.8 to 31.5 inches (30 to 80 cm) 13.8 to 31.5 inches (35 to 80 cm)
	Perennial grass canopy cover and forbs ^{6,7,17} Arid sites Mesic sites	>15% ¹⁷ >25% ¹⁷
	Riparian areas (both lentic and lotic systems)	Proper Functioning Condition ¹³
	Upland and riparian perennial forb availability ^{5,6}	Preferred forbs are common with several preferred species present ¹²

ATTRIBUTE	INDICATORS	DESIRED CONDITON
WINTER¹ (Seasonal Use Period November 1–February 28)		
Cover and Food	Seasonal habitat extent ^{5,6,7}	>80% of the winter habitat
	Sagebrush canopy cover above snow ^{5,6,7,17}	>20% Arid, 25% Mesic ¹⁷
	Sagebrush height above snow ^{5,6,7}	>10 inches ¹⁴

¹ Seasonal dates can be adjusted; that is, start and end dates may be shifted either earlier or later, but the amount of days cannot be shortened or lengthened by the local unit.

² Doherty 2008

³ Holloran and Anderson 2005

⁴ Baruch-Mordo et al. 2013

⁵ Stiver et. al. 2014

⁶ Connelly et al. 2000

⁷ Connelly et al. 2003

⁹ 10–12 inch precipitation zone; *Artemisia tridentata wyomingensis* is a common big sagebrush sub-species for this type site (Stiver et. al. 2014).

¹⁰ ≥12 inch precipitation zone; *Artemisia tridentata vaseyana* is a common big sagebrush sub-species for this type site (Stiver et. al. 2014).

¹¹ Sagebrush plants with a spreading shape provide more protective cover than sagebrush plants that are more tree- or columnar shaped (Stiver et. al. 2014).

¹² Preferred forbs are listed in Habitat Assessment Framework Table III-2 (Stiver et. al. 2014). Overall, total forb cover may be greater than that of preferred forb cover since not all forb species are listed as preferred in Table III-2.

¹³ Existing land management plan desired conditions for riparian areas/wet meadows (spring seeps) may be used in place of properly functioning conditions, if appropriate for meeting Greater Sage-Grouse habitat requirements.

¹⁴ The height of sagebrush remaining above the snow depends upon snow depth in a particular year. Intent is to manage for tall, healthy, sagebrush stands.

¹⁵ Buffer distance may be changed only if 3 out of 5 years of telemetry studies indicate the 4 miles is not appropriate.

¹⁶ Measured as “droop height”; the highest naturally growing portion of the plant.

¹⁷ Colorado Greater Sage-Grouse Steering Committee 2008

These habitat objectives in **Table H-I** summarize the characteristics that research has found represent the seasonal habitat needs for Greater Sage-Grouse. The specific seasonal components identified in the table were adjusted based on local science and monitoring data to define the range of characteristics used in this sub-region. Thus, the habitat objectives provide the broad vegetative conditions the BLM strives to obtain across the landscape that indicate the seasonal habitats used by Greater Sage-Grouse. These habitat indicators are consistent with the rangeland health indicators used by the BLM.

The habitat objectives will be part of the Greater Sage-Grouse habitat assessment to be used during land health evaluations. These habitat objectives are not obtainable on every acre within the designated Greater Sage-Grouse habitat management areas. Therefore, the determination of whether the objectives have been met will be based on the specific site’s ecological ability to meet the desired condition identified in **Table H-I**.

H.4 ADAPTIVE MANAGEMENT

Adaptive management is a decision process that promotes flexible resource management decision-making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps with adjusting resource management directions as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a “trial and error” process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits.

In relation to the BLM's National Greater Sage-Grouse Planning Strategy, adaptive management would help identify if Greater Sage-Grouse conservation measures presented in this RMPA/EIS contain the needed level of certainty for effectiveness. Principles of adaptive management are incorporated into the conservation measures in the LUPA to ameliorate threats to a species, thereby increasing the likelihood that the conservation measure and LUPA would be effective in reducing threats to that species. The following provides the BLM's adaptive management strategy for the Northwest Colorado Greater Sage-Grouse LUPA. In making amendments to this LUP, the BLM will coordinate with partners as the BLM continues to meet their objective of conserving, enhancing, and restoring Greater Sage-Grouse habitat by reducing, minimizing, or eliminating threats to that habitat.

H.4.1 Adaptive Management – Monitoring

This RMPA/EIS contains a monitoring framework (**Appendix D**, Greater Sage-Grouse Monitoring Framework) that includes an effectiveness monitoring component. The agencies intend to use the data collected from the effectiveness monitoring to identify any changes in habitat conditions related to the goals and objectives of the LUPA and other range-wide conservation strategies (US DOI 2004; Stiver et al. 2006; USFWS 2013). In addition to local knowledge and CPW data, the information collected through the monitoring framework can provide information to assist in determining when adaptive management triggers (discussed below) are met.

H.4.2 Northwest Colorado Adaptive Management Plan – Triggers

The Northwest Colorado Adaptive Management Plan includes an overarching adaptive management strategy consistent with national policy that includes soft and hard triggers for specific populations and an approach for developing responses. These triggers may not be specific to any particular project, but identify habitat and population thresholds. The BLM, in cooperation with the USFWS and the State of Colorado, has identified appropriate triggers. Triggers would be based on the two key metrics that would be monitored: habitat loss and/or population declines.

Soft Triggers

Soft triggers represent an intermediate threshold indicating that management changes are needed at the LUPA implementation level to address habitat or population losses. Examples of soft triggers and responses are:

- *Soft trigger:*
Based on local knowledge, a population is determined to have limited brood-rearing habitat, which is resulting in low recruitment.
- *Response:*
Prioritize funding for habitat improvement projects in mesic areas designed to improve brood-rearing.
- *Soft trigger:*
Monitoring crews find several Greater Sage-Grouse mortalities along fence line.
- *Response:*
Evaluate utility of existing fences, mark necessary fences, and prohibit new fences in the vicinity of leks.

In the examples above, a soft trigger is tripped, and consequently the BLM would change management to be more restrictive or identify habitat improvement projects identified to address a specific causal or limiting factor based on local knowledge and conditions. These adjustments should be made to preclude tripping a “hard” trigger (which signals more severe habitat loss or population declines).

During implementation of this LUPA, population trends would be monitored by the Northwest Colorado Greater Sage-Grouse Statewide Implementation Team, which would consist of technical experts including BLM, CPW, Natural Resource Conservation Service, and USGS biologists. This group would meet annually and would evaluate the health of each population and make recommendations to the BLM on any changes to fine site management. This statewide implementation team would also evaluate the effects to Greater Sage-Grouse habitat and populations due to BLM-permitted activities throughout the previous year(s) and make recommendations for changes in management or locations that should be avoided, for example. The group would also work with existing local population Greater Sage-Grouse working groups (e.g., Northwest Colorado, Parachute-Piceance-Roan, Middle Park, and North Park) to gather local knowledge that could inform adaptive management. This group would also evaluate the effectiveness of mitigation and make recommendations on alternative mitigation strategies and locations, such as the Colorado Habitat Exchange.

Hard Trigger

In the event that soft triggers and disturbance caps prove to be ineffective, the hard trigger represents a threshold indicating that immediate action is necessary to stop a severe deviation from Greater Sage-Grouse conservation objectives. The hard trigger is intentionally set at or below the normal range of variation to provide a threshold of last resort should either chronic degradation or a catastrophic event occur. The hard trigger is not intended to be an on-again/off-again toggle that would be exceeded periodically throughout the life of the LUPA.

Colorado Greater Sage-Grouse occur in six distinct populations. Two of these populations (Northwest Colorado and North Park) account for about 88 percent of the males in Colorado. Northwest Colorado includes Colorado MZs I through IO. North Park includes Colorado MZ II. The remaining four populations are smaller by an order of magnitude, and, even in the aggregate, do not provide the significant numbers of Greater Sage-Grouse necessary to contribute meaningfully to the hard trigger, and, in some cases, lack the long-term population trend information necessary to support trigger implementation. All six populations are important to Greater Sage-Grouse conservation in Colorado; however, only the Northwest Colorado and North Park populations are large enough to reliably indicate the level of severe decline intended by this hard trigger. While the hard triggers focus on the two largest populations, all six populations should be rigorously managed via the soft triggers. If soft triggers work as intended, a hard trigger should never be breached.

Development of the Hard Trigger

The hard trigger is based on two metrics: Greater Sage-Grouse lek (high male) counts and habitat loss.

Lek Counts. The lek count threshold is determined from the 25 percent quartile of the high male count in each of the Northwest Colorado and North Park populations over the period of years for which consistent lek counts are available: 17 years from 1998 to 2014 for Northwest Colorado and 41 years from 1974 to 2014 for North Park. The 25 percent quartiles were determined using the annual high male counts rather than the 3-year running average to ensure that normal variation in lek counts is

above the threshold. The hard trigger for Northwest Colorado is 1,575 counted males, and for North Park is 670 counted males.

Habitat Loss. The habitat loss threshold is determined by 30 percent cumulative loss of PHMA, measured independently in Northwest Colorado and North Park. For the purpose of the hard trigger, habitat loss will be measured from the date of the ROD on this LUPA. Hard trigger habitat loss includes both anthropogenic (i.e., the disturbance cap) and non-anthropogenic forms of habitat loss (e.g., wildfire). The 30 percent habitat loss calculation is limited to loss of PHMA in each of Northwest Colorado and North Park populations; GHMA and any habitat loss in the other four populations are not included in the hard trigger. Restored or recovered habitat is not considered in this threshold, although it is tracked and summarized by the BLM's data management system.

Breaching the Hard Trigger

In order for the hard trigger to be breached, both the lek count (1,575 males in Northwest Colorado and 670 males in North Park) and habitat loss thresholds must be breached in both the Northwest Colorado and North Park populations simultaneously. In any other set of circumstances (e.g., when a threshold is violated in a single population), the management response will be as described in the *Soft Trigger* section, above.

Lek Counts. The lek count threshold is compared to the 3-year running average of the high male count in Northwest Colorado and North Park, measured independently. The 3-year running average value is used because it is considered to be more indicative of the population trend than annual high male counts. The 3-year running average in Northwest Colorado and North Park must fall below the threshold concurrently for this portion of the hard trigger to be breached. The CPW will conduct lek counts and provide this information annually to the statewide implementation team as described in the *Soft Trigger* section, above.

Habitat Loss. The habitat loss threshold is measured by 30 percent cumulative loss of PHMA, beginning when the ROD on this LUPA is signed. The loss will be measured independently in Northwest Colorado and North Park. The BLM will track anthropogenic and non-anthropogenic habitat loss. The statewide implementation team as described in the *Soft Trigger* section, above, will review summary information, above.

Hard Trigger Response

Upon determination that a hard trigger has been tripped, the BLM will immediately defer issuance of discretionary authorizations for new actions for a period of 90 days. In addition, within 14 days of a determination that a hard trigger has been tripped, the Northwest Colorado Greater Sage-Grouse Statewide Implementation Team will convene to develop an interim response strategy and initiate an assessment to determine the causal factor or factors (hereafter the "causal factor assessment").

H.4.3 Adaptive Management – Habitat Boundaries

The BLM relies on CPW's expertise and responsibility to manage wildlife and to provide habitat information on a multitude of species. CPW evaluates habitat boundaries for all species that they manage, including Greater Sage-Grouse, on a regular basis. If CPW determines, based on their regular evaluation, or on new information, that the Greater Sage-Grouse habitat area boundaries should be updated, the BLM would:

1. Evaluate the proposed changes to determine if the modifications to habitat area boundaries would continue to allow the BLM to meet objectives of the LUP. The determination would include evaluation of the magnitude of the change and the ability of the BLM to effectively apply management decisions. If it is determined that the BLM can effectively apply management to the new habitat area boundaries and the LUP objectives would be met, the new habitat area boundaries would be adopted administratively.
2. If the BLM, in consultation with CPW, determines that additional management clarification is required to define whether proposed changes to habitat boundaries would continue to meet the goals and objectives of the 2015 Northwest Colorado Greater Sage-Grouse ARMPA/ROD, incorporation of the new habitat maps may need to be analyzed under a new NEPA process and incorporated through the appropriate planning process (i.e., plan maintenance or plan amendment).

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