



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



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Oregon State Office
P.O. Box 2965, Portland, Oregon 97208
<http://www.blm.gov/or>



FEB 11 2020

Dear Reader:

The Oregon Draft Supplemental Environmental Impact Statement (SEIS) 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, the BLM's Land Use Planning Handbook (H-1601-1), and other applicable law and policy.

The affected area is the BLM Burns, Lakeview, and Vale District Offices in Oregon and encompasses approximately 60,649 surface acres in research natural areas.

The Management Alignment Alternative has been identified in the Draft SEIS 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 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 Draft SEIS 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://go.usa.gov/xdY8E>. Paper 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):

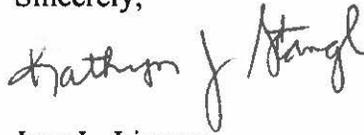
1. Written comments may be submitted electronically at: <https://go.usa.gov/xdY8E>.
2. Written comments may also be mailed directly, or delivered to, the BLM at:

Bureau of Land Management
Oregon State Office
Attn: Greater Sage-Grouse State Planner
P.O. Box 2965
Portland, Oregon 97208

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 this effort. We appreciate the information and suggestions you contribute to the process.

Sincerely,

A handwritten signature in cursive script, appearing to read "Joseph Stangl".

for Jose L. Linares
Acting State Director
Oregon/Washington

Oregon 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 Oregon'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 Oregon 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

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ACRONYMS AND ABBREVIATIONS

Full Phrase

ACEC	area of critical environmental concern
AIM	assessment, inventory, and monitoring
ARMPA	approved resource management plan amendment
AUM	Animal Unit Month
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
CSU	controlled surface use
DOI	US Department of the Interior
EIS	environmental impact statement
ESA	Endangered Species Act of 1973
FLPMA	Federal Land Policy and Management Act
GeoBOB	Geographic Observation data base
GHMA	general habitat management area
IM	Instruction Memorandum
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
NRCS	Natural Resources Conservation Service
NSO	no surface occupancy
NTT	National Technical Team
ODFW	Oregon Department of Fish and Wildlife
PAC	priority area for conservation
PHMA	priority habitat management area
RDF	required design features
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
TL	timing limitation
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 Oregon conducted habitat treatments on 100,400 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 National Technical Team (NTT) and Conservation Objectives Team (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.

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 D**). 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 Oregon, (2) aligning with DOI and BLM policies issued since 2015, and (3) incorporating appropriate management flexibility and adaptation to better align with Oregon'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.

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 D**),
- 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 2.12 of the Proposed LUPA/Final EIS.

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Chapter I. Purpose and Need for Action

I.1 INTRODUCTION

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

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

In 2010, the US Fish and Wildlife Service (USFWS) determined that listing the Greater Sage-Grouse under the Endangered Species Act 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 Oregon conducted habitat treatments on 100,400 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.

The plans recommended that Sagebrush Focal Areas (SFAs) be proposed for withdrawal; however, a proposed withdrawal of the SFAs was cancelled on October 11, 2017.

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

On June 7, 2017, the Secretary issued SO 3353 with a purpose of enhancing cooperation among 11 western states and the BLM in managing and conserving Greater Sage-Grouse. SO 3353 directed an Interior Review Team, consisting of the BLM, the USFWS, and 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 public scoping period for the 2019 planning process, the BLM sought public comments on whether all, some, or none of the 2015 Greater Sage-Grouse plans should be amended, what issues

should be considered, and if plans should be completed at the state level rather than at the national level. The BLM specifically sought public comment on SFA designations, mitigation standards, lek buffers, disturbance and density caps, habitat boundaries to reflect new information, and reversing adaptive 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 National Technical Team (NTT) and Conservation Objectives Team (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 D**). 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 six discreet comments on the Oregon 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 five comments on the Colorado Draft RMPA/EIS. The EPA's comments include suggestions and questions regarding lek buffers, recent science, mitigation, adaptive management, and fluid minerals. The BLM responded to each of EPA's comments and made corrections and/or changes in the 2018 Final EISs. The complete EPA comment analysis can be found in the administrative record. This DSEIS also clarifies how the BLM considered comments, including those of other federal agencies and experts, when developing its 2019 planning decisions (**Appendix C**).

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 Idaho, (2) aligning with DOI and BLM policies issued since 2015, and (3) incorporating appropriate management flexibility and adaptation to better align with Idaho'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.

Scope of Issues and Analysis

It is important that the BLM Oregon step down this national-level purpose and need described above in terms that specifically relate to the scope of issues identified herein. In its November 30, 2017, response to the Notice of Intent (NOI), the Office of Governor Kate Brown concluded that there are important consistencies between the 2015 Record of Decision/Approved Resource Management Plan Amendment (ROD/ARMPA) and the State of Oregon's 2015 Oregon Sage-grouse Action Plan. Further, the Office of Governor Kate Brown indicated that a major plan amendment was not needed in Oregon, that implementation of the 2015 ROD/ARMPA should continue, that additional discussion and coordination was needed to refine some plan and policy interpretations, and that those discussions and refinement efforts should occur via the ongoing SageCon partnership.

Through subsequent discussion with the Governor's Office, the BLM Oregon State Director has determined that the scope of the BLM Oregon proposed action for the 2019 planning process) was to evaluate whether the 2015 ROD/ARMPA decision to make portions of the key research natural areas (RNAs) unavailable to livestock grazing is a necessary component of Greater Sage-Grouse conservation. The 2018 RMPA/EIS, and thus this SEIS, assessed:

1. Whether and how making areas unavailable to livestock grazing addresses specific threats to Greater Sage-Grouse and Greater Sage-Grouse habitat as identified in the USFWS's Conservation Objectives Team Final Report (2013).
2. Whether the vegetation communities of interest in the key RNAs can be protected and studied with smaller areas of grazing exclusion and still meet the stated 2015 ROD/ARMPA purposes to:
 - a. Serve as areas for comparison for managed areas in the rest of the Greater Sage-Grouse habitat in the 2015 ROD/ARMPA
 - b. Function as areas for baseline vegetation monitoring for those specific plant communities with no management activities (i.e., succession is allowed to proceed).
3. Whether having the key RNAs available to grazing and managed under the previous district management plan provisions will preclude the BLM from achieving the research (or scientific study) purposes of the 2015 ROD/ARMPA.

1.3 PLANNING AREA AND CURRENT MANAGEMENT

The planning area is the geographic area within which the BLM will make decisions during this planning effort. The planning area boundary includes all lands regardless of jurisdiction. For this DSEIS, the planning area includes 15 RNAs administered by the BLM, identified as key RNAs in the 2015 ROD/ARMPA and covering approximately 60,649 acres total. Two of the RNAs discussed in this DSEIS—Foster Flat and Guano Creek—Sink Lakes—were closed to livestock grazing by the 1992 Three Rivers RMP/ROD and the 2003 Lakeview RMP/ROD, respectively. The 2015 ROD/ARMPA left these RNAs closed to livestock grazing. These RNAs are discussed in this DSEIS solely to provide context relative to the BLM's ability to meet the objectives identified in **Section 1.2** (e.g., 2.a and 2.b.), above.

The decision area for this DSEIS includes the 13 key RNAs that made livestock grazing unavailable on 21,959 acres through the 2015 ROD/ARMPA.

See Figure I-1 of the 2015 ROD/ARMPA for a map of the entire Oregon Greater Sage-Grouse planning area. **Figure I-1**, below, shows approximate locations of the 15 key RNAs in the larger 2015 ROD/ARMPA planning area. Points are used on the map to show the approximate locations of the key RNAs, as the acreage involved across the larger planning area would not be visible at the map scale. The planning area for this DSEIS covers portions of three counties in Oregon: Malheur, Harney, and Lake Counties. The Burns, Lakeview, and Vale Districts manage, maintain, and implement the RMPs covering BLM-administered lands in these counties.

Under the 2015 ROD/ARMPA, management decision MD LG 1 stated that all or portions of the 13 key RNAs would be made unavailable for grazing, and fences, corrals, and water storage facilities would be removed as necessary. This management direction affected approximately 21,959 acres and 1,772 animal unit months¹ (AUMs). Table 2-6 of the 2015 ROD/ARMPA has been updated in this analysis to reflect changes in recalculated acreage and AUMs. RNAs are a special kind of area of critical environmental concern (ACEC) where certain elements² or values are protected or managed for scientific purposes, and natural processes are allowed to dominate. The objectives for establishing RNAs are to maintain a wide spectrum of high-quality areas that represent the major forms of variability found in forest, shrubland, grassland, alpine, and natural situations that have scientific interest and importance that, in combination, form a national network of ecological areas on federal lands managed by the Forest Service, National Park Service, and BLM dedicated for research, education, and maintenance of biological diversity. RNAs serve to:

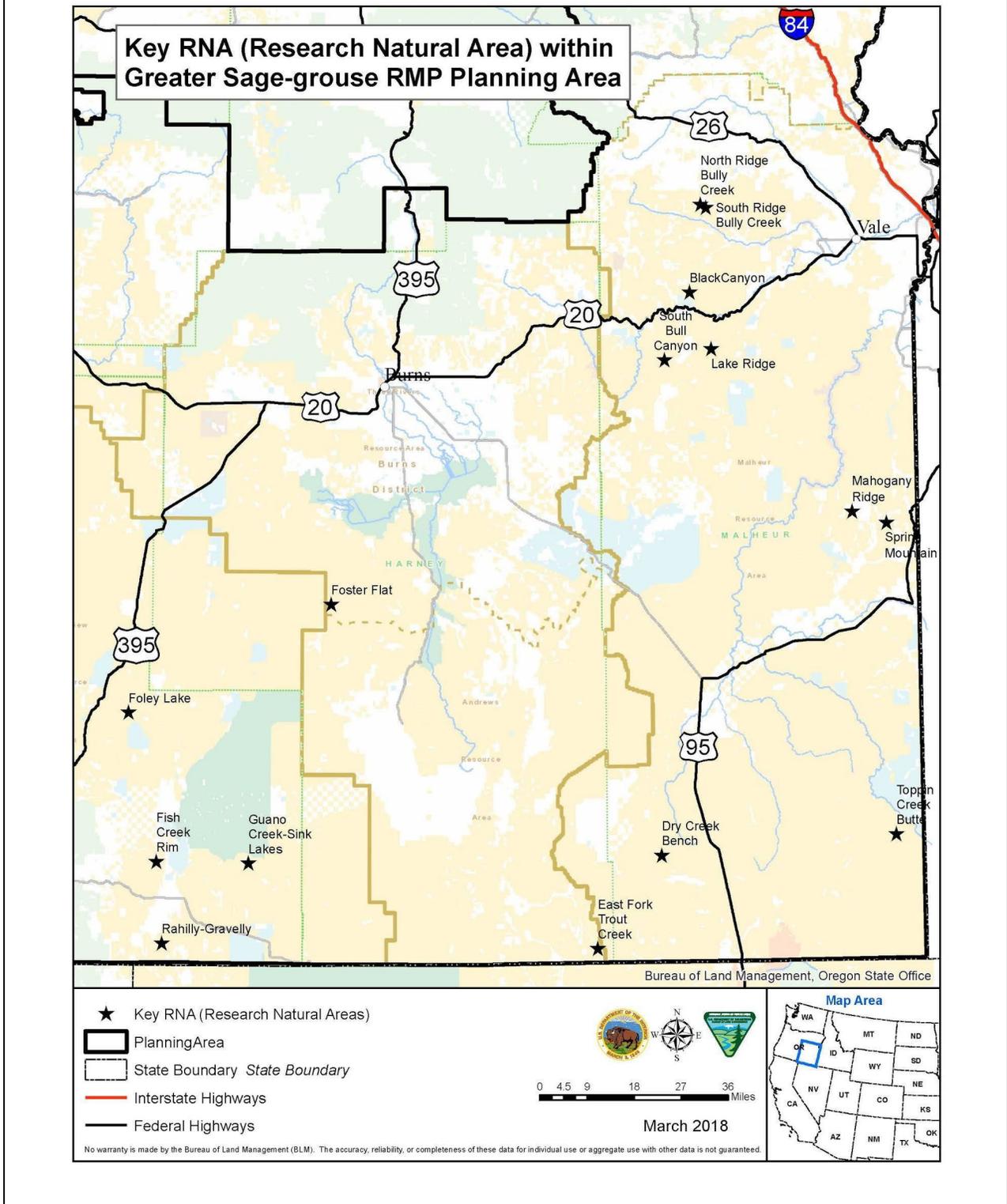
- Preserve and maintain genetic diversity, including threatened, endangered, and sensitive species
- Protect against human-caused environmental disruptions
- Serve as reference areas for the study of natural ecological processes, including disturbance
- Provide onsite and extension educational activities
- Serve as baseline areas for measuring long-term ecological changes
- Serve as control areas for comparing results from manipulative research
- Monitor effects of resource management techniques and practices

All key RNAs in the 2015 ROD/ARMPA were identified within priority habitat management areas (PHMA), since the intent of removing grazing was to better understand what impacts grazing may or may not be having on Greater Sage-Grouse habitat elements and successional rates and pathways following disturbance. All key RNAs contain a high proportion of PHMA, are within an Oregon Priority Area for Conservation (PAC), either contain leks currently used by Greater Sage-Grouse or are within 4 miles of a lek currently used by Greater Sage-Grouse, and contain an array of plant communities believed to be important to Greater Sage-Grouse. Although there are RNAs on the Prineville District closed to grazing, none of those RNAs fall within PHMA; therefore, their utility in understanding grazing effects on Greater Sage-Grouse habitat elements was considered minimal. Leslie Gulch RNA on Vale

¹ The amount of forage needed by a cow-calf pair for 1 month.

² Elements are the basic units to be represented in a natural area system. An element may be an ecosystem, community, habitat, or organism. Taken from Dyrness, C. T., J. F. Franklin, C. Maser, S. A. Cook, J. D. Hall, and G. Faxon. 1975. Research Natural Area Needs in the Pacific Northwest: A Contribution to Land-Use Planning. Gen. Tech. Rep. PNW-38. Portland, Oregon: US Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station. P. 231.

**Figure I-1
Key Research Natural Areas in the Planning Area**



District is closed to grazing, but Leslie Gulch does not provide Greater Sage-Grouse habitat. Steens Mountain Wilderness is closed to grazing, and although portions do not provide quality habitat due to rugged terrain or vegetation types (e.g., juniper and aspen), there is Greater Sage-Grouse habitat suitable for study (Lee Foster, personal communication September 7, 2018). A closer look at the Steens Mountain Wilderness shows that it includes two leks and approximately 9,233 acres of Steens PAC at the lower elevation of the wilderness; however, the vegetation types are not mapped. There is one Assessment, Inventory, and Monitoring (AIM) plot within this area; data obtained from the plot indicate the presence of a low sagebrush/Sandberg's bluegrass plant community. Aerial photos suggest that portions of this area could be used as a no-grazing control.

The only other public land area in Oregon with both Greater Sage-Grouse habitat and a long-term closure to grazing is Hart Mountain Antelope Refuge, which was closed in the mid-1990s; all feral horses were removed as well. The BLM contacted the management staff of Sheldon National Wildlife Refuge on the Oregon-Nevada border and Hart Mountain Antelope Refuge for copies of published research that may be of value to this planning effort. The refuge provided six papers: Earnst et al. 2012; Davies et al. 2014; Zeigenfuss et al. 2014; Batchelor et al. 2015; Boyd et al. 2017; and Gooch et al. 2017. However, none of these papers concerned the livestock grazing responses of forbs and insects important to Greater Sage-Grouse. The BLM has no authority over the management and research direction in USFWS national wildlife refuges. The BLM is discussing the possibility of adding Assessment, Inventory, and Monitoring plots with USFWS on the Hart-Sheldon National Wildlife Refuge for 2019.

1.4 2019 DEVELOPMENT

1.4.1 Issues and Related Resource Topics Identified Through Scoping as Part of the 2019 Planning Process

When deciding which issues to address related to the purpose and need, BLM considers points of disagreement, debate, or dispute regarding an anticipated outcome from a proposed action. Issues are based on anticipated environmental effects; as such, issues can help shape the proposal and alternatives.

The BLM used internal, agency, and public scoping to identify issues to consider in the environmental analysis of this DSEIS. A summary of the scoping process from the 2018 Draft EIS is presented in a report titled "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 substantial point of contention among the public or 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 each of the alternatives would have on specific resources; therefore, the BLM uses resource topics as a heading to indicate which resources would be affected by a management change. Importantly, resource topics will help organize the discussions of the affected environment (**Chapter 3**) and environmental consequences (**Chapter 4**).

The sections below lay out how issues raised during scoping for the 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 in this DSEIS and for which alternatives were developed to address the issues. In some cases, the resolution 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 in this DSEIS. 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 issues brought up during scoping for the 2018 Draft EIS that are not carried forward in this DSEIS. While some of these issues are considered in this DSEIS, they do not require additional analysis because they were analyzed in the 2015 Final EIS. Others are not carried forward in this DSEIS 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 in this DSEIS. This is because either they are not affected by the changes proposed in **Chapter 2** (Alternatives) or because the effect was analyzed in the 2015 Final EIS.

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

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

Based on the issues identified in **Table I-1** that have not been previously analyzed, the resource topics that have the potential to be significantly affected are: Greater Sage-Grouse, vegetation (including invasive plants, riparian areas and wetlands, and special status plants), fish and wildlife (including other special status species), socioeconomics, and livestock grazing. Therefore, these resource topics are carried forward for detailed analysis.

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

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

Issues	Resource Topics Related to the Issues
<p>Modifying Livestock Grazing Decisions within Research Natural Areas</p> <ul style="list-style-type: none"> • What opportunities would be available to study the impacts of grazing on the presence and abundance of forb species and insects important to pre-laying hens and chicks? • What are the impacts of allowing or removing grazing within key RNAs on overall wildfire risks? • What are the economic impacts to grazing permittees due to reductions in AUMs? Is there a threshold where no impacts would occur? 	<p>Greater Sage-Grouse, vegetation (including riparian), wildlife, livestock grazing (including permittee socioeconomics)</p>

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 of language in the 2015 ROD/ARMPA but do not require new analysis. The clarifying language for these 2015 planning decisions is displayed in this planning document to communicate that these issues are being addressed outside of this amendment process.

A variety of national IMs have been issued since 2016 to clarify interpretations and implementation considerations and are applicable to the 2015 ROD/ARMPA. Several of the 2016 IMs were updated in 2018, including one on how to use the Habitat Objectives table. That IM (BLM IM 2015-24) clarifies the flexibility in the Habitat Objectives Table in the 2015 ROD/ARMPA. Consistent with that table, habitat will be managed towards objectives appropriate for its ecological condition and potential based on site-specific information. The Table is not, nor should it be taken as, providing for fixed requirements at the allotment level.

Subsequent to release of the 2018 Draft RMPA/EIS, departmental guidance was issued on compensatory mitigation. The 2018 Draft RMPA/EIS did not propose a change to the net conservation gain standard for compensatory mitigation actions required to offset residual impacts to Greater Sage-Grouse on public lands. 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 gain as a broader planning goal and objective.

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.

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 Greater Sage-Grouse habitat and expects to invest another \$17 million of habitat management projects in fiscal year 2019.

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.

BLM Oregon will continue to work with the State, SageCon partnership, and other stakeholders and the various BLM districts to communicate and clarify the contents and implementation requirements of the revised IMs. BLM Oregon-specific guidance will be developed, through an IM, on implementing IM No. 2018-093, Compensatory Mitigation, July 24, 2018, under the BLM Oregon 2015 ROD/ARMPA as amended in the 2018 RMPA.

BLM Oregon also identified a variety of needed plan maintenance actions. Plan maintenance needs include:

- Update and clarify use and implementation of the habitat objectives contained in Table 2-2 of the 2015 ROD/ARMPA (maintenance action has been completed)
- Update 2015 ROD/ARMPA language to clarify that the recommendation to withdraw locatable mineral entry from SFAs has been analyzed and cancelled (maintenance action has been completed)
- Resolve and clarify discrepancy in noise restrictions in different places of the 2015 ROD/ARMPA
- Clarify use of lek buffers in analysis and implementation actions
- Clarify Appendix J language on longevity of trigger responses
- Clarify reclamation language in required design features (RDFs)

Similarly, a variety of local BLM Oregon policy, guidance, or training and education needs and opportunities have been identified. These topics are best addressed outside of plan amendment or maintenance, as they do not reflect planning decisions. Topics identified for discussions with partners and stakeholders outside of this amendment process include:

- Reserve common allotments (grass banks) to promote resilience and viability for livestock economies and habitat restoration priorities
- Waivers, exceptions, and modifications for development actions within priority habitat.

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

The following issues were raised during scoping for the 2018 Draft EIS and are not carried forward for a variety of reasons. For example, population-based management is not carried forward for detailed analysis because the BLM does not manage species populations; that authority falls under the jurisdiction of the Oregon Department of Fish and Wildlife.

Because the following issues were analyzed in the 2015 Final EIS, and no significant new information related to these issues has emerged, they do not require additional analysis in this DSEIS. These issues were analyzed under resource topics in the 2015 Final EIS, and these 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.

- Restrictions on rights-of-way (ROWs) and infrastructure
- Wind energy development in PHMA
- ROW avoidance in PHMA and general habitat management areas (GHMA)
- Retention of lands as identified as PHMA or GHMA in federal ownership
- Varying stipulations applied to oil, gas, and geothermal development
- Effects of no surface occupancy (NSO) stipulations on Greater Sage-Grouse habitat on non-BLM-administered land
- Mitigation for oil and gas development
- Prioritization of fluid mineral leases outside of PHMA and GHMA
- Numerical noise limitations within PHMA
- Contribution of disturbance caps toward Greater Sage-Grouse conservation objectives
- Required design features
- Habitat objectives and ability to achieve rangeland health standards (see **Section 1.5.2**)
- Vegetation treatments and wildfire response
- Adaptive management
- Habitat assessment framework
- Soils
- Wild horses and burros

Grazing to Manage Wildfire Risks: In addition to the above issues not carried forward for additional analysis, using grazing to manage wildfire risks is not addressed in further detail in this DSEIS. The key RNAs are too small in acreage to have any impact or effect on this large-scale issue. Svejcar et al. (2014) argue that grazing is necessary to manage wildfire risks in sagebrush ecosystems, and this concern was raised during scoping for the 2018 Draft EIS. BLM agrees that wildfire is a risk in sagebrush ecosystems and to Greater Sage-Grouse habitat, particularly as it pertains to dominance by annual grasses and establishment of the annual grass-fire cycle; this is well established (e.g., Brooks et al. 2015; Coates et al. 2015; Coates et al. 2016).

Recent research indicates that grazing can decrease the risk, size, and severity of wildfires (Davies et al. 2011; Strand et al. 2014; Davies et al. 2016b; Davies et al. 2017), although extreme burning conditions usually override the impacts grazing has on fire spread rates (Strand et al. 2014). Winter and early spring grazing seem to have the greatest effect (Strand et al. 2014; Davies et al. 2016b; Davies et al. 2017), although care must be taken during spring grazing of native perennial bunchgrasses to avoid successive years of impacts on plant leaf and basal area, production potential, and reproduction (Davies et al. 2014). Grazing areas dominated by annual grasses at the right times and repeatedly serves to reduce annual grass biomass and height, affecting potential fire behavior (Diamond et al. 2009; Davies et al. 2014; Schmelzer et al. 2014; Strand et al. 2014), although supplements may be needed to maintain livestock weight (Schmelzer et al. 2014).

However, plant responses are mixed, with some studies showing increases in cheatgrass following wildfire in grazed landscapes (e.g., Condon and Pyke 2018) and others indicating resistance to cheatgrass following wildfire with grazing (e.g., Davies et al. 2009; Davies et al. 2016a). Effects from long-term grazing removal are also mixed, with some studies indicating that it can lead to annual grass expansion following fire (Davies et al. 2009; Davies et al. 2014; Davies et al. 2016a) and other studies indicating that it will not (Davis and Crawford 2015; Ellsworth et al. 2016). The interactions between grazing and fire with respect to annual grass response depend on preburn vegetation condition, site characteristics, post-fire weather, grazing practices, and the impacts of other disturbances such as insect outbreaks, pathogens, and herbivory by native ungulates, wild horses, and rodents (Davies et al. 2014; Strand et al. 2014; Svejcar et al. 2014).

Fires greater than 2,265 acres tend to reduce Greater Sage-Grouse population growth rates when they burn near lek sites (Brooks et al. 2015). Additionally, significant erosion can occur when fires exceed 10,000 acres (Brooks et al. 2015). Experience in the Great Basin shows that fire suppression efforts are usually ineffective when 20-foot wind speeds exceed 10 mph, maximum temperature exceeds 90°F, and relative humidity is less than 10 percent with nighttime humidity recovery of less than 15 percent. Under moderate burning conditions, active fire spread typically lasts only one burning period, whereas under extreme conditions active fire spread typically lasts for several days with spread occurring over all 24 hours in a day.

Experience and modeling in forest ecosystems indicate that fuels treatments on landscapes need to be strategically placed with respect to expected fire spread direction and topography in order to affect potential fire size and fire behavior, particularly since most large wildfires are larger than individual treatment areas (Finney 2001, 2007; Schmidt et al. 2008; Chung 2015). When fuels treatments are randomly placed, a larger proportion of the landscape must be treated to have the same effect on fire size and fire behavior as strategically placed treatments (Finney 2001, 2007).

Livestock do not evenly distribute themselves across allotments and pastures, tending to concentrate in areas near water and shade and in gentler terrain, resulting in grazing effects on fine fuel loading that are not strategically placed, but more haphazard. The establishment reports for the key RNAs mention that most of these areas are lightly grazed due to the lack of available water (see **Chapter 3, Section 3.7**). Without extensive fencing, herding, and provision of supplemental water at a minimum, it is unlikely that grazing would reduce wildfire risks within key RNAs. As evidenced by the recent wildfires in several key RNAs (see **Chapter 3, Section 3.3.1**), they are too small and isolated to affect landscape-scale wildfire size and behavior for fires originating outside key RNAs.

Other issues were evaluated as part of the 2015 ROD/ARMPA. For the same reasons they were dismissed in the 2015 ROD/ARMPA, they are not carried forward for detailed analysis in this DSEIS (Section 1.6.4 on pages 1-20 to 1-22 in the 2015 Final EIS):

- Hunting Greater Sage-Grouse
- Predator control

Resource Topics Not Carried Forward for Additional Analysis

The resource topics below were dismissed from detailed analysis. While these resource topics may be impacted by Greater Sage-Grouse conservation, these impacts were analyzed in the 2015 Final EIS.

These resource topics are dismissed from detailed analysis in this DSEIS because actions proposed in this DSEIS will not impact them.

- Air
- Soils
- Water
- Wild horses and burros
- Geology
- Cultural resources
- Paleontological resources
- Visual resources
- Wildland fire management
- Lands with wilderness characteristics
- Forestry
- Recreation and visitor services
- Comprehensive trails and travel management
- Lands and realty
- Energy and minerals
- Special designations
- Indian Trust resources
- Noise

1.5 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 D**);
- 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.

1.6 RELATIONSHIP TO OTHER POLICIES, PLANS, AND PROGRAMS

The BLM recognizes the importance of state and local plans. The BLM 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:

- Sage-Grouse Conservation Partnership. 2015. The Oregon Greater Sage-Grouse Action Plan. Oregon Governor's Natural Resources Office, Salem, Oregon, USA
- State of Oregon Natural Areas Plan 2015

I.6.2 Local Plans

One new local land use plan was completed after the 2015 ROD/ARMPA was signed. In 2016, the Harney Soil and Water Conservation District adopted a land use plan.

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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 the 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 2.4**. 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 for increased or additional constraints on land uses and ground-disturbing 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 State. Because the purpose and need for the BLM's action, building off of the 2015 ROD/ARMPA, is to enhance cooperation with the states by seeking to better align the BLM's RMP with the Oregon State

¹ For 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)

Plan and/or conservation measures, the BLM gave great weight to the State's 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, including the BLM Oregon-specific scope of issues and analysis. Accordingly, this DSEIS has as its foundation 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 management goals, objectives, and direction specified in the BLM RMPs and the Forest Service land and resource management plans effective prior to the 2015 ROD/ARMPA.
- Alternative B was based on the conservation measures developed by the National Technical Team planning effort in accordance with Washington Office IM 2012-044. As directed in the IM, the conservation measures developed by the National Technical Team must be considered and analyzed, as appropriate, through the land use planning process and NEPA by all BLM state and field offices that contain occupied Greater Sage-Grouse habitat. Most management actions included in Alternative B would have been 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 have limited commodity development in areas of occupied Greater Sage-Grouse habitat and would have closed or designated portions of the planning area to some land uses.
- 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 protected Greater Sage-Grouse habitat based on scoping comments and input from Cooperating Agencies involved in the alternatives development process. Protective measures would have been applied to Greater Sage-Grouse habitat. This alternative included making all or portions of 22 key RNAs (98,446 acres) unavailable to livestock grazing.
- Alternative E was the alternative provided by the State or Governor's offices for inclusion and analysis in the EISs. It incorporated guidance from specific State Conservation strategies and emphasized management of Greater Sage-Grouse seasonal habitats and maintaining habitat connectivity to support population objectives.
- Alternative F was also based on a citizen group's recommended alternative. This alternative emphasized improvement and protection of habitat for Greater Sage-Grouse and defined different restrictions for PHMA and GHMA. Alternative F would have limited commodity development in areas of occupied Greater Sage-Grouse habitat and would have closed or designated portions of the planning area to some land uses.
- The Proposed LUPA incorporated guidance from specific State Conservation strategies, as well as additional management based on the National Technical Team recommendations. This alternative emphasized management of Greater Sage-Grouse seasonal habitats and maintaining habitat connectivity to support population objectives. This alternative included making all or portions of 13 key RNAs (21,959 acres) unavailable to livestock grazing.

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 LUPAs, the BLM partnered with the USGS to review the best available information published since January 2015, develop an annotated bibliography of that Greater Sage-Grouse science (Carter et al. 2018; see **Section 3.1**), and incorporate 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 (see Sections 4.4.6, pages 4-112 and 113; Section 4.5.6, pages 4-132 and 133; Section 4.8.6, Alternative C, page 4-193; Section 4.16.6, page 4-278; Section 4.20.3, page 4-330; Section 4.20.4, pages 4-351 to 4-355) and hereby incorporated by reference, 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.

2.2.2 Additional Alternatives for Key RNAs Considered but Eliminated from Detailed Analysis

Comments received on the 2018 Draft RMPA/EIS suggested using Hart Mountain, Sheldon, and Malheur National Wildlife Refuges and Steens Mountain Wilderness instead of the key RNAs for research purposes. The BLM has no operational control over national wildlife refuges so cannot substitute them for BLM-administered lands. Further, Sheldon National Wildlife Refuge is in Nevada, where Oregon-Washington BLM has no jurisdiction. In addition, Malheur National Wildlife Refuge, established for waterfowl, allows some grazing, does not fall within the boundaries of an Oregon PAC, and does not contain priority habitat for Greater Sage-Grouse.

Hart Mountain National Antelope Refuge (Hart Mountain Refuge) does contain suitable Greater Sage-Grouse habitat and appears to contain plant communities suitable for inclusion in a potential study design. However, the BLM can neither direct management of a national wildlife refuge nor require the methods USFWS would use in any study, such as BLM's AIM plot design and protocols. Hart Mountain Refuge management currently has no management direction allowing BLM to conduct research within the refuge boundaries.

The BLM took a closer look at the Steens Mountain Wilderness, which eliminated grazing at establishment in 2000 under Public Law 106-399. Approximately 9,233 acres fall within the Steens Mountain PAC. This area contains one known pending lek (it is unclear if the lek is occupied or unoccupied due to lack of sufficient data) and one AIM plot, both of which indicate this portion of the wilderness provides Greater Sage-Grouse habitat. The BLM lacks detailed vegetation maps, but remote sensing imagery suggests that plant communities in the Shallow-Dry, Warm-Dry, and Cool-Moist sagebrush types are likely present. Adding Steens Mountain Wilderness to a potential study design would also have the benefit of providing additional data from the Burns District. The BLM could include portions, specifically the Steens PAC within the Steens Mountain Wilderness area, in a potential study design without a plan amendment.

Several comments suggested reopening two of the RNAs that were closed to livestock grazing prior to the 2015 ROD/ARMPA (see Section 1.3). Additional information regarding these closures is provided below.

On October 30, 1998, the 105th Congress passed Public Law 105-321 “Oregon Public Lands Transfer and Protection Act of 1998.” Section 4 of the Act, titled “Hart Mountain Jurisdictional Transfer,” transferred lands BLM administered in the Guano Creek pasture, located in the Beaty Butte Allotment, to the USFWS. These lands (Guano Creek-Sink Lakes RNA) would be managed under their Comprehensive Management Plan, where livestock grazing is excluded.

The Foster Flat RNA/ACEC was closed to grazing in the Three Rivers RMP (September 1991). In 1994, the Burns District constructed an enclosure fence to exclude grazing by domestic livestock and wild horse and burros from the South Steens Herd Management Area.

Three other potential alternatives for the key RNAs were suggested and are discussed below.

Reduce the Size (Acreage) of 13 Key RNAs Unavailable to Livestock Grazing. Under this alternative, the BLM considered reducing the closure size (acreage) of all 13 key RNAs covered by this amendment to reduce the socioeconomic impacts on counties and permittees and adding approximately 9,233 acres of the Steens Mountain Wilderness to the potential study design area. As part of this amendment process, the BLM Districts completed specific reviews of the key RNA acres and AUMs identified for reduction in the 2015 ROD/ARMPA. **Table 2-2** shows an update of the 2015 ROD/ARMPA data for acres and AUMs, and **Chapter 4, Table 4-6** shows the percentage of active AUM use change.

As early as November 2015, District and Field Offices indicated that there were errors in Table 2-6 on page 2-18 in the 2015 ARMPA. In June 2016, the BLM Oregon State Office, in preparing for a briefing of the acting State Director, requested the District and Field Offices review the table to validate or amend the acres and active use AUMs. Through this process the District and Field Offices concluded that a reduction of less than 5 percent of active use AUMs would not substantially affect the carrying capacity, forage use levels, or distribution patterns in the pastures both within and outside the key RNAs. A reduction of less than 5 percent would have little or no impact on permittee operations or county economies. However, since 8 of the 13 key RNAs already had AUM reductions below 5 percent, the BLM had no good criteria or rationale to further reduce those key RNAs. Between the Draft and Final EIS in 2015, the BLM had already reduced the number of key RNAs by 7 and the acres included by 95,751. The remaining 15 key RNAs and acres in the 2015 ROD/ARMPA were considered the minimum size and placement needed to provide a sufficient land base and mix of vegetation types to meet the research need and retain the statistical power and scope of inference that could be extrapolated over the planning area as a whole and into adjoining states.

An important consideration in determining the size of the closures in the 2015 ROD/ARMPA was to minimize the amount of additional fencing needing to be constructed (2015 Proposed RMPA/Final EIS, pages 2-44 and 2-45). The reduction proposed in this alternative, however, would increase the amount of fencing in order to partition off sections of pasture. While BLM would install anti-strike markers on the fences, these markers are not 100 percent effective and the risk of Greater Sage-Grouse mortality from fence collisions would increase. Since one criterion for the selection of the key RNAs in the 2015 ROD/ARMPA was inclusion or proximity to occupied or pending Greater Sage-Grouse leks, the risks of

collisions would likely be moderate to high (2015 Proposed RMPA/Final EIS, pages 2-44 and 2-45). The amount of additional fencing needed would depend on the size of the RNA reduction. Lastly, the environmental and socioeconomic effects of this alternative would be substantially similar to the No-Action Alternative analyzed in the 2015 Proposed RMPA/Final EIS. The BLM did not analyze this alternative in detail, because there is a lack of fine-scale vegetation data, there would be an increased amount of fencing needed, and there is no difference in effects from those of the No-Action Alternative of the 2015 Proposed RMPA/Final EIS.

Allow Grazing on Five Key RNAs. Under this alternative, the BLM considered allowing grazing on the five key RNAs with the greatest socioeconomic impacts (having more than a 5 percent reduction in active use AUMs) and adding approximately 9,233 acres of the Steens Mountain Wilderness to the potential study area. These RNAs included Black Canyon, Fish Creek Rim, Rahilly-Gravelly, Spring Mountain, and Toppin Creek Butte. Allowing grazing to continue on these five key RNAs would avoid reducing AUMs and the associated socioeconomic impacts to five permittees and the economies of two counties. These key RNAs included fourteen plant communities not replicated in other key RNAs, of which two (aspen types) did not provide Greater Sage-Grouse habitat and three likely did not provide Greater Sage-Grouse habitat (two juniper savanna types and one mountain shrub type). Comparing the resulting matrix to the list of plant communities in **Chapter 4, Table 4-4**, the number of plant communities represented would be reduced to 39, including the sole representative of the mountain big sagebrush-antelope bitterbrush/Idaho fescue plant association in Fish Creek Rim RNA. Whether including Steens Mountain Wilderness would restore nine missing plant communities is not known in the absence of a more detailed vegetation map. Under this alternative the five key RNAs encompass 75 percent of the active use AUMs (1,325 out of 1,772 AUMs). As a result, the socioeconomic impacts would be substantially similar to or the same as the 2018 Proposed Plan Amendment and therefore the BLM did not analyze this alternative in detail.

Reduce the Size of Five Key RNAs. Under this alternative, the BLM considered reducing the size of five key RNAs—Black Canyon, Fish Creek Rim, Rahilly-Gravelly, Spring Mountain, and Toppin Creek Butte—to the level where less than 5 percent of active use AUMs would be affected and include a portion of Steens Mountain Wilderness in the potential study area. Based on a preliminary assessment done by the BLM after public comments on the Draft EIS, a reduction of less than 5 percent of active use AUMs would not substantially affect the carrying capacity, forage use levels, or distribution patterns in the pastures within the key RNAs, with little or no impact on permittee operations or county economies.

An important consideration in determining the size of the closures in the 2015 ROD/ARMPA was to minimize the amount of additional fencing needing to be constructed (2015 Proposed RMPA/Final EIS, pages 2-44 and 2-45). The reduction proposed in this alternative, however, would increase the amount of needed fencing. While BLM would install anti-striker markers on the fences, these markers are not 100 percent effective. The risk of Greater Sage-Grouse mortality from fence collisions would increase. Since one criterion for the selection of the key RNAs in the 2015 ROD/ARMPA was inclusion or proximity to occupied or pending Greater Sage-Grouse leks (2015 Final EIS, pages 2-44 and 2-45), the risks of collisions would likely be moderate to high if additional fencing was constructed within the five key RNAs. The amount of additional fencing needed would depend on the size of the RNA reduction.

For this alternative BLM developed two different methods to estimate the number of acres that would need to be reduced in order keep the reductions of AUMs below the 5 percent threshold identified in the preliminary assessment described above. Both methods indicated problems with either the methodologies or information in BLM's grazing database or both. However, regardless of which method was used, the outcome would result in socioeconomic effects similar to the 2018 Proposed Plan Amendment, because the reduction in acres and AUMs affected would be below the threshold of an economic impact. The environmental effects would be substantially similar to or the same as those analyzed under the No-Action Alternative in the 2015 Proposed RMPA/Final EIS because BLM lacks the fine-scale vegetation data needed, there would be an increased need for fencing, and there are no differences in effects from those of the No-Action Alternative in the 2015 Proposed RMPA/Final EIS. Therefore, the BLM did not analyze this alternative in detail.

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 Oregon Greater Sage-Grouse Resource Management Plan Amendment (–2015 ROD/ARMPA). Greater Sage-Grouse habitat would have continued to be managed under 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 also have remained the same. All or portions of the 13 key RNAs would not have been available for livestock grazing as described in the 2015 Oregon ROD/ARMPA. Foster Flat and Guano Creek–Sink Lakes RNAs would have remained unavailable for livestock grazing.

2.3.2 Management Alignment Alternative

This alternative is derived through coordination with the State of Oregon and cooperating agencies to align with the state action 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 is intended to lead to improved management and coordination with states across the range of Greater Sage-Grouse, including in Oregon. It will also provide additional flexibility for the BLM to work with the State of Oregon on landscape-scale decisions, which will provide protections for Greater Sage-Grouse habitat, while allowing reasonable development of other resources in support of local communities and economies.

The State action plan supports proper livestock grazing and recognizes the BLM's authority to manage grazing on public lands. Livestock grazing would be available in all or portions of the 13 key RNAs in keeping with the District RMP decisions that were amended by the 2015 ROD/ARMPA in order to support local communities and economies. This alternative would not change terms and conditions of existing grazing permits. Foster Flat and Guano Creek–Sink Lakes key RNAs would remain unavailable for livestock grazing, in keeping with those prior district decisions and RMPs.

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.

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.

When considering third-party actions on BLM managed lands, the BLM will coordinate with the State of Oregon to identify any adverse impacts that may affect sage-grouse and their habitats. The BLM will complete the following steps, in alignment with the Governor of Oregon’s Executive Order 15-18 (September 16, 2015) to comply with the Oregon Sage-Grouse Action Plan and Oregon Administrative Rule (OAR) 635-140-0000 thru 635-140-0025:

1. Conduct preliminary meetings with the project proponent to assist them with using the Oregon Development Siting Tool and other existing tools to identify potential project impacts to sage-grouse and alternative siting or design approaches that could avoid or help reduce the impact to sage-grouse and potentially, the need to provide compensatory mitigation.
2. Conduct pre-application meetings with the Oregon Department of Fish and Wildlife (ODFW) and the project proponent to discuss project details and coordinate BLM and State required or recommended avoidance and minimization measures (OAR 635-140-0025) to further reduce project impacts to sage-grouse.
3. Request that ODFW utilize the State’s Habitat Quantification Tool (HQT) to determine unavoidable residual impacts on Greater Sage-Grouse or its habitat.
4. If compensatory mitigation is required as a part of State policy or authorization, or if a proponent voluntarily offers mitigation, the BLM will incorporate that mitigation into the BLM’s NEPA and decision-making process.
5. The BLM will evaluate that compensatory mitigation:
 - a. achieves net conservation benefit for sage-grouse by replacing the lost functionality of the impacted habitat to a level capable of supporting greater sage-grouse numbers than that of the habitat which was impacted as determined using the Oregon HQT
 - b. provides benefits that are in place for at least the duration of the impacts
 - c. accounts for a level of risk that the mitigation action may fail or not persist for the full duration of the impact
6. The BLM will recommend to the project proponent that it coordinate with the State of Oregon to ensure it complies with all applicable State requirements relating to its proposal.

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 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.

2.4 COMPARISON OF ALTERNATIVES

The 2018 Final EIS expressly incorporated by reference the full range of 2015 alternatives as stated on pages 2-1 and 2-2 of the November 2018 Final EIS. Through this DSEIS the BLM is providing the public with an additional opportunity to review and comment on the full range of eight alternatives evaluated in the 2018 Final EIS. The full range of alternatives considered in the 2018 Final EIS is both summarized and provided in detail in the three tables that follow. BLM incorporates the 2015 alternatives into the current process and hereby incorporates by reference the entirety of Chapter 2 of the 2015 ARMPA Final EIS.

2.4.1 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 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 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

Oregon Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description (see Table 2-3 below for comparison of ACEC/RNA alternative differences)
Alternatives Considered During the 2015 and 2019 Planning Processes				
Harney Soil and Water Conservation District	March 2014	Rural Community Alternative	Considered; Not Analyzed in Detail	<p>Summary:</p> <p>After the November 2013 draft EIS was released for public review and comment, and prior to the June 2015 final EIS, the Harney Soil and Water Conservation District (SWCD) a cooperating agency in the planning process proposed a new alternative for consideration. The Harney SWCD provided a Rural Community Alternative (RCA) to the BLM in early 2014 that addressed their concerns for Greater Sage-Grouse conservation and priority issues, including impacts on the rural communities of eastern Oregon. BLM met with the cooperating agencies including Harney SWCD on March 24, 2014 and April 10, 2014 to discuss the RCA. After considering the RCA, the BLM Oregon/Washington State Director, in a July 18, 2014 response letter to the SWCD explained that the BLM would not to analyze the alternative as a separate alternative in the Final EIS. The letter indicated that a variety of the components of the RCA would be incorporated into the proposed plan and Final EIS chapters. The letter also identified where BLM had included and analyzed many of the other RCA elements in the other alternatives.</p>
Oregon Greater Sage-Grouse Proposed Resource Management Plan Amendment/Final Environmental Impact Statement (RMPA/Final EIS)	June 2015	Alternative A (No Action)	Fully Analyzed	<p>Verbatim from 2015 Final EIS (Executive Summary):</p> <p>Under Alternative A, the BLM would not develop new management actions to protect [Greater Sage-Grouse] habitat. Management of existing threats to [Greater Sage-Grouse] populations and habitat, such as infrastructure, invasive species, grazing, mineral development, and wildfire, would continue in accordance with existing land use planning documents.</p> <p>Alternative A would have retained the management goals, objectives and direction specified in the BLM RMPs effective prior to the 2015 ROD/ARMPA.</p>

Oregon Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description (see Table 2-3 below for comparison of ACEC/RNA alternative differences)
Oregon Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	Alternative B	Fully Analyzed	<p data-bbox="1173 321 1730 345">Verbatim from 2015 Final EIS (Executive Summary):</p> <p data-bbox="1173 378 1940 833">Alternative B is based on the conservation measures developed by the BLM National Technical Team (NTT) planning effort described in Instruction Memorandum No. WO-2012-044. As directed in the memorandum, the conservation measures developed by the NTT must be considered and analyzed, as appropriate, through the land use planning and NEPA processes by all BLM state and field offices that contain occupied [Greater Sage-Grouse] habitat. Alternative B would apply management actions to PHMA and GHMA, including actions that would exclude ROW development in PHMA and avoid development in GHMA, close PHMA to fluid mineral leasing, mineral material sales, and nonenergy leasable minerals, and recommend proposed withdrawal from locatable mineral entry in PHMA. These management actions would reduce surface disturbance in PHMA and would minimize disturbance in GHMA, thereby maintaining [Greater Sage-Grouse] habitat.</p> <p data-bbox="1173 865 1940 1036">Management actions for wildfire would focus on suppression in PHMA and GHMA, while limiting certain types of fuels treatments. Vegetation management would emphasize sagebrush restoration. Collectively, vegetation and wildfire management would conserve [Greater Sage-Grouse] habitat. Grazing would continue with similar impacts under Alternative B as Alternative A.</p>

Oregon Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description (see Table 2-3 below for comparison of ACEC/RNA alternative differences)
Oregon Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	Alternative C	Fully Analyzed	<p>Verbatim from 2015 Final EIS (Executive Summary):</p> <p>Alternative C is the most restrictive approach to [Greater Sage-Grouse] conservation. Alternative C would eliminate all future ROWs, fluid mineral leasing, nonenergy leasable mineral development, and mineral material sales on [Greater Sage-Grouse] habitat. Alternative C would also recommend proposed withdrawal from locatable mineral entry for all [Greater Sage-Grouse] habitat. Alternative C would manage all [Greater Sage-Grouse] habitat as PHMA. This alternative would substantially reduce surface disturbance in all [Greater Sage-Grouse] habitat.</p> <p>Under Alternative C, the BLM would take a passive management approach to vegetation management and fuels treatments. Additionally, all [Greater Sage-Grouse] habitat would be unavailable for livestock grazing.</p>
Oregon Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	Alternative D	Fully Analyzed	<p>Verbatim from 2015 Final EIS (Executive Summary):</p> <p>Alternative D, the agencies' preferred alternative from the Draft RMPA/EIS, presents a balanced approach to maintaining and enhancing [Greater Sage-Grouse] populations and habitat.</p> <p>Alternative D would limit disturbance in [Greater Sage-Grouse] habitat by excluding wind and solar energy development, avoiding all other ROW development, applying no surface occupancy stipulations to fluid mineral development in PHMA, and closing PHMA and GHMA to nonenergy leasable mineral development and mineral material sales. These management actions would protect [Greater Sage-Grouse] habitat while allowing other activities, subject to conditions.</p> <p>Under Alternative D, the BLM management would support sagebrush/perennial grass ecosystems enhancements, would increase fire suppression in PHMA and GHMA, and would manage livestock grazing to maintain or enhance sagebrush and perennial grass ecosystems.</p>

Oregon Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description (see Table 2-3 below for comparison of ACEC/RNA alternative differences)
Oregon Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	Alternative E	Fully Analyzed	<p>Verbatim from 2015 Final EIS (Executive Summary):</p> <p>Alternative E contains [Greater Sage-Grouse] conservation guidelines from Greater Sage-Grouse Conservation Assessment and Strategy for Oregon: A Plan to Maintain and Enhance Populations and Habitat (the state plan; Hagen 2011). The state plan describes the Oregon Department of Fish and Wildlife’s proposed management of [Greater Sage-Grouse]. It also provides guidance for public land management agencies and land managers for [Greater Sage-Grouse] conservation. [Greater Sage-Grouse] conservation guidelines in the state plan are designed to maintain (at a minimum) or enhance the quality (the optimum) of current habitats. The guidelines would also assist resource managers in achieving the population and habitat objectives of the state plan.</p>
Oregon Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	Alternative F	Fully Analyzed	<p>Verbatim from 2015 Final EIS (Executive Summary):</p> <p>Alternative F would restrict development in ways similar to those proposed under Alternative C. Alternative F would limit surface disturbance in PHMA and GHMA.</p> <p>The BLM, under Alternative F, would prioritize wildfire suppression in PHMA, while limiting certain types of fuels treatments necessary to protect [Greater Sage-Grouse] habitat. Concurrent vegetation management would emphasize sagebrush restoration and enhancement. Alternative F would reduce livestock utilization by 25 percent within PHMA and GHMA.</p>

Oregon Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description (see Table 2-3 below for comparison of ACEC/RNA alternative differences)
Oregon Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	Proposed Plan Amendment	Fully Analyzed	<p data-bbox="1173 321 1728 345">Verbatim from 2015 Final EIS (Executive Summary):</p> <p data-bbox="1173 375 1934 735">The BLM Proposed Plan addresses threats to [Greater Sage-Grouse] and its habitat identified by the USFWS in the March 2010 listing decision that apply to the Oregon planning area as well as threats described in the COT report. The Proposed Plans seek to provide greater regulatory certainty for management actions intended to conserve the [Greater Sage-Grouse] (Table ES-2, Key Components of the Oregon Proposed Plan Addressing COT Report Threats). In making its determination of whether the [Greater Sage-Grouse] is warranted to be listed as threatened or endangered under the ESA, the USFWS will evaluate the degree to which the land use planning decisions proposed in this RMPA/EIS address threats to [Greater Sage-Grouse] and its habitat.</p> <p data-bbox="1173 764 1934 881">The Proposed Plan would maintain and enhance [Greater Sage-Grouse] populations and habitat. The Proposed Plan would apply management actions, subject to valid existing rights, to other uses and resources, such as the following:</p> <ul data-bbox="1173 911 1934 1304" style="list-style-type: none"> <li data-bbox="1173 911 1934 963">• Providing a framework for prioritizing areas in PHMA and GHMA for wildfire, invasive annual grass, and conifer treatments <li data-bbox="1173 992 1934 1076">• Managing areas as ROW avoidance or exclusion for certain types of lands and realty uses, requiring specific design features, and limiting new development where a disturbance cap has been reached <li data-bbox="1173 1105 1934 1190">• Adjust grazing practices as necessary, based on [Greater Sage-Grouse] habitat objectives, Land Health Standards, and ecological site potential <li data-bbox="1173 1219 1934 1304">• Applying no surface occupancy stipulations, with limited exceptions, to fluid mineral development in PHMA and closing PHMA to nonenergy leasable development and mineral material sales

Oregon Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description (see Table 2-3 below for comparison of ACEC/RNA alternative differences)
Oregon Greater Sage-Grouse Proposed RMPA/Final EIS (continued)	<i>(see above)</i>	<i>(see above)</i>	<i>(see above)</i>	<p>The Proposed Plan would also establish screening criteria and conditions for new human activities in PHMA and GHMA to ensure a net conservation gain to [Greater Sage-Grouse]. The Proposed Plan would reduce habitat disturbance and fragmentation through limitations on surface-disturbing activities, while addressing changes in resource condition and use through monitoring and adaptive management.</p> <p>The Proposed Plan adopts key elements of the Greater Sage-Grouse Conservation Assessment and Strategy for Oregon: A Plan to Maintain and Enhance Populations and Habitat (Hagen 2011) by establishing conservation measures and focusing restoration efforts in the same key areas most valuable to the [Greater Sage-Grouse].</p>
Oregon Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	USFWS-Listing Alternative	Considered; Not Analyzed in Detail	<p>Summary:</p> <p>Comments provided through scoping requested analysis of an alternative based on the assumption that Greater Sage-Grouse become listed under the ESA. This was outside the scope; the purpose and need of this plan amendment was to address inadequacy of regulatory mechanisms that were identified as one of the listing factors for Greater Sage-Grouse in the USFWS finding on the petition to list Greater Sage-Grouse. Although this alternative would also include conservation measures identified by the USFWS, those conservation measures were not known at the time. Therefore, an alternative that included USFWS-listing with associated conservation measures for Greater Sage-Grouse was not analyzed in detail.</p>

Oregon Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description (see Table 2-3 below for comparison of ACEC/RNA alternative differences)
Oregon Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	Elimination of Livestock Grazing from all BLM managed lands	Considered; Not Analyzed in Detail	<p>Summary:</p> <p>Alternative C of the 2015 Final EIS analyzed eliminating grazing from BLM-administered lands containing PHMA and GHMA. An alternative that would eliminate livestock grazing from all lands (an additional approximately 2.4 million acres) administered by the BLM was not analyzed in detail because no issues or conflicts were identified during planning that would be resolved by completely eliminating grazing in the planning area.</p>
Oregon Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	Increase Livestock Grazing in Greater Sage-Grouse habitat	Considered; Not Analyzed in Detail	<p>Summary:</p> <p>This publicly recommended alternative was based on empirical evidence suggesting there could be a correlation between declines in Greater Sage-Grouse and declines in the level of livestock grazing on BLM-administered lands. The alternative was not analyzed in detail for several reasons, including that it would not meet the purpose and need for science-based conservation measures.</p>
Oregon Greater Sage-Grouse Proposed RMPA/Final EIS	June 2015	Close All or Portions of PHMA or GHMA to Off-Highway Vehicle Use	Considered; Not Analyzed in Detail	<p>Summary:</p> <p>Through this RMPA/EIS, the BLM has identified, but had not studied in detail, an alternative to designate new area closures for OHV use within PHMA and GHMA. The BLM analyzed alternatives to designate all areas within PHMAs and GHMAs as “limited” to existing roads and trails for OHV use, if not already closed by existing planning efforts. Subsequent Travel Management Plans will be developed to identify specific routes within limited areas that were closed in order to protect and conserve Greater Sage-Grouse and its habitat. The BLM has analyzed existing OHV area closures within PHMAs and GHMAs as part of the No Action alternative and as a decision common to all alternatives.</p>

Oregon Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description (see Table 2-3 below for comparison of ACEC/RNA alternative differences)
Oregon Greater Sage-Grouse Draft Resource Management Plan and Environmental Impact Statement	May 2018	No Action Alternative	Fully Analyzed	Verbatim from 2018 Draft and Final EIS (Executive Summary): Under the No-Action Alternative, the BLM would not amend the current Greater Sage-Grouse management plan (Oregon Greater Sage-Grouse Approved Resource Management Plan Amendment - 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. All or portions of the 13 key RNAs would not be available for livestock grazing as described in the 2015 ROD/ARMPA. Foster Flat and Guano Creek–Sink Lakes RNAs would remain unavailable for livestock grazing.
Oregon Greater Sage-Grouse Proposed Resource Management Plan and Final Environmental Impact Statement	November 2018			
Oregon Greater Sage-Grouse Draft Resource Management Plan and Environmental Impact Statement	May 2018	Management Alignment Alternative	Fully Analyzed	Verbatim from 2018 Draft and Final EIS (Executive Summary): The state action plan supports proper livestock grazing and recognizes the BLM’s authority to manage grazing on public lands. Livestock grazing would be available in all or portions of the 13 key RNAs in keeping with the district RMPs’ decisions that were amended by the 2015 ROD/ARMPA in order to support local communities and economies. This alternative would not change terms and conditions of existing grazing permits. Foster Flat and Guano Creek–Sink Lakes key RNAs would remain unavailable for livestock grazing in keeping with those prior district decisions and RMPs. Table 2-2 (Chapter 2) further specifies the proposed changes needed to address consistency between state and federal plans.
Oregon Greater Sage-Grouse Proposed Resource Management Plan and Final Environmental Impact Statement	November 2018	Proposed Plan Alternative (alternative did not change from the draft)		

Oregon Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description (see Table 2-3 below for comparison of ACEC/RNA alternative differences)
Oregon Greater Sage-Grouse Proposed Resource Management Plan and Final Environmental Impact Statement	November 2018	Reduce the Size (Acreage) of 13 Key RNAs Unavailable to Livestock Grazing	Considered; Not Analyzed in Detail	<p>Summary:</p> <p>Based on public comments on the draft EIS, BLM Oregon considered an alternative that would have reduced the size (acreage) of the 13 key RNAs unavailable to livestock grazing and added an additional 9,233 acres of the Steens Mountain Wilderness to the potential study area. The BLM determined that the acreage contained in the key RNAs identified in the 2015 Approved Resource Management Plan Amendment was the minimum size and placement needed to provide a sufficient land base and mix of vegetation types to meet the research needs and retain the statistical power and scope of inference necessary to extrapolate study results over the entire planning area and into adjoining states. In addition, reducing the acreage would have increased the amount of fencing needed to exclude livestock, which would have increased the risk of mortality for Greater Sage-Grouse. BLM Oregon determined that the environmental and socioeconomic impacts would be substantially similar to those of the No-Action Alternative analyzed in the 2015 Proposed RMPA/Final EIS (Section 2.2.2 of the 2018 Final EIS, pg 2-4).</p>
Oregon Greater Sage-Grouse Proposed Resource Management Plan and Final Environmental Impact Statement	November 2018	Allow Grazing on Five Key RNAs	Considered; Not Analyzed in Detail	<p>Summary:</p> <p>Based on public comments on the draft EIS, BLM Oregon considered an alternative that would have allowed grazing on five of the thirteen key RNAs to reduce the economic impacts to those permittees whose permitted active use Animal Unit Months (AUMs) would have been reduced greater than five percent. The alternative would also have added 9,233 acres of the Steens Mountain Wilderness to the potential study area. BLM determined that allowing grazing on the five named key RNAs would encompass 75 percent of the active use AUMs and would substantially reduce the number of plant communities important to Greater Sage-Grouse represented in the key RNAs. BLM determined that this alternative would have had substantially the same economic impact as the proposed plan alternative. This alternative would also have reduced the number and geographic placement of plant communities within key RNAs to below what was considered the minimum identified in the 2015 plan. This impact was considered substantially similar to the proposed plan alternative (Section 2.2.2 of the 2018 Final EIS, pg 2-5).</p>

Oregon Planning Document	Document Date	Alternative Title	Analysis Level	Alternative Description (see Table 2-3 below for comparison of ACEC/RNA alternative differences)
Oregon Greater Sage-Grouse Proposed Resource Management Plan and Final Environmental Impact Statement	November 2018	Reduce the Size of Five Key RNAs	Considered; Not Analyzed in Detail	<p>Summary:</p> <p>Based on public comments on the draft EIS, BLM considered an alternative that would have reduced the size of five key RNAs to the point that less than five percent of active use AUMs would be affected and included a portion of Steens Mountain Wilderness in the potential study area. Based on a preliminary assessment, BLM determined that a reduction of less than five percent of active use AUMs would not substantially affect the carrying capacity, forage use levels, or distribution patterns in the pastures within the key RNAs, and with little or no impact on permittee operations or county economies. Reducing the acreage would have increased the amount of fencing needed to exclude livestock, which would have increased the risk of mortality for Greater Sage-Grouse. A preliminary assessment indicated that the outcome of reducing the size of the five named key RNAs would have socioeconomic impacts substantially similar to the Proposed Plan Amendment alternative and to those of the No-Action Alternative of the 2015 Proposed RMPA/Final EIS.</p>

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

2015 ARMPA Decision	No-Action Alternative	Proposed Plan Amendment Management Alignment Alternative
Modifying Livestock Grazing Decisions within Research Natural Areas		
Objective Livestock Grazing 2 (Obj. LG-2)	On BLM-administered lands, 12,083,622 acres will continue to be available for livestock grazing in Greater Sage-Grouse habitat. In 13 key RNAs, 21,959 acres will be unavailable for livestock grazing. Foster Flat and Guano Creek–Sink Lakes RNAs will remain closed to livestock grazing per district RMP decisions made prior to the 2015 ARMPA.	On BLM-administered lands, an additional 21,959 acres will be available for livestock grazing; livestock grazing would be permitted in the 13 key RNAs. This objective would be deleted. Foster Flat and Guano Creek–Sink Lakes RNAs will remain closed to livestock grazing per district RMP decisions made prior to the 2015 ARMPA.
Management Direction Livestock Grazing 1 (MD LG-1)	All or portions of 13 key RNAs will be unavailable for grazing (Table 2-6). Determine whether to remove fences, corrals, or water storage facilities (e.g., reservoirs, catchments, and ponds) from these 13 key RNAs. Foster Flat and Guano Creek–Sink Lakes RNAs will remain closed to livestock grazing per district RMP decisions made prior to the 2015 ARMPA.	This management direction would be deleted. Management would be governed by pre-2015 ARMPA district decisions and RMPs and other appropriate 2015 ARMPA goals, objectives, and management decisions. Foster Flat and Guano Creek–Sink Lakes RNAs will remain closed to livestock grazing per district RMP decisions made prior to the 2015 ARMPA.
Objective Special Designation 4 (Obj. SD-4)	Manage key RNAs, or large areas within the RNAs, as undisturbed baseline reference areas for the sagebrush plant communities they represent that are important for Greater Sage-Grouse. Manage key RNAs for minimum human disturbance, allowing natural succession to proceed.	Manage the Foster Flat and Guano Creek–Sink Lakes RNAs as undisturbed baseline reference areas for the sagebrush plant communities they represent that are important for Greater Sage-Grouse. Minimize human disturbance in 15 key RNAs, allowing natural ecological processes to proceed.
Objectives SD-1, SD-2, SD-3	No change from the 2015 ARMPA decision.	No change from the 2015 ARMPA decision.

Note: The Management Alignment Alternative of the Draft EIS became the Proposed Plan Amendment in the Final EIS with no changes to the two objectives (LG-2 and SD-4) and one management direction (LG-1).

Table 2-3 shows the Alternatives analyzed in detail during the 2015 planning effort and incorporated by reference into the 2019 process. **Table 2-3** includes land use plan Goals, Objectives, and Management Directions by Alternative analyzed in 2015 related to livestock grazing in Research Natural Areas.

Table 2-3
Goals, Objectives, and Management Direction by 2015 Final EIS Alternative

Alternative A (No Action, 2015 Final EIS)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Proposed Plan Amendment
Objectives LG-2 and SD-4 of the 2015 ARMPA*						
<p>Alternative A is composed of decisions established in the current RODs for the following RMPs: Andrews, Brothers/La Pine, Baker, Lakeview, Southeastern Oregon, the Steens Mountain Cooperative Management and Protection Area, Three Rivers, and Upper Deschutes (p 2-63). Goals and objectives for BLM-administered lands and mineral estate would not change (p 2-63).</p> <p>The BLM would not modify existing or establish additional criteria to identify site-specific use</p>	Obj. B-SD 1: —	<p>Obj. C-SD 1: Alternative C would designate all PHMA as new ACECs. Manage ACECs for Greater Sage-Grouse conservation (p 2-108).</p> <p>Manage existing ACECs for the values for which they were designated, per district RMPs, following existing management actions described in the plans (p 2-108).</p>	<p>Obj. D-SD 1: Manage RNAs, a special type of ACEC, as undisturbed vegetative reference areas for the plant community cells they represent that are important for Greater Sage-Grouse. Use RNAs as part of a national interagency network of natural areas that contain important ecological and scientific values and manage them for minimum human disturbance. Manage to preserve examples of all significant natural ecosystems and plant communities important for Greater Sage-</p>	Objective E-SD 1: —	<p>Objective F-SD 1: Designate 17 new ACECs within high-quality Greater Sage-Grouse habitat to maintain and increase current Greater Sage-Grouse abundance and to conserve or enhance the sagebrush ecosystem.</p> <p>Manage existing ACECs for the values for which they were designated, per district RMPs following existing management actions described in the plans. p. 2-108.</p>	<p>Obj. LG/RM 2: On BLM-managed lands, 12,083,622 acres would continue to be available for livestock grazing in Greater Sage-Grouse habitat.</p> <p>In 13 key RNAs, 22,765 acres are unavailable to livestock grazing, representing an anticipated reduction of 2,388 AUMs (p 2-16 and p 2-45).</p> <p>Obj. SD 4: Manage key RNAs, or large areas within the RNAs, as undisturbed baseline reference areas for the sagebrush plant communities they represent that are important for</p>

Alternative A (No Action, 2015 Final EIS)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Proposed Plan Amendment
<p>levels for implementation (p 2-63).</p> <p>RNAs would continue to be managed for the relevant and important values for which the ACECs/RNAs were designated in the various District RMP RODs.</p>			<p>Grouse, for comparison with those influenced by human and BLM actions, to provide educational and research areas for ecological and environmental studies, and to preserve gene pools of typical and rare plants and animals (p 2-108).</p> <p>In 22 RNAs, 98,446 acres will be unavailable for livestock grazing, representing a reduction of 7,948 AUMs (Table 2-9, page 2-67).</p> <p>Foster Flat and Guano Creek–Sink Lakes RNAs will remain closed to livestock grazing per district RMP decisions made prior to the 2015 ARMPA.**</p>			<p>Greater Sage-Grouse. Manage key RNAs for minimum human disturbance allowing natural succession to proceed (p 2-18).</p> <p>Foster Flat and Guano Creek–Sink Lakes RNAs will remain closed to livestock grazing per district RMP decisions made prior to the 2015 ARMPA.**</p>

Alternative A (No Action, 2015 Final EIS)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Proposed Plan Amendment
Management Direction LG-1 (from the 2015 ARMPA) as analyzed in the June 2015 Final EIS						
The number of AUMs would remain the same as exists currently (771,773 AUMs).	Action B-LG/RM 1: The number of AUMs would be the same as Alternative A. There would be 771,773 AUMs on Greater Sage-Grouse habitat in the planning area (p 2-133).	Action C-LG/RM 1: Prohibit grazing in occupied Greater Sage-Grouse habitat. There would be 0 AUMs on Greater Sage-Grouse habitat in the planning area (p 2-133).	Action D-LG/RM 1: Close all RNAs that contain over 20% PHMA acres and/or 50% GHMA that are not meeting rangeland health standards due to current livestock grazing management and do not have a suitable habitat rating consistent with the HAF or with values adjusted for regional conditions to maintain native plant community cells in relatively undisturbed condition to serve as a baseline for understanding the impacts of grazing and not grazing Greater Sage-Grouse habitat. Maintain closed RNAs as closed until attainment of rangeland health standards can be documented and a	Action E-LG/RM 1: The number of AUMs would be the same as Alternative A. There would be 771,773 AUMs on Greater Sage-Grouse habitat in the planning area (p 2-133).	Action F-LG/RM 1: Reduce by 25% the area grazed. There would be 289,414 AUMs on Greater Sage-Grouse habitat in the planning area (p 2-133).	Action LG/RM-1: All or portions of key RNAs will be unavailable to grazing (Table 2-6, p 2-45). Determine whether to remove fences, corrals, or water storage facilities (e.g. reservoirs, catchments, ponds). (p 2-25). (Note: There would be 769,385 AUMs on Greater Sage-Grouse habitat in the planning area; from the reduction of 2,388 AUMs in key RNAs (p 2-45).)

Alternative A (No Action, 2015 Final EIS)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Proposed Plan Amendment
			<p>suitable habitat rating that is consistent with the HAF or with values adjusted for regional conditions is achieved.</p> <p>There would be 763,825 AUMs on Greater Sage-Grouse habitat in the planning area (p 2-133).</p>			

Notes:

*The goals, objectives, and management action nomenclature and numbering sequences changed between the 2015 final EIS and the 2015 Approved Resource Management Plan Amendment (ARMPA). The 2019 amendment deleted or changed two objectives and one management decision from the 2015 ARMPA. This table displays the objectives and management actions of the 2015 Final EIS equivalent to the objectives and management directions of the 2015 ARMPA that were amended in 2019.

In some cells, there is a “—” as a placeholder to indicate that there is no similar goal or objective to the other alternatives, or that the similar goal or objective is reflected in another portion of the alternative.

**As described in the November 2018 Final EIS, Section 1.3, page 1-4, two of the RNAs discussed—Foster Flat and Guano Creek–Sink Lakes—were closed to livestock grazing by the 1992 Three Rivers RMP/ROD and the 2003 Lakeview RMP/ROD, respectively. Both the 2015 ROD/ARMPA and the 2019 ROD/RMPA left these RNAs closed to livestock grazing.

Table 2-4
Key Research Natural Areas—Summary of Acres and AUMs by 2019 Alternative

RNA Name	District	Total Acres of the RNA**	No-Action Alternative		Proposed Plan Amendment	
			Acres Available for Livestock Grazing	Acres / AUMs Unavailable for Livestock Grazing	Acres / AUMs Available for Livestock Grazing	Acres Unavailable for Livestock Grazing
Black Canyon	Vale	2,639	0	2,639/260	2,639/260	0
Dry Creek Bench	Vale	1,637	1,015	622/52	1,637/52	0
East Fork Trout Creek	Burns	361	57	304/47	361/47	0
Fish Creek Rim	Lakeview	8,716	5,966	2,750/110	8,716/110	0
Foley Lake	Lakeview	2,228	959	1,269/51	2,228/51	0
Foster Flat	Burns	2,687	0	2,687	0	2,687
Guano Creek–Sink Lakes	Lakeview	11,185	0	11,185	0	11,185
Lake Ridge	Vale	3,860	3,091	769/74	3,860/74	0
Mahogany Ridge	Vale	682	527	155/27	682/27	0
North Ridge Bully Creek	Vale	1,569	1,405	164/19	1,569/19	0
Rahilly-Gravelly	Lakeview	18,678	10,396	8,282/586	18,678/586	0
South Bull Canyon	Vale	790	43	747/116	790/116	0
South Ridge Bully Creek	Vale	621	224	397/61	621/61	0
Spring Mountain	Vale	996	0	996/153	996/153	0
Toppin Creek Butte	Vale	3,998	1,313	2,685/216	3,998/216	0

** The table has been updated from the 2015 ARMPA ROD to more accurately reflect acreage and AUM changes

2.5 DEVELOPMENT OF THE 2018 PROPOSED PLAN AMENDMENT

BLM regulations require the agency to identify a preferred alternative in the 2018 Draft RMPA/EIS (43 Code of Federal Regulations [CFR] 1610.4-7). The preferred alternative represents those goals, objectives, and actions determined to be most effective at resolving planning issues and balancing resource use at this stage of the process. While collaboration is critical in developing and evaluating alternatives, the final designation of a preferred alternative remains the responsibility of the lead agency, which is the BLM for this project. The agency identified the Management Alignment Alternative, in collaboration with the Governor’s office, as the preferred alternative.

It is important to note that the identification of a preferred alternative does not constitute a final decision, and there is no requirement that the preferred alternative identified in the 2018 Draft RMPA/EIS be selected as the agencies’ decision in the ROD. Various parts of separate alternatives that are analyzed in this DSEIS can be “mixed and matched” to develop a Proposed Plan Amendment. BLM Oregon has reviewed public comments on the 2018 Draft RMPA/EIS and made appropriate adjustments to clarify and update information, including consideration of three additional alternatives, in developing the 2018 Proposed Plan Amendment as described in **Sections 2.2.2, 2.3, and 2.4**, above. In addition, comments and responses to comments are addressed in **Appendix C**.

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 gain as a broader planning goal and objective.

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 ensure project design is aligned with State requirements and will ensure the proponent coordinates with the State to develop any additional mitigation—including compensatory mitigation—that the State may require in order to comply with State policies and programs for the conservation of Greater Sage-Grouse.

2.6 PLAN EVALUATION, MONITORING, AND ADAPTIVE MANAGEMENT—COMMON TO ALL ALTERNATIVES

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. RMP 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.

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 RMP 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-1601-1) or other appropriate guidance in effect at the time the evaluation is initiated.

The 2015 ARMPA also includes an adaptive management strategy that includes soft and hard triggers and responses for Oregon PACs. These triggers are not specific to any particular project but identify habitat and population thresholds. Triggers are based on the two key metrics that are being monitored during the life of the ARMPA: habitat loss and population declines. Soft triggers represent an intermediate threshold indicating that management changes are 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 would be to apply more conservative or restrictive conservation measures 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 within the affected Oregon PAC or PACs is necessary to stop a severe deviation from Greater Sage-Grouse conservation objectives set forth in the 2015 ARMPA. In the event that new scientific information becomes available demonstrating that the response to the hard trigger would be insufficient to stop a severe deviation from Greater Sage-Grouse conservation objectives set forth in the 2015 ARMPA, the BLM would implement interim management direction to ensure that conservation options are not foreclosed. The BLM would also undertake any appropriate plan amendments or revision if necessary. More information regarding the 2015 ARMPA's adaptive management strategy can be found in Appendix J of the 2015 ARMPA. The 2018 Proposed Plan Amendment will not make any changes to the Oregon 2015 ARMPA monitoring and adaptive management strategy. All immediate hard trigger responses remain in place until a plan amendment is completed to remove them or when the relevant conditions listed in the 2015 ROD/ARMPA Appendix J page 11 are met.

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 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 geographic extent of this environmental analysis is approximately 60,649 acres in 15 key RNAs identified in the 2015 Oregon Greater Sage-Grouse Proposed LUPA/Final EIS. The two key RNAs closed to grazing prior to the 2015 ARMPA will remain closed, but they are discussed here to provide context to the vegetation communities analysis in **Chapter 4**. All Oregon PACs are PHMA for Greater Sage-Grouse, and all key RNAs are within Oregon PACs.

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

While the BLM acknowledges that there have been changes to the landscape since 2015, due to the scale of this DSEIS analysis covering 60,649 acres of BLM-administered lands, data collected consistently across the range indicate that the extent of these changes to the rangewide landscape are relatively minimal. For example, BLM monitoring data collected and analyzed annually at the Biologically Significant Unit (BSU) Oregon PAC scale, as outlined in the Greater Sage-Grouse Monitoring Framework (Appendix D of the 2015 ROD/ARMPA), indicates that there has been a minimal overall increase in estimated disturbance (less than 1 percent rangewide from 2015 through 2017) and an overall decrease in sagebrush availability (less than 1 percent rangewide from 2012 through 2015) within PHMA.

Rangewide estimates of habitat management areas burned for 2016 and 2017 indicate a sharp increase in the loss of potential habitat availability during 2017, compared with previous fire seasons. In Oregon, the 2017 fire season was quite mild and below the 10-year average in terms of acres burned; however, the acres lost do not necessarily impact monitored PHMA within the rangewide BSUs (including Oregon PACs) at the rangewide scale. Wildfires in Oregon PACs are discussed in more detail later in this chapter.

Based on available information, including the USGS reports described below, the BLM has concluded that the existing condition is not substantially different from that in 2015; therefore, for those resource topics discussed in detail in this DSEIS, the data and information presented in the 2015 Final EIS regarding the affected environment is hereby incorporated by reference into this DSEIS. Specific section and page number references for this incorporation by reference are provided in **Section 3.2, Resources Affected**, below. Where notable changes to the baseline condition have occurred since 2015, a discussion is included in this DSEIS.

Each resource topic listed below includes the following:

- A reference to the location of the affected environment discussion of that resource topic in the 2015 Final EIS, incorporating by reference the cited information
- A brief description of new data or information, if that data or information would substantially alter the description of the existing condition of that resource topic from the description that was presented in the 2015 Final EIS
- A description of changes to the existing condition of the resource topic that have occurred since the 2015 Final EIS (e.g., a large wildfire), if applicable to the resource topic

Actions that have been authorized since the 2015 ARMPA were authorized consistent with the 2015 Final EIS. The BLM will continue to implement the decisions in the 2015 ARMPA, unless and until those decisions are amended.

Acres figures and other numbers are approximated using geographic information systems (GIS) technology and do not reflect exact measurements or precise calculations. These GIS-derived acreages are reasonable approximations for planning purposes.

3.1.1 USGS Reports

As part of the consideration of whether to amend some, all, or none of the 2015 Greater Sage-Grouse LUPs, 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 on six major topics identified by USGS and BLM, as follows:

- Multiscale habitat suitability and mapping tools
- Discrete human activities
- Diffuse activities
- Fire and invasive species

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

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

- 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).

The BLM has completed a plan maintenance action, whereby the agency has clarified its ability to modify the habitat objective for seasonal habitat indicator values, based upon local data and best available science for Greater Sage-Grouse site selection.

Discrete Human Activities

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

Diffuse Activities

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

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

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

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

This information was considered when determining the scoping issues addressed in **Chapter I, Section I.5**.

Fire and Invasive Species

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

Restoration Effectiveness

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

Restoration activities occur mainly at the implementation level, and the BLM maintains the flexibility to incorporate new tools into its project planning for restoration actions.

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 been 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).

A number of public comments on the 2018 Draft EIS suggested additional studies the BLM should consider in the amendment process. BLM Oregon reviewed the many studies mentioned and updated information in **Chapters 4** and **6** to address new information relevant to Oregon. New information continues to reaffirm the BLM's understanding that Greater Sage-Grouse is a species that selects for large, intact landscapes and habitat patches.

3.2 RESOURCES AFFECTED

In accordance with **Chapter 1, Section 1.5**, the following resources could 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 and hereby incorporates it by reference.

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

Resource Topic	Location of Baseline Information
Greater Sage-Grouse	Chapter 3, Section 3.3 (Greater Sage-Grouse and Greater Sage-Grouse Habitat), pgs. 3-3 to 3-26 (BLM 2015) Additional information regarding population trends, including the status of adaptive management triggers since 2015, is provided in Section 3.3 of this chapter.
Vegetation, including invasive plants, riparian areas, and wetlands	Chapter 3, Section 3.4 (Vegetation), pgs. 3-26 to 3-52 (BLM 2015) Additional information regarding specific RNA vegetation communities is provided in Section 3.4 of this chapter.
Fish and Wildlife	Chapter 3, Section 3.5 (Fish and Wildlife), pgs. 3-52 to 3-74 (BLM 2015) Additional information regarding changes to wildlife habitat is provided in Section 3.5 and 3.6 of this chapter.
Livestock Grazing	Chapter 3, Section 3.8 (Livestock Grazing/Range Management), pgs. 3-87 to 3-97 (BLM 2015) Additional information regarding current livestock grazing conditions and changes with the RNAs since the 2015 ROD/ARMPA is provided in Section 3.7 of this chapter.
Socioeconomics	Chapter 3, Section 3.21 (Socioeconomics), pgs. 3-164 to 3-194 (BLM 2015) and 2015 Final EIS Appendix R Additional information regarding general economic conditions involving RNA pastures is provided in Section 3.8 of this chapter.

3.3 GREATER SAGE-GROUSE

The population trends of Greater Sage-Grouse in the planning area are described in the 2015 Final EIS in Section 3.3.2. Greater Sage-Grouse populations exhibit density-dependent fluctuations over time (Garton et al. 2011). The fluctuation in the annual population size noted in the 2015 Final EIS since at least 1980 continued through 2018.

The spring breeding population of Greater Sage-Grouse in Oregon increased 14.0 percent in 2016, decreased 7.7 percent in 2017, 10.2 percent in 2018, and 24.9 percent in 2019, based on counts of a large proportion of known lek sites (66 percent in 2016, 58 percent in 2017, 70 percent in 2018, and 64 percent in 2019) (Foster 2016, 2017, 2018, 2019). The population increase in 2016 was the third consecutive year of population growth, while the decline in 2017 was the first statewide decline since 2012. In 2019, the state-wide population declined to the lowest level in any year since 1980, and is currently more than 50 percent below the 2003 statewide baseline population of approximately 29,000 individuals.

In addition to interannual variation, population trends varied across the state. In 2016, the Baker Resource Area was the only BLM-administered unit to experience a decline. In 2017, population trends ranged from a 17.1 percent decline in the Burns District to a 1.1 percent increase in the Vale District. In 2018, the magnitude of population trend ranged from a 13.8% decline in the Vale District to a 5.9% increase in the Prineville District. In 2019, population declines occurred in the Burns, Lakeview, Prineville, and Vale BLM Districts. Populations declines 2019 ranged from 17.1% (in Vale) to 35.4% (in Burns). The population trend in the Baker Field Office area appeared stable in 2019. Despite periods of population growth over the past 16 years, the Oregon population estimate has remained below the Oregon Department of Fish and Wildlife (ODFW) statewide population goal of 29,237; however, it has not reached levels that are outside the range of natural variation (Foster 2019).

The adaptive management strategy outlined in Appendix J of the 2015 ROD/ARMPA requires the BLM to annually calculate the hard and soft triggers for habitat and populations within each Oregon PAC. Tripping a soft trigger indicates that management changes may be needed at the implementation level to reduce the likelihood of tripping a hard trigger. Tripping a hard trigger requires the BLM to take immediate and more restrictive plan-level action to address Greater Sage-Grouse conservation objectives.

Results from the calculations of the 2016, 2017, and 2018 triggers are presented in Information Bulletins OR-2017-040, OR-2018-039, and OR-2019-035. Population triggers based on 2019 population data provided by ODFW are currently being calculated by the BLM and the annual Information Bulletin will be issued in Spring 2020. Population triggers were tripped in 8 PACs in 2016 and 7 PACs in 2017 and 2018 (**Table 3-2**, below; **Figure 3-1**, Key RNAs with Soft and Hard Trigger Status). Key RNAs occur in five of the PACs with tripped triggers. Foster Flat RNA is located in a PAC that tripped a hard population trigger in 2017. The Cow Lakes PAC tripped a hard trigger in 2016, 2017, and 2018, because both the population and habitat soft triggers were tripped (when a PAC trips both the habitat and population soft triggers a combined hard trigger results).

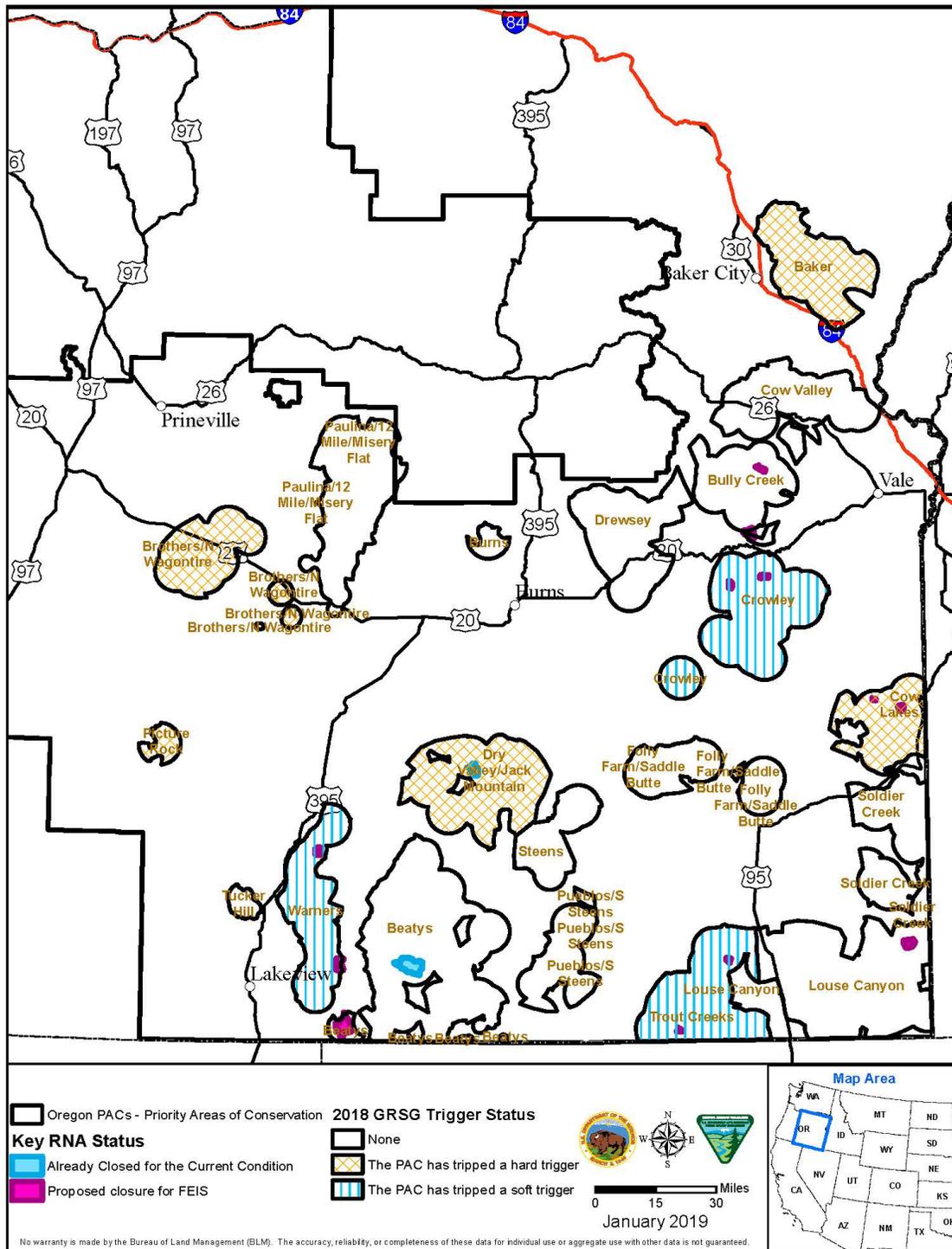
Table 3-2
RNAs within PACs with Tripped Triggers

Mahogany Ridge	Cow Lakes	Soft population and habitat (hard trigger)
Spring Mountain	Cow Lakes	Soft population and habitat (hard trigger)
Lake Ridge	Crowley	Soft population
South Bull Canyon	Crowley	Soft population
Foster Flat	Dry Valley/Jack Mountain	Hard population
Dry Creek Bench	Trout Creeks	Soft habitat
East Fork Trout Creek	Trout Creeks	Soft habitat
Fish Creek Rim	Warners	Soft population
Foley Lake	Warners	Soft population

When an adaptive management trigger is tripped in Oregon, the 2015 ARMPA requires the BLM to conduct a causal factor analysis (CFA) to identify possible causes for crossing the population and/or habitat threshold. The BLM, in cooperation with the ODFW and USFWS, has prepared CFA reports and annual reviews for the five PACs that contain key RNAs. Common and widespread causes identified include fire, invasive annual grasses, degraded native understory vegetation, and fence collision risk. Factors with a possibly significant role are human infrastructure (mostly roads and power lines) and recurring drought.

It is unclear how much the West Nile virus has caused Greater Sage-Grouse population declines or prevented an increase during favorable environmental conditions. The role of geographic and genetic isolation in causing population declines is also unclear.

**Figure 3-1
Key RNAs with Soft and Hard Trigger Status (Updated)**



Of the Oregon PACs with CFAs, the interdisciplinary team for the Cow Lakes PAC lacked sufficient information to determine what role, if any, current grazing practices and the condition of allotments may be playing in the loss of sagebrush cover and Greater Sage-Grouse population declines. Available information on vegetation condition suggests that grazing may play a role, especially as it relates to understory forbs that are important to hens and chicks; however, without land health assessments, the team could not be certain that grazing is a causal factor in any part of the Cow Lakes PAC.

For the other four PACs, livestock grazing was not identified as a causal factor in tripping an adaptive management trigger (**Table 3-2**, RNAs within PACs with Tripped Triggers).

BLM Oregon 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.

3.3.1 Changes Based on Threats

Wildland Fire

The wildland fire threat was discussed in the 2015 Final EIS (Section 3.7, pgs. 3-79 to 3-87) and is hereby incorporated by reference. From 2013 to 2017 there have been a variety of wildfires and habitat treatments intended to improve Greater Sage-Grouse habitat across the West. Since the 2015 rangewide plan decisions, there has been more habitat lost to wildfire than has been gained through treatment; however, the BLM nationally intends to implement more habitat improvements per decisions in the 2015 plans. Projects such as the Great Basin Ecosystem Strategy, under which two programmatic EISs will be prepared for fuel breaks and fuels reduction and rangeland restoration, will further define the tools and priorities for these activities.

This analysis discusses wildfire on the three Oregon districts with key RNAs. RNAs are not subject to vegetation treatments, with the exception of invasive plants; however, none of the invasive plant treatments since the 2015 Final EIS was prepared have occurred in any of the key RNAs.

Over the last ten years (2008–2017), 2,271,740 acres have burned in 1,250 wildfires within the district boundaries. Seventy percent of this acreage occurred in only 2 years: 2012 (1,057,018 acres) and 2014 (533,897 acres). In contrast, the fewest acres in the 10-year period burned in 2010 (1,456 acres). Three years (2012, 2014, and 2015) were above the 10-year average for the three districts, at 227,174 acres burned.

Since 2000, 8 of the 15 key RNAs have been affected by wildfires, although the degree of impact varied (**Table 3-3**). Of particular concern are North Ridge Bully Creek and South Ridge Bully Creek, both of which were affected in 2012 and 2015, as well as in the mid-1990s.

**Table 3-3
Key Research Natural Areas Affected by Wildfires from 2000 through 2017**

Research Natural Area	Fire Year	Fire Name	Approximate Area within Fire Perimeter	Oregon PAC
Dry Creek Bench	2012	Holloway	100%	Trout Creek
East Fork Trout Creek	2012	Holloway	100%	Trout Creek
Foley Lake	2000	Abert	Approx. 10%	Warners
North Ridge Bully Creek	2012	Iron	100%	Bully Creek
	2015	Pole Gulch ¹	100%	
South Bull Canyon	2016	Sheep Rock	Approx. 25%	Crowley
South Ridge Bully Creek	2012	Iron	Approx. 90%	Bully Creek
	2015	Pole Gulch ¹	100%	
Spring Mountain	2007	Old Maid	100%	Cow Lakes
Toppin Creek Butte	2013	Sharon Creek	Approx. 30%	Louse Canyon

¹ Part of the Bendire Complex

The BLM does not know the specifics of how wildfire affected each RNA or which specific vegetation communities actually burned and at what severity; however, recent plot data indicate that North Ridge Bully Creek and South Ridge Bully Creek are now dominated by invasive annual grasses, suggesting some level of interaction between frequent wildfires, drought, and grazing. In fall 2015 following the last fire, aerial herbicide treatments were done to reduce invasive annual grass to maintain values of the two Bully Creek RNAs.

Most of the large fires in eastern Oregon are wind driven, which often creates a complex mosaic of fire effects, ranging from unburned to all vegetation burned. Monitoring trends in burn severity analyses (<https://mtbs.gov/viewer/index.html>) indicate that most of the RNAs experienced low severity to unburned, although data are not yet available for the 2016 and 2017 fires.

The Old Maid fire produced areas of high and moderate severity on the eastern portion of Spring Mountain RNA. The Iron fire was classified as having areas of moderate severity that likely affected both North Ridge Bully Creek and South Ridge Bully Creek RNAs. Although less certain, the Holloway fire appears to have burned with low to moderate severity in Dry Creek Bench RNA but with low to unburned severity in East Fork Trout Creek RNA. These estimates of fire severity have not been ground-truthed. Observations of the Holloway fire indicate the monitoring trends in burn severity underestimates fire severity.

3.4 VEGETATION, INCLUDING NOXIOUS WEEDS, RIPARIAN AREAS, AND WETLANDS

The existing conditions of vegetation and noxious weeds in the planning area are described in the 2015 Final EIS in Sections 3.4 (pgs. 3-26 to 3-52), 3.5 (pgs. 3-52 to 3-74), and 3.8 (pgs. 3-87 to 3-93); they are hereby incorporated by reference.

Since 2013, 404,118 acres of vegetation have been treated or are planned for treatment in Greater Sage-Grouse habitat: conifer removal (227,149 acres), invasive plant control (56,547 acres), habitat protection (89,075 acres), habitat restoration (5,642 acres), and fuel breaks (25,705 acres). None of these treatments occurred or will occur in key RNAs.

Due to the scale of analysis involved, vegetation descriptions were not specific for the key RNAs in the 2015 ARMPA. More detailed descriptions of the vegetation within each key RNA follows, based on establishment reports for each RNA, descriptions in the Final EISs for the applicable RMPs, and any available plot data. The description includes an assessment of which general vegetation type described in the ARMPA (BLM 2015, pp. 3-32 through 3-38) occurs in each key RNA; most often more than one general vegetation type is present. See **Appendix A** for additional information about other features of the key RNAs.

Also present are vegetation types that are ecotonal, including a mix of warm and cool sites and moist and dry site indicator species. These types were classified as Cool-Moist Sagebrush bordering on Warm-Dry Sagebrush, if more cool-moist indicator species were present in the community than warm-dry indicators. Alternatively, they were classified as Warm-Dry Sagebrush bordering on Cool-Moist Sagebrush, if more warm-dry indicator species were present. For example, Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) and Thurber's needlegrass (*Achnatherum thurberianum*) are warm-dry site indicators, while mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), antelope bitterbrush (*Purshia tridentata*), and Idaho fescue (*Festuca idahoensis*) are cool, moist indicators.

Bluebunch wheatgrass (*Pseudoroegneria spicata*) is found on both warm-dry sites and cool-moist sites, while threetip sagebrush (*Artemisia tripartita*) grows on sites that are cooler and moister than typical Wyoming big sagebrush sites but warmer and drier than typical mountain big sagebrush sites.

Low sagebrush (*Artemisia arbuscula*), black sagebrush (*A. nova*), and stiff sagebrush (*A. rigida*) all indicate shallow soils, with black sagebrush also indicating calcareous soils and stiff sagebrush indicating high amounts of surface rock. Silver sagebrush (*A. cana*) indicates alkaline soils and playas.

Whether sites are cool and moist, warm and dry, shallow, calcareous, or alkaline has implications for the types and abundance of forbs and insects important to Greater Sage-Grouse. These conditions also indicate what times of the year and types of year (dry, average, wet) forbs are likely to be green and growing.

Ecological site descriptions provide information useful for assessing probable plant community composition and responses to disturbance, including grazing. The Natural Resources Conservation Service (NRCS) has the primary responsibility for developing and finalizing ecological site descriptions, which are usually developed at the same time as more detailed soil mapping.

Soil mapping is incomplete for Malheur County, so ecological sites have not been described for Dry Creek Bench, Lake Ridge, Mahogany Ridge, South Bull Canyon, and Spring Mountain RNAs; mapping is incomplete for North Ridge Bully Creek and South Ridge Bully Creek RNAs.

Because Foster Flat and Guano Creek-Sink Lakes would remain closed to grazing under both alternatives (in accordance with pre-2015 ROD/ARMPA decisions), ecological site descriptions are not included below. All RNAs include multiple ecological sites.

In the ecological site name, PZ means precipitation zone, which is an estimate of the average annual precipitation and an indicator of the probable resistance to invasion by annual grasses and resilience from disturbance (resistance and resilience). The lower the precipitation, the lower the resistance and resilience (Chambers et al. 2014a, 2014b).

Sites with less than 12 inches average annual precipitation are usually considered to have low resistance and resilience. Sites with average annual precipitation of 12 to 16 inches are usually considered moderately resistant and resilient, and sites with greater than 16 inches average annual precipitation are usually considered to have high resistance and resilience. These rough guidelines are further modified by temperature and aspect (Chambers et al. 2014a, 2014b). Generally, the warmer the site, the lower the resistance and resilience.

Black Canyon RNA. The Oregon Natural Heritage Plan (ONHP 2015) cells included in this RNA are stiff sagebrush/Sandberg bluegrass (*Poa secunda*) (Shallow-Dry Sagebrush), and western juniper/big sagebrush/bluebunch wheatgrass (*Juniperus occidentalis/Artemisia tridentata*) (Western Juniper) (BLM 2002). Stiff sagebrush communities cover large areas of the more level upland plateau, and some large areas have so little soil that only Sandberg bluegrass and early-blooming forbs are present.

North aspects also support Wyoming big sagebrush/Idaho fescue (Warm-Dry Sagebrush bordering on Cool-Moist) and bluebunch wheatgrass canyon grasslands. Alluvial deposits in the canyon bottom support small patches of basin big sagebrush/Nevada bluegrass (*Artemisia tridentata* ssp. *tridentata/Poa nevadensis*) (Warm-Dry Sagebrush) (BLM 1996). Although once considered a separate species, Nevada bluegrass is now considered Sandberg bluegrass by NRCS and *Poa secunda* ssp. *juncifolia* in the Flora of Oregon (Halvorson 2011).

The RNA also includes an intermittent stream that carries water long enough in the year to support a riparian wetland, dominated by coyote willow (*Salix exigua*) and Pacific willow (*S. lucida* ssp. *lasiandra*) (BLM 2002). Alder also is present (RNA observation record 2006).

Other species associated with the riparian areas and seeps include aspen (*Populus tremuloides*), serviceberry (*Amelanchier alnifolia*), mock orange (*Philadelphus lewisiai*), gooseberry (*Ribes* spp.), and hairy snowberry (*Symphoricarpos mollis*) in the headwaters area. Willows are located farther down in the canyon, along with bitter cherry (*Prunus emarginata*) (BLM 1996a). There also is a small stand of black cottonwood lower down in the riparian drainage. Small areas of the invasive whitetop (*Cardaria draba*) and scotch thistle (*Onopordum acanthium*) are documented at Antelope Spring (RNA observation records 2004, 2007).

The three most common ecological sites are JD Clayey 12- to 16-inch PZ (approximately 31 percent), JD Mahogany Rockland 9- to 12-inch PZ (approximately 35 percent), and JD North 12- to 16-inch PZ (approximately 8 percent). The coyote willow riparian ecological site, which is potentially important for Greater Sage-Grouse late brood-rearing habitat, comprises only 0.3 percent.

Other ecological sites in the 9- to 12-inch PZ include Droughty Fan, JD Droughty Shallow South, JD Droughty South, JD North, JD Shallow, JD Shallow North, and JD Shallow South. Other ecological sites in the 12- to 16-inch PZ include JD Mahogany Rockland, JD Mountain North, and JD Shallow South.

Recently completed AIM plots indicate a high proportion (over 50 percent cover) of annual grasses dominated by cheatgrass are now present in the RNA. Wyoming big sagebrush cover is 7.3 percent and native perennial grass is 27.33 percent. Perennial and annual forb cover, including species that have value for Greater Sage-Grouse hens and chicks, is 4 percent.

Dry Creek Bench RNA. This RNA contains the ONHP cells mountain mahogany-mountain snowberry/Idaho fescue (*Cercocarpus ledifolius-Symphoricarpos oreophilus/Festuca occidentalis*) (Mountain Brush) and mountain mahogany-big sagebrush/Idaho fescue (Mountain Brush) (BLM 2002). Low sagebrush flats with Idaho fescue, Thurber's needlegrass, bottlebrush squirreltail (*Elymus elymoides*), Sandberg bluegrass, and several buckwheat species (*Eriogonum* spp.) (Shallow-Dry and Warm-Dry Sagebrush) surround the mountain mahogany stands (BLM 1996b).

Low sagebrush cover was documented in recent plots at 4.9 percent and Mountain big sagebrush was 3.1 percent cover. Mountain mahogany has 47.6 percent cover and snowberry is at 20 percent. The area has a diverse understory, with 49 forb species and 11 native perennial grass species.

Invasive annual grasses had fairly low cover of 9.3 percent, and bulbous bluegrass (*Poa bulbosa*) is present (RNA observation records 2008). Over 70 percent of the forb species documented are ones that have value as food and substrate for insects for Greater Sage-Grouse hens and chicks.

East Fork Trout Creek RNA. The ONHP cells included are a riparian community dominated by quaking aspen (*Populus tremuloides*) intermixed with Scouler's willow (*Salix scouleriana*) (Aspen or Riparian-Wetland) and a high elevation wet meadow (Riparian-Wetland) (BLM 2004). Quaking aspen covers about one-third of the RNA, with a dense canopy and little vegetation in the understory. The wet meadows occur in areas with several springs that keep the ground saturated. Sedges and rushes dominate with occasional willow patches and several wetland-associated forbs (BLM 2007).

Much of the RNA consists of mountain big sagebrush, with needlegrasses (*Achnatherum* spp.), mountain brome (*Bromus carinatus*) and Idaho fescue (Cool-Moist Sagebrush). Other shrubs present include wax currant (*Ribes cereum*), serviceberry, and roundleaf snowberry (*Symphoricarpos rotundifolius*); depending on the extent of these other shrubs, the plant community type may be Mountain Brush. Snow accumulation areas that melt late in the year support little to no sagebrush. Numerous forbs are also present (BLM 2007).

Four ecological sites are present in East Fork Trout Creek RNA. The most common is Aspen 16- to 35-inch PZ at nearly 62 percent of the area. Shallow Loam 16- to 25-inch PZ comprises about 27 percent of the RNA and Loamy 12- to 16-inch PZ about 12 percent. The remaining 1 percent is Deep North 12- to 18-inch PZ.

Fish Creek Rim RNA. The ONHP cells present include mountain big sagebrush-antelope bitterbrush/Idaho fescue (Cool-Moist Sagebrush), low sagebrush/Idaho fescue scabland (Cool-Moist Sagebrush), mountain mahogany-mountain big sagebrush (Mountain Brush), and the snowberry-bittercherry (*Symphoricarpos* spp.-*Prunus emarginata*) complex (Mountain Brush) (BLM 2003).

Low sagebrush plant communities dominate, with intermingled patches of big sagebrush, and an isolated grove of aspen, white fir (*Abies concolor*), and ponderosa pine (*Pinus ponderosa*) (The Nature Conservancy 1992; BLM 2000). Mountain mahogany forms extensive stands in the rimrock area, with bittercherry and snowbrush ceanothus (*Ceanothus velutinus*) (The Nature Conservancy 1992).

Western juniper is scattered across the site, especially in the eastern rimrock area (BLM 2000), with an average of 4 percent cover. Recent vegetation plots in the RNA list low sage cover at 11.8 percent and Mountain Big Sagebrush at 8.7 percent.

Within the sagebrush communities there is a rich understory of 37 forb species, 29 of which have high and moderate value as food for Greater Sage-Grouse hens and chicks.

Perennial grass cover is 18.67 percent, and there are no annual grasses documented in recent plots, although National Invasive Species Management Information System (2018) documents less than 1 acre of cheatgrass (*Bromus tectorum*) in the RNA, with 30 percent cover. There are some areas along a road with 5 percent cover of an invasive mustard, whitetop (*Lepidium draba*) (National Invasive Species Management Information System 2018). In 2014 and 2017, there were some roadside weed treatments in the RNA for whitetop.

The most common ecological site in the Fish Creek Rim RNA is Claypan 12- to 16-inch PZ, comprising about 67 percent of the area. South Slopes of 12- to 16-inch PZ covers around 16 percent and Loamy 12- to 16-inch PZ about 10 percent. The remaining ecological sites present include Loamy 10- to 12-inch PZ, North Slopes 10- to 12-inch PZ, and South Slopes 10- to 12-inch PZ.

Foley Lake RNA. This RNA contains the ONHP cell black sagebrush/bunchgrass (Shallow-Dry Sagebrush) (BLM 2003). Foley Lake is a seasonally dry playa; in wet years it holds some water until August. Black sagebrush has 13.54 percent cover and is intermingled with a diverse mosaic of Wyoming big sagebrush/bunchgrass (6.1 percent cover) and low sagebrush/bunchgrass communities with bud sage (*Picrothamnus desertorum*) in the area (Warm-Dry Sagebrush).

Bottlebrush squirreltail with scattered Idaho fescue occur within the Black Sagebrush community, while the Wyoming big sagebrush community contains nearly equal proportions of Idaho fescue and bottlebrush squirreltail.

Western wheatgrass (*Pascopyrum smithii*) and tufted hairgrass (*Deschampsia caespitosa*) are present along the margins of the playa. Cheatgrass is at 3.8 percent cover. Native perennial grass cover in the RNA averages about 9 percent.

Silver sagebrush dominates the southern edge of the playa (BLM 2000), with 18.1 percent cover. The RNA understory is not very diverse, with only 11 forb species documented in recent plots, and most of the cover is spike rush (*Elocharis* sp., 25 percent cover) and ruderal species, like Tansyleaved evening primrose (*Camissonia tanacetifolia*; 6.4 percent cover) and the nonnative hoarycress (*Lepidium draba*; 11 percent cover). The invasive plant spiny cocklebur is present in a small area (0.003 acres), with 10 percent cover. Six forb species with value for Greater Sage-Grouse as food for hens and chicks collectively have cover of 4.5 percent.

Six ecological sites are found within the Foley Lake RNA, with Loamy 10- to 12-inch PZ the majority type, at nearly 73 percent of the area. Claypan 10- to 12-inch PZ is the next most common ecological site, at 17 percent of the RNA. Pondered Clay comprises about 2 percent of the area. The remaining ecological sites include Droughty Loam 11- to 13-inch PZ and North Slopes 10- to 12-inch PZ.

Foster Flat RNA. This RNA contains the ONHP cell silver sagebrush/Nevada bluegrass (*Poa nevadensis*) and a silver sagebrush/spike rush (*Eleocharis* sp.) (Playa). Silver sagebrush cover averages about 35 percent. Areas within the heart of the playa are dominated (55 percent cover) with tansyleaved evening primrose. Areas outside the playa contain low sagebrush/Sandberg bluegrass communities, with low sage cover of 44 percent and a rich understory of forbs.

The playa area also contains areas with basin wildrye (*Leymus cinereus*), creeping wildrye (*L. triticoides*), and silver sagebrush/green rabbitbrush (*Chrysothamnus viscidiflorus*), with greasewood (*Sarcobatus vermiculatus*) and a Wyoming big sagebrush/Thurber's needlegrass community (27 percent sagebrush cover) occurs around the rim (BLM 1991; Taylor 2004).

Forb species (annuals and perennials) collectively have an average cover of about 10.4 percent. Species that are important for Greater Sage-Grouse hens and chicks for food make up nearly 45 percent of all the forb species in the RNA.

Guano Creek-Sink Lakes RNA. This RNA contains ONHP cells for Wyoming big sagebrush/needle-and-thread grass (*Artemisia tridentata* ssp. *wyomingensis*/*Hesperostipa comata*) (Warm-Dry Sagebrush), low sagebrush/Sandberg's bluegrass (Shallow-Dry Sagebrush), and silver sagebrush/basin wildrye (Playa), along with a riparian-wetland type vernal pool and a riparian community dominated by willow (*Salix* spp.) (BLM 2003).

The Sink Lakes portion contains low sagebrush/Sandberg bluegrass scabland (Shallow-Dry Sagebrush) on the uplands and two vernal lakes surrounded by silver sagebrush plant community types with silver sagebrush/Nevada bluegrass in the middle on the northwestern lake (Playa). In wetter years, the playas support a number of forbs and alkaline-tolerant grasses and rushes (BLM 2000). The Guano Creek portion contains the Wyoming big sagebrush/needle-and-thread plant community, along with a willow-dominated riparian area in the lower creek bed and a rich community of basin wildrye and forbs in the upper creek bed. Some invasive plants are present although the nomination report does not state which species (BLM 2000). Sagebrush cover in the RNA is documented at 18.32 percent, and perennial grass cover is at 13.6 percent; no invasive annual grass cover was documented.

Lake Ridge RNA. The ONHP cells present include low sagebrush (*Artemisia arbuscula*)/bluebunch wheatgrass (Warm-Dry Sagebrush) and low sagebrush/Idaho fescue (Cool-Moist Sagebrush), along with a natural pond that provides a perennial source of water (Riparian-Wetland) (BLM 2002). The bluebunch wheatgrass type is more extensive than the Idaho fescue type. Low sagebrush cover averages 19.2 percent.

Some small areas with rigid sage are present, and Wyoming big sagebrush also exists in the southwestern edge of the RNA. That same portion also includes a patch of Mountain Brush, dominated by mountain big sagebrush, mountain snowberry, golden currant (*Ribes aureum*) and serviceberry, with Idaho fescue, rough bluegrass (formerly *Poa scabrella*, now part of the *P. secunda* complex), and blue wildrye (*Elymus glaucus*), along with numerous forbs (BLM 1996c).

Vegetation plots document 24 forb species in the understory, with 17 (70.8 percent) of the species having value for Greater Sage-Grouse hens and chicks. Invasive annual grass is present in some areas, showing up in about 25 percent of the vegetation plots.

Lake Ridge RNA includes several small playas dominated by silver sagebrush (*Artemisia cana*)/Nevada bluegrass (Playa), with bottlebrush squirreltail and Idaho fescue present in small amounts (BLM 1996c).

Mahogany Ridge RNA. The ONHP cells have mountain mahogany-big sagebrush and mountain mahogany-Oregon grape (*Mahonia aquifolium*) complexes (Mountain Shrub) and mountain big sagebrush-

mountain mahogany/slender wheatgrass (*Elymus trachycaulus*)-bluebunch wheatgrass community (Cool-Moist Sagebrush) (BLM 2002).

Mountain mahogany and mountain big sagebrush have cover of 31.56 percent and 6.99 percent, respectively. The original RNA contained the mountain mahogany plant communities, with the addition of mountain big sagebrush-mountain mahogany/slender wheatgrass-big bluegrass.

Understory forb species are diverse, with 46 species being documented in plots, and 31 species having value for Greater Sage-Grouse forbs and chicks. The addition also includes considerable area in mountain big sagebrush/bluebunch wheatgrass (Cool-Moist Sagebrush bordering on Warm-Dry Sagebrush). This RNA has the most extensive stand of mountain mahogany in Oregon (BLM 1996d).

North Ridge Bully Creek RNA. The ONHP cells in this RNA include Wyoming big sagebrush-Thurber's needlegrass (Warm-Dry Sagebrush) and Wyoming big sagebrush-threetip sagebrush/Idaho fescue (Warm-Dry Sagebrush bordering on Cool-Moist Sagebrush) (BLM 1996e, 2002). Sagebrush cover is low, about 4 percent, and perennial grass cover is 21.33 percent.

Invasive annual grasses, especially cheatgrass, is present, with over 90 percent of recent plots having some cheatgrass present; The BLM weed database lists cheatgrass cover at 5 percent. Medusahead (*Taeniatherum caput-medusae*) is also documented, with cover estimated at 5 percent.

Additional plant communities present include Wyoming big sagebrush-wild crab apple (*Peraphyllum ramosissimum*)/Idaho fescue, Wyoming big sagebrush-threetip sagebrush/bluebunch wheatgrass, threetip sagebrush/bluebunch wheatgrass (all Warm-Dry Sagebrush bordering on Cool-Moist Sagebrush), threetip sagebrush/Idaho fescue, and threetip sagebrush-wild crab apple/Idaho fescue (both Cool-Moist Sagebrush bordering on Warm-Dry Sagebrush).

The RNA also has small inclusions of stiff sagebrush/Sandberg bluegrass (Shallow-Dry Sagebrush).

Several species of tall, deep-rooted bunchgrasses are present, along with Sandberg bluegrass and small amounts of cheatgrass (BLM 1996e). Twenty-one understory forb species are documented in vegetation plots, with about half of them having value for Greater Sage-Grouse hens and chicks.

While the RNA includes several headwaters areas, flow is ephemeral and a distinctive riparian community is not present.

The most common ecological site in North Ridge Bully Creek RNA is SR Very Shallow 9- to 12-inch PZ at 55 percent of the area. SR Shallow South 9- to 12-inch PZ comprises 10 percent and SR South 9- to 12-inch PZ 6 percent of the RNA. Twenty-nine percent of the RNA has not been classified.

Following wildfire, the RNA was aerially sprayed in 2015 with Imazapic herbicide, targeting invasive annual grasses to help maintain the values (NISMIS treatment database 2015). The District Botanist in 2017 stated the treatment was effective, but longer-term effectiveness data are not available (Fritts 2018).

Rahilly-Gravelly RNA. This RNA contains ONHP cells western juniper/big sagebrush-antelope bitterbrush (Western Juniper), mountain big sagebrush-mountain snowberry-wild crab apple (Mountain

Brush), and antelope bitterbrush-big sagebrush-mountain snowberry/Thurber's needlegrass mosaic (Cool-Moist Sagebrush bordering on Warm-Dry Sagebrush). It also contains large areas of low sagebrush on lithic soil flats (Shallow-Dry Sagebrush) (BLM 2000).

Recent vegetation monitoring documented Wyoming big sagebrush at 19.7 percent cover and low sage at 34.3 percent cover on the flats. Perennial grasses are diverse, with 11 species documented and cover was between 9 and 13 percent. Invasive annual grass cover averaged 15.1 percent, dominated by cheatgrass and soft chess (*Bromus hordeaceus*). Several areas of other noxious weeds are documented, with populations of Mediterranean sage (*Salvia aethiopis*), Spiny cocklebur (*Xanthium spinosum*), bull and Canada thistle (*Cirsium vulgare*, *C. arvense*) present in small areas (NISMIS 2018).

The RNA is diverse in forb species, with 45 species documented and 29 species (64 percent of all forbs) that are important to Greater Sage-Grouse hens and chicks as food or substrate for insects.

Western juniper occurs across the site as open stands of older trees (Juniper Savanna) and occasional dense clumps of younger trees in small pockets on side slopes. Wyoming big sagebrush is common at the lower elevations and mountain big sagebrush is common at the upper elevations of the RNA.

Idaho fescue is the dominant grass species, with bluebunch wheatgrass, Sandberg bluegrass, and Thurber's needlegrass. Big sagebrush, low sagebrush, antelope bitterbrush, and wild crab apple have nearly equal cover across the RNA (BLM 2000).

Rahilly-Gravelly RNA includes 11 ecological sites. The most widespread ecological site is Thin Surface Claypan 10- to 16-inch PZ at 53 percent of the area, followed by Clayey 10- to 12-inch PZ (17 percent) and Loamy 8- to 10-inch PZ (16 percent). Ecological sites in the 6- to 10-inch PZ are Desert Loam, Loamy Slopes, Low Sodic Terrace, and Sodic Meadow. Ecological sites in the 12- to 16-inch PZ are Claypan, Deep Loamy, and South Slopes. The only other site in the 10- to 12-inch PZ is South Slopes.

South Bull Canyon RNA. The ONHP cell in this RNA consists of Wyoming big sagebrush-antelope bitterbrush/Idaho fescue (Cool-Moist Sagebrush) (BLM 2002). Several phases of this plant community are present, including Wyoming big sagebrush-antelope bitterbrush/bluebunch wheatgrass (Warm-Dry Sagebrush bordering on Cool-Moist Sagebrush), Wyoming big sagebrush/Idaho fescue (Cool-Moist-Sagebrush bordering on Warm-Dry Sagebrush), Wyoming big sagebrush/Thurber's needlegrass (Warm-Dry Sagebrush), and basin big sagebrush-Wyoming big sagebrush/bluebunch wheatgrass (Warm-Dry Sagebrush).

A low sagebrush/bluebunch wheatgrass community is located on a flat at the south end of the RNA near Prava Peak Reservoir No. 3 (BLM 1996f). Low sagebrush cover averages 4.15 percent and Wyoming big sagebrush averages 5.55 percent cover in the RNA. The understory forb layer is fairly diverse, with 20 of the 32 herbaceous forb species having value for Greater Sage-Grouse hens and chicks. The frequency of invasive annual grasses was 88 percent in recent plots, but there is no information on cover percent associated with these plots.

Additional information from the BLM noxious weed layer (NISMIS 2018) lists medusahead rye at 1 percent cover on 13 acres in 2017. In 2007 RNA observation reports documented heavy tent caterpillar infestation on bitterbrush, and Aroga moth was documented on sagebrush in the west side of the RNA

in 2005. In a wildfire burn area in the southern part of the RNA, aerial spraying of Imazapic targeting annual grasses was done in 2017 to help maintain the values of the RNA (NISMIS 2018).

South Ridge Bully Creek RNA. The ONHP cells are Wyoming big sagebrush/Thurber's needlegrass (Warm-Dry Sagebrush) and Wyoming big sagebrush-wild crab apple/Idaho fescue (Warm-Dry Sagebrush bordering on Cool-Moist Sagebrush) (BLM 1996g, 2002). Wyoming big sagebrush has a cover of 4.6 percent and rabbitbrush (*Chrysothamnus* and *Ericameria* spp.) averages 4.1 percent.

Other plant communities present include Wyoming big sagebrush-threetip sagebrush/Idaho fescue, Wyoming big sagebrush-threetip sagebrush/bluebunch wheatgrass, threetip sagebrush/bluebunch wheatgrass (all Warm-Dry Sagebrush bordering on Cool-Moist Sagebrush), threetip sagebrush/Idaho fescue, threetip sagebrush-wild crab apple/Idaho fescue (both Cool-Moist Sagebrush bordering on Warm-Dry Sagebrush), and antelope bitterbrush-wild crab apple/Indian ricegrass (*Achnatherum hymenoides*).

Several species of tall, deep-rooted bunchgrasses are present, with most species typical of the Warm-Dry Sagebrush type. Cheatgrass is present in small amounts (BLM 1996g); however, recent plots documented cheatgrass in 79.8 percent frequency in plots; the level of cover is not known.

The invasive species white top (*Cardaria draba*) has been documented along the main road in the RNA (RNA observation report 2008), and small patches of scotch thistle (*Onopordum acanthium*) exist (RNA observation report 2005).

As with the North Ridge Bully Creek RNA, several headwater areas are present, but flow is ephemeral, with no distinct riparian community present (BLM 1996g). Some Aroga moth damage to sagebrush was documented in 2005 and 2008.

Following a recent wildfire, the RNA was aerially sprayed with Imazapic herbicide, targeting invasive annual grasses to help maintain the values (NISMIS treatment database 2015). The District Botanist in 2017 stated that the treatment was effective, but longer-term effectiveness data are not available (Fritts 2018).

Only a small portion of South Ridge Bully Creek RNA has not been classified. The most common ecological site is SR Loamy 9- to 12-inch PZ at 82 percent of the area, followed by SR Shallow South 9- to 12-inch PZ (9 percent) and SR South 9- to 12-inch PZ (7 percent). The remaining ecological site is SR Very Shallow 9- to 12-inch PZ.

Spring Mountain RNA. This RNA includes ONHP cells for mountain big sagebrush/Idaho fescue (Cool-Moist Sagebrush), low sagebrush/bluebunch wheatgrass (Warm-Dry Sagebrush), and Riparian-Wetland communities dominated by peachleaf willow (*Salix amygdaloides*) and coyote willow, with the quaking aspen/mountain snowberry (Aspen) cell present (BLM 2002). Sagebrush cover is 14.6 percent.

The northern portion of the RNA consists of steep scree, with chokecherry (*Prunus virginiana*), mountain snowberry, aspen, and mock orange (*Philadelphus lewisii*). Low sagebrush/bluebunch wheatgrass occurs on the northwestern portion of the tableland above the scree, with low sagebrush/Idaho fescue (Cool-Moist Sagebrush) and low sagebrush/Thurber's needlegrass (Warm-Dry Sagebrush) along the eastern edge.

Mountain big sagebrush plant communities dominate the higher peaks, ridges, and slopes, with mountain big sagebrush/Idaho fescue (Cool-Moist Sagebrush) being the most widespread, mixing with mountain big sagebrush-mountain snowberry/Idaho fescue (Cool-Moist Sagebrush) on steeper north and east aspects (BLM 1996h).

Understory forb species diversity is not high—only 19 species are documented—but 10 species (52.6 percent) have value for Greater Sage-Grouse hens and chicks for food. The documented perennial grass cover is very high (88 percent), perhaps due to recent fire wildfires or to data entry errors. Cheatgrass cover was documented at 12.6 percent.

This RNA includes several springs, usually supporting small stands of aspen. A willow stand with several different species of willow occurs below a spring on the north end (BLM 1996h).

Toppin Creek Butte RNA. The ONHP cells included in this RNA are low sagebrush/Idaho fescue (Cool-Moist Sagebrush) and low sagebrush/bluebunch wheatgrass (Warm-Dry Sagebrush) (BLM 2002). A large playa named Bull Flat Lake lies at the lowest elevations and is a source for Bull Creek, which flows through the southeast part of the RNA.

The silver sagebrush/Nevada bluegrass (Playa) plant community type encircles Bull Flat Lake. The low sagebrush/Idaho fescue plant community dominates Toppin Creek Butte. Low sagebrush cover is between 14 and 17.8 percent. Sandberg bluegrass dominates on shallower soils, while bluebunch wheatgrass dominates on deeper soils.

Perennial grass cover is documented at between 35 and 48 percent. The area supports a variety of forbs and one lone western juniper tree. Thirty-six forb species are documented in recent plots, with twenty-four species (66.6 percent) having important value for Greater Sage-Grouse hens and chicks.

Invasive plants are present in disturbed areas and along the road that bisects the RNA (BLM 1996i). Cheatgrass is present, occurring in 70 percent of all plots, but a recent site evaluation listed cheatgrass as present in trace amounts and patchy. The exact cover percent is not known.

Cattle use in most of the RNA is low (little water), with most of the spring use at Bull Flat Playa (RNA observation records 2011). An occurrence of *Pogogyne floribunda* (profuse-flowered pogogyne), a BLM sensitive plant, occurs at Bull Flat Playa under the silver sage.

Toppin Creek Butte contains five ecological sites, with nearly equal presence of Ashy Plateau 11- to 13-inch PZ (29 percent), Shallow Claypan 11- to 13-inch PZ (29 percent), and Loamy 11- to 13-inch PZ (28 percent). Loamy 8- to 11-inch PZ covers 12 percent of the RNA and the remaining 2 percent consists of Pondered Clay.

The existing conditions of riparian/wetland areas are described in Section 3.5, pgs. 3-35 through 3-36, in the 2015 Final EIS; they are hereby incorporated by reference. Prior to 2012, 8 of the 13 key RNAs had land health assessments completed (see Appendix N in the 2015 Final EIS).

Standard 2 (Watershed Function-Riparian/Wetlands) was not met, due to livestock grazing in one allotment within the Black Canyon RNA and one allotment within the Foley Lake RNA. Management changes were implemented to make progress toward attainment of the standard. Since 2013 (results

post-2013 were not included in Appendix N in the 2015 ARMPA), land health assessments were completed in allotments in East Fork of Trout RNA (2015), Fish Creek Rim RNA (2013), and Rahilly Gravelly RNA (2013). All rangeland health standards were met, indicating that no adjustments to current grazing management is needed.

3.5 FISH AND WILDLIFE

The existing conditions of fish and wildlife in the planning area are described in the 2015 Final EIS in Section 3.5.1 (pgs. 3-56 to 3-70) and trends are described in Section 3.5.2 (pgs. 3-71 to 3-74); they are hereby incorporated by reference.

Since 2015, the BLM has obtained no new monitoring data or other information that would indicate a change in the status and trends of fish and wildlife occurring in the key RNAs. Wildfires likely altered vegetation components of wildlife habitat in some key RNAs since 2015, although the effects have not been monitored. As noted above, wildfires burned all or a portion of three key RNAs in 2015–2016. Two of the RNAs (North Ridge Bully Creek and South Ridge Bully Creek) burned in 2012 and 2015. These wildfires are too closely spaced in time for substantial changes to the habitat to occur since the 2012 fire. The third RNA (South Bull Canyon) was partially burned in 2016. The BLM did not monitor wildlife use of burned areas of the South Bull Canyon RNA, so it does not know what impacts if any occurred on other wildlife.

Wildlife is identified in the RNA establishment reports as a relevant and important value for six RNAs: Black Canyon, Lake Ridge, Mahogany Ridge, North Ridge Bully Creek, South Ridge Bully Creek, and Toppin Creek Butte.

Mule deer, bighorn sheep, and pronghorn antelope are specifically mentioned in the RNA establishment reports for four RNAs on the Lakeview District (Fish Creek Rim, Foley Lake, Guano Creek–Sink Lakes, and Rahilly-Gravelly) and two RNAs on the Burns District (East Fork Trout Creek and Foster Flat); however, none of the establishment reports for these six RNAs in Lakeview and Burns identified wildlife as meeting the RNA establishment criterion for relevance and importance. This was due to the absence of crucial habitat.

3.6 SPECIAL STATUS SPECIES

The existing conditions of special status species in the planning area are described in the 2015 Final EIS in Section 3.5.1 (pgs. 3-56 to 3-70), and trends are described in Section 3.5.2 (pgs. 3-71 to 3-74). They are hereby incorporated by reference.

The BLM updated its special status species list on July 29, 2015 (see IM No. OR-2015-028). Since 2015, the agency has obtained no new monitoring data or other information that would indicate a change in the status and trends of special status species identified in the 2015 list occurring in the key RNAs. A few key RNAs contain current or former BLM special status species.

No critical habitat has been designated within the key RNAs. Most information comes from the BLM Geographic Observation data base (GeoBOB), and observation data from the Oregon Biodiversity Information Center (ORBIC). These databases and the Forest Service's Region 6 Wildlife Database were queried for wildlife records that intersect with the key RNAs (GeoBOB 2018; ORBIC 2018). There are no known populations of any federally listed endangered plants in any of the key RNAs.

Foley Lake RNA contains a candidate for Oregon state listing, *Rorippa columbiae* (Columbia cress), a playa “edge” species that is in decline rangewide (*Rorippa columbiae* Conservation Strategy 2016). This species has a NatureServe rank of global and state vulnerable (G3 S3) and is listed in the State of Washington. This rare plant is known from about 15 occurrences in Northern California, 13 in southern Oregon, and at the Hanford Reach in Washington. At Foley Lake, 85 stems were last documented in 2016.

In southern Oregon approximately 11,380 plants are documented at 13 sites, but 8 sites have fewer than 85 plants. Also occurring is profuse-flowered pogogyne (*Pogogyne floribunda*), a state-imperiled (G4 S1) species in the silver sage community. This tiny annual member of the mint family occurs in the intermediate moisture zone of the playa edge, outside the habitat occupied by Columbia cress. Three Greater Sage-Grouse leks are documented within 1 to 2 miles of the RNA (BLM 2015, Key RNA descriptions).

Rahilly-Gravelly RNA contains five occurrences of Cooper’s goldflower (*Hymenoxys cooperii* var. *canescens*). This rare aster has a global and state rank of G4 S1 (state critically imperiled), with fewer than 400 plants total in the RNA (BLM GeoBOB 2014), mostly in the Sucker Creek pasture. Only one other location is known in Oregon, in the Trout Creek Mountains in southeastern Oregon. Other populations occur across the California border in Modoc County, in the Sierra Nevada, and scattered populations in the Great Basin in Nevada, Utah, and Arizona. Eight Greater Sage-Grouse leks are documented in the RNA and two additional leks occur within 1 to 2 miles of the RNA.

The East Fork of Trout Creek RNA contains the grass, rock melic (*Melica stricta*), an Oregon Biodiversity Information Center G4 S3 (state vulnerable), Oregon List 2 species (threatened in Oregon but secure elsewhere), and a former BLM sensitive species. Large populations of Rock melic are documented throughout this area, both in the RNA and outside the RNA in the surrounding landscape. Columbia spotted frog is identified in the RNA establishment report. One Greater Sage-Grouse lek is documented 0.8 miles east of the RNA, and Greater Sage-Grouse have been recorded within the RNA.

Mahogany ridge RNA contains three occurrences of Owyhee clover (*Trifolium owyheeense*), out of 81 sites documented on the Vale District and in the state. The species is listed by the State of Oregon as endangered. All sites are small, and the total known occupied area is 254 acres (GeoBOB 2014), or about 3 acres per site. This endemic clover has a NatureServe rank of G2 S2 (globally and state imperiled). Last documented in 2001, the three sites were estimated to have about 2,000 plants (GeoBOB 2018). The species was in the RNA, outside the area designated as unavailable to grazing in the 2015 AMRPA. The species occurs in Wyoming big sagebrush communities. Two Greater Sage-Grouse leks occur 3 to 4 miles from the RNA, to the northeast and southeast.

The North Ridge of Bully Creek has a documented occurrence of thyme-leaved buckwheat (*Eriogonum thymoides*). This former BLM sensitive species is still tracked by ORBIC as a list 3 species (still some concern), but it has been found to be more abundant elsewhere in the state. No population level information is available other than presence. Greater Sage-Grouse were also observed in 2008 (RNA Observation Reports 2008). In 2007, the invasive species whitetop was documented close to an active Greater Sage-Grouse lek. Five Greater Sage-Grouse leks are within the RNA, and eight leks are known within 2 to 4 miles of the RNA, including one lek in the adjacent South Ridge Bully Creek RNA.

South Ridge of Bully Creek RNA has documented occurrences of Greater Sage-Grouse, with one lek documented inside the RNA. Pygmy rabbits have also been documented.

Toppin Creek RNA has an occurrence of profuse-flowered pogogyne, a BLM sensitive plant, on the playa. This G4 S1 (state imperiled) species occurs at Bull Flat Playa with silver sage plants. This population was last documented to have 4,000 plants in 2005.

Toppin Creek Butte is identified as a particularly important area for neotropical migratory birds, possibly including special status species. Greater Sage-Grouse are documented in the RNA, with one lek within the RNA and two more within 1.6 to 2.6 miles of the RNA boundary.

Black Canyon RNA contains Columbia spotted frog and Redband trout (species of concern), as identified in the RNA establishment report, dated April 12, 1996. Greater Sage-Grouse have been observed in the RNA (RNA Observation Report 2002, 2004, 2005). Two Greater Sage-Grouse leks occur 2 to 3 miles to the north and east of the RNA.

Foster Flat RNA contains pygmy rabbit, as identified in the RNA establishment report. Two Greater Sage-Grouse leks occur 2 to 3 miles east of the RNA. Greater Sage-Grouse have been documented within the RNA, and this area has long been used for hunting Greater Sage-Grouse (Taylor 2004).

South Bull Canyon RNA: RNA Observation Reports (2003) mention Greater Sage-Grouse use and nesting habitat and concern for level of grazing utilization. There are 10 Greater Sage-Grouse leks occurring within 1.4 to 2.4 miles of the RNA.

Dry Creek Bench RNA is within a block of land that the BLM is managing for Lahontan cutthroat trout, but there are no records of the species occurring within in the RNA. Three Greater Sage-Grouse leks occur between 1.5 and 2.5 miles north and west of the RNA.

Lake Ridge RNA has documented use by Greater Sage-Grouse; one female was observed in 2005 (RNA Observation Reports 2005). In 2004, RNA Observation Reports documented some use by domestic sheep potentially affecting forbs that are used by Greater Sage-Grouse. One Greater Sage-Grouse lek occurs in the RNA and 4 leks occur 0.1 to 1 mile north of the RNA boundary.

Spring Mountain RNA has 15 Greater Sage-Grouse leks occurring within 1.8 to 3.8 miles of the RNA to the east, south, and west.

Guano Creek - Sink Lakes RNA has documented occurrences of Greater Sage-Grouse and contains two more leks 1 to 2 miles to the north and southwest in the High Lakes ACEC. This currently ungrazed RNA has one occurrence of a BLM sensitive species, grimy ivesia (*Ivesia rhypara* var. *rhypara*), a G2 S1 state critically imperiled species, and another endemic, Crosby's buckwheat (*Eriogonum crosbyae*), a G3 S2 species (state imperiled) species.

The ivesia occupies 0.2 acres and contains 39 plants from observations in 2012. The Crosby's buckwheat occurs in 3 patches on 12 acres and had an estimated 1,990 plants in 2012.

Pallid bat, Sheldon tui chub, and Greater Sage-Grouse have been reported in the RNA. Another plant, Fassett's water starwort (*Callitiche fassettii*), a very uncommon submerged aquatic plant, has been

documented in Guano Creek. This species has a NatureServe rank of G1Q SNR (Globally imperiled but not ranked in the state). Not enough is known about its taxonomy and relation to other water starworts to be able to list it as a BLM sensitive species.

Fish Creek Rim RNA has six Greater Sage-Grouse leks occurring within 2 to 3 miles to the west. Radio telemetry has documented Greater Sage-Grouse in the northern and southern portion of the RNA, in low sage habitats (Fish Creek RIM telemetry map 2014 [BLM internal document]).

Wildfires likely altered vegetation components of wildlife habitat in some key RNAs since 2015, although the effects have not been monitored. The amount of habitat that was burned in these RNAs is so minor as to be undetectable using standard wildlife monitoring techniques.

3.7 LIVESTOCK GRAZING

The existing conditions and trends of livestock grazing in the planning area are described in the 2015 Final EIS in Section 3.8 (pgs. 3-87 to 3-93), hereby incorporated by reference. Preliminary work and collaborative discussions among the BLM State, District, and Field Offices have been ongoing to meet the 5-year implementation time frame identified in the 2015 ARMPA (see page 2-46, 2015 Final EIS) for making all or portions of 13 of the 15 key RNAs unavailable to livestock grazing. Authorized livestock grazing has continued in these key RNAs consistent with District RMPs and the 2015 ROD/ARMPA. The grazing regulations at 4110, 4130, or 4180 provide District and Field Offices the authority to modify grazing use, if warranted.

In addition, since the issuance of the 2015 ROD/ARMPA in September 2015, Table 2-6 has been updated to more accurately reflect District-verified calculations of acreage and AUMs made unavailable in all or portions of the 13 RNAs (see **Table 2-2** in **Chapter 2** of this RMPA/EIS). The acres unavailable for livestock grazing remain at 21,959, and the estimated unavailable AUM numbers changed from 2,388 to 1,772.

Prior to 2011, 8 of the 13 key RNAs had land health assessments completed (see Appendix N in the 2015 ARMPA). Standard 2 (Wetlands-Riparian/Wetlands) was not met due to livestock grazing in one allotment within the Black Canyon RNA and one allotment within the Foley Lake RNA. BLM implemented management changes to make progress toward attainment of the standard. The results of these land health assessments from 2013 were not included in Appendix N of the November 2013 Draft EIS because they were completed after the planning process data cut-off date. Land health assessments were completed in the allotments in East Fork of Trout RNA (2015), Fish Creek Rim RNA (2013), and Rahilly Gravelly RNA (2013). All rangeland health standards were met in these RNA allotments. The land health assessments showed that upland watershed and ecological processes were functioning appropriately. Similarly, the vegetative communities for which these RNAs were designated in the District RMPs (pre-2015 ARMPA) were healthy. Because district and field offices have not modified grazing use under the grazing regulations at 43 CFR 4110, 4130, or 4180, the key RNA values were therefore being maintained, indicating that adjustments to current grazing management are not needed.

3.8 SOCIOECONOMICS

The existing socioeconomic conditions and trends within the planning area are described in the 2015 Final EIS in Section 3.21 (pgs. 3-164 through 3-194) and are hereby incorporated by reference. The scope of the economic analysis covered seven counties in eastern Oregon, which contain 12,083,622

acres of public land that are available for grazing and 771,773 AUMs of active use. The 2015 Final EIS noted the importance of livestock grazing to the three counties where the key RNAs occur; this is because the greatest amount of Greater Sage-Grouse habitat is concentrated in those counties.

Two of the key RNAs were closed to livestock grazing before the 2015 ARMPA via decisions in the prior, underlying land use plans. On October 30, 1998, the 105th Congress passed Public Law 105-321 “Oregon Public Lands Transfer and Protection Act of 1998.” Section 4 of the act, Hart Mountain Jurisdictional Transfer, transferred lands that the BLM administered in the Guano Creek pasture located in the Beaty Butte Allotment to the USFWS. These lands (Guano Creek-Sink Lakes RNA) would be managed under USFWS’s Comprehensive Management Plan, under which livestock grazing is excluded. The Foster Flat RNA/ACEC was closed to grazing in the Three Rivers Resource Management Plan (September 1992). In 1994, the Burns District constructed an enclosure to exclude grazing by domestic livestock and wild horse and burros from the South Steens Herd Management Area.

The 2015 ARMPA identified that 21,959 acres of public land would be unavailable to livestock grazing, resulting in a loss of 1,772 AUMs of active use.

At the statewide scale the loss of 1,772 AUMs (out of 771,773, or less than 1 percent) was found to be negligible; however, the economic impact on individual permittees, through expected loss of AUMs, varied based on the percent of active use AUMs reduced. Preliminary work and collaborative discussions among the BLM State, District, and Field Offices have been ongoing to meet the 5-year implementation time frame identified in the 2015 ARMPA (see page 2-46, 2015 Final EIS) for making all or portions of 13 of the 15 key RNAs unavailable to livestock grazing. Authorized livestock grazing has continued in these key RNAs consistent with District RMPs and the 2015 ARMPA/ROD.

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Chapter 4. Environmental Impacts

4.1 INTRODUCTION

This chapter presents the direct, indirect, and cumulative impacts on the human and natural environment anticipated to occur from implementing the alternatives presented 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 resources affected, as identified in **Chapters 1** and **3**. Only those issues in **Chapter 1, Table 1-1** are 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
- Reviews of existing literature
- 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 using ranges of potential impacts or in qualitative terms.

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

4.2 ANALYTICAL ASSUMPTIONS

Several overarching assumptions have been made in order to facilitate the analysis of the project impacts. These assumptions set guidelines and provide reasonably foreseeable levels of livestock grazing based on existing permits 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 all resource categories. Any specific resource assumptions are provided in the methods of analysis section for that resource.

- Sufficient funding and personnel would be available for implementing the final decision.
- Implementation-level actions necessary to execute any activity-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 the public lands administered by the BLM in the planning area.
- The BLM would carry out appropriate maintenance for the functional capability of all developments.
- The discussion of impacts is based on best available data. Knowledge of the planning area and decision area and professional judgment, based on observation and analysis of conditions and responses in similar areas, are used for environmental impacts where data are limited.
- Restrictions (such as siting, design, and mitigation measures) would apply, where appropriate, to surface-disturbing activities associated with land use authorizations and permits issued on BLM-administered lands and federal mineral estate.
- Acreage figures and other numbers are approximate 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 qualitatively, when appropriate.
- Achieving or maintaining Standards for Rangeland Health and Guidelines for Livestock Grazing Management (described in Section 3.8 of the 2015 Final EIS, Livestock Grazing and Range Management) generally are effective in managing the effects on soils from livestock grazing when properly implemented and monitored. Grazing authorizations will be adjusted on a case-by-case basis when site-specific studies indicate changes in management are needed. Analysis of Soil Resources in the 2015 Final EIS, Section 4-17 (pages 4-281 to 4-300) is hereby incorporated by reference.

The BLM would continue to manage all RNAs for the values they were designated for, per District RMPs, following existing management guidance and consistent with direction for PHMA.

The following information is the most current information available on conditions in the RNAs and is therefore used as the basis for the analysis in this chapter. As described in the 2015 Final EIS (pages 3-134 and 135), and hereby incorporated by reference, one of the guiding principles in managing RNAs is to prevent unnatural encroachment or activities that directly threaten or indirectly modify ecological processes or conditions. Permitted actions that could impair scientific or educational values of the RNA (including grazing) are generally limited, restricted, or not allowed so as to provide areas in the RNA that have intact ecological processes and conditions.

BLM Oregon Manual 1623, Section 37C, says livestock grazing should be managed to promote maintenance of the key characteristics for which the area is recognized. These are areas that can serve as long-term baseline areas for plant community monitoring and as controls for BLM treatments and activities outside the RNA, including grazing treatments.

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 location (site-specific, local, planning area-wide, or regional) in which the impact would occur. Site-specific impacts would occur at the location of the action; local impacts would occur within the general vicinity of the action area; planning area-wide impacts would affect a greater portion of decision area lands in southeast Oregon; and regional impacts would extend beyond the planning area boundaries.

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

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 to the status quo or baseline for that resource; however, in order to properly and meaningfully evaluate the impacts, those expected under the Proposed Plan Amendment should be measured against the impacts projected to occur under the No-Action Alternative. The No-Action Alternative is the baseline, as it represents what is anticipated to occur should the RMPA not take place.

Irreversible and irretrievable commitment of resources is discussed in **Section 4.12**. 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.

Impacts from the No-Action Alternative

The effects of the No-Action Alternative, or current management, of this RMPA/EIS were analyzed as the Proposed Plan (Section 4.4.10) in the 2015 Final EIS, and they are hereby incorporated by reference. The BLM has also 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, except as updated or made more specific in this RMPA/EIS.

Table 4-1 shows where information related to the impacts of the No-Action Alternative can be found in the 2015 Final EIS. The impact analysis and discussion in this chapter are more detailed than was possible in the 2015 Final EIS, due to the scale of analysis for that document.

The impacts of removing grazing from key RNAs was analyzed in the 2015 ARMPA, Section 4.4.10, page 4-121. Removing grazing would aid in the recovery of the limited riparian areas, playas, and mesic areas within the 13 key RNAs where grazing has been allowed. This is because these areas have been more

heavily grazed than other areas within the key RNAs (TNC 1992; BLM 1996a, 1996c, 1996d, 1996f). Because little to no research has been conducted on the impacts of grazing on forbs and insects used by Greater Sage-Grouse and on special status plants, the BLM is uncertain how these resources would respond to not being grazed. Ungrazed comparison areas representing the seasonal needs of Greater Sage-Grouse are lacking (Beck and Mitchell 2000; Hockett 2002).

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

Decision Topic	Related Resource Topic	Location in 2015 Final EIS
Modifying livestock grazing decisions within 13 RNAs	Greater Sage-Grouse	Chapter 4, Section 4.3 (GRSG and GRSG Habitat), pages 4-7 to 4-93
	Vegetation, including Invasive Plants, Riparian Areas and Wetlands	Chapter 4, Section 4.4 (Vegetation), pages 4-94 to 4-122
	Fish and Wildlife	Chapter 4, Section 4.5 (Fish and Wildlife), pages 4-122 to 4-144
	Livestock Grazing	Chapter 4, Section 4.8 (Livestock Grazing and Range Management), pages 4-179 to 4-204
	Socioeconomics	Chapter 4, Section 4.20 (Social and Economic Impacts, Including Environmental Justice), pages 4-324 to 4-357

The assumption is that, by allowing natural succession to proceed without any livestock grazing and in the absence of invasive plants, the 13 key RNAs would have an increased native forb species richness and cover, especially for forb species that are palatable or preferred by livestock. Managing as unavailable for grazing those areas that contain any BLM sensitive plants would increase the protection for those species (2015 Final EIS, page 4-100). Removing improper livestock grazing in the key RNAs that support special status species of fish and wildlife could reduce competition for forage and potentially increase Greater Sage-Grouse cover and nesting habitat, while protecting riparian areas that support riparian-dependent, aquatic, and fish species (2015 Final EIS, page 4-126). Impacts would vary depending on the extent of vegetation removal, type of habitat grazed, and timing of the grazing period.

Whether removal of grazing would reduce the risk of invasive plant spread into the key RNAs is uncertain, as there are many vectors for invasive plants besides livestock, but reducing the physical disturbance from grazing is likely to reduce one of those vectors. Implementation-level actions necessary to close and eliminate grazing would be subject to further environmental review, including that under NEPA (2015 Final EIS, Section 4.2).

Impacts from Proposed Plan Amendment

Table 4-2 summarizes how the potential decision of choosing the Proposed Plan Amendment of this RMPA was previously considered in the 2015 Final EIS as Alternative A (No Action), and it is hereby incorporated by reference. Issues needing updates or more specific analysis are discussed under the resource headings in this chapter.

The impacts of retaining grazing in the 13 key RNAs is discussed in the 2015 ARMPA in Section 4.4.4 (Alternative A) on page 4-106. Special status species in key RNAs open to grazing would remain vulnerable to grazing due to scattered and limited distribution and small populations (2015 Final EIS, page 4-100). Livestock grazing would continue to have a greater impact on the limited riparian areas,

Table 4-2
Consideration of Proposed Plan Amendment Components in the 2015 Final EIS

Plan Amendment Issue	Considered in 2015 Final EIS?
Modifying livestock grazing decisions within RNAs	<p>Livestock grazing decisions in the key RNAs were considered and analyzed in the 2015 Final EIS as approved in the 2015 Greater Sage-Grouse ARMPA (for Oregon) and ROD.</p> <p>The decision to make livestock grazing unavailable in 13 key RNAs is subject to change in this RMPA/EIS, which considers the key RNAs and the livestock grazing availability decision in more detail.</p> <p>The No-Action Alternative of the 2015 Final EIS (Chapter 2, Section 2.8.2; Appendix B; and Chapter 4, Section 4.4.4) considered that the livestock grazing decisions in the RNAs subject to change would continue to be available for livestock grazing.</p> <p>The Proposed Plan of the 2015 Final EIS (Chapter 2, Sections 2.6, 2.8, and 2.9; Appendix B; and Chapter 4, Section 4.8.10) described the impacts of making the key RNAs, subject to change in this RMPA/EIS, unavailable for livestock grazing.</p>

playas, and mesic areas within these key RNAs similar to what has been observed in the past. This is largely due to the limited availability of surface water in these areas. Because little to no research has been conducted on the impacts of grazing on forbs and insects used by Greater Sage-Grouse and special status plants, the BLM is uncertain how these species would respond. Whether continued grazing would increase the risk of invasive plant spread into the key RNAs is uncertain, as there are many vectors for invasive plants besides livestock.

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.

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Table 4-3
Summary of Environmental Consequences (excerpts from the June 2015 Final EIS, Table 2-14)

Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Draft EIS Preferred Alt.)	Alternative E	Alternative F	Proposed Plan
Special Designations						
<p>Under Alternative A, 200,399 acres of ACECs overlap PPH and 251,233 acres of ACECs overlap PGH. These overlapping acres are likely to experience additional protection from the restrictions placed on Greater Sage-Grouse habitat.</p> <p>More acres (9,982,126) are open to livestock grazing under Alternatives A and B than under any of the other alternatives. Therefore, ACECs under Alternatives A and B would experience fewer incidental protections that result from closing acres to livestock grazing than would ACECs under the other alternatives.</p>	<p>Under Alternative B the same number of acres of ACECs would overlap PHMA and GHMA as would overlap under Alternative A.</p> <p>More acres (9,982,126) are open to livestock grazing under Alternatives B and A than under the other alternatives. Impacts on ACECs are the same as those described under Alternative A.</p>	<p>Under Alternative C, the same number of acres of existing ACECs would overlap PHMA and GHMA as would under Alternative A. However, an additional 4,346,223 acres of PHMA (all PHMA) would be designated as ACECs for Greater Sage-Grouse conservation. No additional acres of GHMA would be designated as ACECs.</p> <p>Under Alternative C, the smallest number of acres (0) of PHMA and GHMA are open to livestock grazing. This would protect ACECs that overlap PHMA and GHMA from livestock grazing impacts.</p>	<p>Under Alternative D the same number of acres of ACECs would overlap PHMA and GHMA as would under Alternative A.</p> <p>In ACECs and RNAs containing 20 percent PHMA or 50 percent GHMA, ACECs would be managed for Greater Sage-Grouse conservation in addition to existing values. Management would change to provide additional protections to the Greater Sage-Grouse. This would likely provide additional protection to the values of the ACECs. Additionally there would be more restrictive management for RNAs under this alternative.</p> <p>Under Alternative D, 9,923,018 acres of PHMA and GHMA would be open to livestock grazing.</p>	<p>Under Alternative E, the same number of acres of ACECs would overlap low-density and core area habitat as would under Alternative A.</p> <p>Under Alternative E, 8,296,814 acres of low-density and core area habitat would be open to livestock grazing. This is 1,685,312 fewer acres than under Alternative A and would result in fewer impacts from livestock grazing on ACECs than under Alternative A.</p>	<p>Under Alternative F the same number of acres of existing ACECs would overlap PHMA and GHMA as would under Alternative A.</p> <p>An additional 2,560,384 acres of PHMA and 1,241,571 acres of GHMA would be designated as ACECs compared with Alternative A.</p> <p>Under Alternative F, 7,506,632 acres of PHMA and GHMA would be open to livestock grazing. This is 2,475,494 fewer acres than under Alternative A. It would result in fewer impacts from livestock grazing on ACECs than under Alternative A.</p>	<p>Under the Proposed Plan the same number of acres of existing ACECs would overlap PHMA and GHMA as would under Alternative A. However, under the Proposed Plan, 3 ACECs and 15 RNAs would be identified, and some would receive additional protection.</p> <p>More acres (25,838 acres) would be closed to livestock grazing under the Proposed Plan than under Alternative A.</p>

Note: Research Natural Areas (RNAs) are a special type of Area of Critical Environmental Concern (ACEC).

Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Draft EIS Preferred Alt.)	Alternative E	Alternative F	Proposed Plan
Greater Sage-Grouse and Sage-Grouse Habitat						
<p>Alternative A (current management) protects Greater Sage-Grouse habitat in the planning area through existing land use plans, which vary in their levels of protection for sagebrush, allowing for differing interpretations over time and creating uncertainty about reducing the threats to habitat.</p> <p>Current management controls invasive plants in Greater Sage-Grouse habitat using integrated vegetation management. This policy would remain in place for all alternatives.</p> <p>Alternative existing regulatory mechanisms, including the fundamentals for rangeland health, would continue to provide the basis for managing grazing in Greater Sage-Grouse habitat.</p>	<p>Alternative B applies guidance from the NTT report for protecting Greater Sage-Grouse habitat, but it lacks specificity for sub-regional conditions. It would apply a three percent disturbance cap on all surface disturbance in PHMA.</p> <p>Alternative B improves focus on rangeland health in Greater Sage-Grouse habitat areas for managing grazing in Greater Sage-Grouse habitat.</p>	<p>Alternative C also protects Greater Sage-Grouse habitat, using guidance derived from the NTT report but applied across all occupied habitat. Alternative C includes a zero percent surface disturbance limit in PHMA.</p> <p>Alternative C would bar grazing in occupied habitat in order to protect Greater Sage-Grouse nesting and foraging habitat. It also focuses on passive restoration techniques. These approaches may increase weed spread and fuel buildup, resulting in habitat degradation for Greater Sage-Grouse over time.</p>	<p>Alternative D increases the consistency of approach by providing more specific guidance, with stronger measures and more management flexibility compared to other actions alternatives to achieve the most protection for Greater Sage-Grouse habitat. It would also apply a 3% disturbance cap to all surface disturbance in PHMA.</p> <p>Alternative D provides clear guidance on grazing management in Greater Sage-Grouse habitat, resulting in high likelihood of adjusting grazing management where needed to meet Greater Sage-Grouse habitat needs.</p>	<p>Alternative E provides more specific management direction than Alternatives B, C, and F, but with more limited conservation measures than Alternative D.</p> <p>Alternative E is less likely to adjust grazing management to meet Greater Sage-Grouse habitat needs, largely because assessments are not prioritized.</p>	<p>Alternative F protects Greater Sage-Grouse habitat similarly to Alternatives B and C, using nonspecific guidance, which could make Alternative F difficult to apply consistently across plans. Alternative F would also apply a three percent disturbance cap on all surface disturbance in PHMA but would include fire within the three percent limit.</p> <p>Alternative F would further limit annually but would not bar grazing in Greater Sage-Grouse habitat. This approach would reduce harm to Greater Sage-Grouse habitat.</p>	<p>Impacts from the Proposed Plan would be similar to those described for Alternative D.</p> <p>The Proposed Plan would incorporate flexibility with the use of active management tools, regional mitigation, and monitoring and adaptive management applied to resource uses to account for changes in conditions.</p> <p>The BLM would require a cap of three percent disturbance in PHMA, from human disturbances, not including wildfire, and would implement numerous conservation measures to reduce impacts from human activities in PHMA. This would reduce the likelihood for habitat loss, degradation, or fragmentation.</p> <p>It prioritizes review of grazing permits in SFAs and provides clear guidance on grazing management in Greater Sage-Grouse habitat. This would result in the highest</p>

Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Draft EIS Preferred Alt.)	Alternative E	Alternative F	Proposed Plan
						likelihood of adjusting grazing management where needed to meet Greater Sage-Grouse habitat needs.
Vegetation*						
<p>Alternative A provides the least protection for vegetation communities in the planning area.... This could reduce the acreage and condition of native vegetation, increase the spread or cover of noxious weeds and invasive species, and reduce special status plant populations.</p> <p>Impacts from current allocations and resource uses would continue. This would continue to decrease the acreage and condition of native vegetation communities, would reduce the acreage and condition of riparian and wetland areas, and would reduce the number and size of special status plant populations.</p>	<p>Alternative B provides more protection for vegetation than Alternative A, but it would provide less protection than Alternatives C and F.</p> <p>Alternative B would also provide guidance and prioritization for vegetation treatments and Greater Sage-Grouse habitat restoration, thereby improving the condition and extent of native vegetation and habitat conditions for some species status plants.</p>	<p>Alternative C would focus on removing livestock grazing from occupied habitats..., with most other management being similar to Alternative A. As such, impacts from livestock grazing would be removed and impacts from surface-disturbing activities would be greatly reduced.</p>	<p>Alternative D would provide more protection for vegetation than Alternative A, but it would provide less protection than Alternatives B, C, and F.</p> <p>Impacts from Alternative D are similar to those described for Alternative B, but with increased flexibility in decision-making and slightly reduced restrictions on uses. As a result, impacts would be reduced, compared to Alternative A, but not to the same extent as Alternative B.</p>	<p>Impacts from Alternative E are similar to those for Alternative D. In addition, Alternative E would require no net loss of sagebrush; as a result, it would provide more protection to vegetation than Alternative D.</p>	<p>Impacts from Alternative F would be similar to those described for Alternative B.</p>	<p>Impacts from the Proposed Plan would be similar to those described for Alternative D.</p> <p>The Proposed Plan would include specific restoration targets for sagebrush thinning, conifer removal, invasive plant control, and crested wheatgrass restoration within four miles of occupied and pending leks. The Proposed Plan is the only alternative that would provide a target for crested wheatgrass.</p> <p>The Proposed Plan would close all or parts of key RNAs to livestock grazing.</p>

*Note: The analysis of impacts to vegetation in the May 2015 Final EIS covered millions of acres of Greater Sage-Grouse habitat within the planning and decision areas, which included the RNAs.

Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Draft EIS Preferred Alt.)	Alternative E	Alternative F	Proposed Plan
Fish and Wildlife						
<p>Impacts on special status wildlife species would continue and likely would decrease habitat quality, quantity, and protection in the long term.</p> <p>Implementing management for general fish and wildlife, big game, and migratory birds discussed in Section 3.4, Fish and Wildlife, would have negligible or no impacts on those resources and are not addressed in the fish and wildlife analysis.</p>	<p>Impacts on special status wildlife species would be reduced, compared to Alternative A.</p> <p>Alternative B PHMA and GHMA would increase quality and protection for special status wildlife species habitat. This would affect habitat that overlaps occupied Greater Sage-Grouse habitat by designating PHMA and GHMA....</p>	<p>Impacts on special status wildlife species are similar to those described under Alternative B.</p> <p>Grazing would be removed from occupied Greater Sage-Grouse habitat, which could increase the potential for wildfire, as fuel loads increase in the absence of managed grazing.</p> <p>In addition, this action would require structural range improvements, including fences to exclude grazing from Greater Sage-Grouse habitat. This could increase habitat fragmentation and associated impacts on special status wildlife species.</p>	<p>Alternative D would provide greater protection for special status wildlife species habitats than Alternative A but less protection than Alternatives B, C, and F. Alternative D provides more specific guidance, with stronger measures and more management flexibility compared to other action alternatives to achieve the most protection for Greater Sage-Grouse habitat.</p> <p>Impacts from Alternative D are similar to those described for Alternative B but with increased flexibility in decision-making and slightly reduced restrictions on uses. As a result, impacts would be reduced, compared to Alternative A, but not to the same extent as Alternative B.</p>	<p>Impacts from Alternative E would be similar to those for Alternative D. However, Alternative E would require no net loss of sagebrush, which may shift impacts on non-sagebrush habitats and associated special status wildlife species that do not rely on sagebrush.</p> <p>Managing occupied Greater Sage-Grouse habitat as core areas would increase quality and protection for special status wildlife species' habitats that overlap occupied Greater Sage-Grouse habitat.</p> <p>Greater Sage-Grouse management of low-density habitat would provide less protection for special status wildlife habitat in those areas than the No Action Alternative.</p>	<p>Impacts from Alternative F on special status wildlife species would be similar to those described for Alternative B.</p> <p>Livestock grazing management would close 25 percent of PHMA and GHMA to grazing, potentially reducing impacts from grazing management on special status wildlife. However, additional necessary fencing and infrastructure would increase habitat fragmentation and associated impacts on special status wildlife species.</p>	<p>Impacts from the Proposed Plan are similar to those under Alternative D.</p> <p>Management of both livestock grazing and off-road motorized travel would provide similar protection to special status wildlife species as Alternative D and would increase protection over Alternative A.</p>

Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Draft EIS Preferred Alt.)	Alternative E	Alternative F	Proposed Plan
Livestock Grazing						
<p>Approximately 771,773 AUMs would be permitted and 9,982,126 acres would be available for grazing in PPH and PGH on BLM-administered lands.</p> <p>No PMPH or PMGH would be designated for Greater Sage-Grouse under Alternative A. Individual RMPs may provide some measures to protect PPH or PGH, but management would vary across the planning area. In general, Alternative A would be the least restrictive on alternative resource uses, including livestock grazing. As a result, permittees and lessees would have a range of management options to support livestock grazing operations.</p>	<p>Acres available to grazing and permitted AUMs would be the same as Alternative A. Occupied Greater Sage-Grouse habitat would be classified into PHMA and GHMA.</p> <p>When fine- and site-scale Greater Sage-Grouse habitat assessment and monitoring is needed or required (e.g., as a component of a rangeland health assessment), the Greater Sage-Grouse habitat suitability indicators for seasonal habitats identified in the HAF would be measured. In the long term, livestock grazing in PHMA would be reduced, compared to Alternative A, should current grazing practices in a given allotment fail to meet Greater Sage-Grouse habitat objectives; however, impacts would be site</p>	<p>No livestock grazing would be authorized in occupied Greater Sage-Grouse habitat in the planning area. A total of 787,139 acres in non-Greater Sage-Grouse habitat would be available to grazing. As a result, permittees and lessees would be required to locate alternative sources of forage or to close or reduce livestock grazing operations, with impacts on individual operators as well as the community at large.</p>	<p>Approximately 9,923,018 acres would be available for grazing and 763,825 AUMs would be permitted in Greater Sage-Grouse habitat (one percent reduction from Alternative A), due to the closure of specific areas of key RNAs in PHMA to grazing.</p> <p>In the specific allotments closed, permittees and lessees would need to locate alternative forage sources and may face financial impacts, as described under Alternative C. Under Alternative D, permit renewal and associated land health assessment would be prioritized first in PHMA for those assessment categories requiring modification. As a result, changes to permitted livestock grazing level and grazing systems are more likely to occur in these areas. In the long term, this action could improve rangeland habitat conditions for livestock and wildlife by focusing management on</p>	<p>Acres available to grazing would be the same as under Alternative A. Management actions would be focused on changes to livestock grazing strategies or permitted use levels. This would be the case only where allotments are not meeting standards or where the level of use is not consistent with existing management direction (existing RMPs). As a result, impacts on livestock grazing management would occur only when these standards are not met.</p> <p>Management for other resources would generally restrict activities that are near leks or other sensitive seasonal habitat. Activities that could disturb livestock in these areas may be reduced. Limitations to structural range improvements and</p>	<p>A 25 percent reduction in Greater Sage-Grouse habitat available for livestock grazing would be implemented, with approximately 7,486,594 acres available to livestock grazing and 289,414 permitted AUMs. Impacts from closures would be as described for Alternative C but at a reduced scale. In addition, restrictions would be applied to construction of new water developments and range improvements, and existing improvements may require modifications. As a result, the ability of permittees and lessees to efficiently distribute livestock and manage for permitted level of use would likely be impacted.</p>	<p>Approximately 9,956,587 acres would be available for grazing and 769,385 AUMs would be permitted in Greater Sage-Grouse habitat, a one percent [sic] less than .5 percent reduction from Alternative A. This would be due to the full or partial closure of some RNAs in PHMA to grazing. In the specific allotments closed, permittees and lessees would need to locate alternative forage sources and may face financial impacts, as described under Alternatives C and D, but with a reduced intensity of impacts. Permit renewal and associated land health assessment would be prioritized in Greater Sage-Grouse habitat, with a focus on areas not currently meeting standards for rangeland health. The emphasis is on allotments in Greater Sage-Grouse habitat, with priorities for review for land health assessments as allotments in SFAs followed by allotments in PHMA</p>

Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Draft EIS Preferred Alt.)	Alternative E	Alternative F	Proposed Plan
	<p>specific and likely would occur gradually.</p> <p>Impacts, including the potential modification of livestock grazing strategies and related increase in time and cost for permittees, would primarily occur on range management in PHMA, due to restrictions on resource uses in this area.</p> <p>Overall, water improvements and fences are likely to be removed or modified to some extent under Alternative B, thereby increasing management costs and potentially decreasing grazing or shifting grazing use patterns in the long term.</p>		<p>those lands that are most in need of improvement.</p> <p>Rangeland health assessment would measure the Greater Sage-Grouse habitat suitability indicators for seasonal habitats; following HAF indicators. Modifications to grazing systems could be required to meet seasonal habitat objectives, increasing costs to lessees and permittees.</p> <p>Under Alternative D, new and existing range improvements would be allowed and modified in order to enhance functionality when livestock are absent. The improvements would be modified to prevent wildlife entrapment. As a result, some developments may be modified; however, the ability to distribute livestock should generally be maintained, and impacts on permittees and lessees would be limited.</p>	<p>the ability to distribute livestock are also most likely to occur in these areas.</p>		<p>outside of SFAs. Precedence would be given to existing permits and leases in these areas not meeting rangeland health standards. There would be a focus on riparian areas, including wet meadows, with impacts likely to follow. In the long term, this action could improve rangeland habitat conditions for livestock.</p> <p>A rangeland health assessment would measure the Greater Sage-Grouse habitat suitability indicators for seasonal habitats; specific indicators for habitat are identified in Table 2-4. A site-specific review of seasonal habitat type would be required as part of the land assessment process. Modifications to grazing systems could be required to meet seasonal habitat objectives, increasing costs to lessees and permittees. Additional site-specific changes may be required to grazing management if adaptive management “soft triggers” are to be met.</p>

Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Draft EIS Preferred Alt.)	Alternative E	Alternative F	Proposed Plan
						<p>Modifications may be required to structural range improvements, and new improvements would be limited. The actions represent potential costs for permittees and lessees,</p> <p>Indirect disturbance of livestock grazing or livestock forage from other development would be reduced by the following: including a cap on human-caused disturbance, mitigating disturbance to ensure a net conservation gain to Greater Sage-Grouse, and implementing conservation measures in PHMA and GHMA, such as adaptive management and defined monitoring protocols, RDFs, and lek buffers.</p>

Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Draft EIS Preferred Alt.)	Alternative E	Alternative F	Proposed Plan
Economic Conditions						
Under Alternative A, there would be the most AUMs available for livestock grazing, with the fewest costs related to infrastructure improvements and vegetation treatments.	Relative to Alternative A, Alternative B has added costs to livestock permittees/lessees imposed by restrictions on infrastructure improvement and vegetation treatments.	Alternative F would result in an annual loss of between \$56.3 million and \$136.8 million in grazing-related output, between \$19.6 million and \$47.7 million in grazing-related earnings, and between 621 and 1,503 grazing-related jobs in the primary study area.	Alternative D would result in an annual loss of up to \$600,000 in grazing-related output, \$200,000 in grazing-related earnings, and up to six grazing-related jobs in the primary study area.	Same as Alternative B.	Alternative F would result in an annual loss of between \$17.6 million and \$50.9 million in grazing-related output, between \$6.1 million and \$17.7 million in grazing-related earnings, and between 194 and 560 grazing-related jobs in the primary study area.	Under Alternative A, there would be the most AUMs available for livestock grazing, with the fewest costs related to infrastructure improvements and vegetation treatments.
Alternative A would have the fewest long-term restrictions on future output, employment, and earnings.	Under Alternative B, long-term restrictions on future output, employment, and earnings would increase, when compared to Alternative A. There would be fewer restrictions than under Alternatives C and F.	Alternative C would have the greatest long-term restrictions on output, employment, and earnings.	Long-term restrictions on future output, employment, and earnings would increase, when compared to Alternative A, but would be less than under all other Alternatives except Alternative A.	Same as Alternative B.	Alternative F would have the second-most long-term restrictions on future output, employment, and earnings, after Alternative C.	Same as Alternatives B and E.
Alternative A would have the no impacts on state or local fiscal revenues.	Same as Alternative A.	There would be adverse impacts on local fiscal revenues of grazing related communities in Malheur, Harney, and Lake Counties under Alternative C.	Adverse impacts on local fiscal revenues of grazing related communities in Malheur, Harney, and Lake Counties, when compared to Alternative A but less than Alternatives C or F.	Same as Alternative A.	There would be adverse impacts on local fiscal revenues of grazing-related communities in Malheur, Harney, and Lake Counties but to a lesser extent than under Alternative C.	Same as Alternative D

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, Subpart 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 both the 2015 ARMPA and this RMPA/EIS. The BLM made a considerable effort to acquire and convert resource data into digital format for use in the 2015 ARMPA planning process, from the BLM and from outside sources. That information has been considered in this RMPA/EIS and has been updated and supplemented as needed and appropriate.

Under the FLPMA, the inventory of public land resources is ongoing and continuously updated; however, certain information was unavailable for use in developing this RMPA/EIS because inventories either have not been conducted or are 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
- GIS data used for disturbance calculations on private lands
- Site-specific surveys of cultural and paleontological resources
- The exact extent, location, and fine-scale condition of Greater Sage-Grouse habitat for the key RNAs
- Effects of grazing on the elements and values for which the RNAs were designated in the district plans (prior to the 2015 ROD/ARMPA)

For these resources, estimates were made concerning the number, type, and significance of these resources based on previous surveys and existing knowledge. In addition, some impacts cannot be quantified, given the proposed management actions. Where this gap occurs, impacts are projected in qualitative terms or, in some instances, are 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 and implementation 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

The key RNAs are all within Greater Sage-Grouse habitat, identified primarily as PHMA in the 2015 ARMPA; therefore, the goals, objectives, and management directions of the 2015 ARMPA overlay the various district plans and apply to both the No-Action Alternative and Proposed Plan Amendment of this EIS. Under the No-Action Alternative, the key RNAs would remain unavailable to livestock grazing. Under the Proposed Plan Amendment, grazing management would be governed by the livestock grazing provisions in the 2015 ARMPA. The exception is Livestock Grazing Objective 2 and MD 1, which would

be amended to make the key RNAs available for livestock grazing. In addition, under both alternatives the key RNAs would be required to meet rangeland health standards and other applicable BLM regulations and policies. The BLM would continue to prioritize assessing rangeland health standards in PHMA within Oregon's PACs in accordance with the 2015 ROD/ARMPA Livestock Grazing Objective 3 and policy in WO IM 2018-024.

Grazing impacts would vary within and among the key 13 RNAs under the Proposed Plan Amendment, depending on site productivity, timing of grazing, stocking intensity, and duration of grazing within each RNA. General impacts from grazing on Greater Sage-Grouse are described in the 2015 Final EIS, Section 4.3, pages 4-7 to 4-94, and are hereby incorporated by reference. More specifically, pages 4-16 to 4-20 describe the impacts on Greater Sage-Grouse and its habitat from improper livestock grazing, an identified threat in the Conservation Objectives Team (COT) Report (USFWS 2013). Improper grazing, defined as grazing practices that are inconsistent with local ecological conditions and result in degradation of habitat for local wildlife species, can have adverse effects on Greater Sage-Grouse and its habitat, and may work synergistically with other potential threats, such as invasive plants and wildfire, to increase impacts (USFWS 2015). In its 2015 decision to not list Greater Sage-Grouse, the USFWS concluded that "although livestock grazing is widespread in the sagebrush ecosystem, and we expect some continued impacts from improper grazing at local scales, existing Federal regulations with full implementation, in combination with voluntary efforts on non-Federal rangelands are reducing the prevalence of improper grazing and its impacts to sage-grouse" (50 CFR Part 17 page 59911). Properly managed livestock grazing is compatible with managing for Greater Sage-Grouse conservation outcomes and can be used to reduce fuel loads (Davies et al. 2010; Davies et al. 2011), to protect intact sagebrush habitat, and to increase habitat extent and continuity (Connelly et al. 2004).

While large, long-term ungrazed comparison areas, based on seasonal needs of Greater Sage-Grouse, are lacking (Beck and Mitchell 2000; Hockett 2002), current information suggests that impacts from improperly managed grazing in the past would be reduced or eliminated within areas closed to grazing under the No-Action Alternative; however, some impacts of historical overuse would persist for months or years (Davies et al. 2014). Degraded sagebrush communities may demonstrate little to no recovery with intermediate term (five and six years) rest from grazing, as compared with well-managed, moderate grazing (Davies et al. 2016). Current ecological and vegetative trends and conditions within the 13 RNAs would likely continue. The BLM would require changes to livestock grazing/management in the 13 RNAs if a rangeland health assessment identifies livestock grazing as a causal factor in the failure to meet rangeland health standards. BLM may also require changes to livestock grazing/management for various reasons in accordance with its grazing regulations (43 CFR 4100 [2005]).

Three studies of how grazing may affect Greater Sage-Grouse populations have been published since 2015 (Carter et al. 2018; Hanser et al. 2018). In Wyoming, Monroe et al. (2017) found grazing effects depended on the timing and level of grazing. At high grazing levels, Greater Sage-Grouse populations declined when grazing occurred before the peak in vegetation productivity and increased when grazing occurred later. At low grazing levels, the effects of grazing were minimal and did not vary with the timing of when grazing occurred; however, the effects of grazing can depend on local vegetation productivity. One study in Montana found no evidence that rotational grazing systems or rest from grazing (12 months) increased nest success in the study area (Smith et al. 2017). The Montana study authors urged caution in extrapolating results to other areas because of different precipitation regimes. In another study, Dahlgren et al. (2015) hypothesized that sagebrush treatments, coupled with

restoration grazing, increased the amount of grass and created additional forb availability and subsequent Greater Sage-Grouse population increases, relative to surrounding populations.

The Proposed Plan Amendment would result in 21,959 fewer undisturbed acres within Oregon available for additional research in plant communities important to Greater Sage-Grouse to further determine the impact of livestock grazing on Greater Sage-Grouse and their habitats. Beck and Mitchell (2000) indicated there is a lack of ungrazed comparison areas for evaluating livestock impacts on seasonal needs of Greater Sage-Grouse. Hockett (2002) noted the lack of large representative tracts of ungrazed habitat makes it nearly impossible to determine and monitor the actual consequences of livestock grazing. Although the USFWS (2015) has determined improper livestock grazing can have adverse effects on Greater Sage-Grouse habitat, properly-managed grazing may benefit the species. Here, the RNAs would remain subject to management, to promote the key characteristics of the RNAs, including regulation of grazing, to maintain and promote the key characteristics of the RNAs. Moreover, the RNAs are so small in size relative to the size of the species' range that any impacts of livestock grazing on Greater Sage-Grouse populations using these areas are minimal and undetectable. Moreover, closing the key RNAs to livestock grazing would not address any threats to Greater Sage-Grouse habitat identified in the COT report (USFWS 2013) that may exist within the boundaries of the RNAs.

Closing these areas to grazing, however, would enhance research opportunities relating to the effects of grazing on Greater Sage-Grouse habitat, including the threat posed by "improper grazing" (USFWS 2013). "Comparisons to areas without livestock grazing are important so that grazing treatments [including no grazing] can be compared to baseline conditions" (Berg et al. 2016, page 74). The BLM determined in the 2015 ARMPA that the 13 RNAs identified for closure along with the 2 RNAs already closed to livestock grazing were likely the minimum number of sites and areas necessary to provide sufficient replication and support a coherent research plan that would provide data with the statistical power and sufficient scope of inference to extrapolate the results across all Greater Sage-Grouse habitat in eastern Oregon and potentially into western Idaho and northern Nevada. The primary research purpose for BLM's closure would be to study whether livestock grazing has adverse, beneficial, or no impact on the availability of forbs and insects important to prelaying hens and Greater Sage-Grouse chicks. BLM intended the closed areas to serve as controls for studying grazing impacts on the same plant communities outside of the closed areas.

Published after the ROD for the 2015 ARMPA, the Actionable Science Plan (Berg et al. 2016) was intended to support the Integrated Rangeland Fire Management Strategy (DOI 2015) developed under the direction of SO 3336. Closure of the 13 RNAs to serve as ungrazed baselines for research supports Sagebrush and Greater Sage-Grouse Science Need #2: Conduct a series of large-scale, replicated grazing studies that address how different livestock species, grazing systems, disturbance histories, and other environmental conditions affect Greater Sage-Grouse habitat (Berg et al. 2016, page 74).

While the RNAs are not large enough to assess differences in Greater Sage-Grouse demographic vital rates (e.g., nest and brood success, and survival) that may arise from different grazing regimes as opposed to no grazing, they would allow better understanding of how different grazing regimes alter plant community composition, insect species and populations, and vegetation structure and allow the BLM to draw inferences about how the differences may affect Greater Sage-Grouse demographic vital rates.

Based on determinations in the 2015 ARMPA that the 13 RNAs identified for closure along with the 2 RNAs already closed to livestock grazing were likely the minimum number of sites need, the BLM assumes that retaining livestock grazing in the 13 key RNAs would not provide sufficient variability of sites needed to meet the research purposes identified in the 2015 ARMPA or provide the same level of support to Sagebrush and Greater Sage-Grouse Science Need #2. Although likely not at the same scale as the RNAs and therefore potentially of less statistical value, Districts would retain the ability to work with permittees to provide ungrazed controls for the identified research and to close RNAs through RMP amendments or revisions. However, the Bureau would remain free to explore similar studies outside of the planning area. Whether any closures would occur, the timing and duration of any closures, and the size of any closures would be subject to the discretion of each District. Given that the 13 key RNAs were not closed to livestock grazing under the existing RMPs, it is uncertain whether any closures would occur to support such a research project. Moreover, an approach that closes some but not all of the key RNAs over many years would diminish the utility of study results. The BLM AIM Strategy for Integrated Renewable Resources Management provides a framework for the BLM to quantitatively assess the condition, trend, amount, location, and spatial pattern of natural resources on the nation's public lands. Monitoring information collected following the AIM Strategy can be used many times, for many reasons, across many programs, and in conjunction with other jurisdictions, stakeholders, and agencies. BLM Oregon is coordinating with the USFWS to demonstrate AIM on the Hart Mountain National Antelope Refuge, an ungrazed refuge that supports some of the same or similar plant communities as found in the key RNAs. If the refuge chooses to implement AIM fully, the data collected over many years using a standardized process will contribute to the rangewide data set for further study and analysis of grazing effects to Greater Sage-Grouse habitat. However, the USFWS would have operational control over any research conducted on a National Wildlife Refuge.

Finally, the 2015 Final EIS also addressed the effects of fire, stating that Alternative A (Proposed Plan Amendment in this RMPA/EIS) "allows for potentially less effective" fire and fuels management for habitat restoration (page 4-82).

4.6 IMPACTS ON VEGETATION, INCLUDING INVASIVE PLANTS, RIPARIAN AREAS, AND WETLANDS

Many studies have demonstrated the importance of forbs to Greater Sage-Grouse, providing food both directly and indirectly by supporting insects and providing cover (e.g., Connelly et al. 2011; Dumroese et al. 2015; Pennington et al. 2016). BLM Oregon wildlife biologists have a list of high and moderate value species important to Greater Sage-Grouse that has been refined since the 2015 Final EIS (BLM Sage-Grouse Forb List, August 2017).

Forb richness and abundance are controlled by site characteristics and climate, with drought a particularly important driver (Blomberg et al. 2014; Pennington et al. 2016; Blomberg et al. 2017; Gibson et al. 2017; Pennington et al. 2017). Only a few studies have examined forb response to disturbance, such as fire, and even fewer have attempted to correlate forb response to drought status, changes in temperature and precipitation regimes, and soil water availability whether in the absence or presence of grazing (Davies et al. 2012a; Davis and Crawford 2015; Ellsworth et al. 2016; Pennington et al. 2016). A global literature review of the impacts of grazing on grouse species found too few studies that had enough detail concerning animal type, animal distribution, stocking rates, grazing timing, duration, frequency, and similar factors to develop best management practices (BMPs) for grazing in Greater Sage-Grouse habitat (Dettenmaier et al. 2017).

Most of the recent studies in Oregon that include forb responses, and the responses of forbs consumed by Greater Sage-Grouse, involve juniper reduction with and without fire (e.g., Bates et al. 2014a, 2014b; Miller et al. 2014; Bates et al. 2017). One recent study examined the different impacts of mowing and burning sagebrush (Davies et al. 2012a, 2012b). The Miller et al. (2014) study excluded grazing for the duration of the study (4 years). The Bates et al. (2014b) study noted that post-treatment grazing occurred but did not include it as a variable. All other studies were unclear on whether grazing occurred post-treatment or not and did not include it as a variable.

None of the recent studies included weather/climate information beyond precipitation amount over the study period or soil water availability as a variable. All were inconsistent in noting whether any portion of the study period was in drought. Only Miller et al. (2014) provided any correlation on forb response, based on soil variables, such as soil temperature and moisture regime. Most recent studies in Oregon have been restricted to Cool-Moist Sagebrush sites (Davies et al. 2012b, 2012a; Bates et al. 2013, 2014a; Miller et al. 2014; Bates and Davies 2016; Bates et al. 2017), with only one study on a Warm-Dry Sagebrush site (Ellsworth et al. 2016).

Understanding what role, if any, livestock grazing may be playing in the responses of important forbs and insects to disturbance events, changing climate, and soil water availability requires that the BLM have access to long-term ungrazed control sites that cover a variety of ecological settings and habitats. Understanding which forb responses are due to changes in climate and which are due to the interaction between changing climate and grazing becomes ever more important for informing subsequent management direction. This is given the potential impacts of changing climate on Greater Sage-Grouse habitat (Bradley 2009, 2010; Bradley et al. 2010; Polley et al. 2013; Germino et al. 2014; Creutzburg et al. 2015; Bradley et al. 2016; Palmquist et al. 2016a, 2016b; Mankin et al. 2017).

General impacts of grazing on riparian/wetland habitat (including playas) are described in the 2015 Final EIS, Section 4.3, pages 4-16 through 4-20, and they are hereby incorporated by reference. The analytical assumptions stated in the 2015 Final EIS on page 4-94 would remain the same, and they are also hereby incorporated by reference. These types of impacts would continue to occur in the 13 RNAs if and where livestock grazing is allowed.

New infestations of invasive plants remain possible, whether grazing is present or absent, due to the number of alternative vectors (e.g., wind, wildlife, and recreation users). Impacts would increase or decrease depending on the time and/or the season of use, grazing intensity, and duration. In drier years, where water availability is reduced, there would be a greater impact on riparian/wetland areas, due to the concentration of livestock.

Additional changes to grazing systems that could occur as a result of nonattainment of land health standards include, but are not limited to, change in season of use, temporary and/or permanent reduction of livestock numbers or AUMs, and implementation of range improvements that exclude livestock. Maintaining and improving riparian and wetland plant communities indirectly benefits livestock grazing and sagebrush obligate species by improving forage availability/quantity and water quality.

The No-Action Alternative would retain the decision to make livestock grazing unavailable in all or parts of 13 RNAs, per the 2015 ARMPA. All 15 key RNAs, including the two that were previously closed to grazing, would cover seven major vegetation types (**Table 4-4**) and 48 vegetation communities

(**Table 4-5**), thereby representing both the geographic and climatic variability of conditions in Oregon's Greater Sage-Grouse habitat.

All vegetation types include multiple plant communities, averaging six to seven community types per major vegetation type. This level of variation would allow the BLM to understand how grazing may or may not be impacting a wide array of forbs and insects used by pre-laying hens and chicks in different ecological settings and in different types of years (wet, average, or dry).

Mesic habitats are particularly important for pre-laying hens and chicks (Donnelly et al. 2016; Freese et al. 2016; Pennington et al. 2016; Pennington et al. 2017) with late brood-rearing habitat. This is a shortage category in eastern Oregon due to the lack of surface water. Both the Wetland-Riparian and Playa major vegetation types provide late brood-rearing habitat, but the Playa type does so only in wet years; in dry years, it is typically dry and does not reliably provide late brood-rearing habitat and may not provide early brood-rearing or pre-laying habitat.

Table 4-4
Vegetation Types Found in Different Key RNAs Made Unavailable to Grazing under the 2015 ARMPA and the Two Key RNAs Already Closed to Grazing

Vegetation Type	Research Natural Area
Cool-Moist Sagebrush	East Fork Trout Creek, Fish Creek Rim, Lake Ridge, Mahogany Ridge, Rahilly-Gravelly, South Bull Canyon, Spring Mountain, Toppin Creek Butte
Ecotone between Cool-Moist and Warm-Dry Sagebrush	Black Canyon, Mahogany Ridge, North Ridge Bully Creek, South Bull Canyon, South Ridge Bully Creek,
Warm-Dry Sagebrush	Black Canyon, Dry Creek Bench, Foley Lake, Foster Flat, Guano Creek-Sink Lakes, Lake Ridge, North Ridge Bully Creek, Rahilly-Gravelly, South Bull Canyon, South Ridge Bully Creek, Spring Mountain, Toppin Creek Butte
Shallow-Dry Sagebrush	Black Canyon, Dry Creek Bench, Fish Creek Rim, Foley Lake, Foster Flat, Guano Creek-Sink Lakes, Rahilly-Gravelly, Spring Mountain
Mountain Brush	Dry Creek Bench, East Fork Trout Creek, Fish Creek Rim, Lake Ridge, Mahogany Ridge, Rahilly-Gravelly, Spring Mountain
Riparian-Wetland	Black Canyon, East Fork Trout Creek, Fish Creek Rim, Guano Creek-Sink Lakes, Lake Ridge, Spring Mountain
Playa	Foley Lake, Foster Flat, Guano Creek-Sink Lakes, Lake Ridge, Toppin Creek Butte

**Table 4-5
Vegetation Types Found in Different Key RNAs Made Unavailable to Grazing under the
2015 ARMPA That Are Important Habitats to Greater Sage-Grouse at Some Point in
Their Life Cycle (e.g. Nesting and Brood Rearing)**

Vegetation Type	Plant Communities
Cool-Moist Sagebrush	Mountain big sagebrush/Idaho fescue Mountain big sagebrush-antelope bitterbrush/Idaho fescue Mountain big sagebrush-mountain mahogany/slender wheatgrass-bluebunch wheatgrass Mountain big sagebrush-antelope bitterbrush-mountain snowberry/Thurber's needlegrass Mountain big sagebrush-mountain snowberry/Idaho fescue Low sagebrush/Idaho fescue Wyoming big sagebrush-antelope bitterbrush/Idaho fescue
Ecotone between Cool-Moist and Warm-Dry Sagebrush	Mountain big sagebrush/bluebunch wheatgrass Wyoming big sagebrush/Idaho fescue Wyoming big sagebrush-antelope bitterbrush/bluebunch wheatgrass Wyoming big sagebrush-threetip sagebrush/Idaho fescue Wyoming big sagebrush-wild crab apple/Idaho fescue Wyoming big sagebrush-threetip sagebrush/bluebunch wheatgrass Threetip sagebrush/Idaho fescue Threetip sagebrush-wild crab apple/Idaho fescue Threetip sagebrush/bluebunch wheatgrass
Warm-Dry Sagebrush	Basin big sagebrush/Nevada bluegrass Basin big sagebrush/bluebunch wheatgrass Basin big sagebrush-Wyoming big sagebrush/bluebunch wheatgrass Wyoming big sagebrush/Idaho fescue-bottlebrush squirreltail Wyoming big sagebrush/needle-and-thread Wyoming big sagebrush/Thurber's needlegrass Low sagebrush/bottlebrush squirreltail-Idaho fescue Low sagebrush/bluebunch wheatgrass Low sagebrush/Idaho fescue-Thurber's needlegrass Low sagebrush/Thurber's needlegrass
Shallow-Dry Sagebrush	Low sagebrush/Sandberg bluegrass Stiff sagebrush/Sandberg bluegrass Black sagebrush/Sandberg bluegrass
Mountain Brush	Mountain mahogany-mountain snowberry/Idaho fescue Mountain mahogany-mountain big sagebrush/Idaho fescue Serviceberry-snowberry-mountain big sagebrush Snowberry-bittercherry complex Mountain big sagebrush-mountain snowberry/Idaho fescue Mountain mahogany-Oregon grape Mountain big sagebrush-mountain snowberry-wild crab apple Mountain mahogany-chokecherry scrub
Riparian-Wetland	Willow-mixed shrub Scouler's willow-aspens Wet meadow Aspen-white fir-ponderosa pine Willow Pond
Playa	Silver sagebrush/Sandberg bluegrass Silver sagebrush/Nevada bluegrass Silver sagebrush-green rabbitbrush Silver sagebrush/Baltic rush Silver sagebrush-basin wildrye

The Proposed Plan Amendment would reverse the 2015 ARMPA decision to make grazing unavailable in 13 of the 15 key RNAs. These 13 RNAs would, therefore, be available to livestock grazing. Foster Flat and Guano Creek-Sink Lakes RNAs will remain closed to grazing. They were closed to grazing in the Three Rivers (1991) and Lakeview (2003) RMPs, respectively, and subsequent closure actions. These two RNAs include four major vegetation types and nine plant communities (**Table 4-6**), thereby providing a limited representation of the geographic and climatic variability in Oregon's Greater Sage-Grouse habitat.

Table 4-6
Vegetation Types and Plant Communities Available for Understanding the Impacts of Disturbances and Changing Climate on Forbs and Insects in the Absence of Livestock Grazing in the Key RNAs Closed to Grazing prior to the 2015 ARMPA

Vegetation Type	Research Natural Area	Vegetation Communities
Warm-Dry Sagebrush	Foster Flat, Guano Creek-Sink Lakes	Basin big sagebrush/bluebunch wheatgrass Wyoming big sagebrush/needle-and-thread
Shallow-Dry Sagebrush	Foster Flat, Guano Creek-Sink Lakes	Low sagebrush/Sandberg bluegrass
Riparian-Wetland	Guano Creek-Sink Lakes	Willow
Playa	Foster Flat, Guano Creek-Sink Lakes	Silver sagebrush/Nevada bluegrass Silver sagebrush-green rabbitbrush Silver sagebrush/Baltic rush Silver sagebrush/basin wildrye Silver sagebrush/Sandberg bluegrass

Conditions in Malheur County, which is generally lower in elevation and drier overall, would not be represented. This lower level of variation would reduce the BLM's ability to understand how grazing may or may not be impacting a more complete array of forbs and insects used by Greater Sage-Grouse in different seasons and different ecological settings.

Findings based solely on Foster Flat and Guano Creek-Sink Lakes RNAs could not be extrapolated to other vegetation types and plant communities or to the eastern portion of Oregon's Greater Sage-Grouse habitat. This is due to differences in climate and site conditions. Only one Riparian-Wetland vegetation community and only one Shallow-Dry Sagebrush vegetation community would be included in the potential study sites. The greatest number of vegetation communities would occur in the Playa major vegetation type, largely because playas are a dominant feature in both RNAs.

Although playas could be considered a riparian-wetland type, they serve this function only in wet years. During drought periods, these playas are dry and not used by Greater Sage-Grouse for late brood-rearing and may not be wet enough to provide forbs for pre-laying hens and insects for early brood-rearing.

4.7 IMPACTS ON FISH AND WILDLIFE

General impacts of livestock grazing on wildlife are described in the 2015 Final EIS, Section 4.5, pages 4-122 to 4-141, and are hereby incorporated by reference. Under the No-Action Alternative, grazing would be closed in part or all of 13 key RNAs. Implementation-level actions necessary to close and eliminate grazing would be subject to further environmental review, including that under NEPA (2015

Final EIS, Section 4.2). Since 2015, the types of impacts described in the 2015 Final EIS have continued to occur in the key RNAs that are open to grazing.

Fish and wildlife that use rangelands can benefit from the proper management of livestock. These benefits include providing a sustainable, diverse, and vigorous mixtures of native vegetation for forage and habitat. If grazing results in overutilization of forage by livestock, it could lead to increased competition with wildlife for forage and potentially reduced hiding cover and nesting habitat for other species.

Livestock could also spread invasive plants, which would degrade habitats; however, BLM grazing policy requires that all wildlife habitat achieve or make significant progress toward achieving land health standards, including the standard for wildlife and special status species. For allotments not meeting the BLM's Standards for Rangeland Health and where livestock grazing is determined to be a significant factor, BLM would implement appropriate changes in grazing management prior to the start of the next grazing year. The BLM may also require changes to livestock grazing or management for various reasons in accordance with its grazing regulations (43 CFR 4100 [2005]).

4.8 SPECIAL STATUS SPECIES

Under the No-Action Alternative, livestock grazing within part or all of 13 key RNAs is unavailable. Implementation-level actions necessary to close and eliminate grazing would be subject to further environmental review, including that under NEPA (2015 Final EIS, Section 4.2). All federal actions also must comply with ESA consultation requirements, and all implementation actions would be subject to further review before site-specific projects are authorized or implemented. If adverse impacts are identified, mitigation measures, including avoidance, would be implemented to minimize or eliminate the impacts.

Impacts of grazing on special status species of fish and wildlife are described in the 2015 Final EIS, Section 4.5, pages 4-122 to 4-144, and are hereby incorporated by reference. Special status species that use the key RNAs can benefit from proper management of livestock (2015 Final EIS, page 4-126). Benefits include providing sustainable, diverse, and vigorous mixtures of native vegetation for forage.

Also, proper management of grazing livestock can control invasive plants and reduce fuel accumulations, protect intact sagebrush habitat, and increase habitat extent and continuity. Conversely, improper grazing can result in overutilization of forage by livestock, leading to increased competition with wildlife for forage and potentially reduced cover and nesting habitat. Livestock can spread invasive plants, which degrade habitats. Special status wildlife could be displaced from their habitats, which could increase competition for resources in adjacent habitats. Impacts would vary, depending on the extent of vegetation removal, type of habitat impacted, and length of the grazing period.

Some special status species are riparian dependent. Livestock often use riparian and wetland areas for water and shade. Improper livestock grazing of riparian areas can degrade habitat condition for riparian-dependent, aquatic, and fish species. Elimination of livestock in riparian systems at Hart Mountain National Antelope Refuge in southeastern Oregon resulted in decreased channel widths and eroding banks and the amount of bare soil and increased the herbaceous cover (Batchelor et al. 2015).

In another study on the Hart Mountain National Antelope Refuge, Earnst et al. (2012) recorded substantial regeneration of aspen shoots, increased densities of riparian forbs and shrubs, and increased

avian abundances in riparian and quaking aspen woodland 12 years after grazing had been eliminated. Removal of livestock grazing from riparian areas of the key RNAs over the long term would likely produce similar benefits to habitat for riparian-dependent special status species.

BLM sensitive plant species are known to occur in 7 of the 15 key RNAs (see **Chapter 3** of this RMPA/EIS). Complete botanical inventories of the RNAs are lacking, so additional BLM sensitive plants could occur and be undocumented. There are no known federally listed plants in the 13 key RNAs. As stated on page 4-100 in the 2015 Final EIS, managing areas as unavailable to livestock grazing increases protection of any special status species in the closed area.

Two species adapted to playas occur at Foley Lake and Toppin Butte RNAs. Columbia cress (*Rorippa columbiae*) and profuse flowered pogogyne (*Pogogyne floribunda*) occur around the margin of Foley lake. A small enclosure protects most of the Columbia cress, but the pogogyne is within the grazed pasture. Under the No-Action Alternative the enclosure would likely be removed once it is replaced by a larger enclosure under a separate NEPA environmental assessment.

At Toppin Creek Butte RNA, profuse-flowered pogogyne, which is a former candidate for listing and a USFWS species of concern, occurs at Bull Flat, which is also grazed. Bull Flat playa is one of the only places for water in the RNA. The last observation of profuse-flowered pogogyne was in 2005, and an estimated 4,000 plants were documented under the silver sage (GeoBOB 2018).

These tiny, diminutive annual plants in the mint family are prolific seed producers, and seed can remain viable for many years, an evolutionary advantage for drought years in playas and vernal systems. In wet years the annual plants germinate in the fall and winter and reproduce and then die back in the spring; in drought years they remain dormant. The assumption is that the plant still occurs at the site; however, there is no recent information on the effects of grazing on that species at the playa; however, in a conservation status report, Dr. Robert Meinke (2006) documented concern about the grazing impact at Bull Flat and on the population at the Foley Lake RNA. The concern was physical grazing impacts could lead to introduction of invasive species adapted to the playa, which could outcompete the pogogyne. The removal of grazing from these key RNAs would remove these potential threats.

The Rahilly Gravelly RNA has several occurrences of Cooper's goldflower (*Hymenoxys cooperii*), a type of aster, in the Sucker Creek pasture. With only 400 plants documented in 2014 at five sites (GeoBOB 2018), this is a small population and small populations are inherently vulnerable; the removal of grazing may benefit the species. In a recent rangeland health assessment for Rahilly Gravelly allotment, however, it met all standards for rangeland health. Recent vegetation plots, specifically in the RNA and in the Sucker Creek pasture, which was to be closed, documented functioning plant communities rich in forbs, good cover for Greater Sage-Grouse, and low cover of invasive species. The level of grazing appears light and to be maintaining the RNA elements. Grazing in this pasture is on a rest and rotation system, with alternating years being rested from grazing.

Cooper's goldflower is likely a moderately important species for Greater Sage-Grouse as food and substrate for insects for hens and chicks. It occurs close to a Greater Sage-Grouse lek and near nesting/brood-rearing areas. At the northern edge of its range in the Great Basin (this is the most northerly documented location), the exact effect of grazing on Cooper's goldflower is unknown. It flowers later in the summer and early fall, so depending on the season of use it may or may not be

grazed by cattle. Many aster species are browsed, but whether this is a preferred species by cattle is not known, so the effect of grazing is unknown.

In the East Fork of Trout Creek RNA, large areas contain rock melic (*Melica stricta*), a former BLM sensitive species and a perennial grass. Since large populations of rock melic are known in the Trout Creek Mountains, outside the RNA, the removal of grazing in the small RNA would have little effect on the species.

Mahogany Ridge RNA has three small occurrences of the BLM sensitive plant Owyhee clover (*Trifolium owyheense*). Legumes and clover species are favored by cattle, so the removal of grazing would likely benefit this BLM sensitive species. The current impact on the population is not known. The population was last visited in 2001, when 2,000 plants were documented at the three sites (GeoBOB 2018). Native clovers are also high value forb species for Greater Sage-Grouse hens and chicks, but utilization by Greater Sage-Grouse at these sites is not known.

The North Ridge of Bully Creek has a population of thyme-leaved buckwheat (*Eriogonum thymoides*), a former BLM sensitive species that is still tracked by the Oregon Biodiversity Information Center as a List 3 species (a review species). There is no information on the status of this occurrence or any effects from current grazing. Buckwheat species are favored by Greater Sage-Grouse hens and chicks for food and substrate for insects, but utilization by Greater Sage-Grouse at this site is not known.

Several BLM sensitive plants occur in Guano Creek-Sink Lakes RNA. As this RNA is already closed to grazing and would continue to be closed to livestock grazing under both alternatives, there would be no change in effects on special status species.

Under the Proposed Plan Amendment, the decision from the 2015 ROD/ARMPA to remove grazing from 13 of the 15 RNAs would be reversed. Grazing can have direct and indirect effects on BLM sensitive plants. Direct effects would occur from direct consumption (if the plant is palatable), reduction in reproductive capacity (fewer flowers), and direct physical disturbance from being trampled or crushed by loafing cattle. Indirect effects tend to occur from grazing that modifies the environment, which later affects the plants. For instance, improper, repeated, or long-duration grazing can reduce vegetation cover of selected plants (Davies et al. 2014) and can increase the percentage of bare ground and loss of biological crusts (Anderson et al. 1982; Jones and Carter 2016). This could open niches to be invaded by exotic or invasive species, including exotic annual forbs and annual grasses (Hayes et al. 2003; Beschta et al. 2014). The grasses and forbs could then compete with sensitive plants for water, space, and nutrients.

As stated in Davies (2014), the shifts in vegetation and other effects depend on the grazing system, the timing, intensity, duration of grazing, the plant community composition, the kind and class of grazing animals, the site characteristics, and interactions between grazing and other disturbances, such as fire. Compared with the No-Action Alternative, there would be an increased risk of loss of BLM sensitive plant individuals from direct and indirect effects, potentially decreasing population size and resulting in an increased potential for extirpation at the site scale.

The Columbia cress population would likely be maintained in the existing enclosure at Foley Lake RNA. In a species conservation strategy prepared for the BLM (*Rorippa columbiae* Conservation Strategy 2017), grazing was identified as one of the major threats to this species. At Foley Lake, a long-term enclosure has documented an increase in Columbia cress in the enclosure and a decrease outside of it.

Profuse-flowered pogogyne would still be subject to direct and indirect effects from grazing in the playas at Foley Lake and Toppin Creek RNA. As most of the sensitive plant populations in the key RNAs have small areas of occupied habitat, and many with small population size, they are inherently vulnerable to disturbance (Kaye et al. 1997), including grazing, and other random events that could extirpate populations.

4.9 IMPACTS ON LIVESTOCK GRAZING MANAGEMENT

General impacts on grazing are described in the 2015 Final EIS, Section 4.8, pages 4-179 to 4-204, and are hereby incorporated by reference. The analytical assumptions stated in the 2015 Final EIS on page 4-180 would remain the same.

The 2015 ROD/ARMPA made the key RNAs unavailable for livestock grazing. Collaborative discussions among the BLM State, District, and Field Offices have been ongoing to meet the 5-year implementation time frame identified in the 2015 ARMPA (see page 2-46, 2015 Final EIS) for making all or portions of 13 of the 15 key RNAs unavailable to livestock grazing. Authorized livestock grazing has continued in these key RNAs consistent with District RMPs and the 2015 ROD/ARMPA.

The No-Action Alternative would retain management direction to remove grazing from key RNAs as identified in the 2015 ROD/ARMPA. The impacts of this action as identified in the 2015 Final EIS have not yet been realized, given that action has not been taken under the federal grazing regulations. However, the long-term impacts of properly managed livestock grazing, identified in the 2015 Final EIS (Proposed Plan Alternative), would remain the same. The Proposed Plan Amendment would represent a change in land use allocation; however, no actual management change or impact would occur on the ground since permitted grazing has not been formally removed from the key RNAs. The impact of properly managed livestock grazing on Greater Sage-Grouse habitat in the key RNAs would be the same in the short term (within 3 years) under both the No-Action Alternative and the Proposed Plan Amendment.

The contrasting impacts of proper and improper livestock grazing on Greater Sage-Grouse, Vegetation, Fish and Wildlife, and Special Status Species are discussed in detail in this RMPA/EIS in **Sections 4.5, 4.6, 4.7, and 4.8** respectively. As noted in other sections of this EIS, all activities and uses within Greater Sage-Grouse habitats will follow existing and current land health standards (Standards for Rangeland Health and Guidelines for Livestock Grazing Management, 1997).

Impacts of improper livestock grazing on Greater Sage-Grouse and its habitat were discussed in detail in the 2015 Final EIS in Section 4.3 (pages 4-7 to 4-94, and specifically pages 4-16 to 4-20), Section 4.4 (page 4-112), Section 4.5 (page 4-133), and Section 4.7 (4-170), and are hereby incorporated by reference. Pages 4-16 to 4-20 describe the impacts of improper livestock grazing on Greater Sage-Grouse as an identified threat in the COT Report (USFWS 2013). The 2015 Final EIS noted that improper grazing could result in overutilization of forage by livestock, leading to increased competition with wildlife for forage, and potentially reduced cover and nesting habitat for other species. Livestock could also spread invasive plants, which would degrade habitats. Special status wildlife could be displaced from their habitats, which could increase competition for resources in adjacent habitats. Impacts would vary depending on the extent of vegetation removal, type of habitat impacted, and season of use and duration of the grazing period. Livestock could degrade riparian areas, which could impact riparian-dependent, aquatic, and fish species.

The 2015 Final EIS also discussed the beneficial impact proper livestock grazing can have on Greater Sage-Grouse and its habitat (Sections 4.3, 4.4, 4.5 and 4.8). **Sections 4.5, 4.6, 4.7, and 4.8** of this EIS similarly discuss the beneficial impact of properly managed grazing on habitat conditions for Greater Sage-Grouse. When properly grazed, beneficial impacts can include sustainable, diverse, and vigorous mixtures of native vegetation for Greater Sage-Grouse forage and habitat. In addition, proper management of grazing livestock can control invasive plants and reduce fuel accumulations, protect intact sagebrush habitat, and increase habitat extent and continuity.

Under the No-Action Alternative there would be additional range improvements constructed (e.g., additional fencing to exclude livestock), some existing range improvements could be removed or modified, and salt and mineral blocks would be removed. Range improvements are not considered a surface-disturbing activity subject to the 3 percent cap.

The 2015 Final EIS describes the nature and types of impacts from new and renewed permits and leases, range improvements, construction and maintenance of range improvements, and the continued importance of livestock grazing to local economies (pages 4-201 to 4-204); these impacts are hereby incorporated by reference.

In addition, Section 4.8.10 of the 2015 Final EIS addresses the direct impacts on livestock grazing management from making areas unavailable to grazing, limiting available AUMs, and changing or modifying grazing strategies, such as changing season of use, rotation systems, or intensity and duration of use (pages 4-201 to 4-204); these impacts are hereby incorporated by reference. Similarly, the section discusses direct and indirect impacts on permittees if management systems change, AUMs are reduced, or areas are unavailable to livestock grazing (pages 4-201 to 4-204); these impacts are hereby incorporated by reference.

The impacts of implementing the No-Action Alternative are the same as described in the 2015 Final EIS. Implementation of this alternative would require construction of approximately 39 miles of fence (see pages 4-203 and 4-280). Placement and construction of fencing would require site-specific, project-level NEPA analysis and appropriate surveys. There would be impacts on the operators and their livestock grazing management through changes to grazing practices (see **Section 4.9** of this RMPA/EIS).

The analytical assumptions stated in the 2015 Final EIS on page 4-180 would remain the same: under the Proposed Plan Amendment, the RNAs would have to meet or make significant progress toward meeting rangeland health standards.

In addition, livestock grazing would need to support the purposes of the RNAs, as described in **Section I.3** of this RMPA/EIS.

The fencing needed to implement the No-Action Alternative would not need to be constructed under the Proposed Plan Amendment. There would be no impacts on the operators and their livestock grazing management through changes to grazing practices or authorized use (see **Section 4.9** of this RMPA/EIS).

4.10 IMPACTS ON SOCIOECONOMICS

The general socioeconomic impacts described in the 2015 Final EIS, Section 4.20, pages 4-324 through 4-333 and pages 4-348 to 4-355, remain valid and are hereby incorporated by reference. The analytical

assumptions stated in the 2015 Final EIS on page 4-325 remain the same for this analysis. In the 2015 Final EIS, the IMPLAN model was used for the economic analysis. That quantitative analysis remains valid, but the impact of making the key RNAs unavailable to livestock grazing was at the scale of the 2015 planning area (more than 12 million acres). The analysis in this RMPA/EIS is limited to the key RNAs and is more qualitative, based on a lack of financial information about the individual operators. The 2018 private land lease rate per AUM in Oregon is \$16.50 (WO IM 2018-043). **Table 4-7** displays the reduction in AUMs and Active Use.

Table 4-7
Key Research Natural Areas

RNA Name	District	RNA Acres	Unavailable RNA Acres	Number of AUMs Affected	Percent of Active Use Affected
Black Canyon	Vale	2,639	2,639	*260	5%
Dry Creek Bench	Vale	1,637	622	**52	<1%
East Fork Trout Creek	Burns	361	304	**47	<1%
Fish Creek Rim	Lakeview	8,718	2,750	*110	12%
Foley Lake	Lakeview	2,228	1,269	**51	<1%
Lake Ridge	Vale	3,860	769	**74	2%
Mahogany Ridge	Vale	682	155	**27	<1%
North Ridge Bully Creek	Vale	1,569	164	**19	<1%
Rahilly-Gravelly	Lakeview	18,678	8,282	*586	35%
South Bull Canyon	Vale	790	747	*116	4%
South Ridge Bully Creek	Vale	621	39	**61	2%
Spring Mountain	Vale	996	996	*153	2%
Toppin Creek Butte	Vale	3,998	2,685	*216	8%
Totals		46,777	21,421	1,772	--

* AUMs would be removed (decreased) from Active Use because they cannot be moved to other pastures, without adverse impacts.

** AUMs could be moved into other pastures with no actual reduction in Active Use or economic impact.

Revision of Table 2-6, page 2-18, in the 2015 ROD/ARMPA

No-Action Alternative

The BLM assumes that a loss of AUMs will result in a socioeconomic impact on permittees. Construction and maintenance of fences are an economic cost to the operator, the government, or both and are costs in both the short term and long term. This alternative requires an estimated 39 miles of fence construction at \$10,000 per mile (materials and labor) for an estimated cost of \$390,000.

Under the No-Action Alternative, all or parts of the key RNAs would be unavailable to livestock grazing. Actual closure and reduction of AUMs would be determined by the BLM Authorized Officer. Minor loss of acreage available to grazing that does not affect an allotment's livestock carrying capacity, forage use levels, or distribution patterns may not require permitted use reductions.

If the magnitude of the decrease in available public land acreage for grazing and associated forage loss cannot be absorbed into the remaining permit area (by moving AUMs to other pastures), then the direct impact would be a reduction in AUMs. This would result in a direct economic impact on the permittee,

because they would need to reduce herd size, find alternative pasture, increase the time when they provide feed and water on the base property, or some combination of the three.

Preliminary analysis indicates that in at least 5 of the 13 key RNAs (Black Canyon, Fish Creek Rim, Rahilly-Gravelly, Spring Mountain, and Toppin Creek Butte) permittees would be directly impacted due to the loss of AUMs. In these cases, the reduction of AUMs would exceed 5 percent (see **Section 2.2.2**) of the current active use AUMs, a level that permittees cannot absorb into the rest of their operations or other allotments where they have grazing permits, which are fully stocked/allocated, without disrupting the grazing management strategy applied to the allotment. All permittees would likely experience management changes (e.g., rotation or season of use) due to new fencing and loss of acres available to grazing. The BLM would not collect grazing fees on approximately 1,325 AUMs. At the current rate of \$1.41 per AUM, that loss would total an estimated \$1,868.25 per year of which \$700.59 would have gone to the US Treasury, \$233.53 to the affected counties, and \$934.13 to the affected BLM Districts. These losses would be shared almost equally between Vale District/Malheur County (629 AUMs for \$554.31 to the District and County) and Lakeview District/Lake County (696 AUMs for \$613.35 to the District and County). Over a ten-year period, these losses would amount to \$7,000.59 to the US Treasury, \$2,333.50 to the Malheur and Lake counties, and \$9,341.30 to Vale and Lakeview Districts.

Comments received on the Draft EIS indicated concern about loss of Rangeland Fire Protection Associations (RFPAs) as a result of these closures. The primary concern was that permittees would be unable to stay in business and leave the area, resulting in the loss of critical mass in RFPAs and their consequent dissolution. Since only a small number of permittees would be adversely affected by the loss of AUMs, dissolution of any RFPA seems unlikely. The BLM cannot assess whether the economic impacts would result in any affected permittee leaving the area and does not have records of the membership in individual RFPAs. The State of Oregon is responsible for managing the RFPAs, and such records would reside with it. Given the scattered nature of the five RNAs, any given RFPA would need to be largely or wholly dependent on an affected permittee (with no replacements) to lose critical mass and dissolve.

Proposed Plan Amendment

There would be no impact on the livestock operators from continuing grazing in the key 13 RNAs. No additional fencing would need to be constructed or maintained along with the associated cost impacts. There would be no loss of grazing fees, and no RFPAs would be potentially threatened by any given permittee leaving the area as a result of closing RNAs to livestock grazing.

4.11 CUMULATIVE EFFECTS ANALYSIS

This section presents the anticipated cumulative impacts on the environment that could occur from implementing the alternatives presented in **Chapter 2**. A cumulative impact is the impact on the environment that results from the incremental impact of the action, when added to other past, present, and reasonably foreseeable actions, regardless of what agency (federal or nonfederal) or person undertakes such actions.

Cumulative impacts can result from individually minor, but collectively significant actions taking place over time. The cumulative impacts resulting from the implementation of the alternatives in this RMPA/EIS may be influenced by other actions, as well as activities and conditions on other public and

private lands, including those beyond the planning area boundary. These include the concurrent Forest Service planning effort to amend land management plans for National Forests in Idaho, Montana, Nevada, Utah, Colorado, and Wyoming, which were previously amended in September 2015 to incorporate conservation measures to support the continued existence of the Greater Sage-Grouse. As a result, the sum of the effects of these incremental impacts involves determinations that often are complex, limited by the availability of information, and, to some degree, subjective.

This RMPA/EIS incorporates by reference the analysis in the 2015 Final EISs and the 2016 SFA Withdrawal Draft EIS, which comprehensively analyzed the cumulative impacts associated with these planning decisions under consideration in that process. The 2015 EISs, and to some degree the 2016 SFA EIS evaluated the cumulative impacts associated with the No Action Alternative in this RMPA/EIS. The Proposed Plan Amendment's effects are effectively within the range of effects analyzed by the 2015 and 2016 EISs. The 2015 Final EISs are quite recent, and the BLM has determined that conditions in the Great Basin have not changed significantly based, in part, on the USGS science review (see **Chapter 3**), as well as the BLM's review of additional past, present, and reasonably foreseeable actions in 2018. Conditions on public land have changed little since the 2015 Final EISs, and to the extent that there have been new actions or developments, the impacts associated with those actions or developments are in line with the projections in the 2015 Final EISs regarding reasonably foreseeable actions and effects. Additionally, changes that have occurred on a smaller level, like wildfires, received prompt responses. Since the nature and context of the cumulative effects scenario has not appreciably changed since 2015, and the 2015 analysis covered the entire range of the Greater Sage-Grouse, the BLM's consideration of cumulative effects in the 2015 Final EISs adequately addresses most, if not all, of the planning decisions to be made through this planning effort.

While the cumulative impacts analysis in the 2015 Final EIS thus offers a comprehensive foundation for this planning effort, the BLM is improving upon that analysis by integrating additional quantitative analysis specific to the rangewide planning effort. The purpose of this additional analysis is to facilitate a comparison of allocation decisions between the No Action and Proposed Plan Amendments at scales beyond the individual planning areas associated with the 2018 amendment process. The BLM's rangewide analysis focuses on the relevant changes in habitat management area delineations and allocation and allowable use decisions each BLM state office is proposing and how those changes may impact our understanding of cumulative effects at the MZ scale.

Conservation and management partners sought to work in advance of the 2015 USFWS listing decision to develop conservation objectives for the Greater Sage-Grouse that could help direct conservation and management actions for the species. Upon further review of the best available science and commercial information, the USFWS concluded in 2010 that the Greater Sage-Grouse warranted protection under the ESA. Two factors leading to the decision to list the species as "warranted but precluded" were threats to habitat and the inadequacy of existing regulatory mechanisms. In 2012, at the request of the Greater Sage-Grouse Task Force (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.

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 mitigation requirement or recommendation 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 clarifications and changes to compensatory mitigation in the Proposed Plans 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 ESA. The USFWS found that BLM's 2015 land use plans were adequate regulatory mechanisms and that the species no longer warranted listing under the ESA. At the time of that decision, 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.

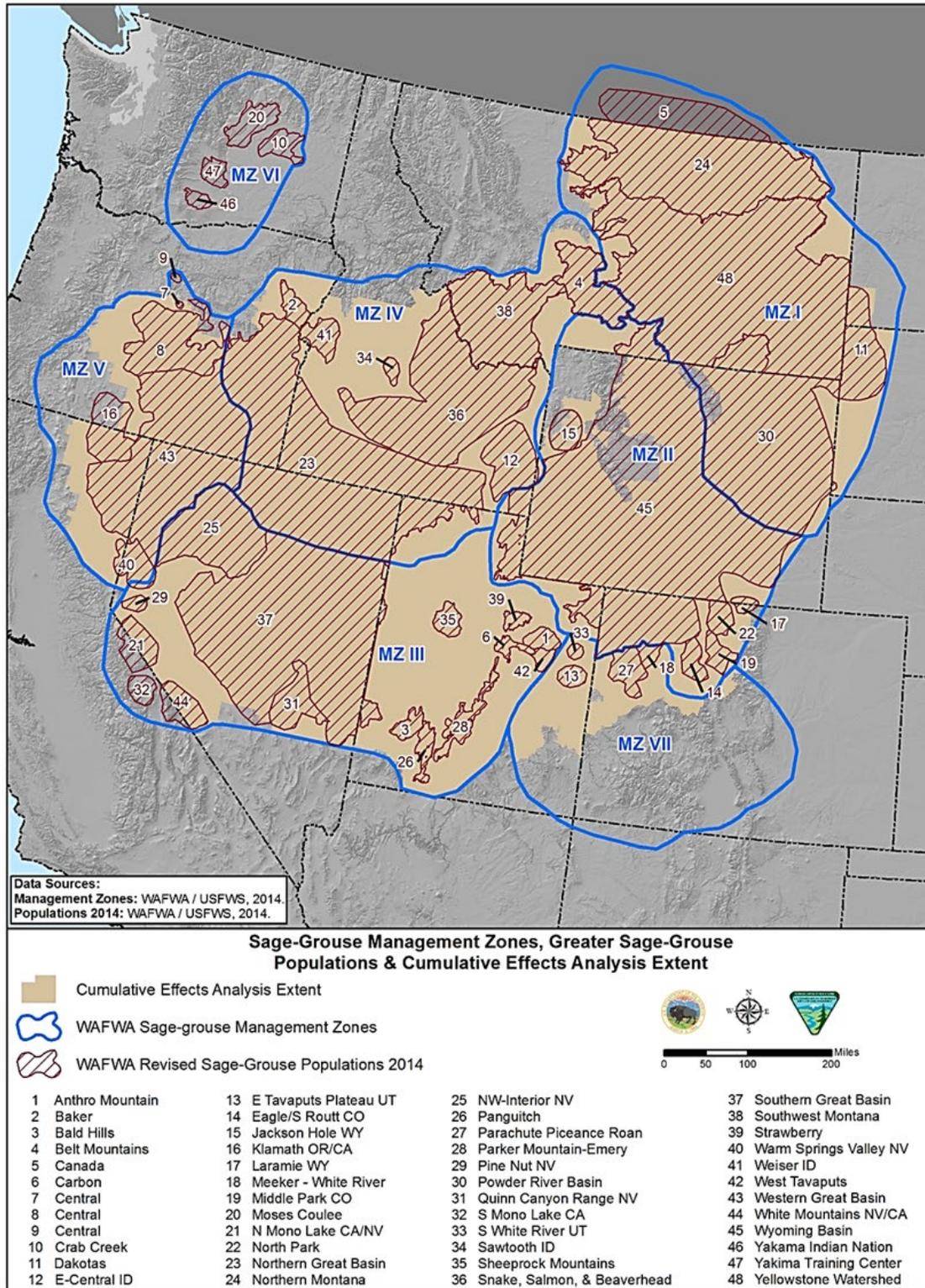
The BLM will continue plan effectiveness monitoring to provide the data needed to evaluate BLM actions toward reaching the goals and objectives set forth in the RMPAs. Effectiveness monitoring methods will encompass multiple larger scales, from areas as large as the WAFWA MZ to the scale of this RMPA. 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 BLM has six state-specific RMPA efforts that are all aligning mitigation with their relevant State authorities. All of the Proposed Plan Amendments modify the existing standard for compensatory mitigation, but maintain that the BLM will pursue conservation efforts as a broader planning goal and objective. Cumulatively, if the BLM is implementing planning decisions across the broader range, such actions would preclude any cumulative impacts from modifying the net conservation gain standard at the project level.

The BLM has updated certain data that it collected and evaluated in the 2015 Final EIS concerning the 2015 plan allocation and allowable use decisions. These updates reflect maintenance-related changes, adaptive management responses, and refined or corrected source data (**Appendix B, Table B-1**). The BLM used these data to represent the No Action alternative for this 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 and allowable use decision data. The BLM was also able to provide allocation and allowable use decision data representing changes included in the 2018 Draft EIS alternatives, which were then used in the comparative analysis. Decision data are summarized by habitat management area type within each MZ (see **Figure 4-1**) and are presented in **Appendix B** in both approximate acreage of BLM managed lands within each habitat management area designation as well as percent of BLM lands within a habitat management area designation to which an allocation decision applies.

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

Figure 4-1
Cumulative Effects Analysis Extent, Sage-Grouse Management Zones and Populations



state further analyzed cumulative effects at the WAFWA management zone level for their state. See **Sections 4.11.1** and **Table I** in **Appendix B** 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 Oregon. See Oregon's WAFWA management zone analysis in Sections 4.11.5 and 4.11.6 below. Both analyses use WAFWA Management Zones. Oregon's WAFWA Zone analysis included Zones IV and V. Zone IV encompasses portions of Idaho, Nevada, Montana, Oregon, Utah, and a small portion of Wyoming (**Figure 4-1**). Zone V encompasses portions of Oregon, California, and Nevada.

4.11.1 Rangewide Cumulative Effects Analysis – Greater Sage-Grouse

The 2015 ARMPA is the No-Action Alternative in this RMPA/EIS and was part of the cumulative impact analysis for Greater Sage-Grouse at the WAFWA zone scale in the 2015 Final EIS. Additionally, the cumulative impacts anticipated from the Management Alignment Alternative and the Proposed Plan presented in this RMPA/EIS 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 Oregon 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 rangewide view of cumulative impacts. The purpose of this additional analysis is to facilitate a comparison of allocation decisions between the No-Action and Management Alignment (Proposed Plan Amendment) Alternatives at scales beyond the individual planning areas associated with the 2018 amendment process. The analysis focuses on the relevant changes in habitat delineations and allocation decisions each BLM state office is proposing and how those changes may affect the understanding of cumulative effects at the WAFWA MZ scale across the range of Greater Sage-Grouse.

Under the Management Alignment Alternative, the recommendation to withdraw sagebrush focal areas (SFA) from location and entry under the Mining Law of 1872 would be removed, as the EIS process considering the proposed withdrawal was canceled on October 11, 2017. In its 2016 SFA Withdrawal EIS, the BLM quantified the possible adverse effects from locatable mineral exploration and mining on the approximately 10 million acres of SFAs proposed for withdrawal, finding that they would be limited to approximately 9,000 acres rangewide of surface disturbance over 20 years, with approximately 0.58 percent of Greater Sage-Grouse male birds possibly affected per year. The other action alternatives

evaluated in the 2016 SFA Withdrawal Draft EIS similarly demonstrated negligible benefit of the proposed withdrawal to Greater Sage-Grouse and its habitat.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.

Why use WAFWA Management Zones?

The WAFWA represents state and provincial fish and wildlife agencies and supports sound resource management and building partnerships to conserve wildlife for the use and benefit of all citizens, now and in the future. The BLM is analyzing habitats and allocation decisions at the scale of the six WAFWA delineated Greater Sage-Grouse MZs (MZ; **Figure 4-1**) within which the plan amendments occur to enable the decision maker to understand the impacts on Greater Sage-Grouse at a biologically meaningful scale. The MZs are based on floristic provinces (e.g. as identified by Connelly et al. 2004) within which the vegetative communities comprising Greater Sage-Grouse habitat as well as the Greater Sage-Grouse populations respond 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 vegetative conditions important to Greater Sage-Grouse habitat management. Each suite of threats to specific Greater Sage-Grouse populations have been identified in [COT Report, 2015 Regional RODs, Listing Decision]. The 2015 Regional RODs identify how planning level allocation decisions address the identified threats to populations, which are aggregated in this analysis by MZs. The threats vary geographically and may have more or less impact on Greater Sage-Grouse and its habitat in some MZs or parts of the MZs, depending on such factors as climate, land use patterns, and topography.

Reasonably foreseeable future actions in MZs V and IV are identified in the Oregon 2015 Final EIS in Tables 5-21 and 5-22, respectively. Unless otherwise addressed in this chapter, the cumulative effects of the alternatives analyzed in this RMPA/EIS are covered by the 2015 Final EIS and the 2016 SFA Withdrawal Draft EIS. This includes the incremental impacts across the range of BLM- and Forest Service-administered lands being amended in concurrent efforts. See the 2015 Final EIS for additional information.

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).

The sum of past, present, and reasonably foreseeable actions listed in **Appendix B, Table B-1** 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 analyzed solely at the local or state level.

Other management actions contained in the proposed plan amendments are described in more detail in **Chapter 2**. This section also briefly describes the threats to Greater Sage-Grouse and its habitat. The magnitude of change between the No-Action Alternative and Proposed Plan Amendment, by decision, is represented in pie charts and tables within **Appendix B**. Those effects, in addition to synthesizing the plan decisions and comparing the current condition to the condition that will be in effect when the Proposed Plan Amendments are finalized, allow for a comparison of the change in management direction within MZs and across planning regions.

Under the Proposed Plan Amendment, the recommendation to withdraw SFAs from location and entry under the Mining Law of 1872 would be removed, except in Oregon where the recommendation was removed through plan maintenance in May 2018. 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 EIS similarly demonstrated negligible benefit of the proposed withdrawal to Greater Sage-Grouse and its habitat². The cumulative effects of implementing the Proposed Plan Amendment are as described in the 2016 SFA Withdrawal EIS, under the No-Action Alternative, in which SFAs are not carried forward for withdrawal. Greater Sage-Grouse across all of the MZs 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, and the 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 and waivers, exceptions or modifications overlap with the SFA designation.

Disturbance from energy development, mining, and infrastructure, as well as the resulting habitat fragmentation, remain the greatest threat to Greater Sage-Grouse in the Rocky Mountain region. Wildfire threat remains a concern in the area as well 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 rangewide³; this is within the range of projected wildland fire analyzed in the 2015 Final EIS. The BLM has committed resources to habitat restoration and has treated 1.4 million acres of Greater Sage-Grouse habitat rangewide over the past 5 years. The

² Importantly, mining operations that do occur are subject to regulation under the BLM's surface management regulations at 43 CFR Part 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).

³ Removing 2012 and 2017, which were above-average wildland fire years, the 8-year average is approximately 500,000 acres burned per year.

interagency (including 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) as well as pointing to three new gaps involving program capacity, resource specialists, and developing guidelines on drought and climate adaptation to manage sagebrush ecosystems.

The increased flexibility proposed in these amendments can allow for responsible development of other uses in Greater Sage-Grouse habitat and may reduce costs to proponents but 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 Proposed Plan Amendment are not expected to result in large changes to the rate of development across the range, or in the economy.

Some 350 species of plants and wildlife rely on sagebrush steppe ecosystems and coexist with Greater Sage-Grouse and 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 RMPs, policies, and laws, including Manual 6840, the Endangered Species Act, and FLPMA. Increased flexibility for other uses within Greater Sage-Grouse habitat does not necessarily increase potential impacts on other wildlife or plant species. Site-specific NEPA analysis including an evaluation of impacts on special status species is required for on-the-ground projects within the planning area.

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

In addition to the analysis in the 2015 Final EIS, other anticipated incremental impacts are discussed below in association with planning issues being analyzed in the rangewide RMPA/EISs.

MZ I (Figure 4-1) 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 Plan Amendments in WAFWA MZ I, PHMA and GHMA designations would not change from those identified in the No Action Alternative. In addition, no changes in allocations are proposed in either of the planning areas in this MZ. Approximately 16 percent of the planning area across MZ I is designated as PHMA, and 38 percent is GHMA. Future adjustments to PHMA and GHMA in MZ I would be based on best available science and to align with the respective states' delineations for Greater Sage-Grouse habitat.

Wyoming's current planning effort, and Montana's existing plans, incorporate management flexibility to allow for site specific adjustments to RMP 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 to 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 Plan Amendment changes from the No Action 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 Proposed Plan Amendment, there would be no additional cumulative impact to Greater Sage-Grouse populations or habitat within MZ I.

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

Impacts on Greater Sage-Grouse as a result of surface disturbance would likely be greater where development and disturbance is more intense and in areas where development overlaps sensitive habitats. The degree of impact would depend on the timing of development activities and whether the amount of development activity and disruption outpaces successful reclamation and revegetation efforts in disturbed areas. Increased flexibility for updating habitat management areas across MZ I would not result in any additive impacts on Greater Sage-Grouse and could result in beneficial impacts as a result of consistent management across the zone. Any future modifications of habitat management areas would be documented using the appropriate level of NEPA that would, as applicable, provide analysis regarding any potential impacts. However, because the underlying habitat management area allocations and the respective restrictions on those allocations put in place to conserve Greater Sage-Grouse would not change, and any proposed updates would reflect the most recent knowledge concerning Greater Sage-Grouse habitat use and distribution, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse habitat or population.

Approximately 99 percent of GHMA and PHMA habitat in MZ I is open to livestock grazing, and this is not proposed for change in Wyoming's Proposed Plan Amendment; Montana is also not proposing any changes to livestock management at this time. Therefore, no additional cumulative impacts beyond those identified in the 2015 Final EISs are anticipated. In general, livestock can influence habitat by modifying plant biomass, plant height and cover, and plant species composition. As a result, livestock grazing could cause changes in habitat; changes in plant composition could occur in varying degrees and could change vegetative structure, affecting cover for nesting birds. However, grazing can be used to reduce fuel loads and reduce the risk of wildfire and can also be managed to reduce the spread of invasive grasses. Much of the landscape in MZ I is adapted to withstand grazing disturbance, having been grazed by bison before the West was settled. In addition, the BLM has applied Standards for Rangeland Health since 1997 in order to enhance sustainable livestock grazing and wildlife habitat while protecting watersheds and riparian ecosystems. Under proposed management in MZ I, the BLM would be able to adjust forage levels to meet rangeland health standards based on site-specific information that would inform livestock management decisions. While the Proposed Plan Amendment in Wyoming would remove the Greater Sage-Grouse specific language Management Action 4 (please see the Wyoming Proposed RMPA/Final EIS, Table 2-1, Permit Renewals), the wildlife/special status species standards are emphasized. As Greater Sage-Grouse would continue to be considered at the implementation level with site-specific analysis, following management prescriptions analyzed in the 2014 and 2015 Final EISs, no additive impact of this change is anticipated.

Adaptive Management, Mitigation, and Prioritization of Leasing

Similarly, no appreciable additive impacts are anticipated from Wyoming establishing a process whereby adaptive management actions are reviewed and reversed once the identified causal factor is resolved.

This process would ensure that the BLM is utilizing the best available science and decision support tools to guide management at the appropriate spatial scale, thus improving the BLM's assessment and response to ever-changing conditions that could affect Greater Sage-Grouse populations and/or habitat, as well as ensuring that once causal factors are resolved, management reverts to pre-adaptive management actions. Because any specific response to tripping a hard or soft trigger would be based on the causal factors responsible, presuming a specific response to unknown future conditions would be speculative at best and not reasonably foreseeable. As Montana is not proposing to change any part of its adaptive management process, and Wyoming did not identify any additional direct or indirect impacts as a result of this proposed change, there are no additional cumulative impacts associated with the proposed changes to adaptive management implementation.

Under the Proposed Plan Amendment in Wyoming, language would be added to clarify how implementation-level decisions would be guided regarding mitigation and prioritization of fluid mineral leasing to better align with state conservation plans and management strategies. As identified in the direct and indirect effects section of this Final EIS, impacts on Greater Sage-Grouse would be minor as a result of these changes and could include localized detrimental impacts in some areas and beneficial impacts in others, but would not affect Greater Sage-Grouse conservation. As a result, there would be no appreciable additive impact from the implementation of these clarifications on Greater Sage-Grouse habitat or population across MZ I.

BLM's Proposed Plan Amendments in MZ I are also unlikely to preclude the reasonably foreseeable actions listed in **Appendix B** from proceeding. Some small, localized populations may be at continued risk due to reasonably foreseeable infrastructure and energy development projects over the next 20 years, when combined with unplanned events such as wildfires, drought, and associated decline in Greater Sage-Grouse habitat quality. However, the proposed plan amendments retain conservation measures that would be applied consistent with State management plans and 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 habitat.

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

In addition to the analysis in the 2015 Final EIS, other anticipated incremental impacts are discussed below in association with planning issues being analyzed in the rangewide RMPA/EISs.

MZs II/VII encompass portions of Wyoming, Colorado, Utah, Montana, and Idaho (Figure 4-1). Under the Proposed Plan Amendments in this MZ, PHMA would decrease by 1 percent and GHMA would decrease by 1 percent, compared to the acreage values in the No Action Alternative. The proposed change in habitat management area acres reflects changes in Utah, where PHMA would be reduced by approximately 35,000 acres and GHMA (826,000 acres) would be removed in an effort to align with the Greater Sage-Grouse Management Areas identified by the State of Utah. In Idaho, approximately 50,000 acres would change from PHMA to Important Habitat Management Area (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 habitat management areas. Across this MZ, no other modifications to habitat management areas are currently proposed. Montana is currently not undergoing a plan amendment process; therefore, none of the proposed changes described in this section apply to Greater Sage-Grouse in Montana.

In Colorado, in the no action alternative, PHMA within one mile of active leks is closed to leasing. The proposed action would open one mile of active leks to leasing, subject to NSO with restrictive criteria for waivers, exceptions, and modifications. Although that allocation change would make additional acres available to leasing, the impact on Greater Sage-Grouse is likely to be minimal because surface disturbance, fragmentation, and indirect habitat loss would not be expected to increase due to restrictions on surface disturbance. Additionally, better coordination with the State provides more of an all-lands approach that, due to multiple jurisdictions with regulatory authority over land and mineral ownership, may result in better landscape-scale protections for Greater Sage-Grouse and Greater Sage-Grouse habitat.

For the remainder of the planning areas within MZ II/VII, RMP allocations tied to habitat management areas did not change between the No Action and the Proposed Plan Amendment.

The decrease in PHMA and GHMA as a result of better alignment with the State of Utah's Greater Sage-Grouse management plan between the No Action and the Proposed Plan Amendment would have negligible to minimal impacts on Greater Sage-Grouse and its habitat in the context of the entire MZ. The reduction of PHMA was associated with timbered mountains that do not include Greater Sage-Grouse habitat. The removal of GHMA in MZ II/VII effects populations where the BLM has very little decision space (surface or mineral estates) or areas with very small populations that are already heavily impacted by existing oil and gas development resulting in infrastructure at a density above what science has indicated Greater Sage-Grouse will persist. Additionally, the relevant distribution of RMP allocations associated with these habitat management area changes would not significantly change (0-3 percent, see **Appendix B**).

The planning efforts being undertaken in this MZ would incorporate management flexibility in Colorado, Utah, and Idaho plans that would allow exceptions to allocation decisions similar to flexibility already in the Wyoming and Montana plans. These changes would allow for site-specific adjustments for land use authorizations based on site conditions. In addition, there would be adjustments to existing adaptive management strategies for all plans in this MZ. Within this MZ, all plans would remove the recommendation to withdraw SFAs from location and entry under the 1872 Mining Law, would make slight adjustments to habitat objectives, and Colorado and Idaho plans would identify new exceptions to seasonal timing restrictions to provide for consideration of site-specific conditions already present in the Utah, Wyoming and Montana plans. Despite these actions, cumulative impacts on Greater Sage-Grouse populations and habitat across MZ II/VII would be consistent with those impacts identified in the 2015 Final EISs for the then proposed plan amendments. The currently Proposed Plan Amendments changes from the No Action would be minor. Disturbance from energy development, mining, and infrastructure, as well as the resulting habitat fragmentation, remain the greatest threat to Greater Sage-Grouse in the Rocky Mountain Region. Because the land use prescriptions within designated habitat management areas and the allocations associated with those habitat management areas are not being proposed for change in any plan in MZ II/VII, there would be no additional cumulative impacts on Greater Sage-Grouse across this MZ.

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

Impacts on Greater Sage-Grouse as a result of surface disturbance would likely be greater where development and disturbance is more intense and in areas where development overlaps sensitive

habitats. The degree of impact would depend on the timing of development activities and whether the amount of development activity and disruption outpaces successful reclamation and revegetation efforts in disturbed areas. Increased flexibility for updating habitat management areas across 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 habitat management areas would be documented using the appropriate level of NEPA that would, as applicable, provide analysis regarding any potential impacts. However, because the underlying habitat management area allocations and the respective restrictions on those allocations put in place to conserve Greater Sage-Grouse would not change, and any proposed updates would reflect the most recent knowledge concerning Greater Sage-Grouse habitat use and distribution, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse habitat or population.

The allocation exception process would be updated in Colorado, Utah, and Idaho to simplify the various exemptions contained in the 2015 Final EIS. While the availability of exceptions to RMP allocations attached to PHMA and GHMA could increase the possibility of leasing, permitting, or ground-disturbing activities within a given habitat management area, the established criteria would ensure that projects are either in unsuitable Greater Sage-Grouse habitat; do not result in direct, indirect, or cumulative impacts on Greater Sage-Grouse; benefit Greater Sage-Grouse or its habitat; or can be offset, with the exception of those needed for public health and safety. Therefore, there would be no appreciable additive impact from the implementation of this action on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

Approximately 99 percent of GHMA and PHMA in MZ II/VII is open to livestock grazing; this is not proposed for change in any states' Proposed Plan Amendments. Therefore, no additional cumulative impacts beyond those identified in the 2015 Final EISs are anticipated. In general, livestock can influence habitat by modifying plant biomass, plant height and cover, and plant species composition. Improper livestock grazing could cause changes in habitat; changes in plant composition could occur in varying degrees and could change vegetative structure, affecting cover for nesting birds. However, proper grazing can be used to reduce fuel loads and reduce the risk of wildfire and can also be managed to reduce the spread of invasive grasses. Specific impacts on Greater Sage-Grouse habitat from livestock grazing are incorporated by reference from the 2015 Final EIS. All ongoing planning efforts in MZ II/VII would make slight adjustments to habitat objectives, and, in Wyoming and Utah, would provide for more flexibility for making site-specific adjustments to livestock grazing management if the site-specific monitoring indicated adjustments were necessary.

Under the Proposed 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 RDFs would be guided to better align with state conservation plans and management strategies. As identified in the direct and indirect effects section of this Final EIS, impacts on Greater Sage-Grouse would be minor as a result of these changes and could include localized detrimental impacts in some areas and beneficial impacts in others, but would not cumulatively compromise Greater Sage-Grouse conservation efforts throughout the individual states. As a result, there would be no appreciable additive impact from the implementation of these clarifications on Greater Sage-Grouse habitat or population across this MZ.

Similarly, no appreciable additive impacts are anticipated from updating the adaptive management process as described in the Proposed Plan Amendments. In Wyoming and Utah, this process would be updated at the implementation level to ensure that adaptive management actions are reviewed and reversed once the identified causal factor is resolved. In all states in this MZ, this update would ensure that the BLM is using the best available science and decision support tools to guide management at the appropriate spatial scale, thus improving the BLM's assessment and response to ever-changing conditions that could affect Greater Sage-Grouse populations and/or habitat. Because any specific response to tripping a hard or soft trigger would be based on the causal factors responsible, presuming a specific response to unknown future conditions would be speculative and not reasonably foreseeable.

In Idaho, removal of the project disturbance cap would not result in any changes to allocation decisions; rather, it would allow the BLM to cluster development in PHMA and IHMA only after meeting the anthropogenic disturbance screening criteria and the disturbance development criteria. Lek buffer modifications would also not result in any allocation changes. Some lek buffers would be increased as a result of the Proposed Plan Amendment, but, in some cases, the lek buffers may be smaller than those identified in the No Action. However, the existing disturbance screening criteria and the disturbance development criteria would highly restrict development activities in both PHMA and IHMA; therefore, the changes in lek buffers sizes would have no additive effect.

BLM's Proposed Plan Amendments in MZ II/VII are also unlikely to preclude the reasonably foreseeable actions listed in **Appendix B** from proceeding. Some small, localized populations may be at continued risk due to reasonably foreseeable infrastructure and energy development projects over the next 20 years, when combined with unplanned events such as wildfires, drought, and associated decline in Greater Sage-Grouse habitat quality. However, the proposed plan amendments retain conservation measures that would be applied consistent with State management plans and continued proactive habitat restoration efforts being completed by private, local, state, and federal partners across the MZ, to adequately conserve and maintain Greater Sage-Grouse habitat.

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

In addition to the analysis in the 2015 Final EIS, other anticipated incremental impacts are discussed below in association with planning issues being analyzed in the rangewide RMPA/EISs.

This area encompasses portions of California, Nevada, and Utah (Figure 4-1: Cumulative Effects Analysis Extent, Sage-Grouse Management Zones and Populations). Under the Proposed Plan Amendments in Nevada and Northeastern California and Utah, PHMA would decrease by 1 percent, GHMA would decrease by 2 percent, and for Nevada and Northeastern California only, Occupied Habitat Management Area (OHMA) would decrease by 2 percent, as compared to the acreages identified in the No Action Alternative. The proposed change in habitat management area acres between the No Action and the Proposed Plan Amendment in Nevada and Northeastern California is based on adjustments made to habitat modeling used to delineate habitat management areas and improve alignment with the State of Nevada's delineations for habitat management areas, which the State of Nevada adopted by in December 2015. In Utah, GHMA (approximately 860,000 acres) was removed in the Proposed Plan Amendment in an effort to align with the habitat management areas identified by the State of Utah. Following this habitat management area modification, planning-level allocation decisions have also been adjusted in the Proposed Plan Amendments to reflect the distribution of habitat in Nevada/Northeastern California.

In both planning areas within this MZ, RMP allocations tied to habitat management areas did not change between the alternatives. The decrease in PHMA, GHMA, and OHMA within WAFWA MZ III between the No Action Alternative and the Proposed Plan Amendment would therefore have negligible-to-minimal impacts on Greater Sage-Grouse and its habitat in the context of the entire MZ, as the relevant distribution of RMP allocations associated with these habitat management areas is not significantly changing (only an overall 0-3 percent decrease, see **Appendix B**).

Both planning efforts' Proposed Plan Amendments in MZ III incorporate management flexibility that would allow exceptions to allocation decisions within PHMA, GHMA, OHMA in Nevada and Northeastern California, and in both planning areas, would allow for site specific adjustments for land use authorizations and adjustments to existing adaptive management strategies. Under both sets of Proposed 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.

BLM's Proposed Plan Amendments in the MZ are also unlikely to preclude the reasonably foreseeable actions listed in **Appendix B** from proceeding. Some small, localized populations may be at continued risk due to the reasonably foreseeable future infrastructure and energy development projects over the next 20 years, when combined with unplanned events such as wildfires, drought, and associated decline in Greater Sage-Grouse habitat quality. However, the Proposed Plan Amendments retain conservation measures in combination with continued proactive habitat restoration efforts being completed by private, local, state, and federal partners across the MZ to adequately conserve and maintain Greater Sage-Grouse habitat.

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

Under the Proposed Plan Amendment, habitat management area boundaries in Nevada would be adopted or revised to incorporate the best available science (Coates et al. 2016). Because the underlying habitat management area allocations put in place to conserve Greater Sage-Grouse would not change, and these updates reflect the most recent knowledge concerning Greater Sage-Grouse habitat use and distribution, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse or the resources/uses analyzed herein.

Similarly, no appreciable additive impacts are anticipated from updating the adaptive management process as described in the Proposed Plan Amendment. This update would ensure that the BLM is utilizing the best available science and decision support tools to guide management at the appropriate spatial scale, thus improving the BLM's assessment and response to ever-changing conditions that could affect Greater Sage-Grouse populations and/or habitat. Because any specific response to tripping a hard or soft trigger would be based on the causal factors responsible, presuming a specific response to unknown future conditions would be speculative at best and not reasonably foreseeable.

Under the Proposed Plan Amendment, the allocation exception process would be updated to simplify the various exemptions contained in the 2015 Final EIS. While the availability of exceptions to RMP allocations attached to PHMA and GHMA could increase the possibility of leasing, permitting, or ground-disturbing activities within a given habitat management area, the established criteria would ensure that projects are either in unsuitable Greater Sage-Grouse habitat; do not result in direct, indirect, or cumulative impacts on Greater Sage-Grouse; or can be offset, with the exception of those needed for public health and safety. Therefore, there would be no appreciable additive impact from the implementation of this action on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

Under the Proposed Plan Amendment, language would be added to clarify how implementation-level decisions would be guided regarding mitigation, seasonal timing restrictions, and modifying habitat objectives to better align with state conservation plans and management strategies. As these updates did not result in any new identifiable direct or indirect impacts, there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No Action Alternative.

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

In addition to the analysis in the 2015 Final EIS, other anticipated incremental impacts are discussed below in association with planning issues being analyzed in the rangewide RMPA/EISs.

MZ IV encompasses portions of Idaho, Nevada, Montana, Oregon, Utah, and a small portion of Wyoming (Figure 4-1: Cumulative Effects Analysis Extent, Sage-Grouse MZs and Populations). Under the Proposed Plan Amendment PHMA would decrease by 2 percent, IHMA and GHMA would not change, and OHMA would decrease by 1 percent. The proposed changes in habitat management area acres between the No Action and the Proposed Plan Amendment in Nevada are based on adjustments made to habitat modeling used to delineate habitat management areas (Coates et al. 2016) and to improve alignment with the State of Nevada's delineations. In Idaho, minor proposed changes in habitat management areas are based on cleaning up mapping errors, removing non-Greater Sage-Grouse habitat managed as PHMA as a result of SFA designation in the 2015 Decision, and reallocating an area of PHMA to IHMA because there were no historical lek routes in the PHMA polygon. The lack of historical lek routes in a portion of the affected polygon made it impossible to apply the adaptive management framework in that polygon. Habitat management areas would not change in all other planning areas within MZ IV.

The decrease in PHMA, GHMA, and OHMA within WAFWA MZ IV between the No Action Alternative and the Proposed Plan Amendment would have negligible to minimal impacts on Greater Sage-Grouse and its habitat in the context of the entire MZ, as the relevant distribution of RMP allocations associated with these habitat management areas is decreasing between 1 and 2 percent (**Appendix B**).

The direct and indirect effects of proposed management changes in the Wyoming, Idaho, Utah, Nevada, and Oregon are disclosed in each state's Final EIS. Change in allocation decisions is a better indicator to determine how changes across a MZ will affect Greater Sage-Grouse populations. Therefore, this cumulative effects analysis relies on changes in planning allocations as the metric to measure cumulative effects this MZ.

In **Table 4-8**, acres and percentages reflect all lands. Percentages may not total to 100 percent due to rounding. 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 4-8
Approximate Acres of Habitat Management Areas 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	11,447,000	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 are Habitat Management Areas									
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%

Nevada, Idaho, and Utah's Proposed Plan Amendments would incorporate greater management flexibility that would allow exceptions to management direction within habitat management areas and would allow for site specific adjustments for land use authorizations and adjustments to existing adaptive management strategies. 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 these MZs, where wildfire, invasive plants, and conifer encroachment are greater threats to the grouse and its habitats.

Some small, localized populations may be at continued risk due to reasonably foreseeable future infrastructure and energy development projects (**Appendix B**) over the next 20 years, when combined with unplanned events such as wildfires, drought, and associated decline in Greater Sage-Grouse habitat quality. However, the Proposed Plan Amendments retain conservation measures and in combination with continued proactive habitat restoration efforts underway by private, local, state, and federal partners across the MZ are expected adequately conserve and manage Greater Sage-Grouse habitats.

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

The Proposed Plan Amendments vary from state to state as does each state contribution to MZ IV. Montana is not amending their current plan therefore their contribution to cumulative effects does not differ from those disclosed in their 2015 Final EIS. Wyoming only has approximately 4,000 acres of PHMA and approximately 20,000 acres of GHMA within MZ IV making their potential contribution to cumulative effects within the approximately 80 million-acre MZ IV negligible.

The portion of Utah within MZ IV is an isolated area with little or no development potential for fluid minerals and remains a ROW avoidance area and closed to wind energy development. The dominant use is livestock grazing. Grazing management would continue to follow the Standards for Rangeland

Health and Guidelines for Grazing Management. Changes to Utah's Table 2-2 incorporate local science expected to benefit Greater Sage-Grouse by better ensuring proper grazing management. The reasonably foreseeable development scenario for the area predicts zero wells so the change to limited exceptions waivers and modifications are likely moot. The changes proposed in Utah's Proposed Plan Amendment would not add measurably to other actions occurring within the approximately 76 million-acre MZ IV.

Oregon's Proposed Plan Amendment would increase the number of acres available for grazing in MZ IV by 9,366 acres. Approximately 86 percent of those acres are in PHMA and 14 percent in GHMA. No other States within MZ IV are proposing changes to the number of acres available to livestock grazing. This change would affect 0.01 percent of the approximately 75.7 million-acre MZ and would be undetectable.

Nevada's Proposed Plan Amendment would not change the management direction and allowable land uses associated with each habitat management area. Nevada would also update their 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 measurably add to other actions occurring in MZ IV.

In Idaho, removal of the project disturbance cap would not result in any changes to management direction or land use 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 described in the Idaho plans. Lek buffer modifications would also not result in any allocation/use changes. Some lek buffers would be increased as a result of the Proposed Plan Amendment, but, in some cases, the lek buffers may be smaller than those identified in the No Action. However, the existing disturbance screening criteria and the disturbance development criteria would ensure that impacts from development activities in both PHMA and IHMA would not result in a net loss to Greater Sage-Grouse habitat.

Under the Proposed Plan Amendment in Idaho and Nevada the NSO without waivers, exceptions, or modifications would change to NSO with limited exceptions. The exception criteria are intended to ensure that projects are in unsuitable Greater Sage-Grouse habitat; do not result in direct, indirect, or cumulative impacts on Greater Sage-Grouse; or can be offset, with the exception of those needed for public health and safety. Therefore, there would be no appreciable additive impact from the implementation of this action on Greater Sage-Grouse or the resources/uses analyzed, as compared with the No-Action Alternative.

Under the Proposed Plan Amendment, language would be added to Idaho, Nevada, Montana, Utah, and Wyoming 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 therein, as compared with the No-Action Alternative.

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

In addition to the analysis in the 2015 Final EIS, other anticipated incremental impacts are discussed below in association with planning issues being analyzed in the rangewide RMPA/EISs.

All changes in the extent of PHMA and GHMA and areas recommended for withdrawal within MZ V (Figure 4-1: Cumulative Effects Analysis Extent, Sage-Grouse Management Zones and Populations) occur under the Nevada/Northeastern California amendment.

Under the Proposed Plan Amendments, the percent of MZ V within Nevada and Northeastern California that is PHMA would increase by less than 1 percent, GHMA would decrease by 1 percent, and OHMA would decrease by 2 percent, as compared to the acreages identified in the No Action Alternative (**Appendix B, Table 50**, Habitat Management Areas within MZ V). The proposed change in habitat management area acres is based on adjustments made to the habitat model used to delineate habitat management areas and better alignment with the habitat management area delineations the State of Nevada adopted in December 2015. Following this habitat management area modification, planning level allocation decisions have also been adjusted to reflect the distribution of habitat in Nevada/Northeastern California. Future adjustments to habitat management areas in MZ V would be based on best available science and to align with the respective states' delineations for Greater Sage-Grouse habitat. These changes to habitat management areas with the Proposed Plan Amendment would have little to no cumulative effect on Greater Sage-Grouse populations and their habitat in the context of the entire MZ because the underlying habitat management area allocations designed to conserve Greater Sage-Grouse would not change.

In **Table 4-9**, acres and percentages reflect all lands. Percentages may not total to 100 percent due to rounding. 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 4-9
Approximate Acres of Habitat Management Areas 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 V that are Habitat Management Areas							
No Action				Management Alignment			
PHMA	GHMA	OHMA	Non-HMA	PHMA	GHMA	OHMA	Non-HMA
21%	23%	6%	50%	21%	22%	4%	53%

In Oregon, the Proposed Plan Amendment would retain livestock grazing within key RNAs. Livestock grazing would be allowed on an additional 13,357 acres within the MZ. Under the Proposed Plan Amendment and No Action Alternative, 99 percent of PHMA, 98 percent of GHMA, and 100 percent of OHMA are available for livestock grazing. In the context of the 31,282,000-acre MZ, any effects to Greater Sage-Grouse populations from the proposed 0.04 percent increase in acres available to grazing would be undetectable. Well-managed grazing practices are compatible with sagebrush ecosystems and Greater Sage-Grouse persistence. However, Greater Sage-Grouse population response to grazing varies with local vegetation productivity, underscoring the need for long-term replicated grazing studies across

the sagebrush ecosystem and within different ecological sites across the range of Greater Sage-Grouse to better understand the different effects of grazing on Greater Sage-Grouse habitat selection, vital rates, and population trends (DOI 2016). The Proposed Plan Amendment would reduce the opportunities within MZ V for studying grazing effects to Greater Sage-Grouse habitat.

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

Cumulative impacts on Greater Sage-Grouse populations across MZ V resulting from the Proposed Plan Amendment would be consistent with those impacts described in the 2015 Final EIS for the then Proposed Plan Amendments because the Management Alignment Alternatives (Proposed Plan Amendments) changes from the No Action Alternative are minor and deal largely with anthropogenic disturbances. The greatest threats to populations in this MZ remain wildfire, invasive plants, and conifer encroachment.

BLM's Proposed Plan Amendments in MZ V are unlikely to preclude the reasonably foreseeable actions listed in **Appendix B** from proceeding. Overall, the Proposed Plan Amendments retain conservation measures in combination with continued proactive habitat restoration efforts being completed by private, local, state, and federal partners across the MZ. However, smaller populations, particularly those at the edge of the species range, would remain at highest risk of extirpation (Aldridge et al. 2008; Garton et al. 2011.), which the reasonably foreseeable actions may exacerbate as unplanned events such as wildfires, drought, and other natural disturbances lead to declines in Greater Sage-Grouse habitat quality.

No appreciable additive impacts are anticipated from updating the adaptive management process as described in the Proposed Plan Amendment. This update would ensure that the BLM is utilizing the best available science and decision support tools to guide management at the appropriate spatial scale, thus improving the BLM's assessment and response to ever-changing conditions that could affect Greater Sage-Grouse populations and/or habitat. Because any specific response to tripping a hard or soft trigger would be based on the causal factors responsible, presuming a specific response to unknown future conditions would be speculative at best and not reasonably foreseeable.

Under the Proposed Plan Amendment, the allocation exception process would be updated to simplify the various exemptions contained in the 2015 Final EIS. While the availability of exceptions to RMP allocations attached to PHMA and GHMA could increase the possibility of leasing, permitting, or ground-disturbing activities within a given habitat management area, the established criteria would ensure that projects are either in unsuitable Greater Sage-Grouse habitat; do not result in direct, indirect, or cumulative impacts on Greater Sage-Grouse; or can be offset, with the exception of those needed for public health and safety. Therefore, there would be no appreciable additive impact from the implementation of this action on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

Under the Proposed Plan Amendment, language would be added to Idaho, Nevada, Montana, Utah, and Wyoming 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.

4.12 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.

4.13 UNAVOIDABLE ADVERSE IMPACTS

Section 102(C) of the 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 RMPA/EIS; others are a result of public use of BLM-administered lands in the planning area.

This section summarizes major unavoidable impacts discussions of the impacts of each management action (in the discussion of alternatives) and provides greater information on specific unavoidable impacts.

Surface-disturbing activities would result in unavoidable adverse impacts. Although these impacts would be mitigated to the extent possible, unavoidable damage would be inevitable under both the No-Action Alternative and the Proposed Plan Amendment.

Impacts from permanent conversion of areas to other uses, such as transportation and mineral and energy development or off-highway vehicle use, would be greater under the Proposed Plan Amendment, but overall minimal for both alternatives. Both the No-Action Alternative and the Proposed Plan Amendment would place restrictions on many types of development, which would most likely result in fewer visual intrusions and fewer instances of unavoidable wildlife habitat loss.

Wildlife, livestock, wild horses and burros, and other herbivores consume vegetation and affect soils through hoof action and possible compaction. When these impacts are kept at appropriate levels, natural processes such as plant growth and recovery, freeze-thaw periods, and microbial activity in the soil surface result in recovery from these impacts and maintain site stability and health. Vegetation treatments promoting recovery of Greater Sage-Grouse habitats would 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 Proposed Plan Amendment would place restrictions on development and surface-disturbing activities, which would minimize the likelihood of displacement, harassment, and/or 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, impacts would be greater under the No-Action Alternative.

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 Proposed Plan Amendment.

4.14 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 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 RMPA/EIS.

Surface-disturbing activities, including transportation and utility corridor construction, and mineral resource development would result in the greatest potential for impacts on long-term productivity. Management prescriptions and RDFs are intended to minimize the effect of short-term commitments and to reverse change over the long term. These prescriptions and the associated reduction of impacts would be greater under the No-Action Alternative for 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 Proposed Plan Amendment would provide for long-term productivity through restrictive allocations that limit development in many areas and through the application of other restrictions on development, such as disturbance caps, RDFs, and other management prescriptions.

ROWs and the short-term use of Greater Sage-Grouse habitat for energy and mineral development could impair the long-term productivity of Greater Sage-Grouse and its habitat and that of other species. This would occur by displacing species from primary habitats and removing components of these habitats that might not be restored for 20 years or longer. These short-term uses could also affect the long-term sustainability of some special status species. The potential for these impacts, however, would be minimal under both the No-Action Alternative and the Proposed Plan Amendment. The short-term resource uses associated with mineral development (oil and gas seismic exploration, natural gas test well drilling, and the noise associated with these activities) would have adverse impacts on the long-

term productivity of Greater Sage-Grouse and its habitat. This would be the case if these resource uses were to infringe on Greater Sage-Grouse seasonal habitats such as nesting, brood-rearing, and winter habitats. These activities, though short-term individually, could have collective long-term impacts on Greater Sage-Grouse and its habitat if they were to increase in the long term.

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Chapter 5. Consultation and Coordination

5.1 PUBLIC INVOLVEMENT DURING THE 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.

Shortly after the October 2017 NOI, the Oregon BLM invited the following tribes to consult on the potential plan amendment:

- Burns Paiute Tribe
- Confederated Tribes of the Warm Springs
- Modoc Tribe of Oklahoma
- Confederated Tribes of the Colville Reservation
- Shoshone-Bannock Tribes of Fort Hall
- Fort McDermitt Paiute Tribe
- Nez Perce Tribe
- Shoshone-Paiute Tribes of Duck Valley
- Confederated Tribes of the Umatilla Indian Reservation
- Fort Bidwell Indian Community
- Klamath Tribes

On November 6, 2017, two tribes met (in person or via phone) with the Oregon BLM at the Burns Paiute Tribe Community Center in Burns, Oregon, to provide additional information about the potential amendment process. On March 8, 2018, the Oregon BLM invited the same 11 tribes to become NEPA cooperating agencies and hosted a teleconference to provide additional information on March 30, 2018. One tribe called in to the teleconference and asked for additional information, but did not request to become a cooperating agency.

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
Glenn Frederick	BLM OR State Office Greater Sage-Grouse Biologist
Molly Anthony	Greater Sage-Grouse State Implementation Lead
Robert Hopper	Livestock Grazing
Jim Regan-Vienop	BLM OR Planning and Environmental Coordinator

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Glossary

Adaptive management. A type of natural resource management in which decisions are made as part of an ongoing science-based process. Adaptive management involves testing, monitoring, and evaluating applied strategies, and incorporating new knowledge into management approaches that are based on scientific findings and the needs of society. Results are used to modify management policy, strategies, and practices.

Amendment. The process for considering or making changes in the terms, conditions, and decisions of approved Resource Management Plans or management framework plans. Usually only one or two issues are considered that involve only a portion of the planning area.

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.

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.

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.

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.

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.

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.

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Appendix A

Additional RNA Information

Appendix A. Additional RNA Information

The following consists of additional information about the 15 key RNAs other than vegetation information. Information about wildlife species other than Bureau sensitive species is not included. This information is contained in establishment reports, final environmental impact statements for district RMPs, and management plans concerning each RNA. Each report or plan varies in its level of detail, and some information may be outdated. Although an establishment report identifies the values, opportunities, and threats related to establishing an RNA, it is the District RMP that sets the land use allocation and management directions for the RNA. The following information summarizes the original establishment reports. Changes to management within the RNAs, including livestock grazing under BLM 4100 regulations (2005), have occurred and current conditions are described in **Chapter 3**.

Black Canyon RNA is located in Allotment #4 of the Malheur Resource Area. It includes redband trout and Columbia spotted frogs in the stream and was nominated for inclusion in the wild and scenic river system. Livestock tend to be concentrated near Antelope Spring, where water is provided. Potential trampling and overgrazing by livestock were identified as a threat to the condition of the vegetation community (BLM 1996a).

Dry Creek Bench RNA is located within the Twelvemile Creek Wilderness Study Area (WSA) and 15 Mile Community Allotment of the Malheur Resource Area. The BLM is managing portions of the RNA for Lahontan cutthroat trout habitat (BLM 1996b).

East Fork Trout Creek RNA is located in the Andrews Resource Area in the headwaters of the East Fork of Trout Creek and within the Mahogany Ridge WSA. Special status species present include Greater Sage-Grouse, ferruginous hawk, northern goshawk, and Columbia spotted frog. The RNA lies within the Trout Creek Mountain Allotment, with limited grazing in August and September. The 2007 East Fork of Trout Creek RNA management plan states “Livestock grazing is currently allowed within a small portion of the RNA from August 1- August 31, and the remaining portion for 5 days in September. Grazing is not compatible with the preservation of the key plant communities within the natural area so it is controlled to protect the most vulnerable plant communities. The current situation [i.e., limited grazing] is adequate to protect the values of the RNA plan.” (BLM 2007).

Fish Creek Rim RNA is located within the Fish Creek Rim WSA in the Lakeview Resource Area. Livestock grazing is permitted in the several allotments that the RNA straddles, although lack of water tends to limit use except near two waterholes and along the small intermittent stream (TNC 1992). The RNA includes archaeological sites and culturally significant plants, such as *Lomatium* spp., *Calochortus* spp., onions, and bitterroot (BLM 2000), along with the rare cryptantha owl’s-clover (*Orthocarpus cuspidatus* ssp. *Cryptanthus*; TNC 1992).

Foley Lake RNA is located in the Lakeview Resource Area. Livestock grazing is permitted, although an enclosure in the seasonally wet lake protects a population of the sensitive plant Columbia rockcress (*Rorippa columbiana*). The RNA also contains several archaeological sites (BLM 2000).

Foster Flat RNA is located in the Warm Springs Herd Management Area in the Three Rivers Resource Area and closed to grazing for both livestock and wild horses. The playa is the dominant feature, and the

RNA includes the sensitive species desert combleaf (*Polyctenium fremontii* var. *confertum*) and pygmy rabbit (Taylor 2004).

Guano Creek-Sink Lakes RNA is located in the Guano Creek WSA in the Lakeview Resource Area adjacent to Hart Mountain Antelope Refuge and to Billy Burr Lake, which is owned by The Nature Conservancy. It includes cultural resources and two sensitive plant species: grimy ivesia (*Ivesia rhypara* var. *rhypara*) and Crosby's buckwheat (*Eriogonum crosbyae*; BLM 2000).

Lake Ridge RNA is located in the Camp Creek WSA and Jonesboro Allotment in the Malheur Resource Area. Greater Sage-Grouse use the area. Areas near water sources have been overgrazed and trampled, but otherwise grazing use appears to be light. Restricting livestock and off-highway vehicle use was recommended in the establishment report (BLM 1996c).

Mahogany Ridge RNA is located in the Malheur Resource Area and in the Mahogany Mountain Allotment. Cattle use was deemed light and to not have affected the vegetation, although changes in livestock use were identified as a possible threat. The RNA provides summer habitat for broad-tailed hummingbird and other neotropical migratory birds. An addition in 1996 added considerable acreage of mountain big sagebrush/bluebunch wheatgrass plant community (BLM 1996d).

North Ridge Bully Creek RNA is located in the Ritchie Flat Allotment in the Malheur Resource Area. Livestock use was considered restricted due to limited availability of water, although the establishment report recommended restricting off-highway vehicle and livestock use. A central portion burned in a wildfire prior to 1996, but the year and name of the wildfire were not identified. Bunchgrasses were reported as thriving after the fire (BLM 1996e).

Rahilly-Gravelly RNA encompasses the Rahilly-Gravelly Allotment in the Lakeview Resource Area near the Nevada-Oregon state line. Livestock grazing has been light on the upper slopes due to lack of water but much heavier around Cahill Reservoir (TNC 1992). It contains several archaeological sites and all four Oregon populations of Cooper's goldflower (*Hymenoxys cooperi* var. *canescens*; BLM 2000).

South Bull Canyon RNA is located in the Boney Basin Allotment in the Malheur Resource Area. The establishment report identifies livestock grazing as a threat to specific plant communities within the RNA as well as off-road vehicle travel (BLM 1996f).

South Ridge Bully Creek RNA is located in the Malheur Resource Area in an unidentified allotment, but likely the same allotment as North Ridge Bully Creek since these two RNAs are adjacent. Limited water availability appears to limit use by livestock. The area also supports loggerhead shrike and apparently burned in the same fire prior to 1996 that affected North Ridge Bully Creek (BLM 1996 g).

Spring Mountain RNA is located in the Spring Mountain Allotment in the Malheur Resource Area. The area may support spotted frogs (BLM 1996h).

Toppin Creek Butte RNA is located in the Anderson Allotment in the Malheur Resource Area, straddles Lookout Butte and Owyhee Canyon WSAs, and is between two wild and scenic river corridors. Breeding bird surveys indicate this RNA may contain one of the most complete Great Basin avian communities, including Greater Sage-Grouse (BLM 1996i).

Appendix B

Cumulative Effects Supporting Information

Appendix B. Cumulative Effects Supporting Information

B.1 RANGEWIDE IMPACTS FROM PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS

Table I represents the past, present, and reasonably foreseeable actions across the entire range for Greater Sage-Grouse, which are separated by state. When assessing the cumulative impact of the RMPA/EIS on Greater Sage-Grouse and its habitat, there are multiple geographic scales that the BLM has considered, including the appropriate WAFWA MZ. WAFWA MZs have biological significance to Greater Sage-Grouse. Established and delineated in 2004 in the *Conservation Assessment of Greater Sage-Grouse and Sagebrush Habitats* (Connelly et al. 2004), the WAFWA MZs are based on floristic provinces that reflect ecological and biological issues and similarities, not political boundaries.

Table I
Rangewide Impacts from Past, Present, and Reasonably Foreseeable Actions

Action	Type	Effects
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.
	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
Benefit 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 Sheepprocks, 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.
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.

Action	Type	Effects
Locatable Mineral Projects (continued)	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.

B.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

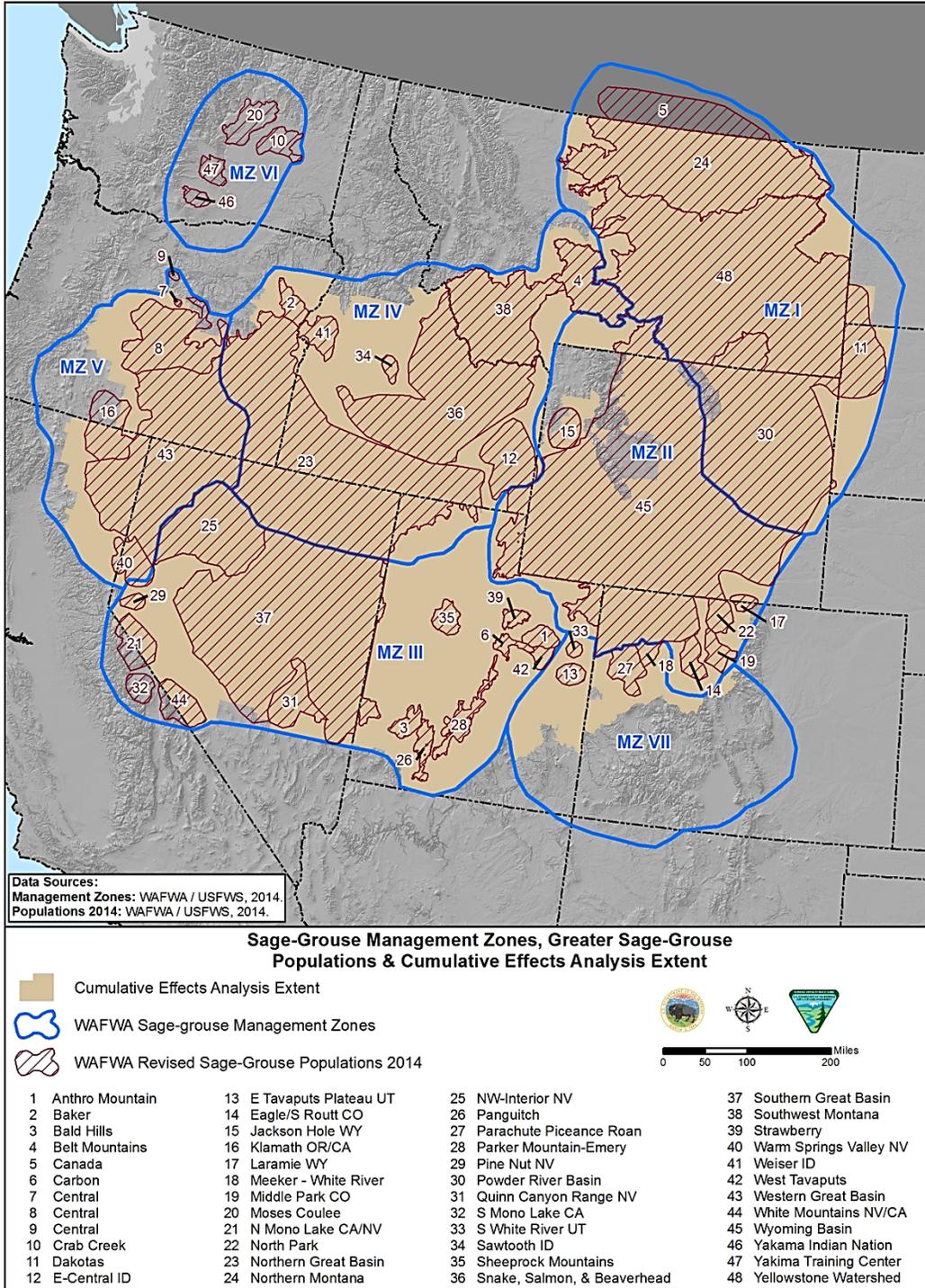


Figure I – Cumulative Effects Analysis Extent, Sage-Grouse Management Zones and Populations

B.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**

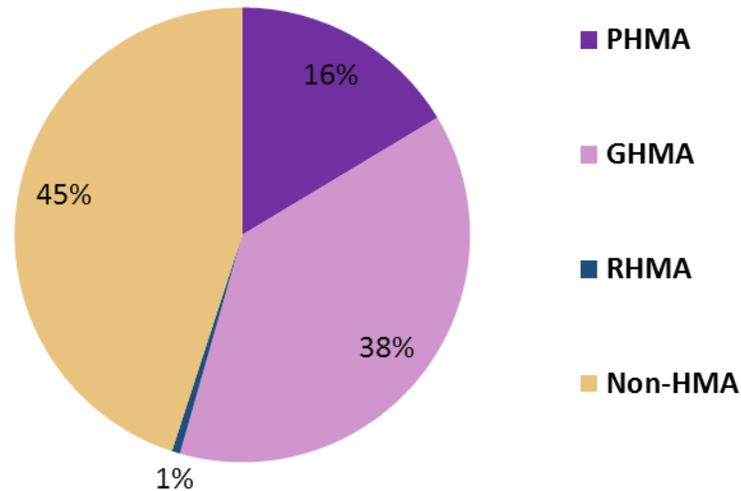


Figure 2 - Habitat Management Areas within MZ I

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

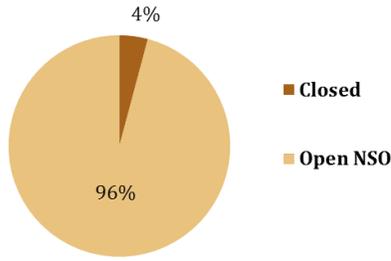
Table 4 – Geothermal Energy Decisions within MZ I

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.

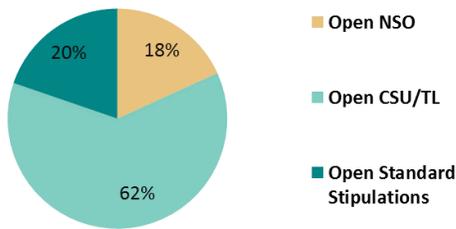
Approximate Acres of Geothermal Decisions¹ in MZ I by Habitat Management Area Type					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	86,000	0	NA	86,000	172,000
Open NSO	1,988,000	130,000	NA	230,000	2,349,000
Open CSU/TL	0	443,000	NA	1,071,000	1,514,000
Open 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

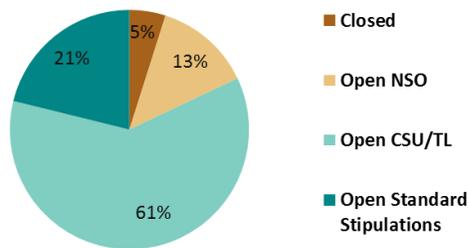


Figure 3 – Geothermal Energy Decisions within MZ I

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

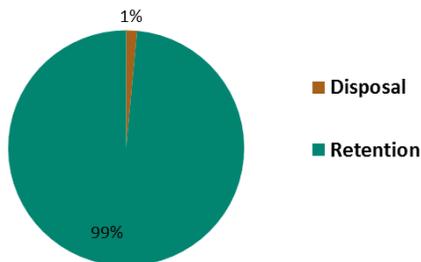
Table 5 – Land Tenure Decisions within MZ I

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.

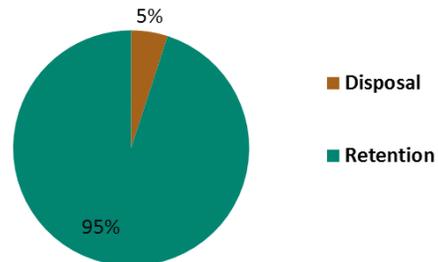
Approximate Acres of Land Tenure Decisions in MZ I by Habitat Management Area Type					
Land Tenure	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Disposal	49,000	167,000	0	143,000	359,000
Retention	3,259,000	2,997,000	159,000	1,538,000	7,953,000
Total	3,308,000	3,164,000	159,000	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%

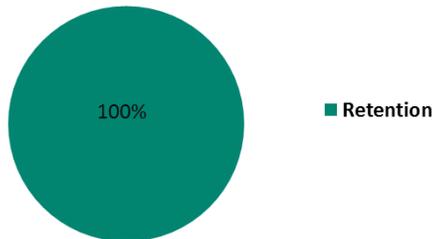
No Action & Management Alignment - PHMA - Land Tenure



No Action & Management Alignment - GHMA - Land Tenure



No Action & Management Alignment - RHMA - Land Tenure



No Action & Management Alignment - Non-HMA - Land Tenure

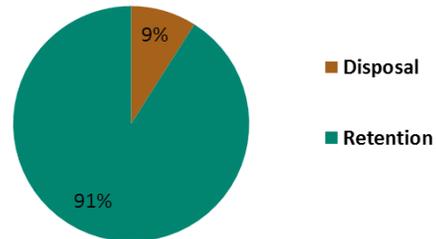


Figure 4 – Land Tenure Decisions within MZ I

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%

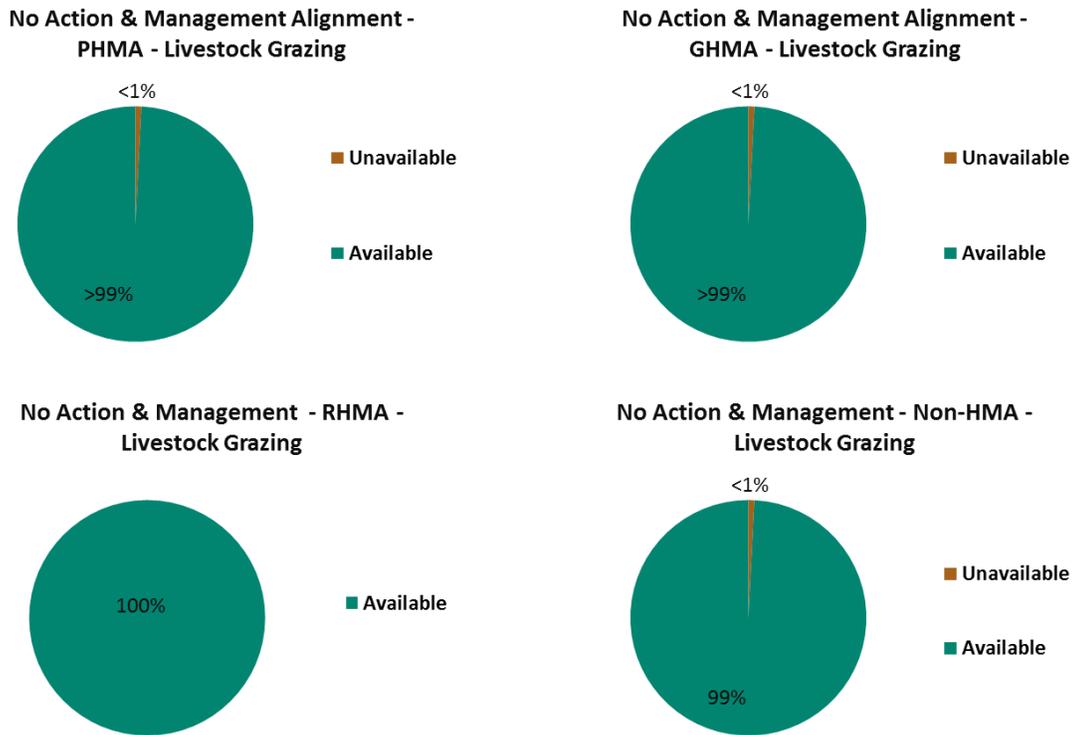


Figure 5 – Livestock Grazing Decisions within MZ I

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%

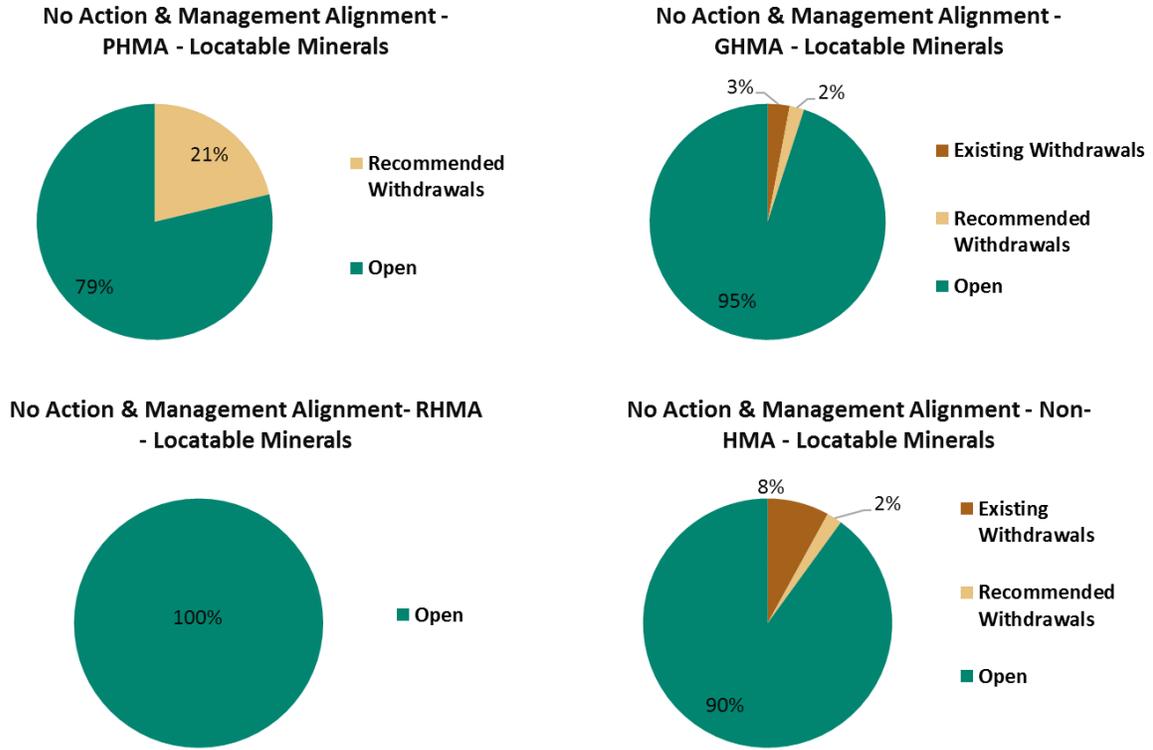


Figure 6 – Locatable Mineral Decisions within MZ I

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.

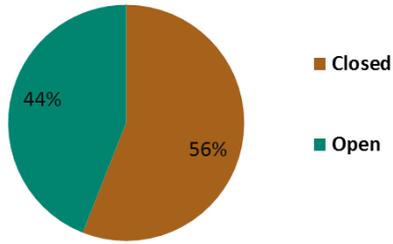
VI. Non-Energy Leasable Minerals**Table 8 – Non-Energy Leasable Minerals Decisions within MZ I**

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.

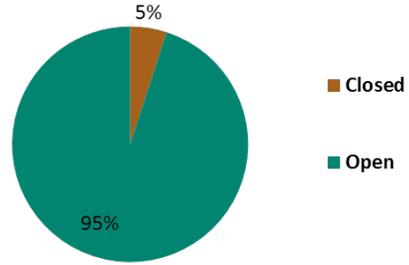
Approximate Acres of Non-Energy Leasable Minerals³ Decisions in MZ I by Habitat Management Area Type					
Livestock Grazing	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	2,432,000	296,000	NA	355,000	3,083,000
Open	1,900,000	6,205,000	NA	2,463,000	10,568,000
Total	4,332,000	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

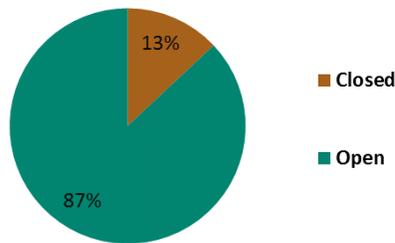


Figure 7 – Non-Energy Leasable Minerals Decisions within MZ I

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.

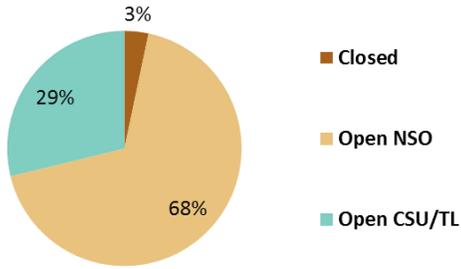
VII. Fluid Minerals (Oil & Gas)**Table 9 – Fluid Minerals (Oil & Gas) Decisions within MZ I**

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.

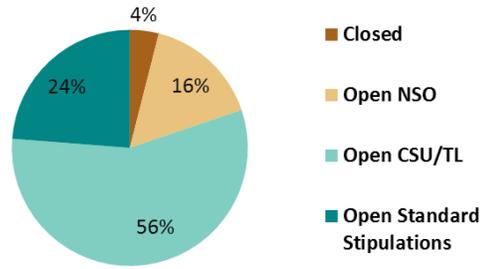
Approximate Acres of Fluid Minerals (Oil a& Gas) Decisions⁴ in MZ I by Habitat Management Area Type					
Fluid Minerals (Oil and Gas)	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	196,000	328,000	0	346,000	870,000
Open NSO	3,730,000	1,485,000	228,000	406,000	5,849,000
Open 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%

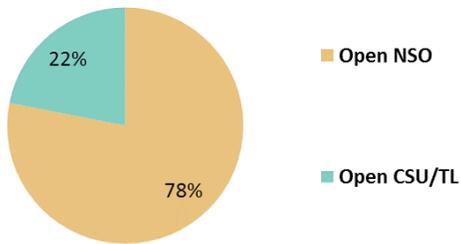
No Action & Management Alignment - PHMA - Fluid Mineral Leasing (Oil & Gas)



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)

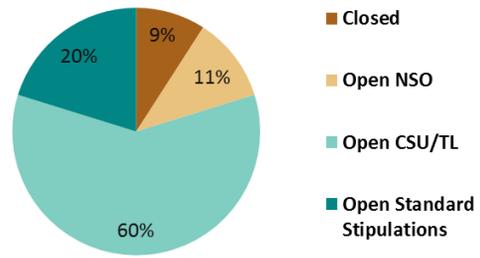


Figure 8 – Fluid Minerals (Oil & Gas) Decisions within MZ I

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

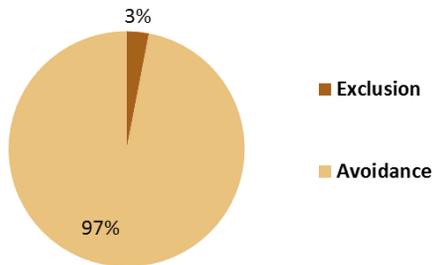
Table 10 – Rights-of-Ways Decisions within MZ I

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.

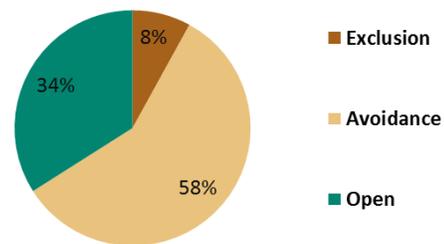
Approximate Acres of Rights-of-Ways Decisions in MZ I by Habitat Management Area Type					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Exclusion	110,000	240,000	0	86,000	436,000
Avoidance	3,163,000	1,819,000	72,000	282,478	5,336,478
Open	5,000	1,067,000	87,000	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%

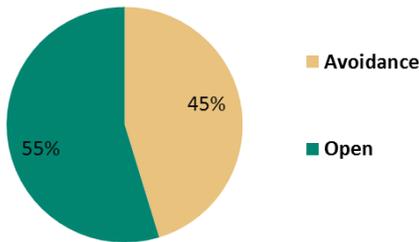
No Action & Management Alignment - PHMA - Rights of Ways



No Action & Management Alignment - GHMA - Rights of Ways



No Action & Management Alignment - RHMA - Rights of Ways



No Action & Management Alignment - Non-HMA - Rights of Ways

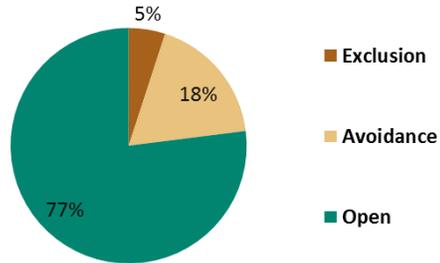


Figure 9 – Rights-of-Ways Decisions within MZ I

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

IX. Salable Minerals Materials

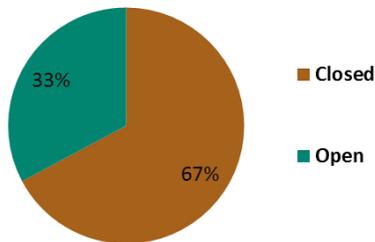
Table 11 – Salable Minerals Decisions within MZ I

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

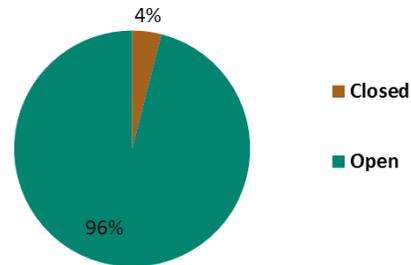
Approximate Acres of Salable Minerals Materials Decisions in MZ I by Habitat Management Area Type					
Livestock Grazing	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Closed	3,870,000	402,000	9,000	424,000	4,705,000
Open	1,882,000	8,787,000	267,000	2,990,000	13,926,000
Total	5,752,000	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%

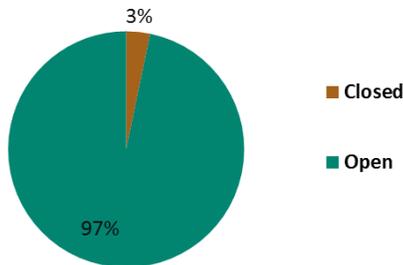
No Action & Management Alignment - PHMA - Salable Minerals Materials



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

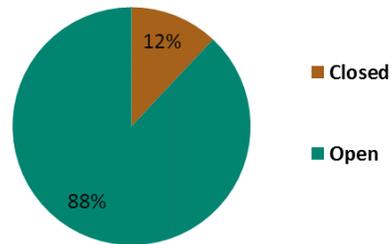


Figure 10 – Salable Minerals Materials Decisions within MZ I

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%

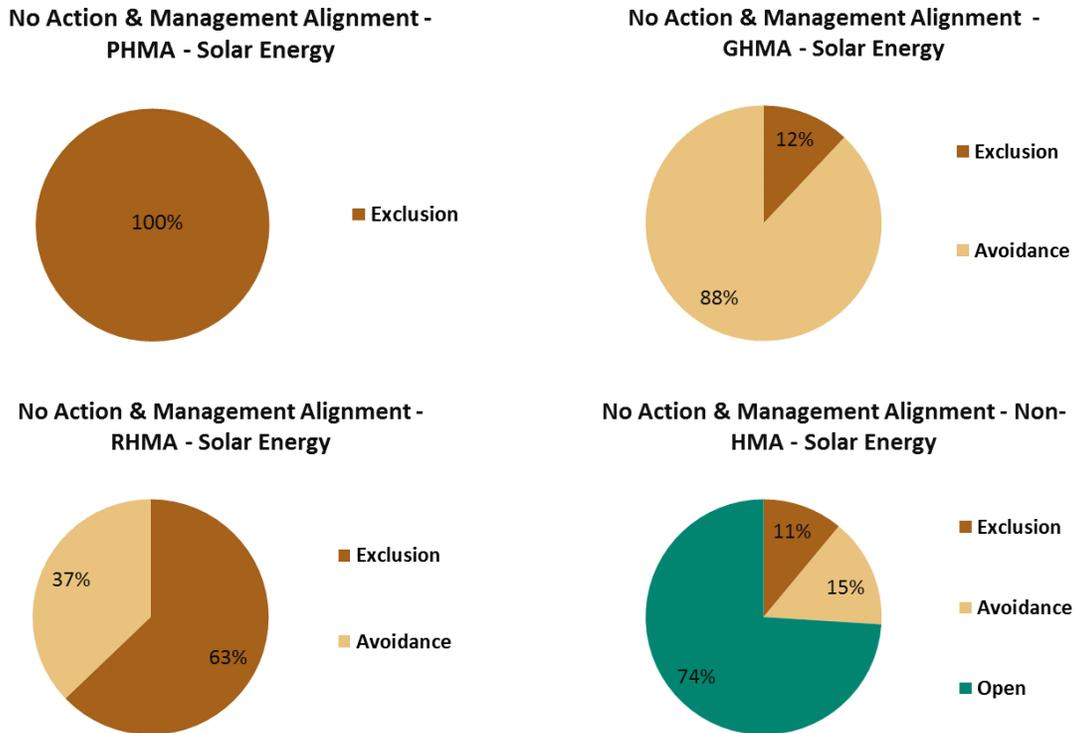


Figure 11 - Solar Energy Decisions within MZ I

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%

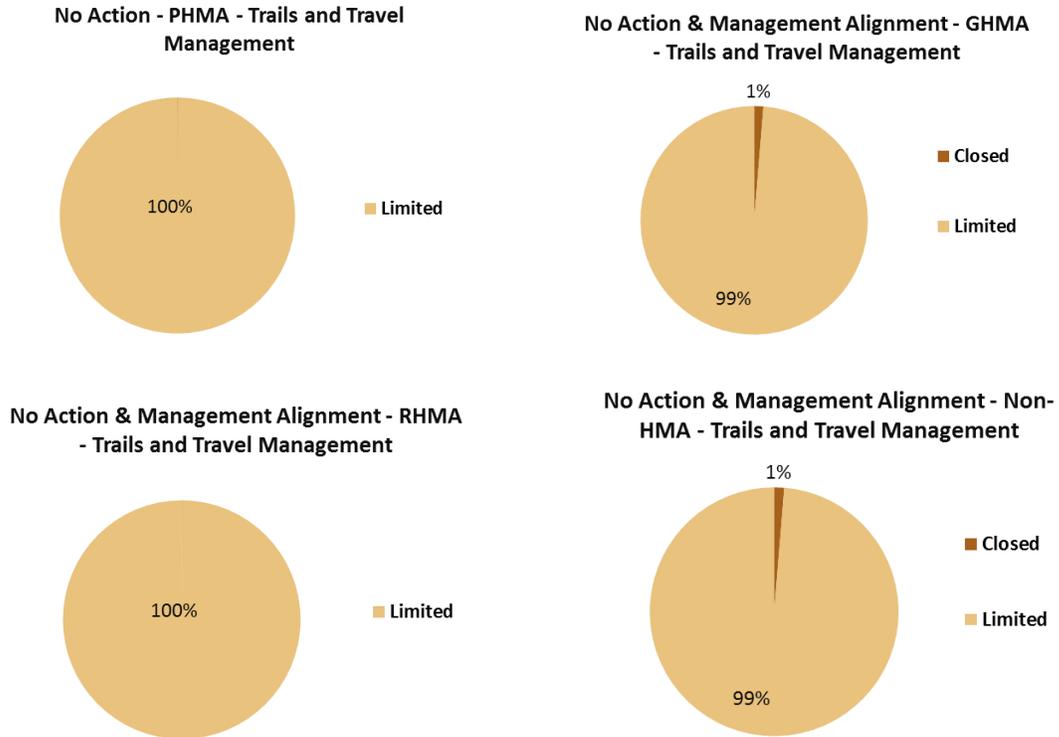


Figure 12 – Trails and Travel Management Decisions within MZ I

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

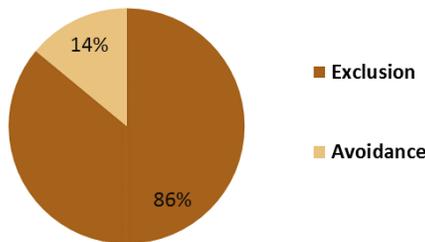
Table 14 – Wind Energy Decisions within MZ I

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.

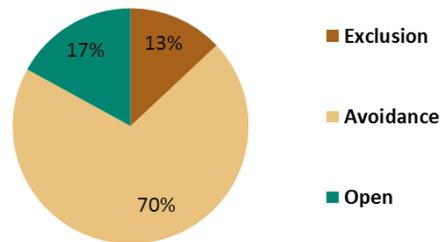
Approximate Acres of Wind Energy Decisions in MZ I by Habitat Management Area Type					
Geothermal Energy	No Action & Management Alignment				
	PHMA	GHMA	RHMA	Non-HMA	Total
Exclusion	2,966,000	384,000	93,000	419,000	3,862,000
Avoidance	493,000	2,090,000	55,000	594,000	3,232,000
Open	0	513,000	0	655,000	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%

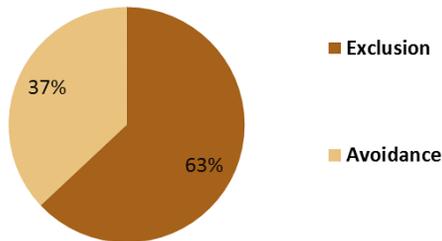
No Action & Management Alignment - PHMA - Wind Energy



No Action & Management Alignment - GHMA - Wind Energy



No Action & Management Alignment - RHMA - Wind Energy



No Action & Management Alignment - Non-HMA - Wind Energy

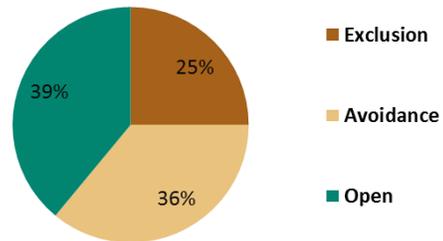


Figure 13 – Wind Energy Decisions within MZ I

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.

B.2.2 Management Zones II/VII – Wyoming, Colorado, Utah, Idaho

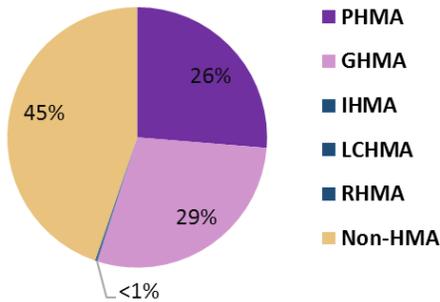
I. Habitat Management

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

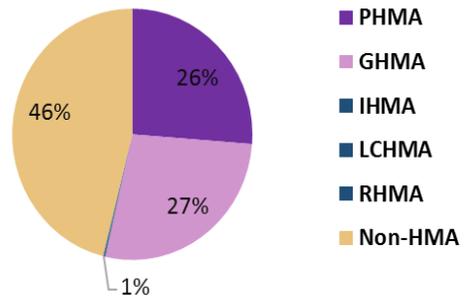


Figure 14 – Habitat Management Areas within MZs II/VII

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 Decisions ⁶ 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 Decision ⁶ 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%

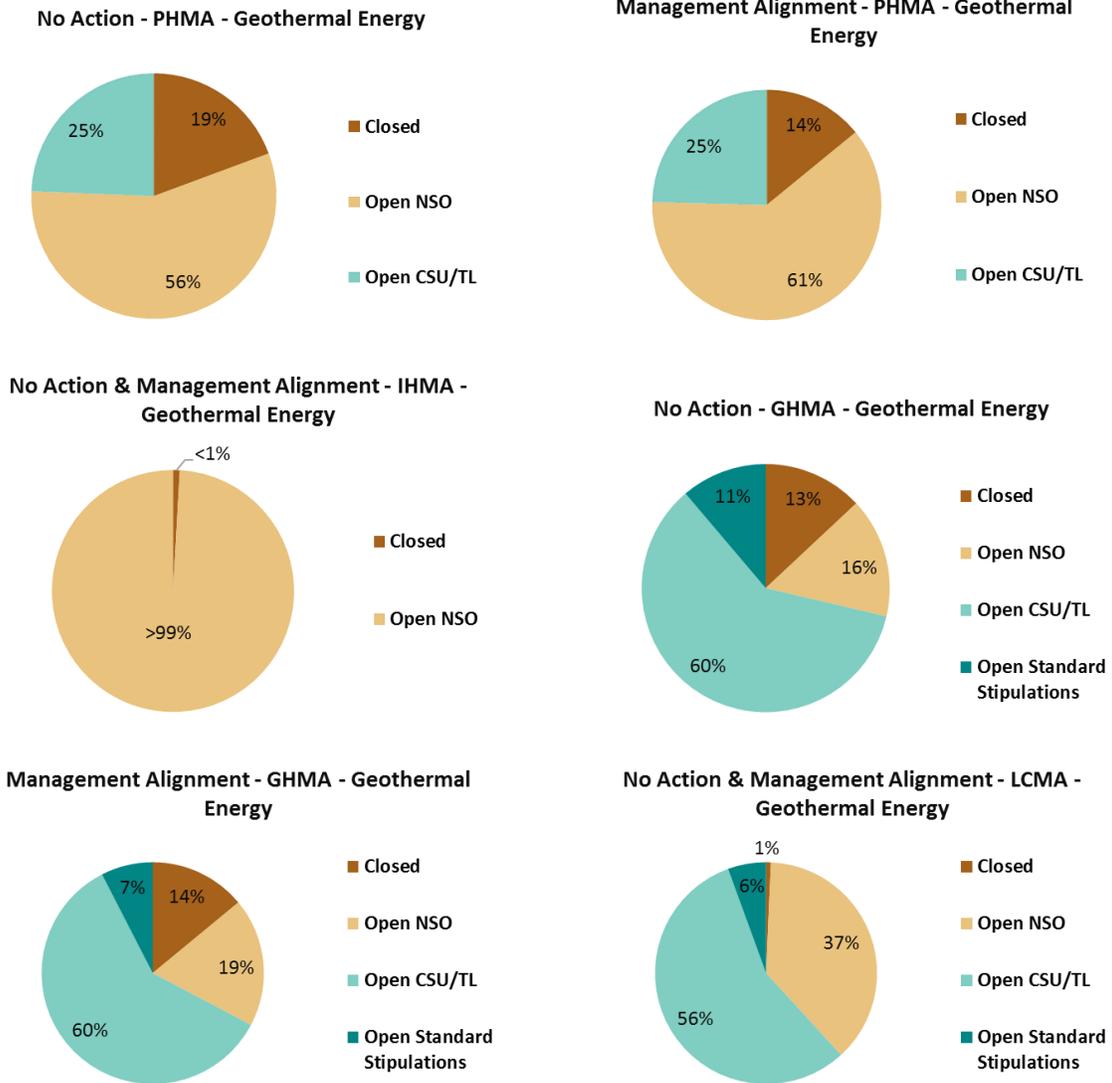
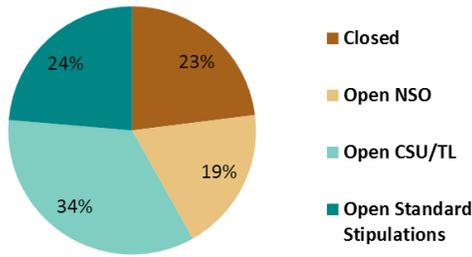


Figure 15 – Geothermal Energy Decisions within MZ II/VII

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

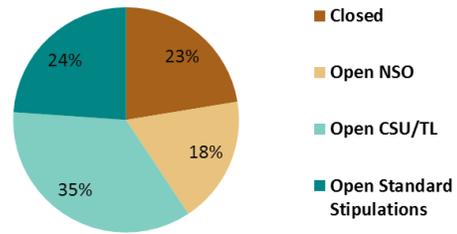


Figure 15 (cont'd) - Geothermal Energy Decisions within MZ II/VII

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%

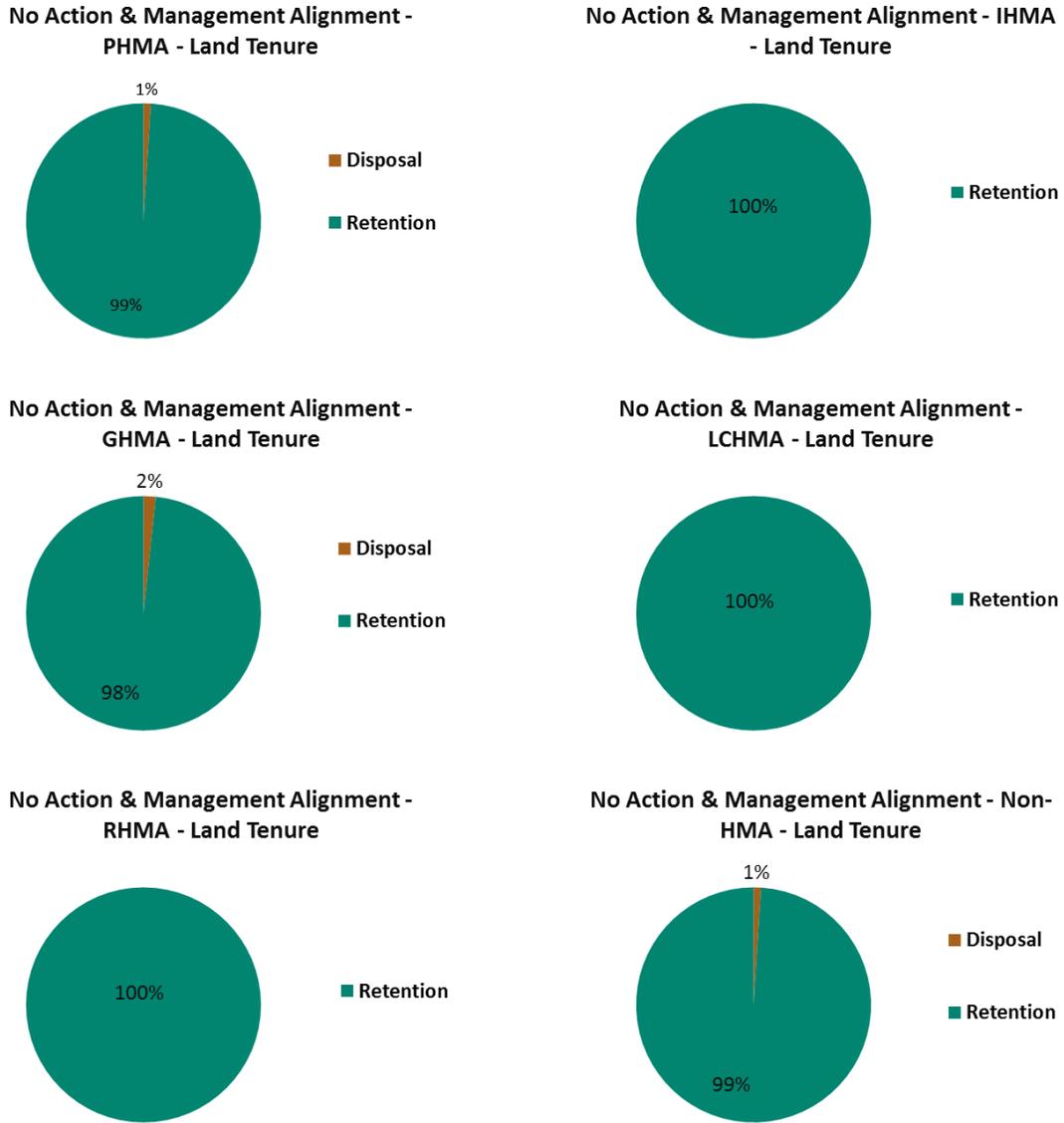


Figure 16 – Land Tenure Decisions within MZ II/VII

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						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
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						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
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						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
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.

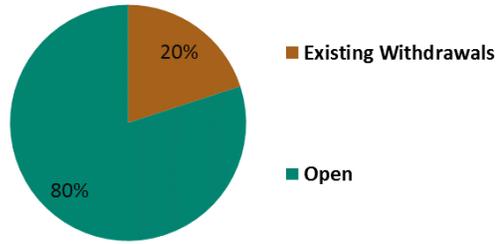
Approximate Acres of Locatable Minerals Decisions in MZ II/VII by Habitat Management Area Type							
Locatable Minerals	No Action						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Existing Withdrawals	1,863,000	7,000	2,394,000	1,000	0	4,804,000	9,068,000
Recommended Withdrawals	998,000	0	320,000	0	0	302,000	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

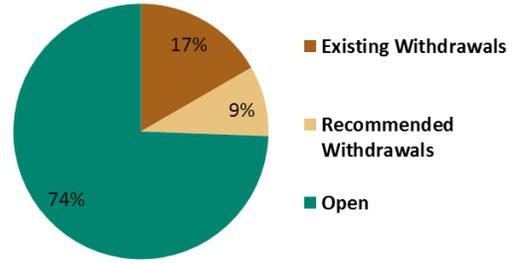
Approximate % of Habitat Management Area by Locatable Minerals Decision in MZ II/VII							
Locatable Minerals	No Action						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Existing Withdrawals	17%	20%	21%	<1%	0%	31%	24%
Recommended Withdrawals	9%	0%	3%	0%	0%	2%	4%
Open	74%	80%	76%	100%	100%	67%	72%
Total	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%

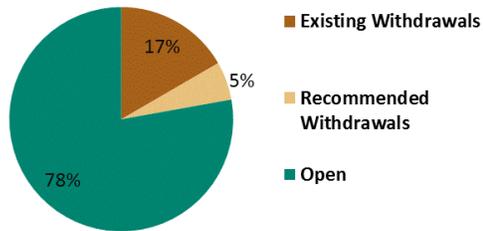
No Action & Management Alignment - IHMA - Locatable Minerals



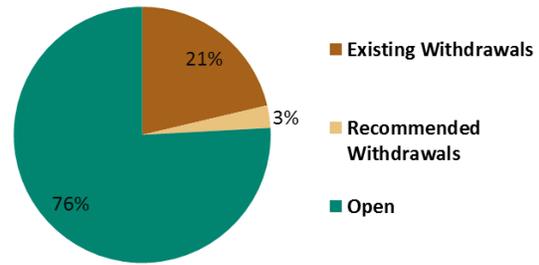
No Action - PHMA - Locatable Minerals



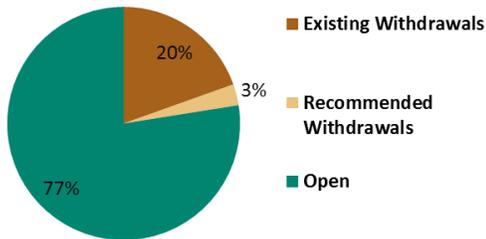
Management Alignment - PHMA - Locatable Minerals



No Action - GHMA - Locatable Minerals



Management Alignment - GHMA - Locatable Minerals



No Action & Management Alignment - LCHMA - Locatable Minerals

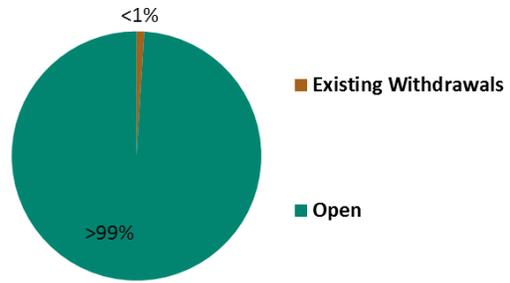
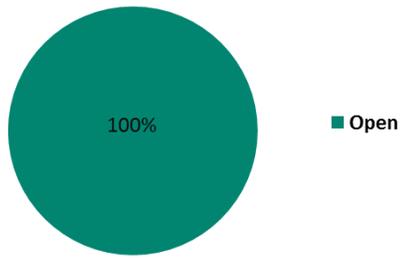


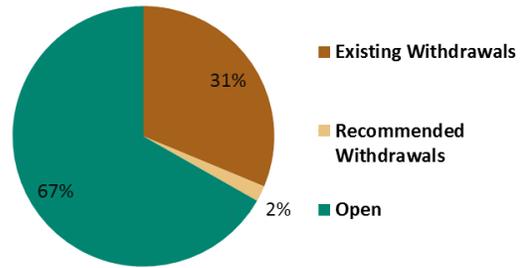
Figure 18 – Locatable Minerals Decisions within MZ II/VII

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

No Action & Management Alignment -
RHMA - Locatable Minerals



No Action - Non-HMA - Locatable Minerals



Management Alignment - Non-HMA -
Locatable Minerals

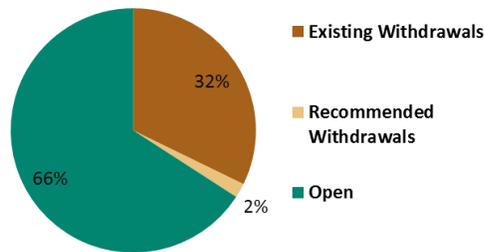


Figure 18 (cont'd) – Locatable Minerals Decisions within MZ II/VII

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

VI. Non-Energy Leasable Minerals

Table 20 – Non-Energy Leasable Minerals Decisions within MZ II/VII

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding.⁷ 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 Minerals Decisions ⁷ in MZ II/VII by Habitat Management Area Type							
Non-Energy Leasable Minerals	No Action						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
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						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
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						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
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						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Closed	37%	23%	15%	<1%	NA	30%	28%
Open	63%	77%	85%	100%	NA	70%	72%
Total	100%	100%	100%	100%	NA	100%	100%

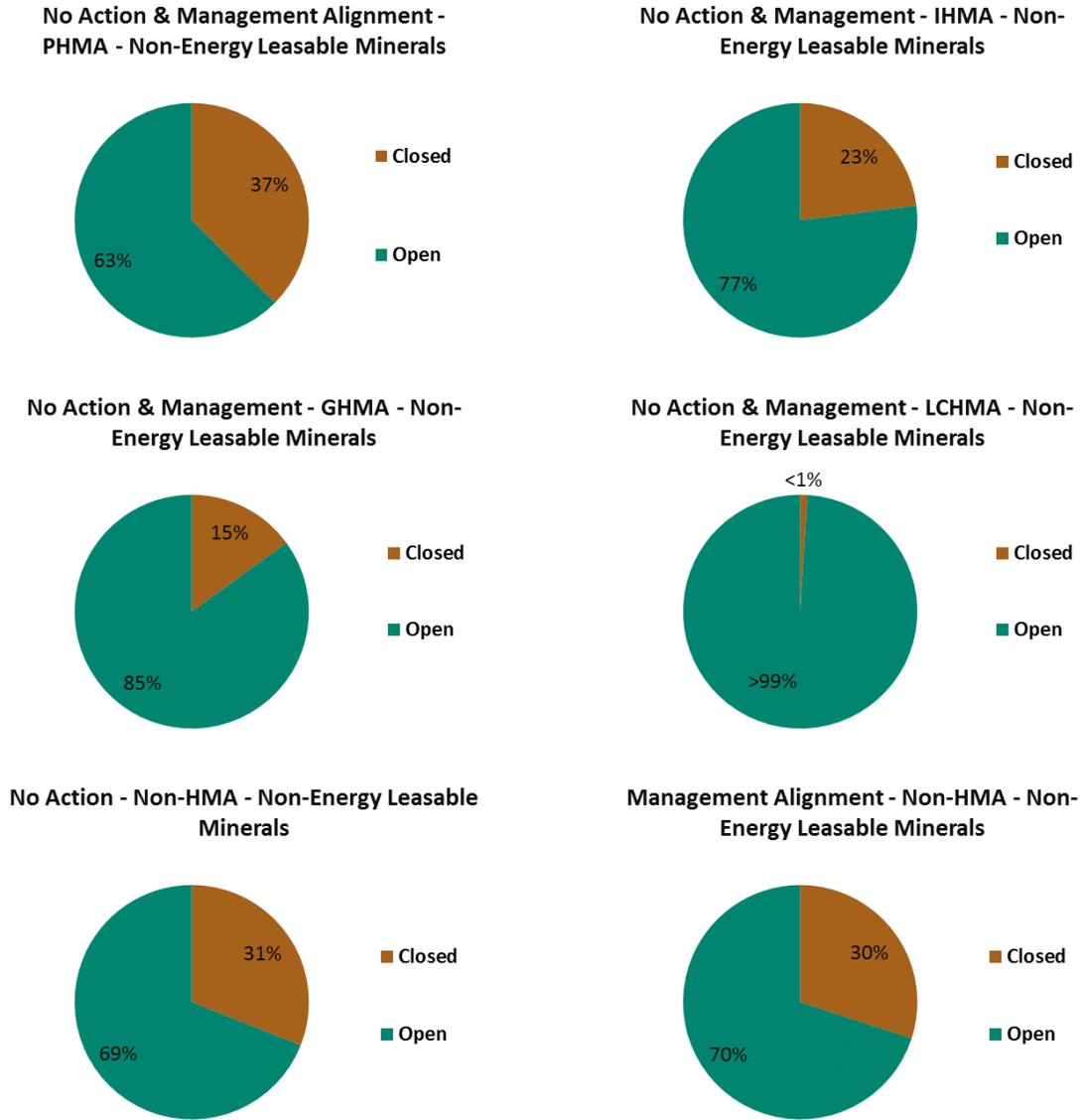


Figure 19 - Non-Energy Leasable Minerals Decisions within MZ II/VII

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding.⁷ Data not available for portions of MT and WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

VII. Fluid Minerals (Oil & Gas)**Table 21 – Fluid Minerals (Oil & Gas) Decisions within MZ II/VII**

Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages

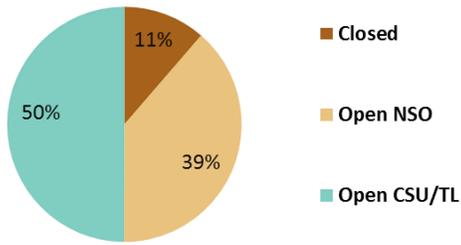
Approximate Acres of Fluid Minerals (Oil & Gas) Decisions in MZ II/VII by Habitat Management Area Type							
Fluid Minerals (Oil & Gas)	No Action						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Closed	1,294,000	7,000	1,178,000	1,000	0	4,773,000	7,252,000
Open NSO	4,399,000	23,000	1,425,000	54,000	5,000	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						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
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

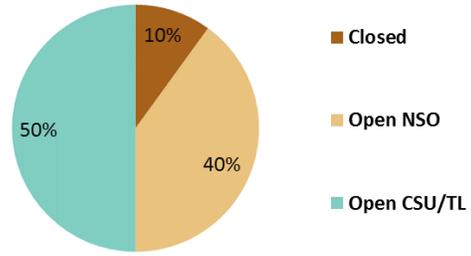
Approximate % of Habitat Management Area by Fluid Minerals (Oil & Gas) Decision in MZ II/VII							
Fluid Minerals (Oil & Gas)	No Action						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Closed	11%	21%	10%	<1%	0%	32%	19%
Open NSO	39%	79%	12%	38%	63%	17%	22%
Open CSU/TL	50%	0%	57%	56%	37%	32%	45%
Open Standard Stipulations	0%	0%	20%	6%	0%	19%	14%
Total	100%	100%	100%	100%	100%	100%	100%

Fluid Minerals (Oil & Gas)	Management Alignment						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
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%

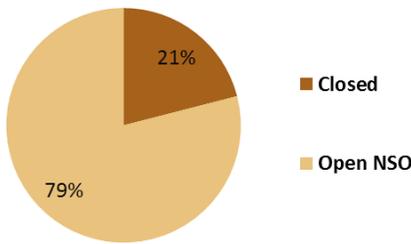
No Action - PHMA - Fluid Mineral Leasing (Oil & Gas)



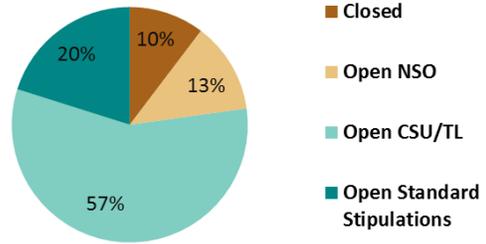
Management Alignment - PHMA - Fluid Mineral Leasing (Oil & Gas)



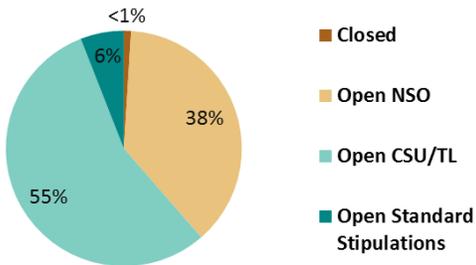
No Action & Management Alignment - IHMA - Fluid Mineral Leasing (Oil & Gas)



No Action & Management Alignment - GHMA - Fluid Mineral Leasing (Oil & Gas)



No Action & Management Alignment - LCHMA - Fluid Mineral Leasing (Oil & Gas)



No Action & Management Alignment - RHMA - Fluid Mineral Leasing (Oil & Gas)

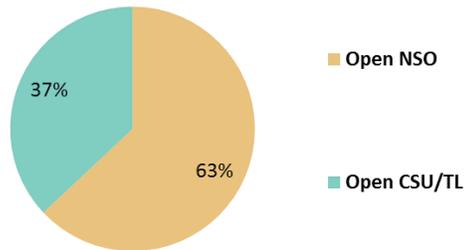
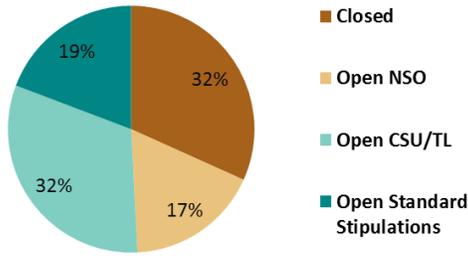


Figure 20 – Fluid Minerals (Oil & Gas) Decisions within MZ II/VII

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)

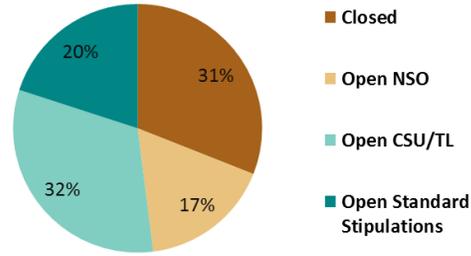


Figure 20 (cont'd) – Fluid Minerals (Oil & Gas) Decisions within MZ II/VII

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%

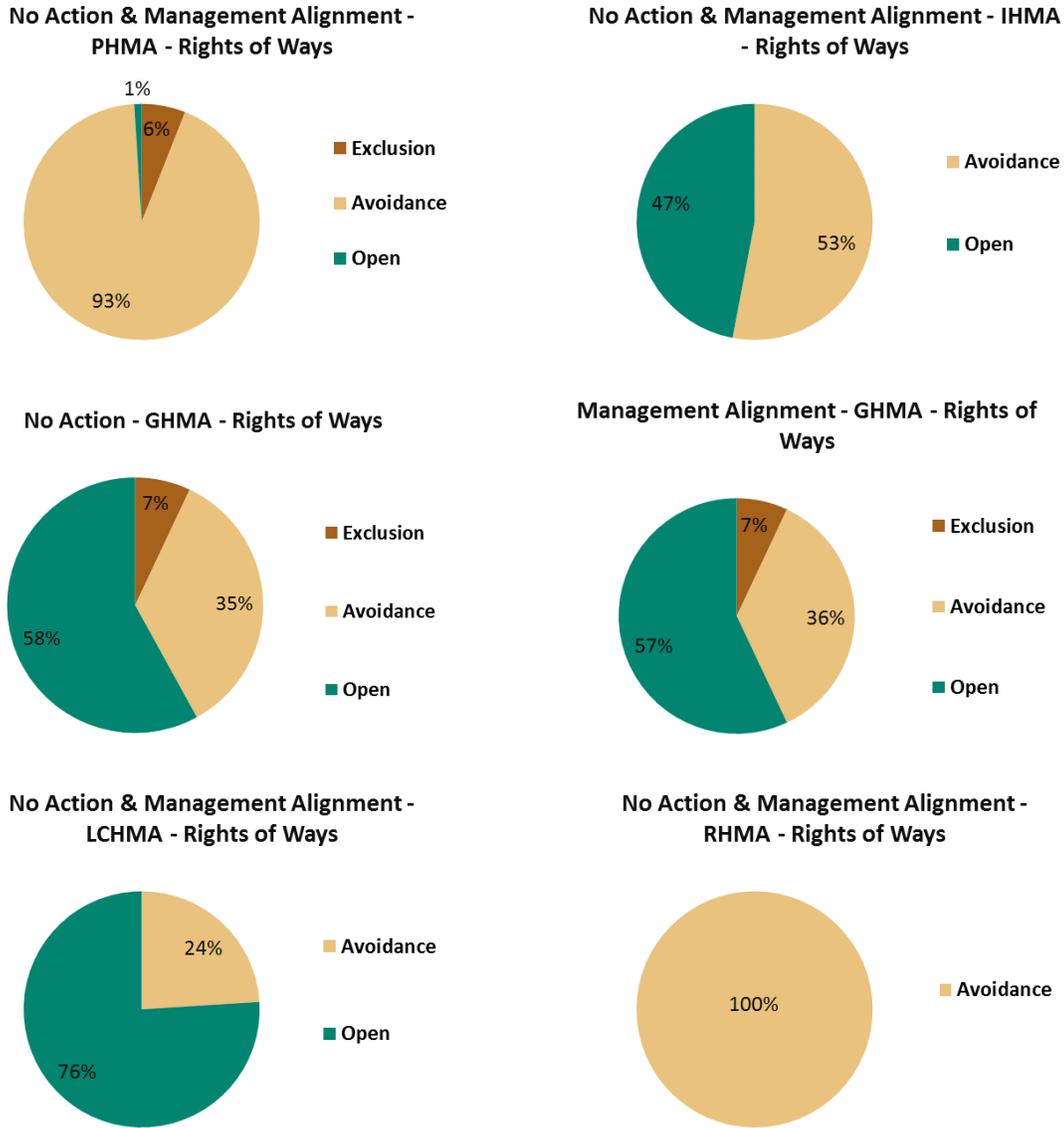


Figure 21 – Rights-of-Ways Decisions within MZ II/VII

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

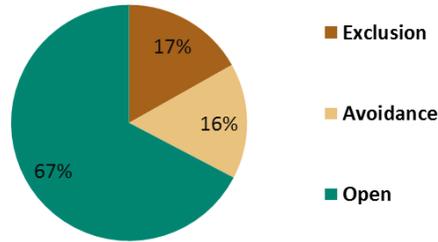


Figure 21 (cont'd) – Rights-of-Ways Decisions within MZ II/VII

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.

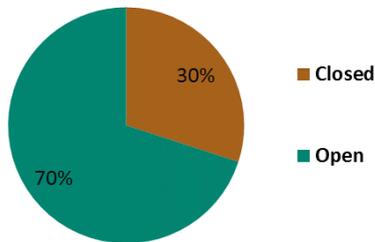
Approximate Acres of Salable Minerals Materials Decisions in MZ II/VII by Habitat Management Area Type							
Salable Minerals Materials	No Action						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Closed	3,241,000	0	1,401,000	27,000	0	3,592,000	8,263,000
Open	7,671,000	28,000	9,745,000	115,000	7,000	9,675,000	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						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
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						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Closed	30%	0%	13%	19%	0%	26%	23%
Open	70%	100%	87%	81%	100%	74%	77%
Total	100%						

Salable Minerals Materials	Management Alignment						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
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

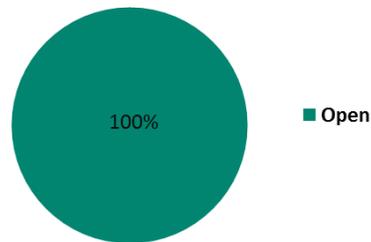
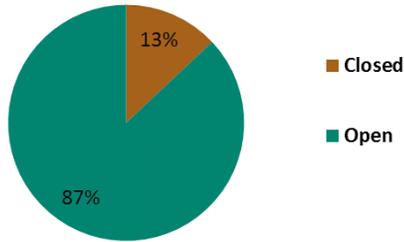


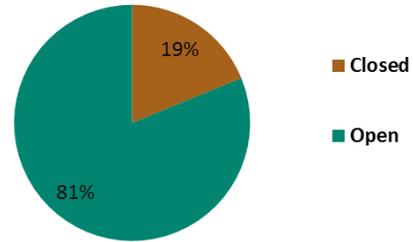
Figure 22 – Salable Minerals Materials Decisions within MZ II/VII

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.

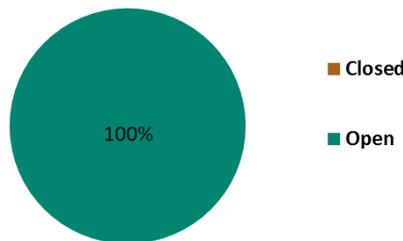
No Action & Management Alignment -
GHMA - Salable Minerals Materials



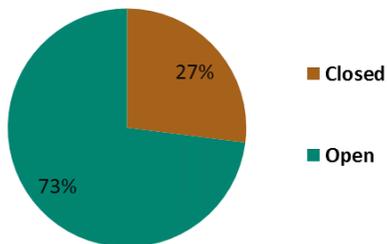
No Action & Management Alignment -
LCHMA - Salable Minerals Materials



No Action & Management Alignment -
RHMA - Salable Minerals Materials



No Action - Non-HMA - Salable Minerals
Materials



Management Alignment - Non-HMA -
Salable Minerals Materials

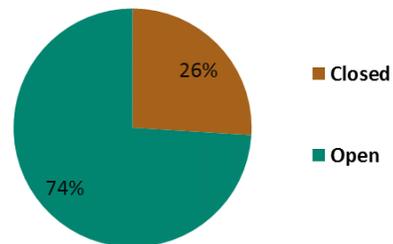


Figure 22 (cont'd) – Salable Minerals Materials Decisions within MZ II/VII

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.

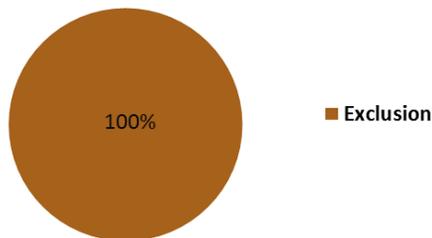
Approximate Acres of Solar Energy Decisions ⁸ in MZ II/VII by Habitat Management Area Type							
Solar Energy	No Action						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Exclusion	1,494,000	0	317,000	0	7,000	4,352,000	6,169,000
Avoidance	2,000	18,000	764,000	83,000	0	742,000	1,610,000
Open	0	0	1,000	0	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						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
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						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
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%						

Solar Energy	Management Alignment						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
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

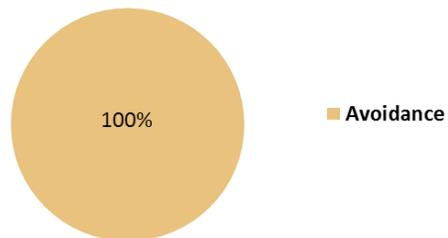


Figure 23 – Solar Energy Decisions within MZ II/VII

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.

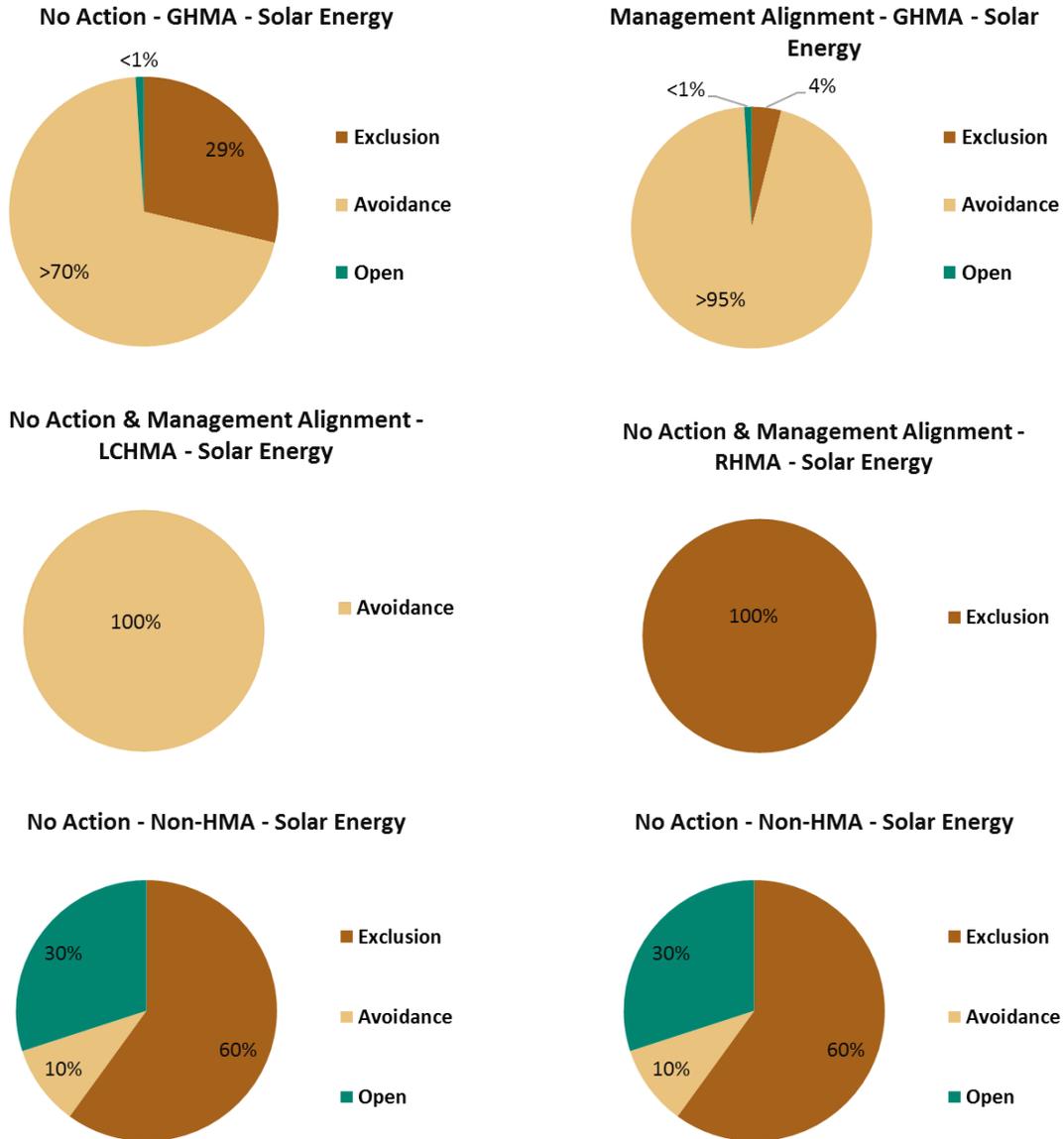


Figure 23 (cont'd) – Solar Energy Decisions within MZ II/VII

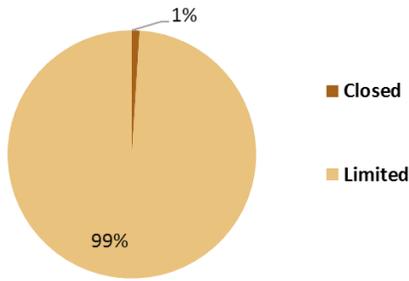
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. ⁸Data not available for WY. Calculations reflect only the portions of the MZ where data was available. All figures and tables are intended for Management Zone summary purposes only. They represent data available 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**

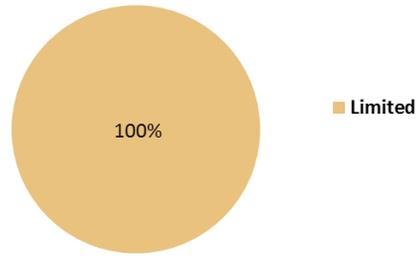
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual 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%

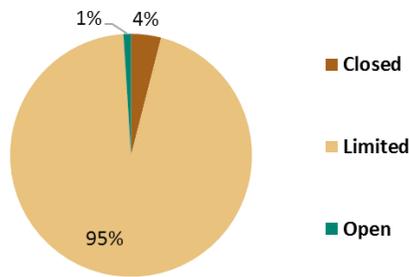
No Action & Management Alignment - PHMA - Trails and Travel Management



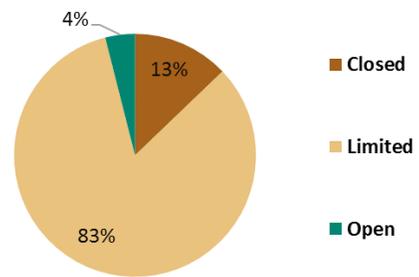
No Action & Management Alignment - IHMA - Trails and Travel Management



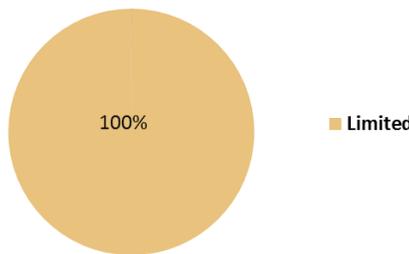
No Action & Management Alignment - GHMA - Trails and Travel Management



No Action & Management Alignment - LCHMA - Trails and Travel Management



No Action & Management Alignment - RHMA - Trails and Travel Management



No Action & Management Alignment - Non-HMA - Trails and Travel Management

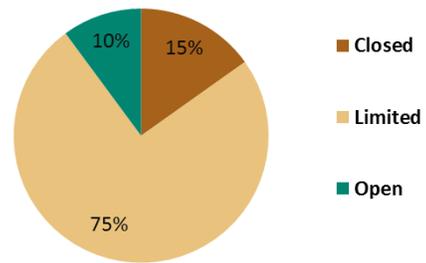


Figure 24 – Trails and Travel Management Decisions within MZ II/VII

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.

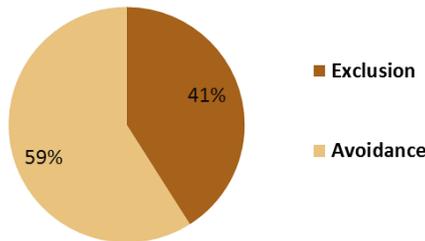
Approximate Acres of Wind Energy Decisions in MZ II/VII by Habitat Management Area Type							
Wind Energy	No Action						Total
	PHMA	IHMA	GHMA	LCHMA	RHMA	Non-HMA	
Exclusion	3,660,000	0	1,041,000	0	7,000	1,327,000	6,035,000
Avoidance	5,294,000	18,000	2,805,000	83,000	0	1,103,000	9,304,000
Open	0	0	5,272,000	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%						

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

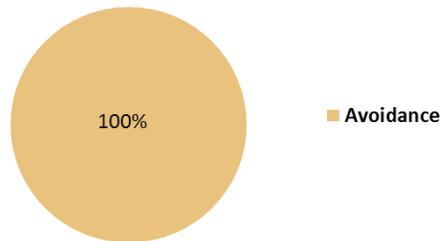


Figure 25 – Wind Energy Decisions within MZ II/VII

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.

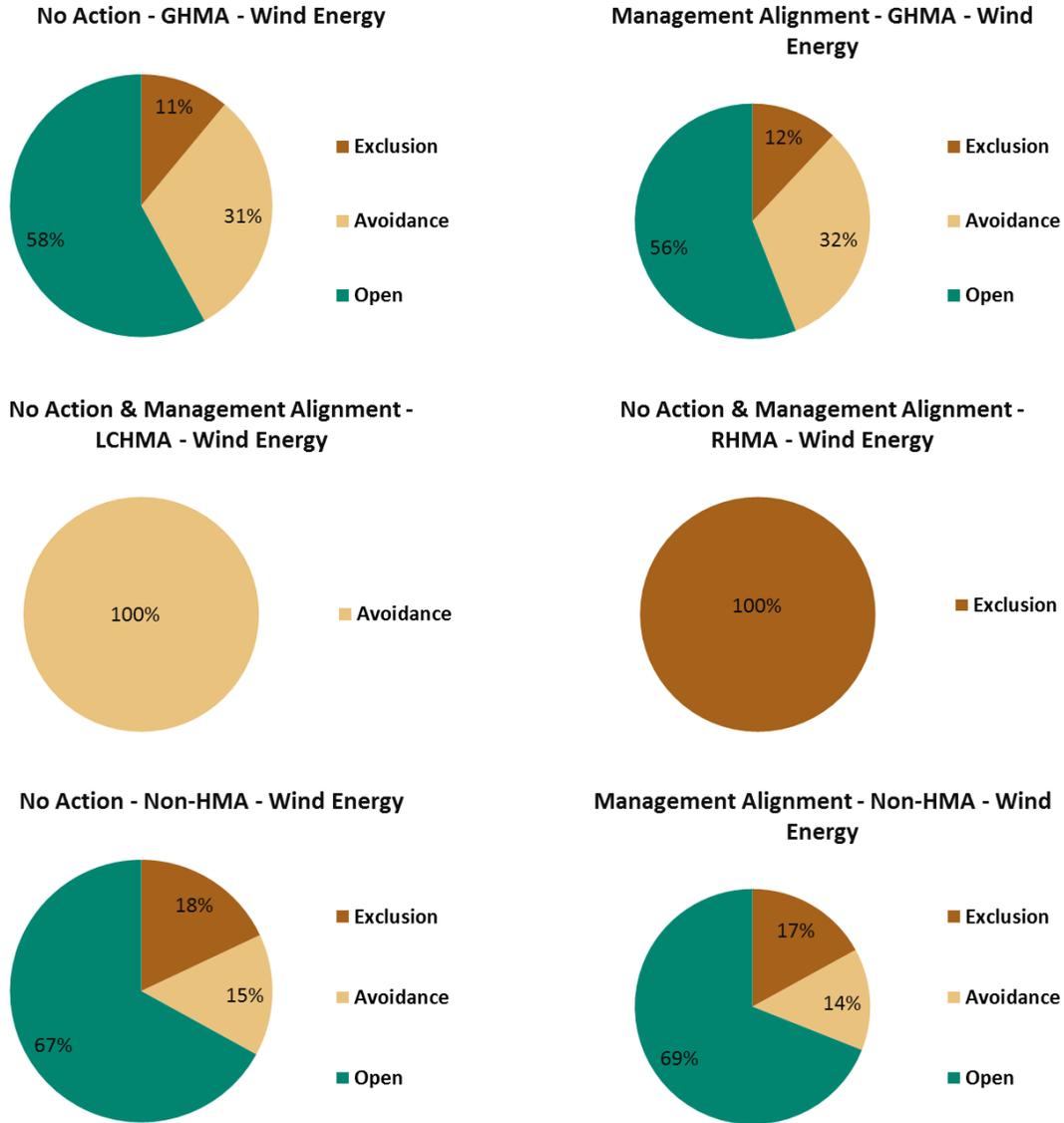


Figure 25 (cont'd) – Wind Energy Decisions within MZ II/VII

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.

B.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%

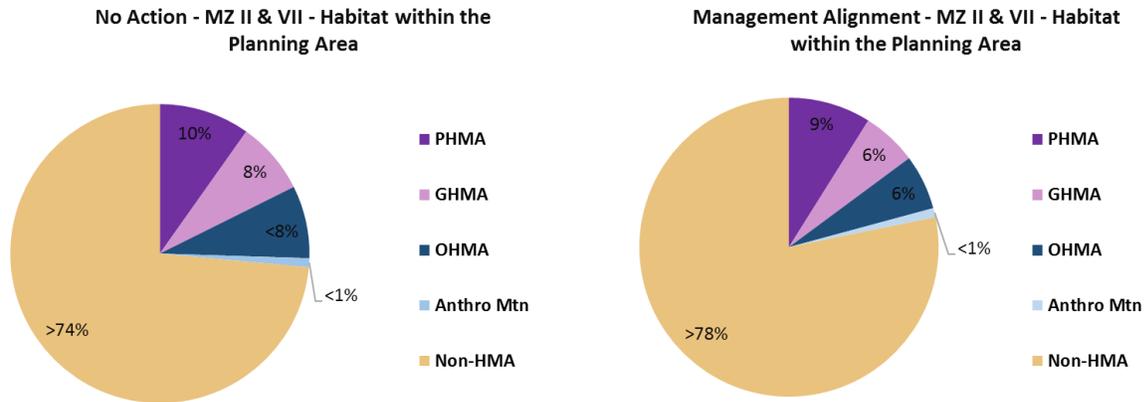


Figure 26 – Habitat Management Areas within MZ III

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%

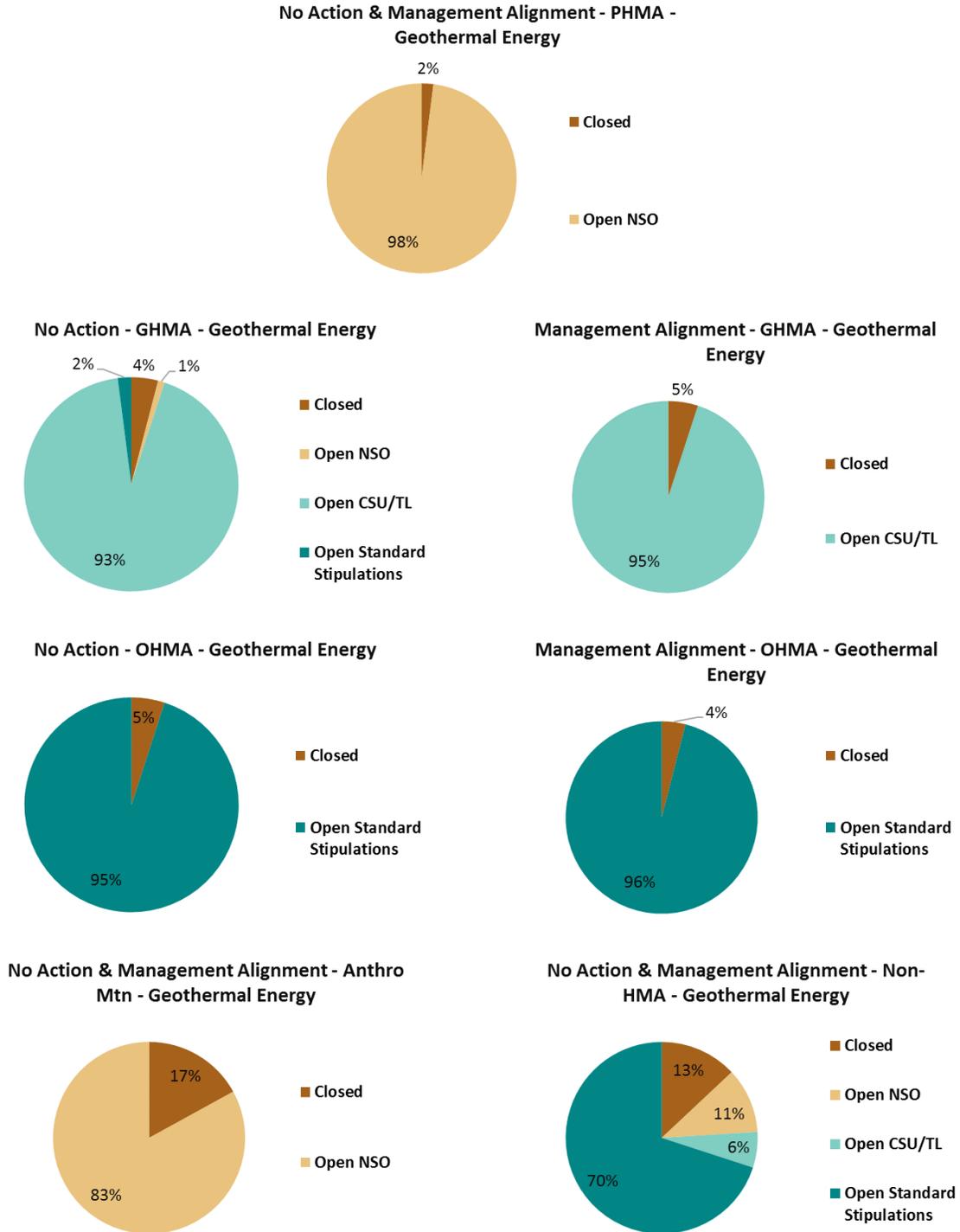


Figure 27 – Geothermal Energy Decisions within MZ III

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%

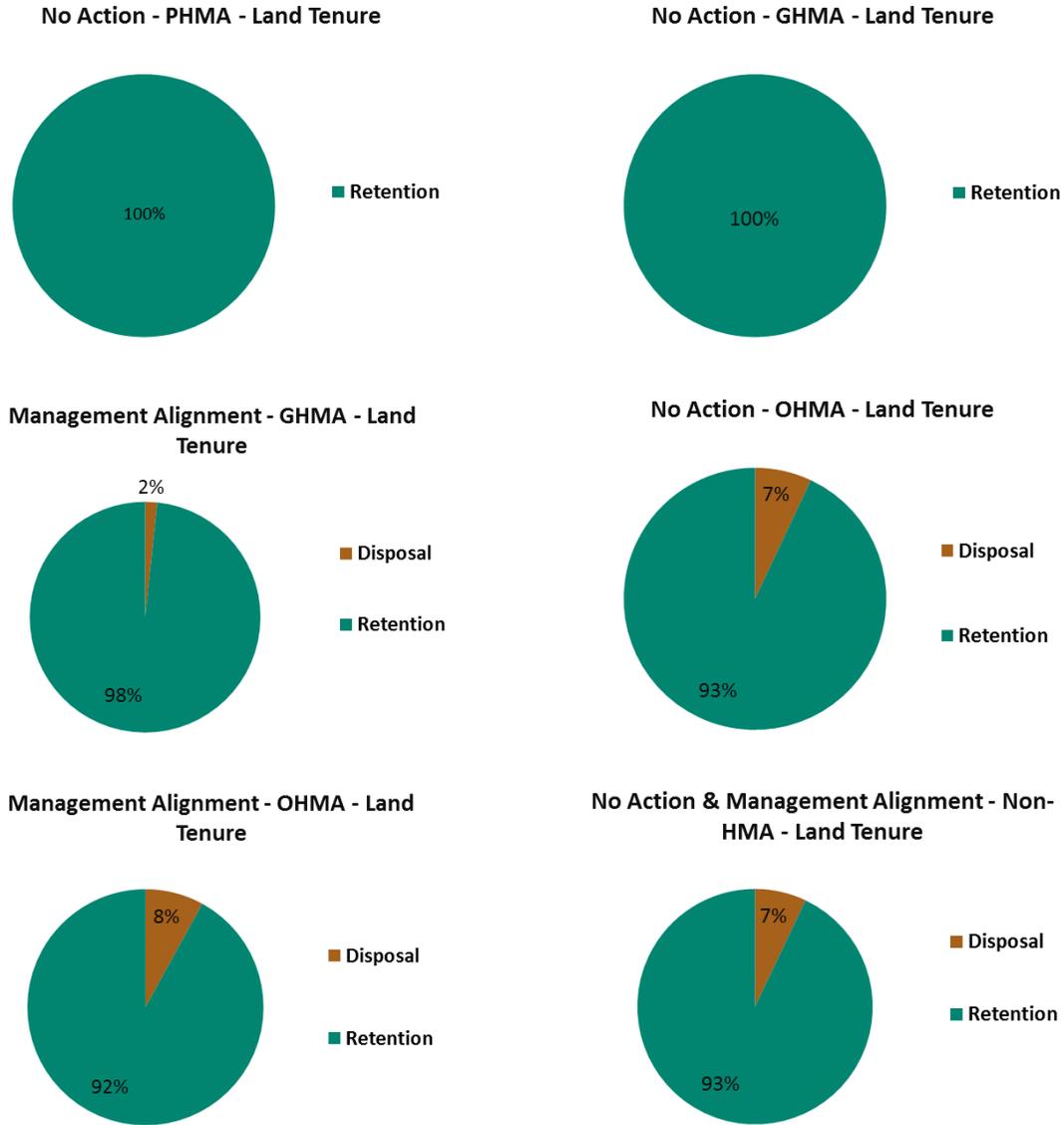


Figure 28 – Land Tenure Decisions within MZ III

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.

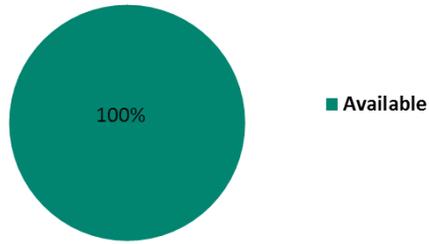
Approximate Acres of Livestock Grazing Decisions in MZ III by Habitat Management Area Type						
Livestock Grazing	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Unavailable	0	0	0	NA	129,000	129,000
Available	4,722,000	3,868,000	4,265,000	NA	31,559,000	44,415,000
Total	4,722,000	3,868,000	4,265,000	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

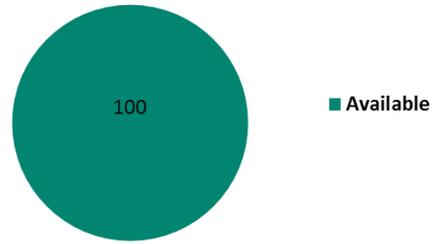
Approximate % of Habitat Management Area by Livestock Grazing Decision in MZ III						
Livestock Grazing	No Action					
	PHMA	GHMA	OHMA	Anthro Mtn	Non-HMA	Total
Unavailable	0%	0%	0%	NA	<1%	<1%
Available	100%	100%	100%	NA	100%	100%
Total	100%	100%	100%	NA	100%	100%

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%

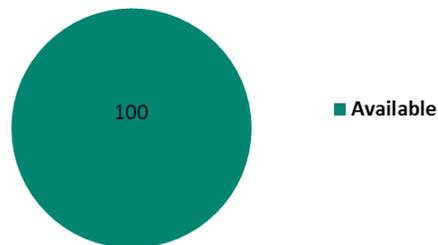
No Action & Management Alignment - PHMA - Livestock Grazing



No Action & Management Alignment - GHMA - Livestock Grazing



No Action & Management Alignment - OHMA - Livestock Grazing



No Action & Management Alignment - Non-HMA - Livestock Grazing

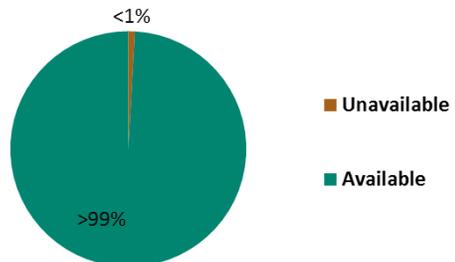


Figure 29 – Livestock Grazing Decisions within MZ III

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%

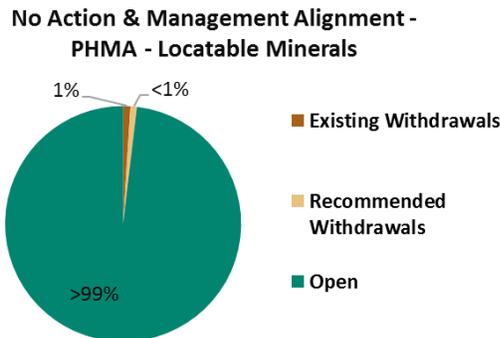


Figure 30 – Locatable Minerals Decisions within MZ III

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.

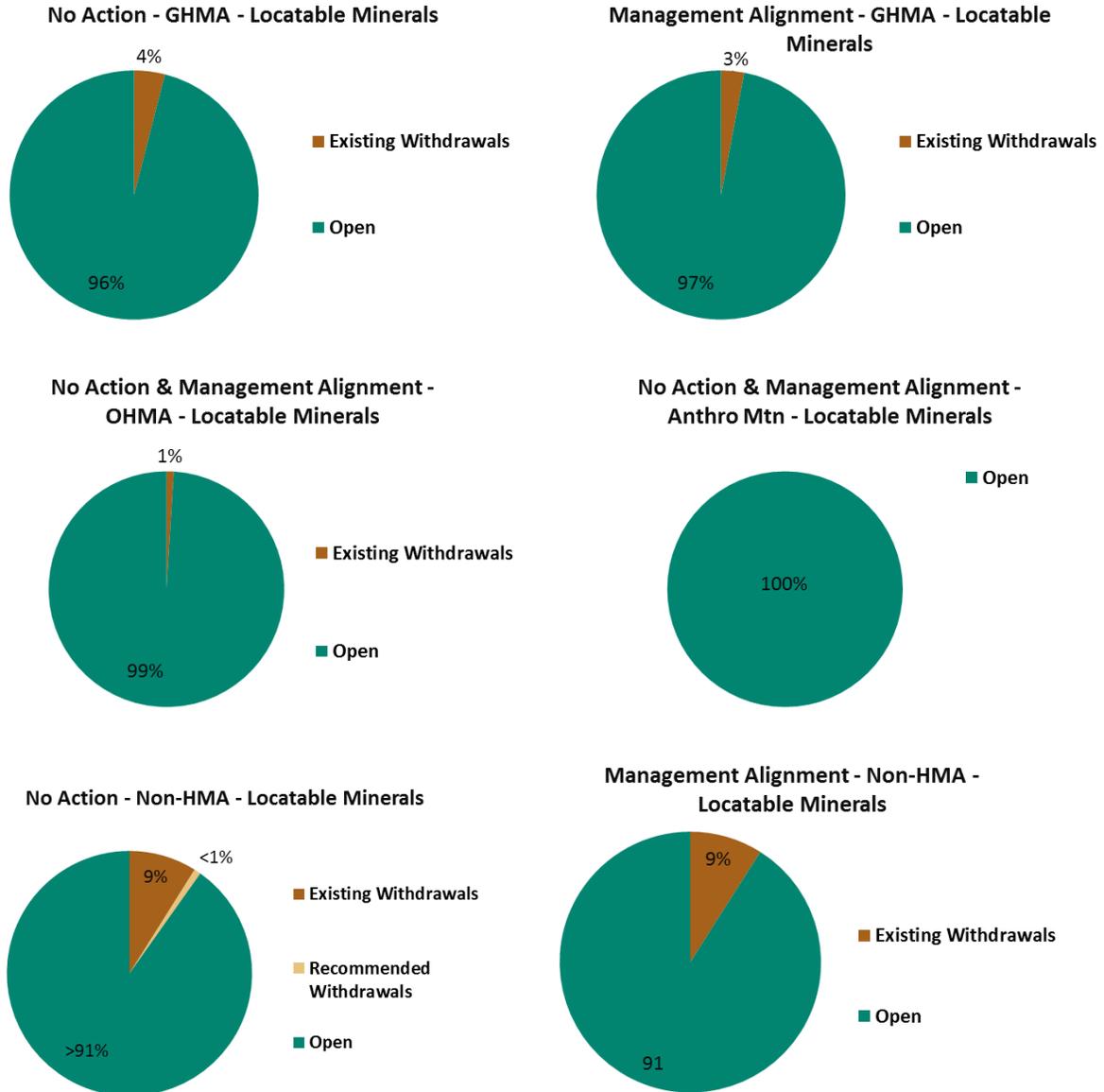


Figure 30 (cont'd) – Locatable Minerals Decisions within MZ III

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

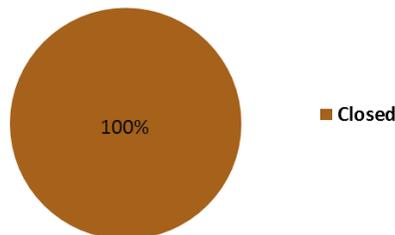


Figure 31 – Non-Energy Leasable Minerals Decisions within MZ III

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.

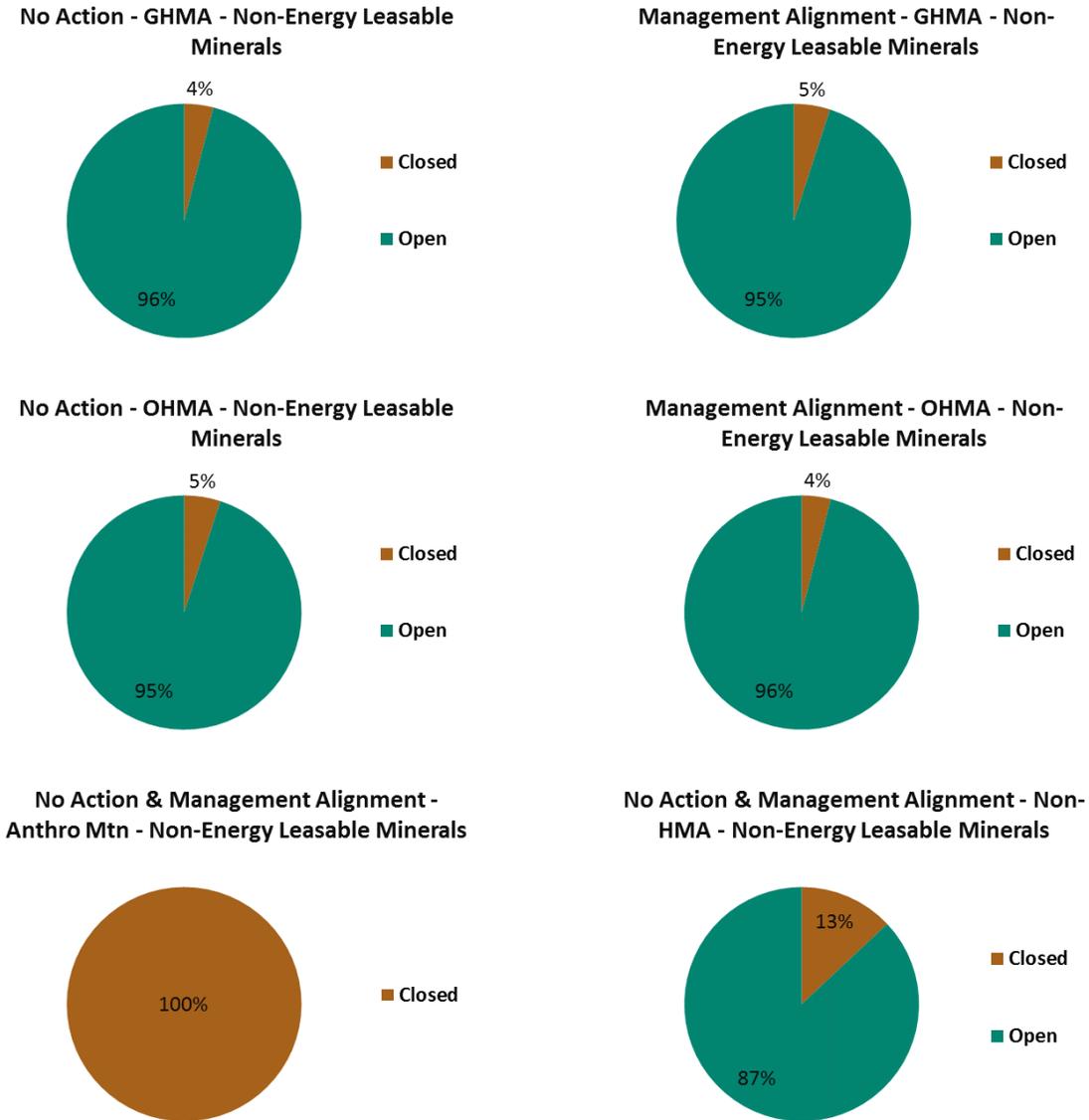


Figure 31 (cont'd) – Non-Energy Leasable Minerals Decisions within MZ III

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

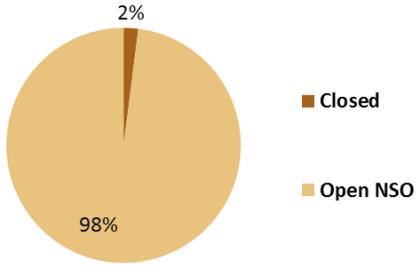
VII. Fluid Minerals (Oil & Gas)

Table 33 – Fluid Mineral (Oil & Gas) Decisions within MZ III

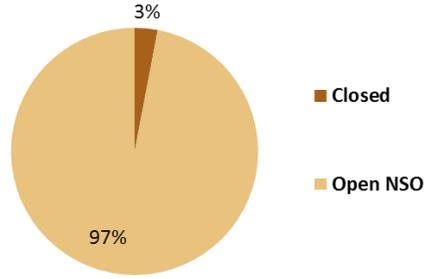
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

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%

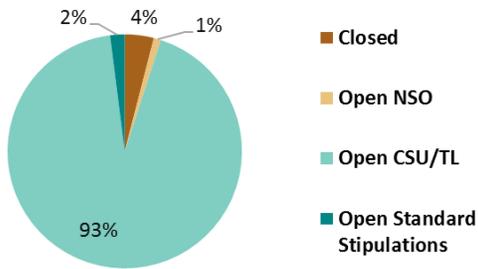
No Action - PHMA - Fluid Mineral Leasing (Oil & Gas)



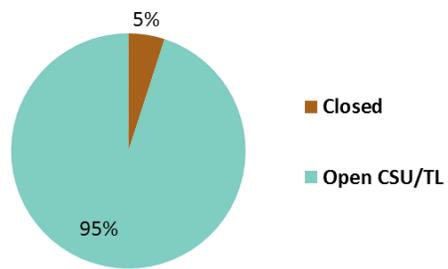
Management Alignment - PHMA - Fluid Mineral Leasing (Oil & Gas)



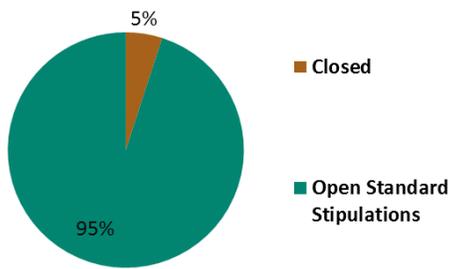
No Action - GHMA - Fluid Mineral Leasing (Oil & Gas)



Management Alignment - GHMA - Fluid Mineral Leasing (Oil & Gas)



No Action - OHMA - Fluid Mineral Leasing (Oil & Gas)



Management Alignment - OHMA - Fluid Mineral Leasing (Oil & Gas)

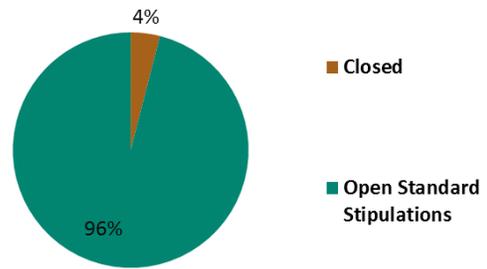
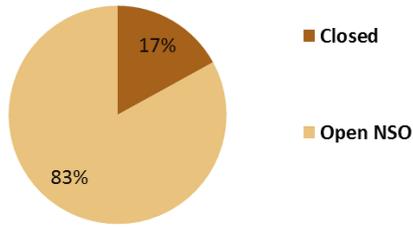


Figure 32 – Fluid Mineral (Oil & Gas) Decisions within MZ III

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)

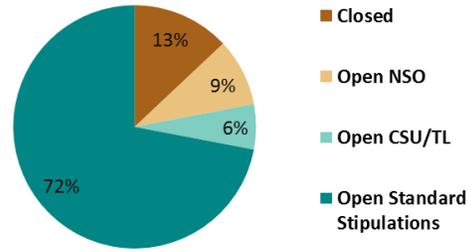


Figure 32 (cont'd) – Fluid Mineral (Oil & Gas) Decisions within MZ III

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%

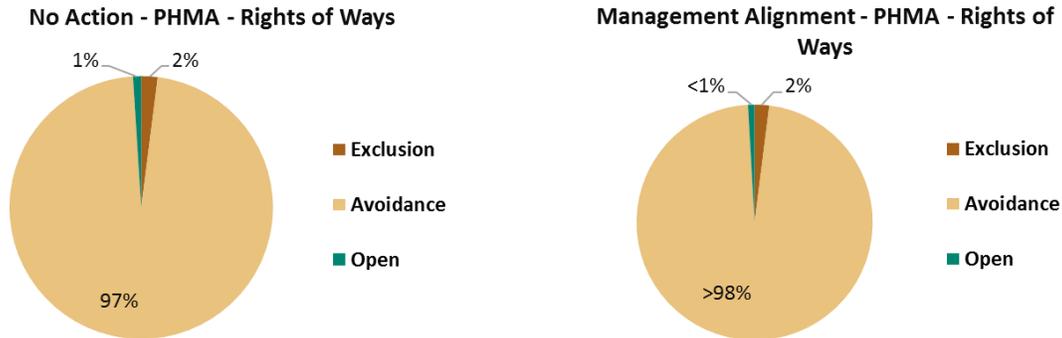


Figure 33 – Rights-of-Ways Decisions within MZ III

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.

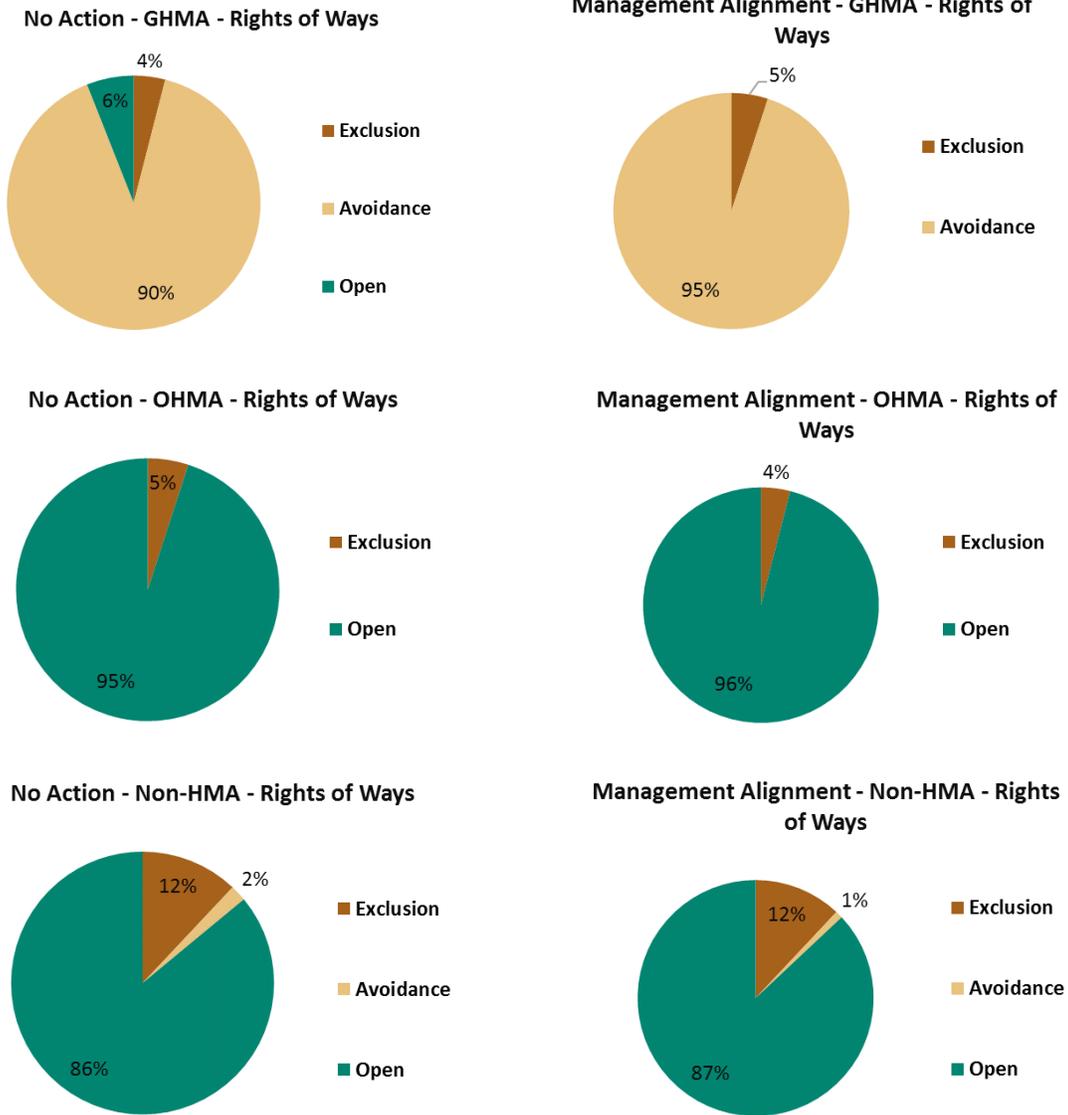


Figure 33 (cont'd) – Rights-of-Ways Decisions within MZ III

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%

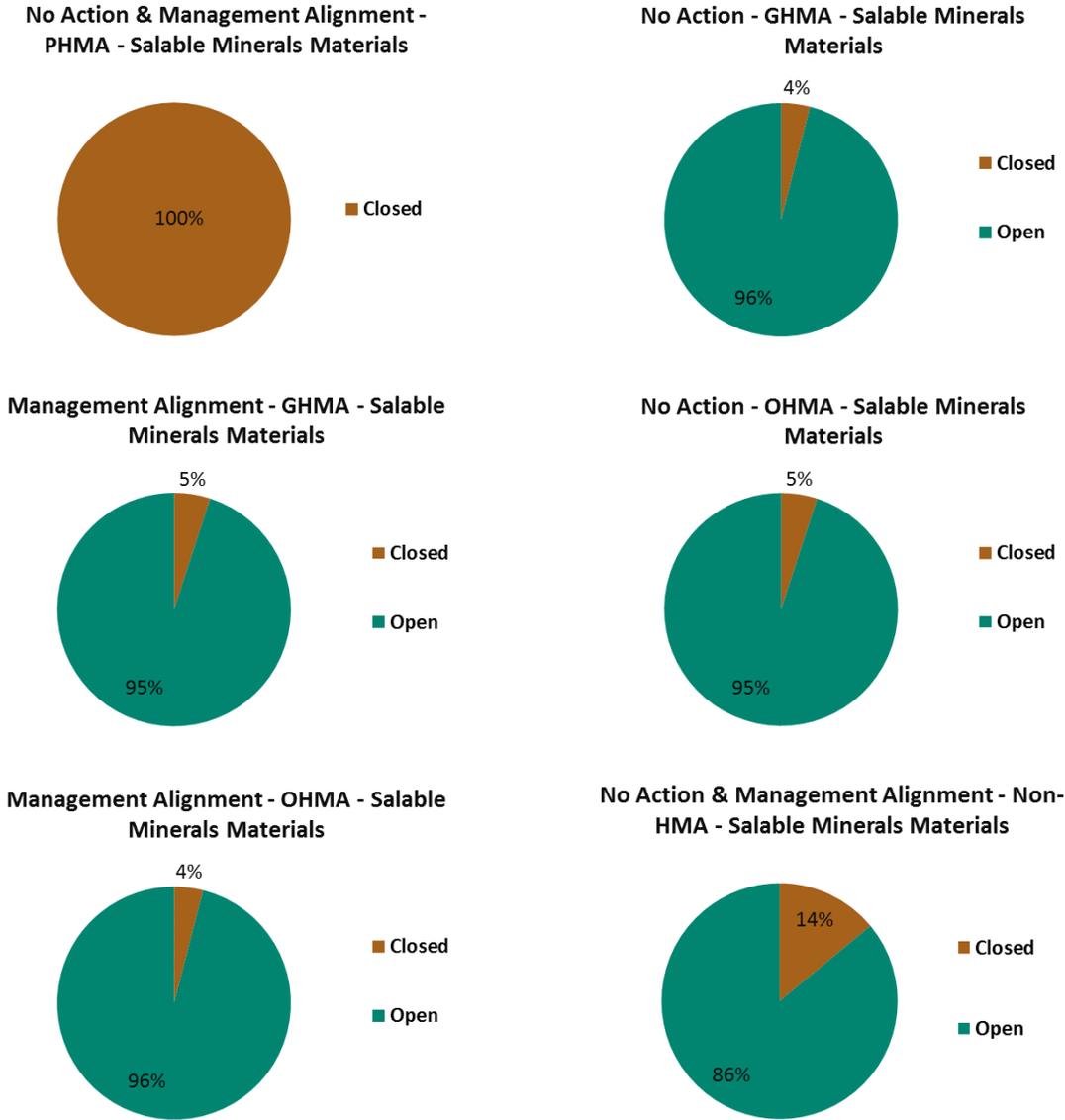


Figure 34 – Salable Minerals Materials Decisions within MZ III

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%

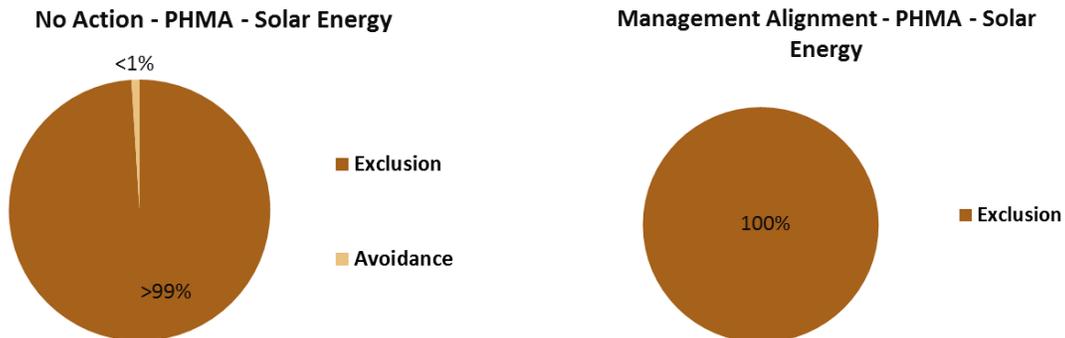


Figure 35 – Solar Energy Decisions within MZ III

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.

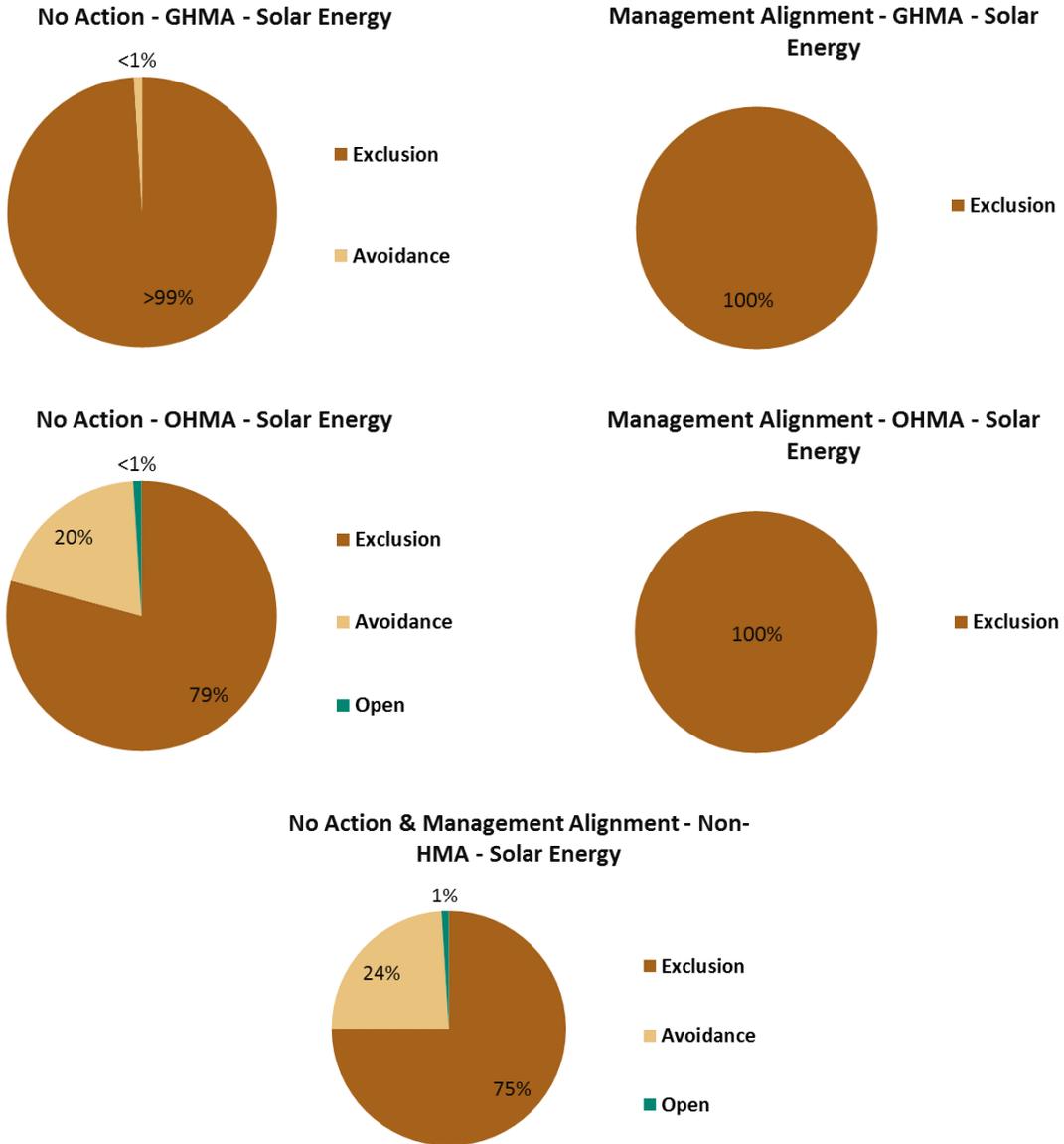


Figure 35 (cont'd) – Solar Energy Decisions within MZ III

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%

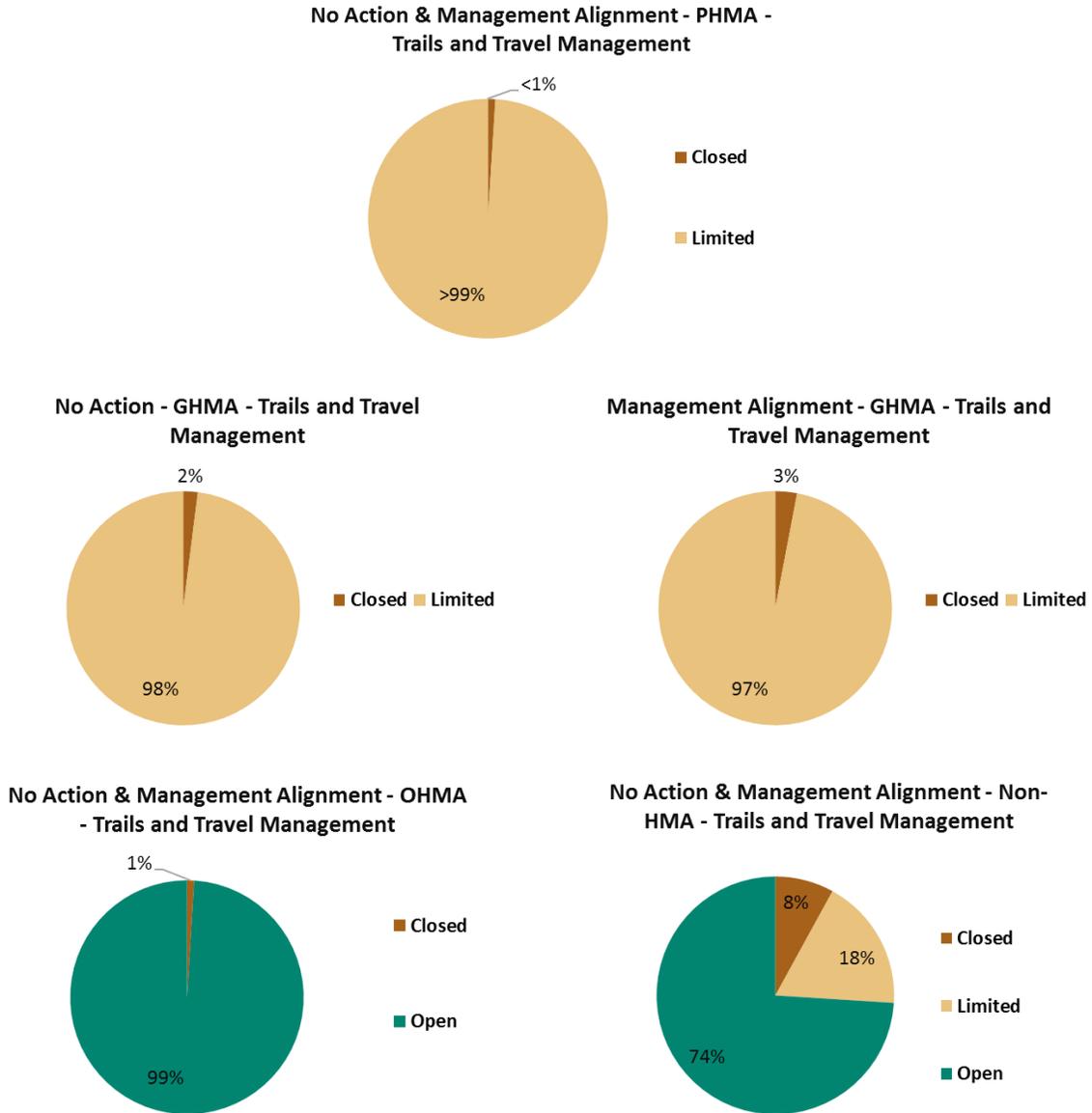


Figure 36 – Trails and Travel Management Decisions within MZ III

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%

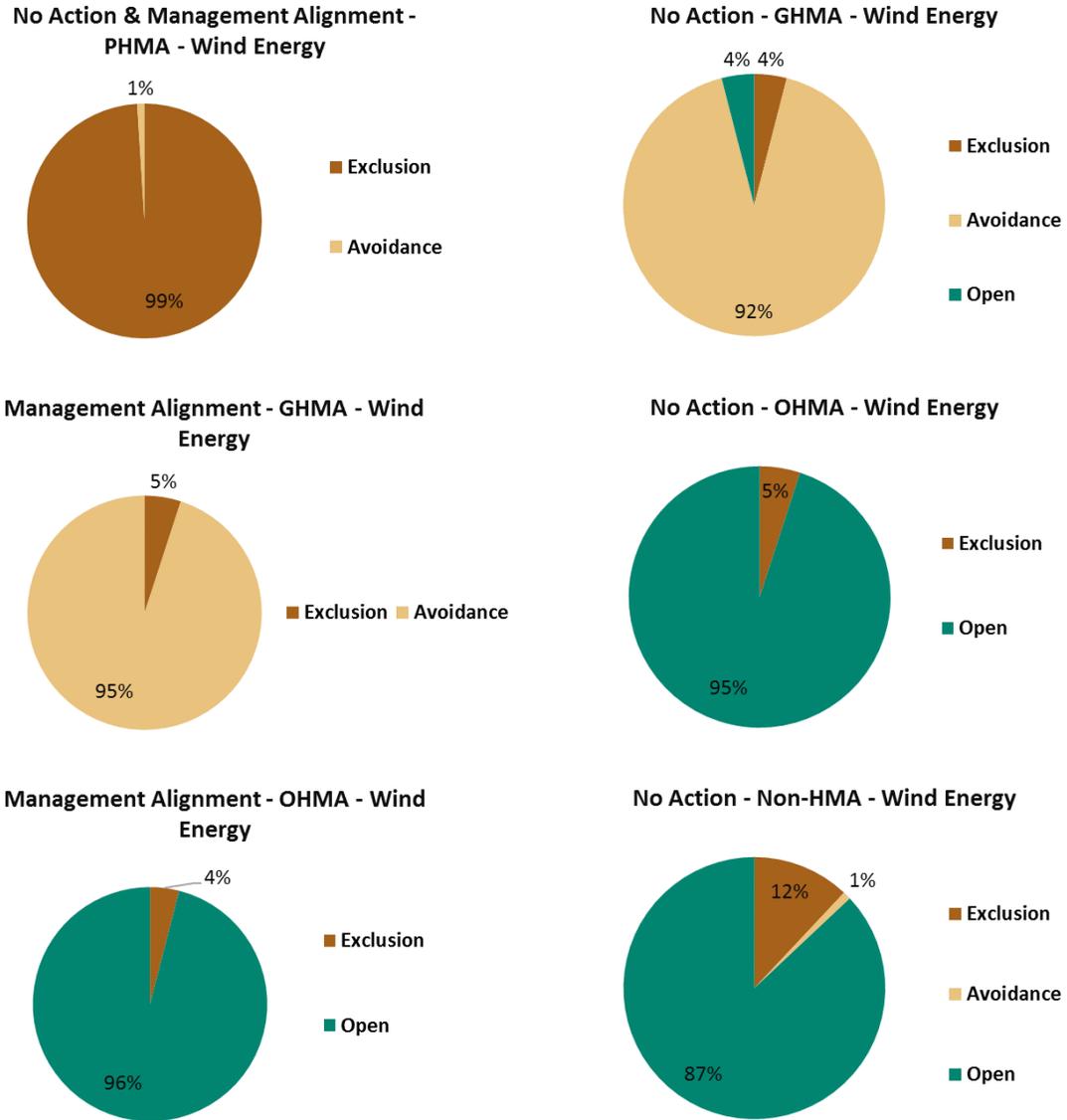


Figure 37 – Wind Energy Decisions within MZ III

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.

B.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%

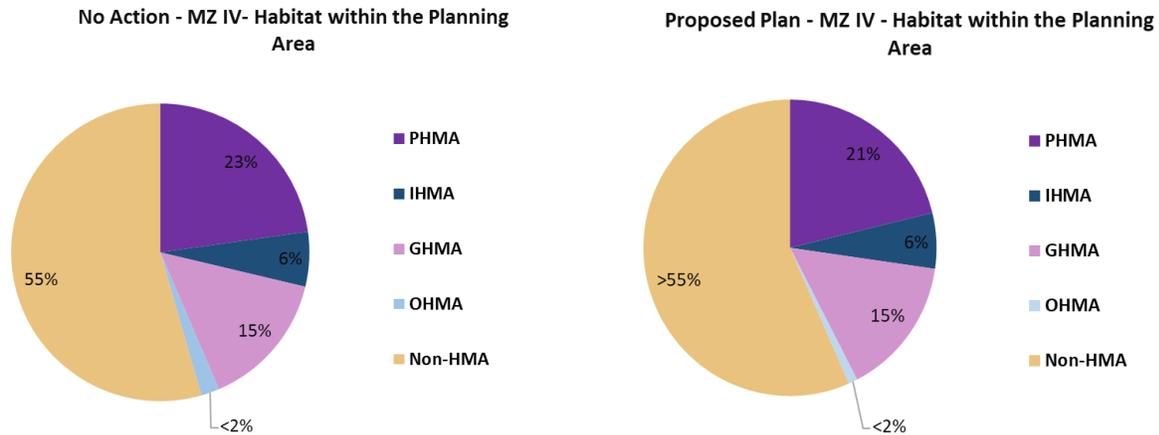


Figure 38 – Habitat Management Areas within MZ IV

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.

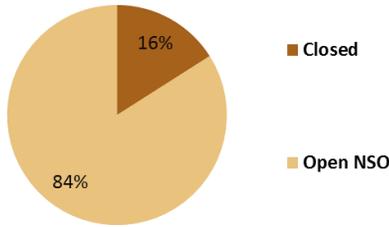
II. Geothermal Energy

Table 40 – Geothermal Energy Decisions within MZ IV

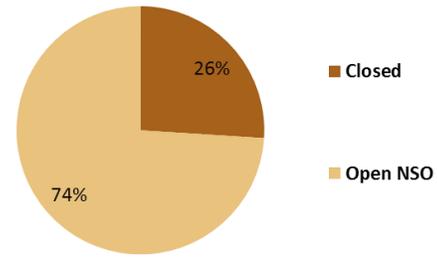
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual 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%

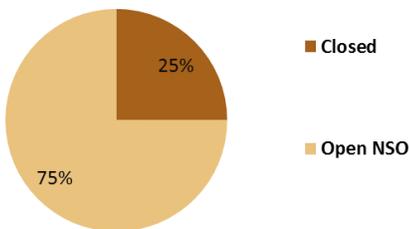
No Action & Management Alignment - PHMA - Geothermal Energy



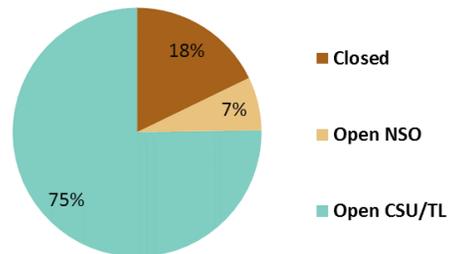
No Action - IHMA - Geothermal Energy



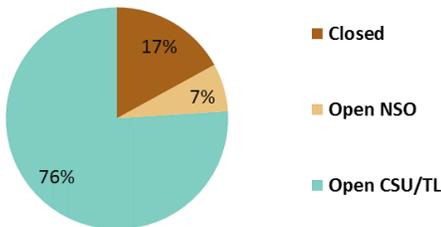
Management Alignment - IHMA - Geothermal Energy



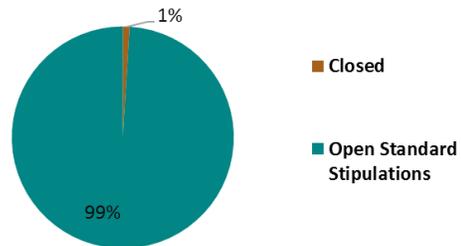
No Action - GHMA - Geothermal Energy



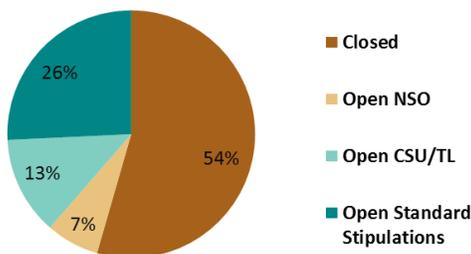
Management Alignment - GHMA - Geothermal Energy



No Action & Management Alignment - OHMA - Geothermal Energy



No Action - Non-HMA - Geothermal Energy



Management Alignment - Non-HMA - Geothermal Energy

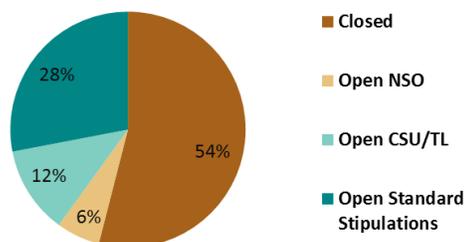


Figure 39 – Geothermal Energy Decisions within MZ IV

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					Total
	PHMA	IHMA	GHMA	OHMA	Non-HMA	
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					Total
	PHMA	IHMA	GHMA	OHMA	Non-HMA	
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					Total
	PHMA	IHMA	GHMA	OHMA	Non-HMA	
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					Total
	PHMA	IHMA	GHMA	OHMA	Non-HMA	
Disposal	<1%	0%	<1%	14%	15%	4%
Retention	100%	100%	100%	86%	85%	96%
Total	100%	100%	100%	100%	100%	100%

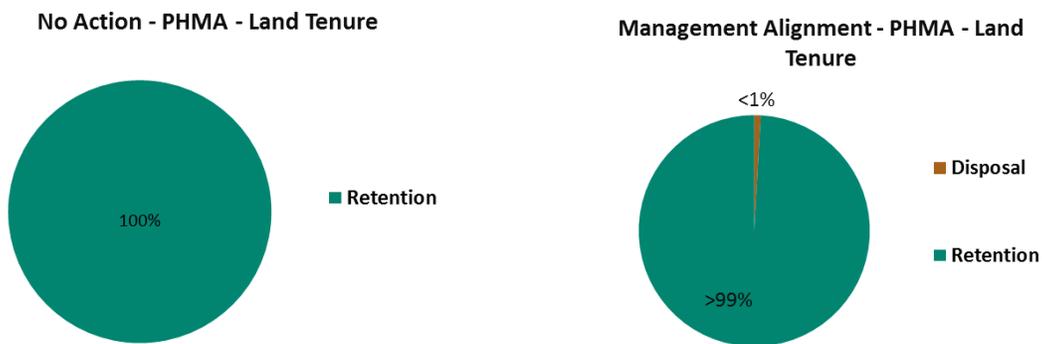
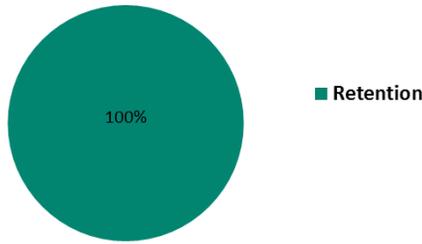


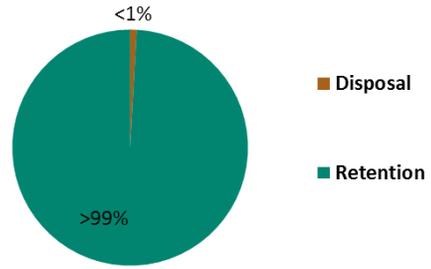
Figure 40 – Land Tenure Decisions within MZ IV

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.

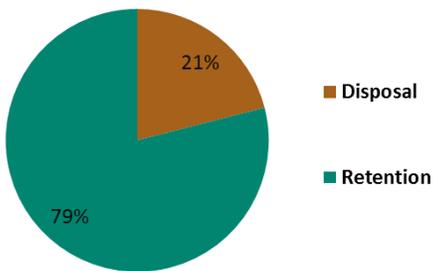
No Action & Management Alignment - IHMA - Land Tenure



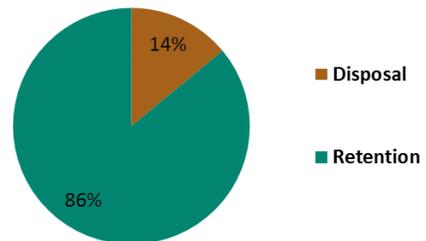
No Action & Management Alignment - GHMA - Land Tenure



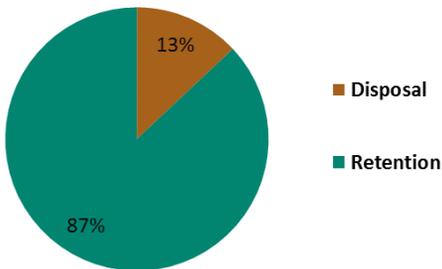
No Action - OHMA - Land Tenure



Management Alignment - OHMA - Land Tenure



No Action - Non-HMA - Land Tenure



Management Alignment - Non-HMA - Land Tenure

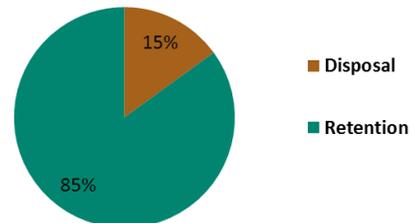


Figure 40 (cont'd) – Land Tenure Decisions within MZ IV

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%

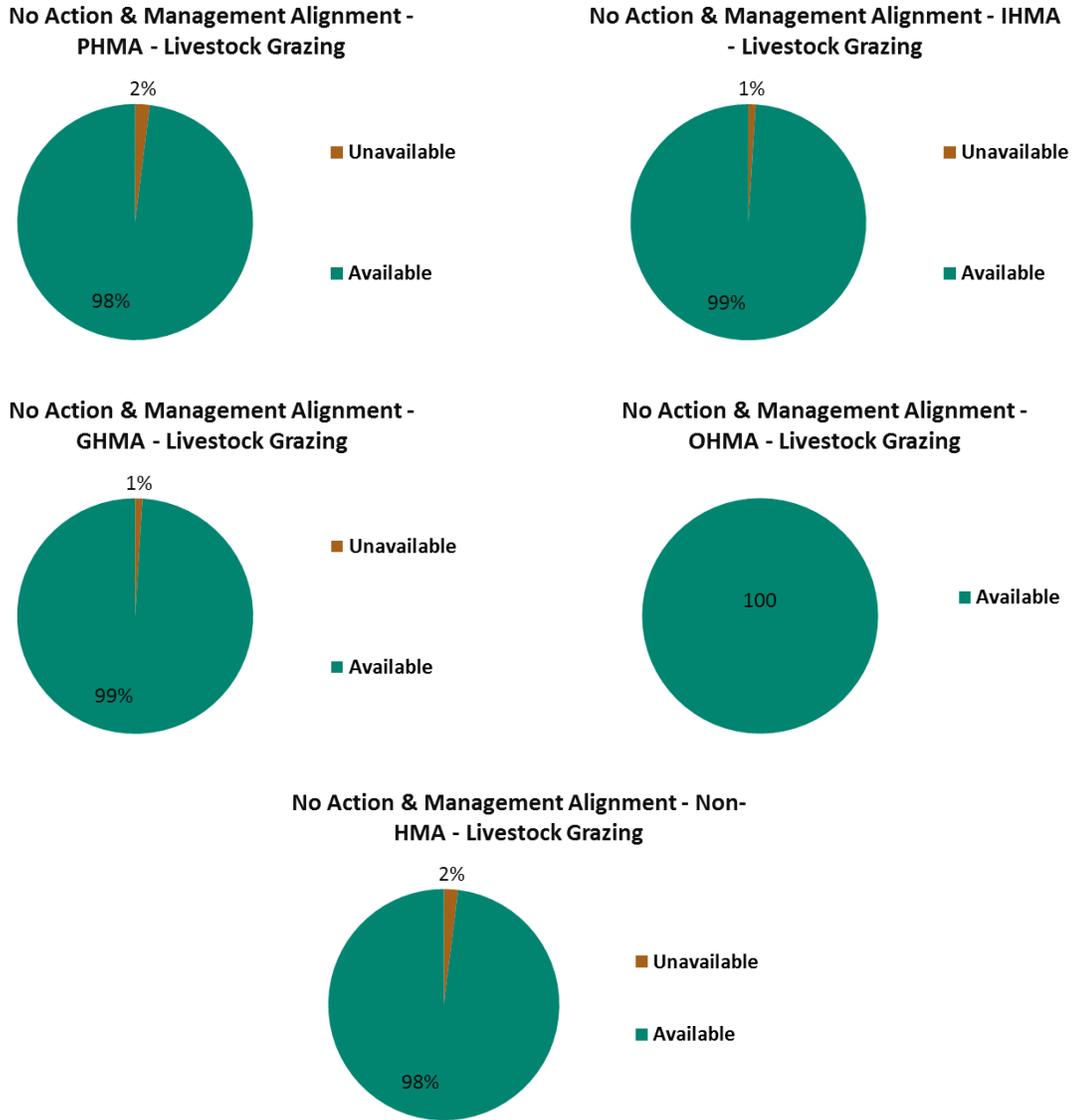


Figure 41 – Livestock Grazing Decisions within MZ IV

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

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 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.

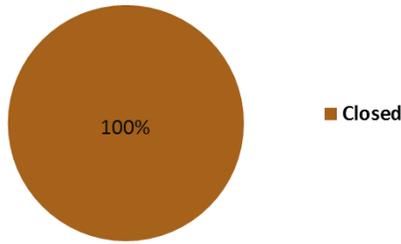
VI. Non-Energy Leasable Minerals

Table 44 – Non-Energy Leasable Minerals Decisions within MZ IV

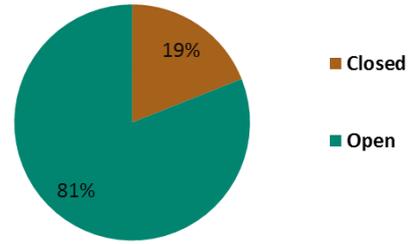
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual 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%

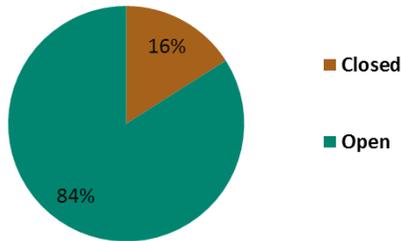
No Action & Management Alignment - PHMA - Non-Energy Leasable Minerals



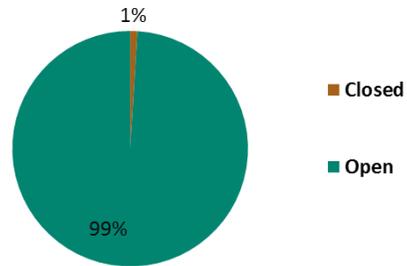
Management Alignment - IHMA - Non-Energy Leasable Minerals



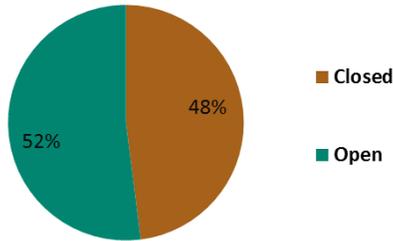
Management Alignment - GHMA - Non-Energy Leasable Minerals



Management Alignment - OHMA - Non-Energy Leasable Minerals



No Action - Non-HMA - Non-Energy Leasable Minerals



Management Alignment - Non-HMA - Non-Energy Leasable Minerals

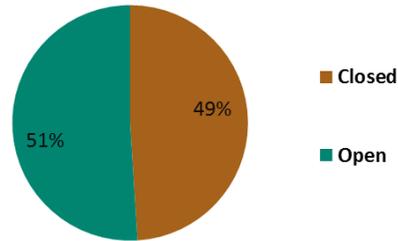


Figure 43 – Non-Energy Leasable Minerals Decisions within MZ IV

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%

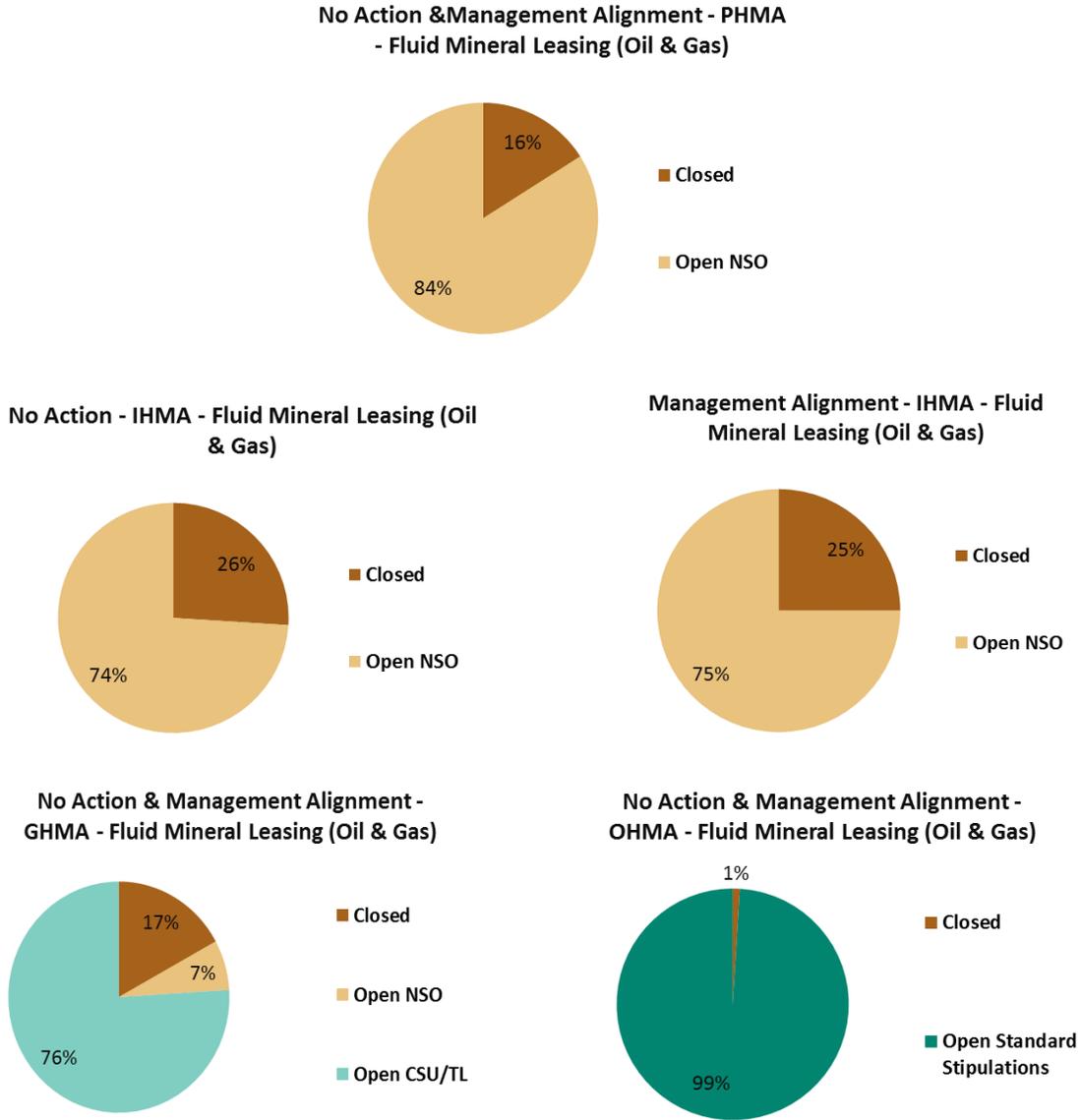
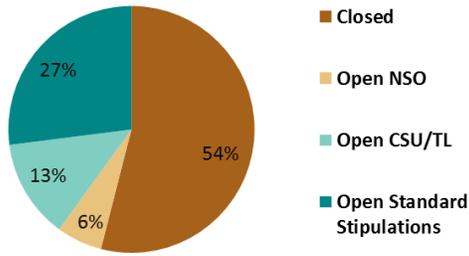


Figure 44 – Fluid Mineral (Oil & Gas) Decisions within MZ IV

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)

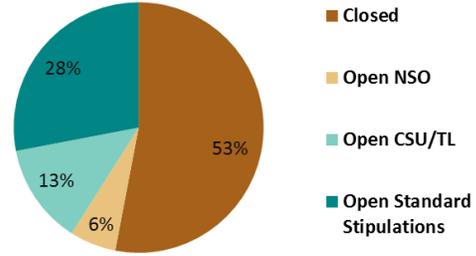


Figure 44 (cont'd) – Fluid Mineral (Oil & Gas) Decisions within MZ IV

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.

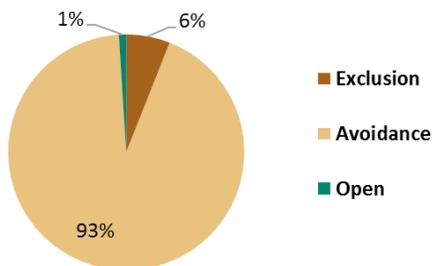
Approximate Acres of Rights-of-Ways Decisions in MZ IV by Habitat Management Area Type						
Rights-of-Ways	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	637,000	131,000	269,000	3,000	244,000	1,283,000
Avoidance	9,993,000	2,565,000	3,095,000	0	463,000	16,117,000
Open	98,000	24,000	1,827,000	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 Ways



No Action & Management Alignment - IHMA - Rights of Ways

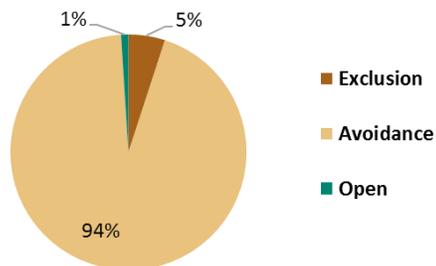


Figure 45 – Rights-of-Ways Decisions within MZ IV

Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

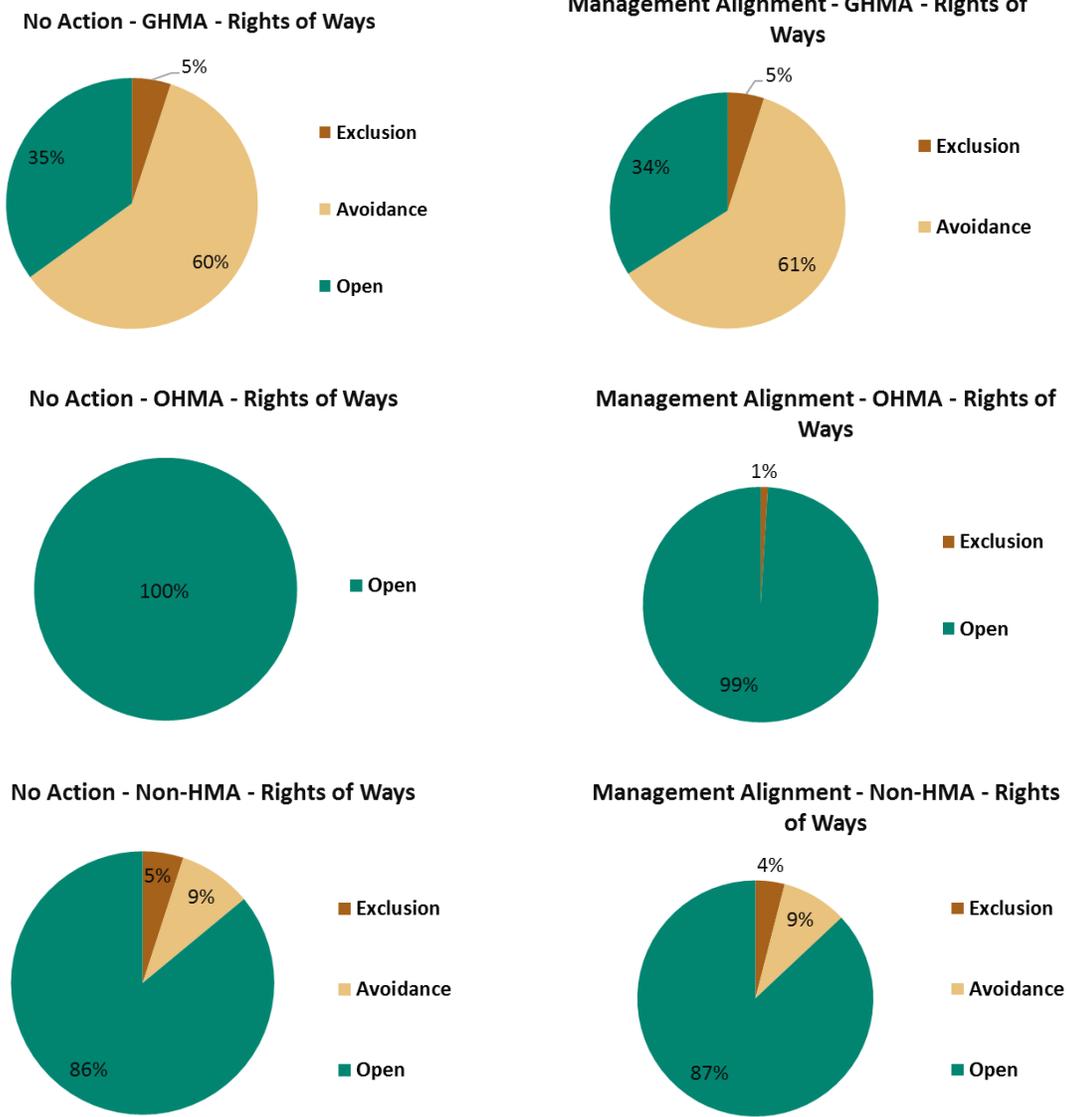


Figure 45 (cont'd) – Rights-of-Ways Decisions within MZ IV

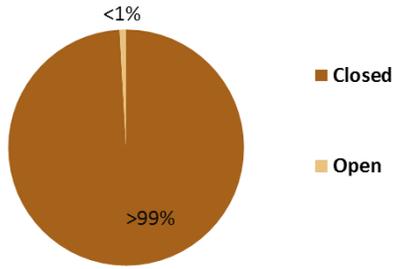
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

IX. Salable Minerals Materials**Table 47 – Salable Minerals Materials Decisions within MZ IV**

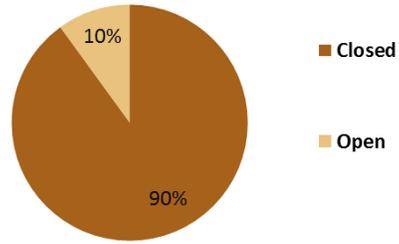
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

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%

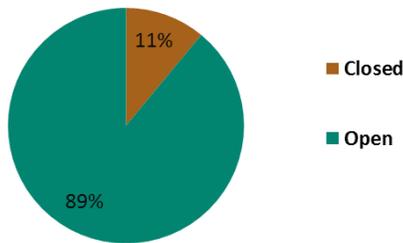
No Action & Management Alignment - PHMA - Salable Minerals Materials



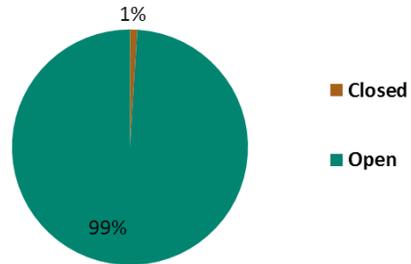
No Action & Management Alignment - IHMA - Salable Minerals Materials



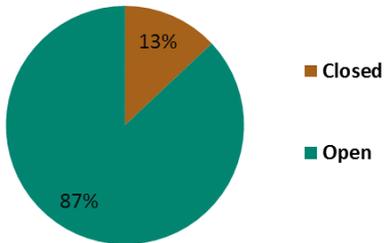
No Action & Management Alignment - GHMA - Salable Minerals Materials



No Action & Management Alignment - OHMA - Salable Minerals Materials



No Action - Non-HMA - Salable Minerals Materials



Management Alignment - Non-HMA - Salable Minerals Materials

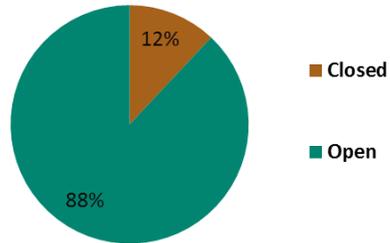


Figure 46 – Salable Minerals Materials Decisions within MZ IV

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.

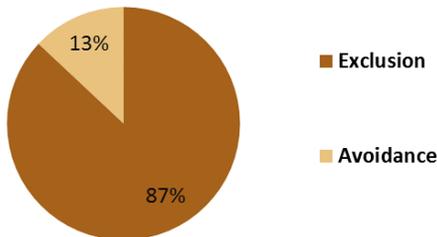
Approximate Acres of Solar Energy Decisions in MZ IV by Habitat Management Area Type						
Solar Energy	No Action					
	PHMA	IHMA	GHMA	OHMA	Non-HMA	Total
Exclusion	9,341,000	363,000	1,210,000	706,000	2,275,000	13,895,000
Avoidance	1,390,000	2,357,000	2,235,000	0	123,000	6,105,000
Open	0	0	1,500,000	1,000	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

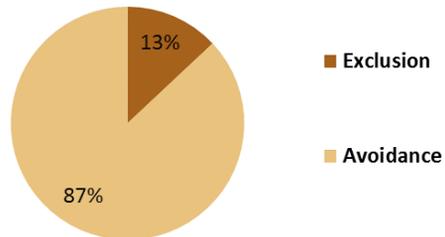


Figure 47 – Solar Energy Decisions within MZ IV

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.

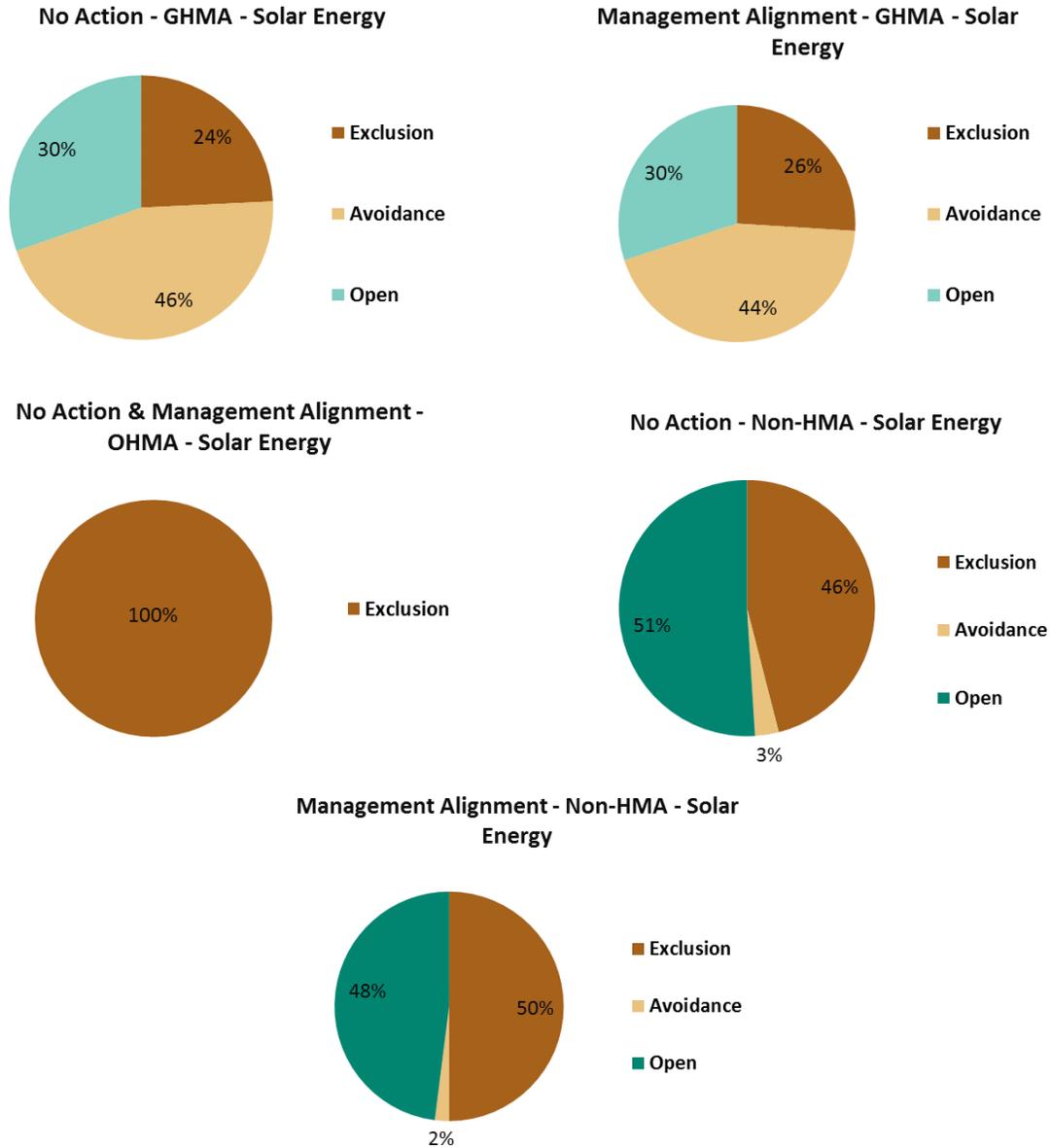


Figure 47 (cont'd) – Solar Energy Decisions within MZ IV

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%



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

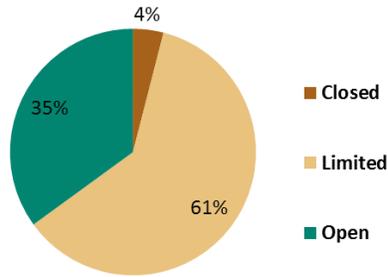


Figure 48 (cont'd) – Trails and Travel Management Decisions within MZ IV

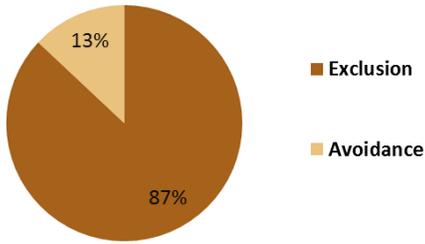
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

XII. Wind Energy**Table 50 – Wind Energy Decisions within MZ IV**

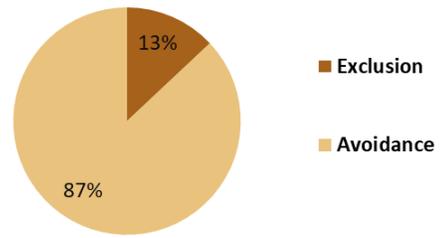
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual 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%

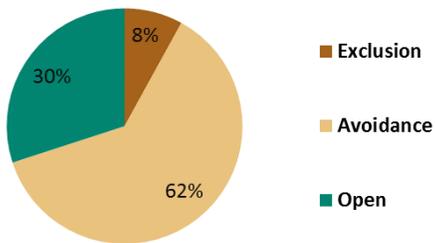
No Action & Management Alignment - PHMA - Wind Energy



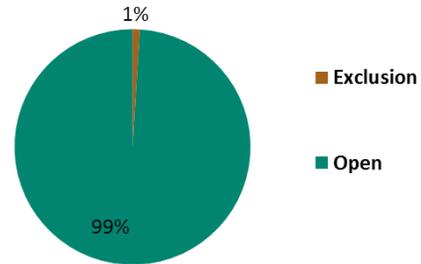
No Action & Proposed Plan - IHMA - Wind Energy



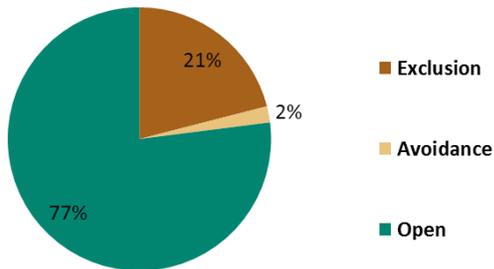
No Action & Management Alignment - GHMA - Wind Energy



No Action & Management Alignment - OHMA - Wind Energy



No Action - Non-HMA - Wind Energy



Management Alignment - Non-HMA - Wind Energy

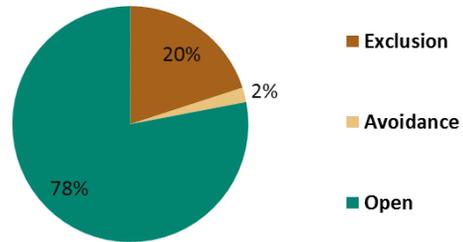


Figure 49 – Wind Energy Decisions within MZ IV

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.

B.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%

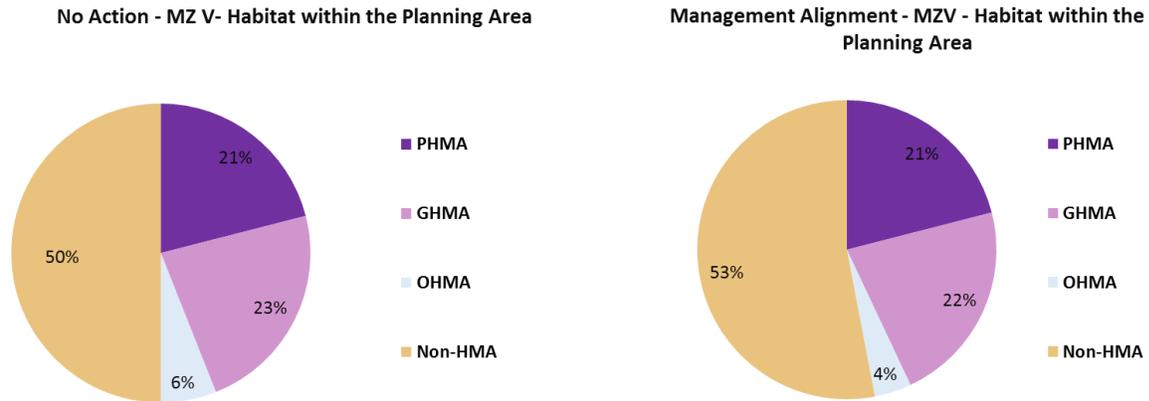


Figure 50 – Habitat Management Areas within MZ V

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.

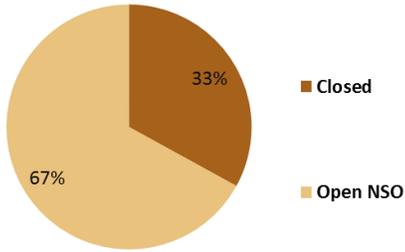
II. Geothermal Energy

Table 52 – Geothermal Energy Decisions within MZ V

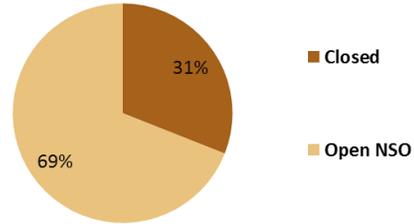
Acres and percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual 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%

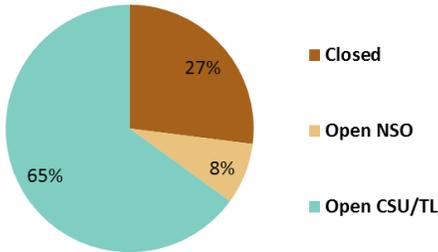
No Action - PHMA - Geothermal Energy



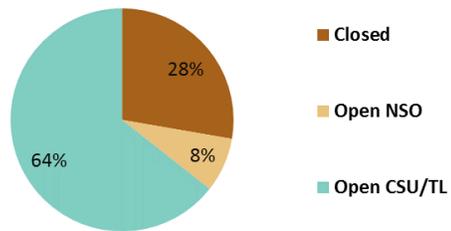
Management Alignment - PHMA - Geothermal Energy



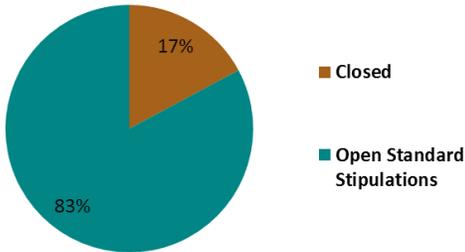
No Action - GHMA - Geothermal Energy



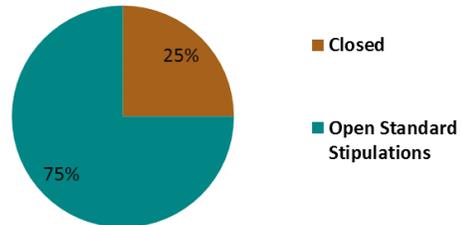
Management Alignment - GHMA - Geothermal Energy



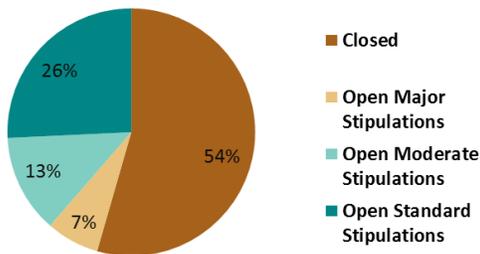
No Action - OHMA - Geothermal Energy



Management Alignment - OHMA - Geothermal Energy



No Action - Non-HMA - Geothermal Energy



Management Alignment - Non-HMA - Geothermal Energy

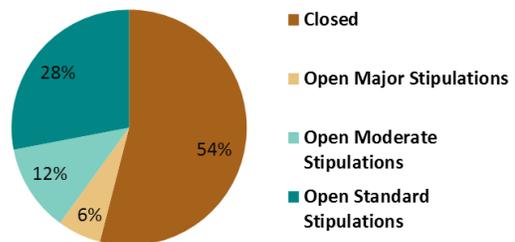


Figure 5I – Geothermal Energy Decisions within MZ V

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.

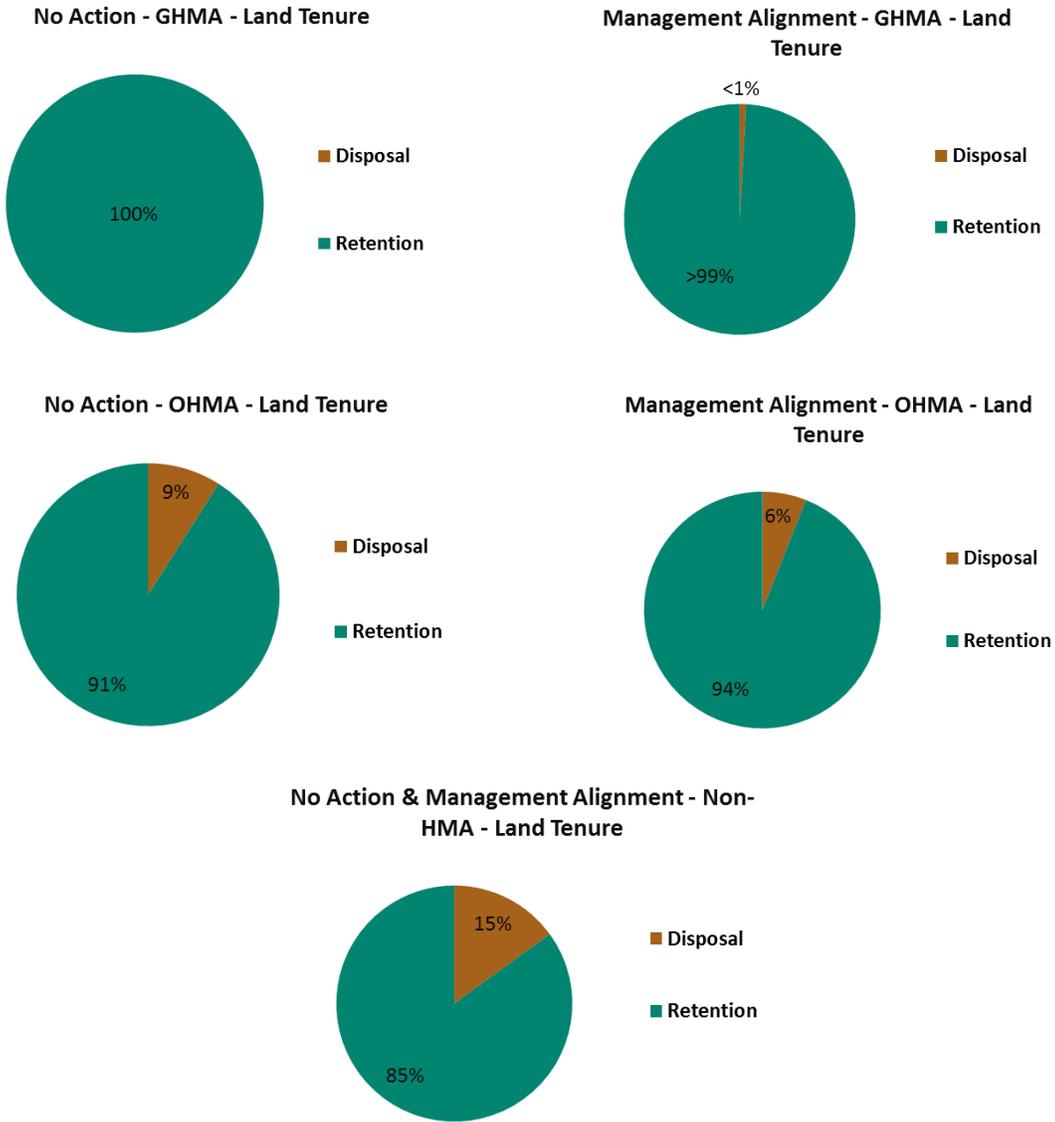


Figure 52 (cont'd) – Land Tenure Decisions within MZ V

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%

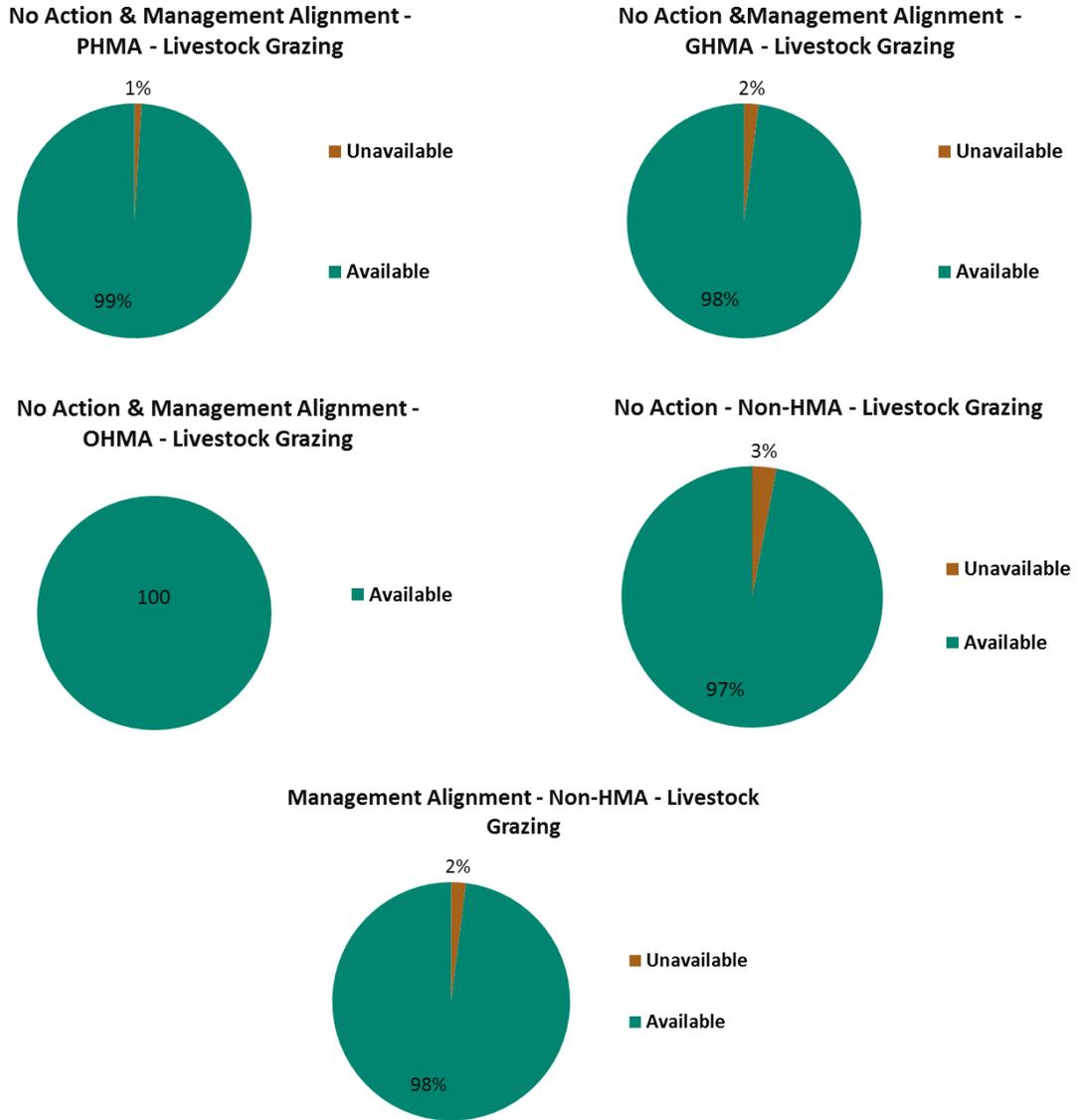


Figure 53 – Livestock Grazing Decisions within MZ V

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%

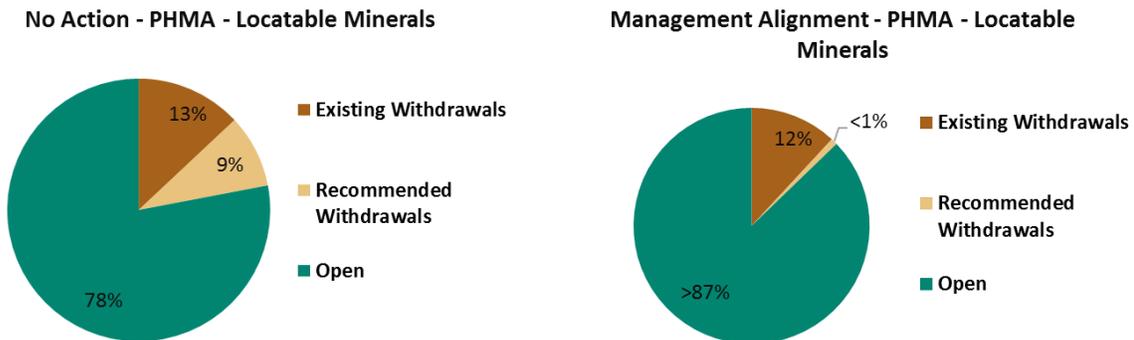


Figure 54 – Locatable Minerals Decisions within MZ V

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%

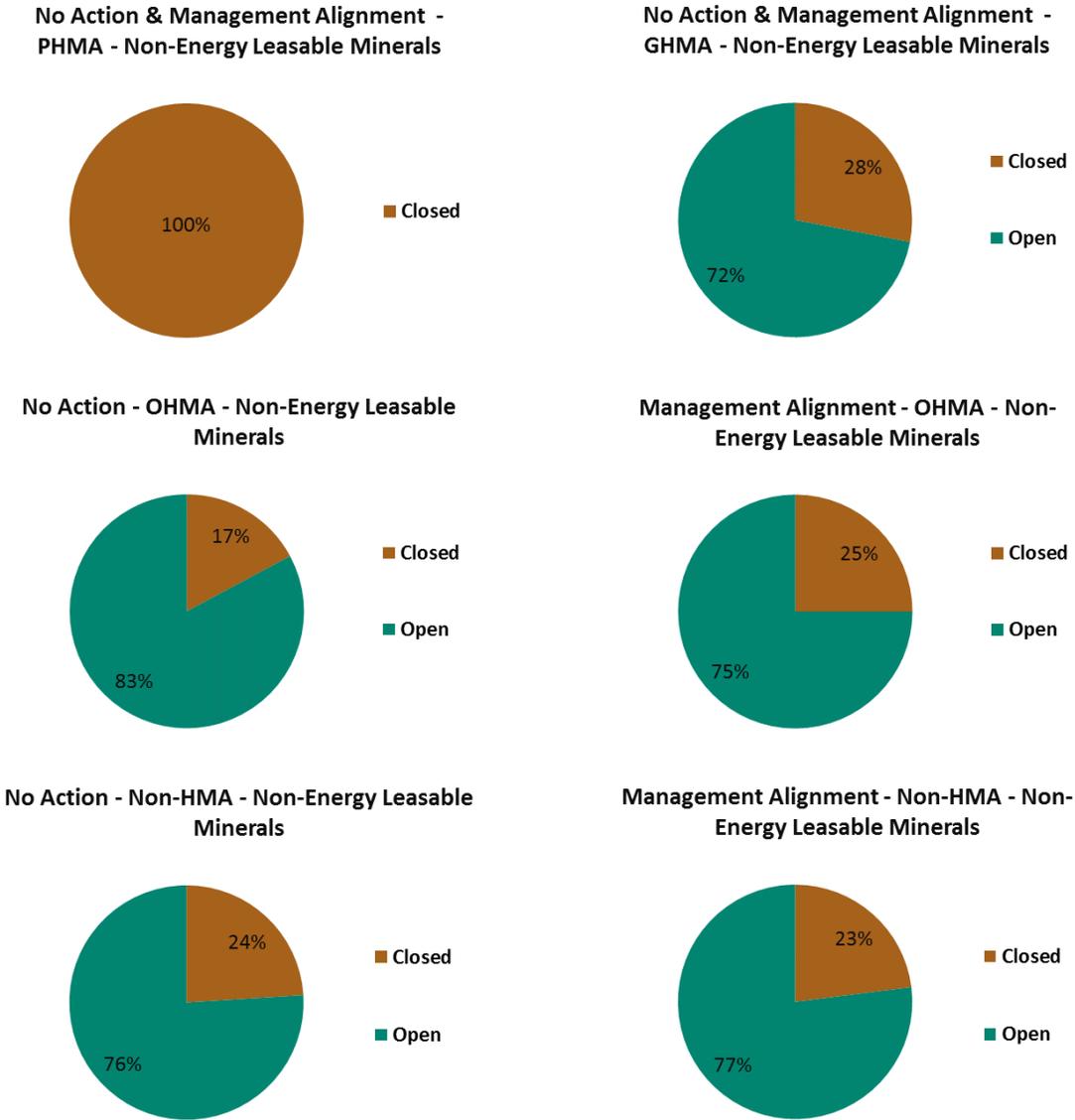


Figure 55 – Non-Energy Leasable Minerals Decisions within MZ V

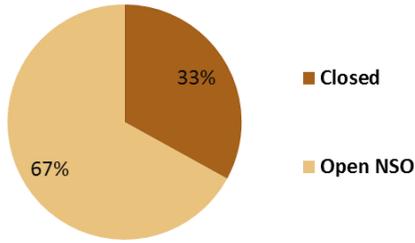
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for final/official acreages.

VII. Fluid Minerals (Oil & Gas)**Table 57 – Fluid Mineral (Oil & Gas) Decisions within MZ V**

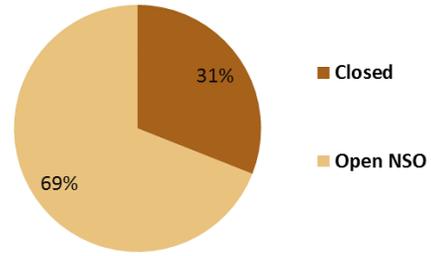
Percentages reflect BLM managed lands. Percentages may not total to 100% due to rounding. All figures and tables are intended for Management Zone summary purposes only. They represent data available at the time of consolidation and may be revised as Plans are finalized. Consult each individual EIS for 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%

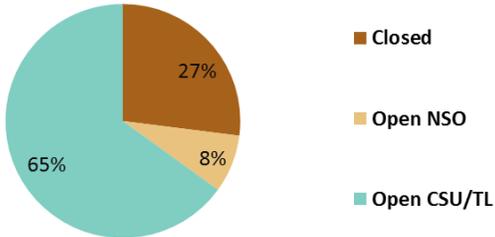
No Action - PHMA - Fluid Mineral Leasing (Oil & Gas)



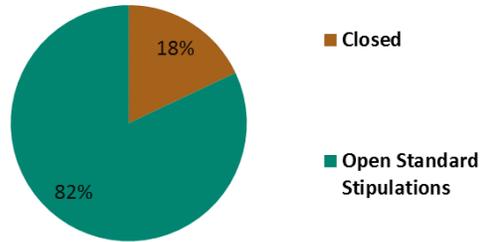
Management Alignment - PHMA - Fluid Mineral Leasing (Oil & Gas)



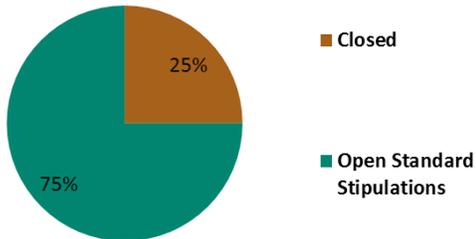
No Action & Management Alignment - GHMA - Fluid Mineral Leasing (Oil & Gas)



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)

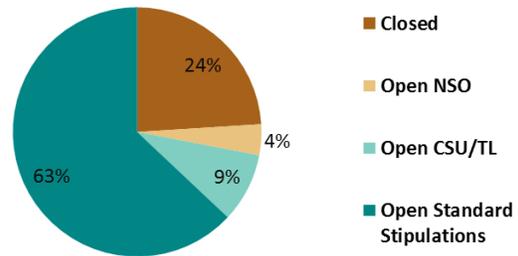


Figure 56 – Fluid Mineral (Oil & Gas) Decisions within MZ V

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.

Management Alignment - Non-HMA - Fluid Mineral Leasing (Oil & Gas)

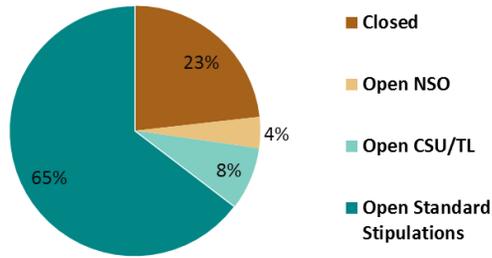


Figure 56 (cont'd) – Fluid Mineral (Oil & Gas) Decisions within MZ V

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%

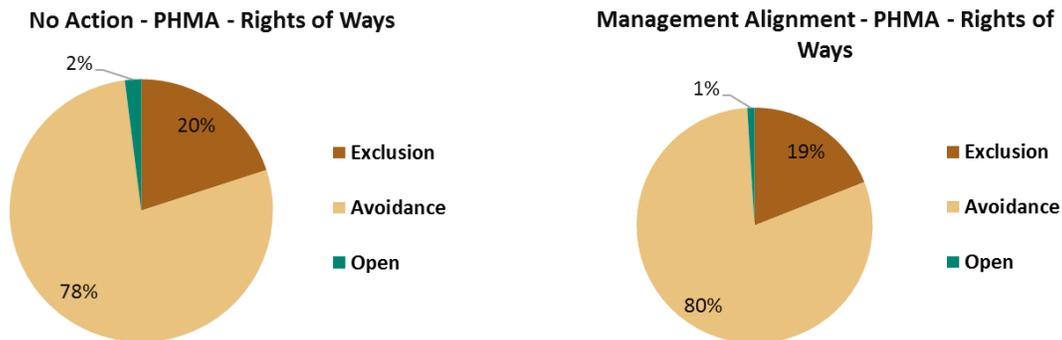


Figure 57 – Rights-of-Ways Decisions within MZ V

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.

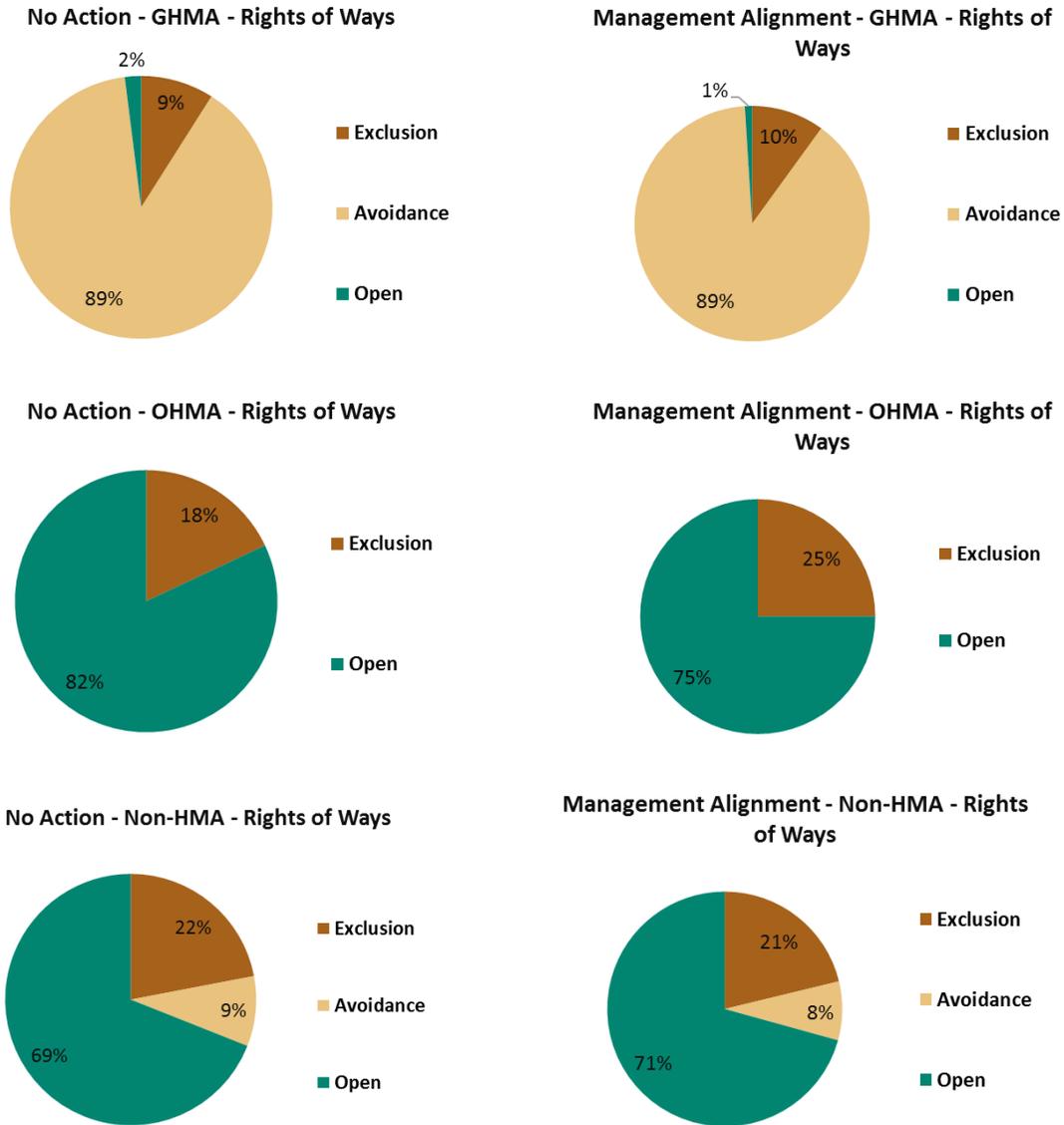


Figure 57 (cont'd) – Rights-of-Ways Decisions within MZ V

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

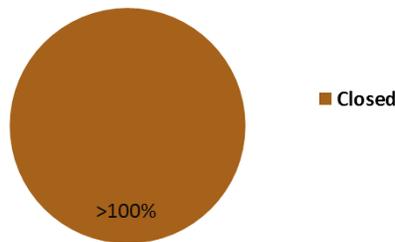
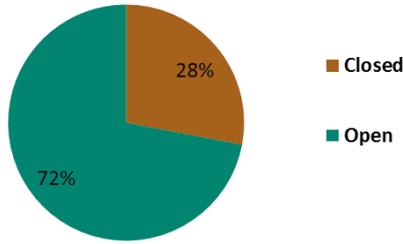


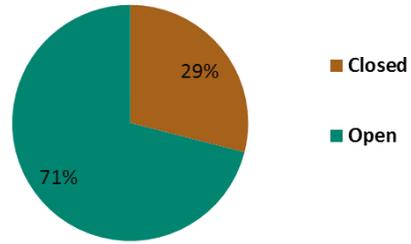
Figure 58 – Salable Minerals Materials Decisions within MZ V

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.

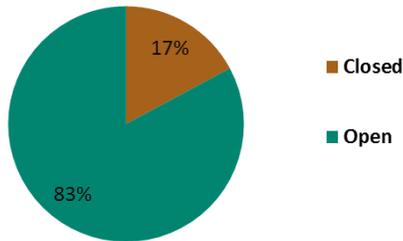
No Action - GHMA - Salable Minerals Materials



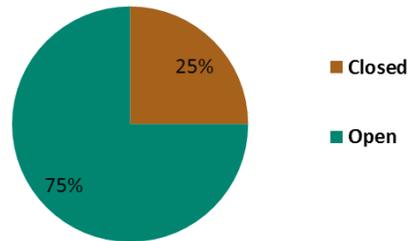
Management Alignment - GHMA - Salable Minerals Materials



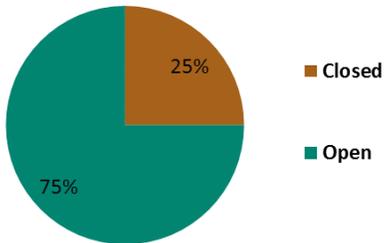
No Action - OHMA - Salable Minerals Materials



Management Alignment - OHMA - Salable Minerals Materials



No Action - Non-HMA - Salable Minerals Materials



Management Alignment - Non-HMA - Salable Minerals Materials

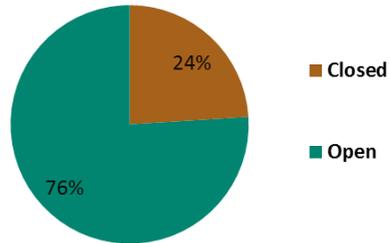


Figure 58 (cont'd) – Salable Minerals Materials Decisions within MZ V

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

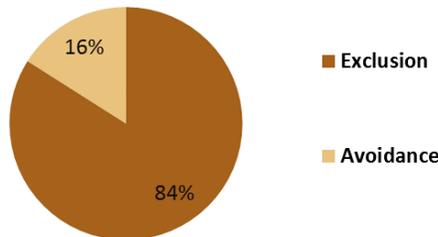


Figure 59 – Solar Energy Decisions within MZ V

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.

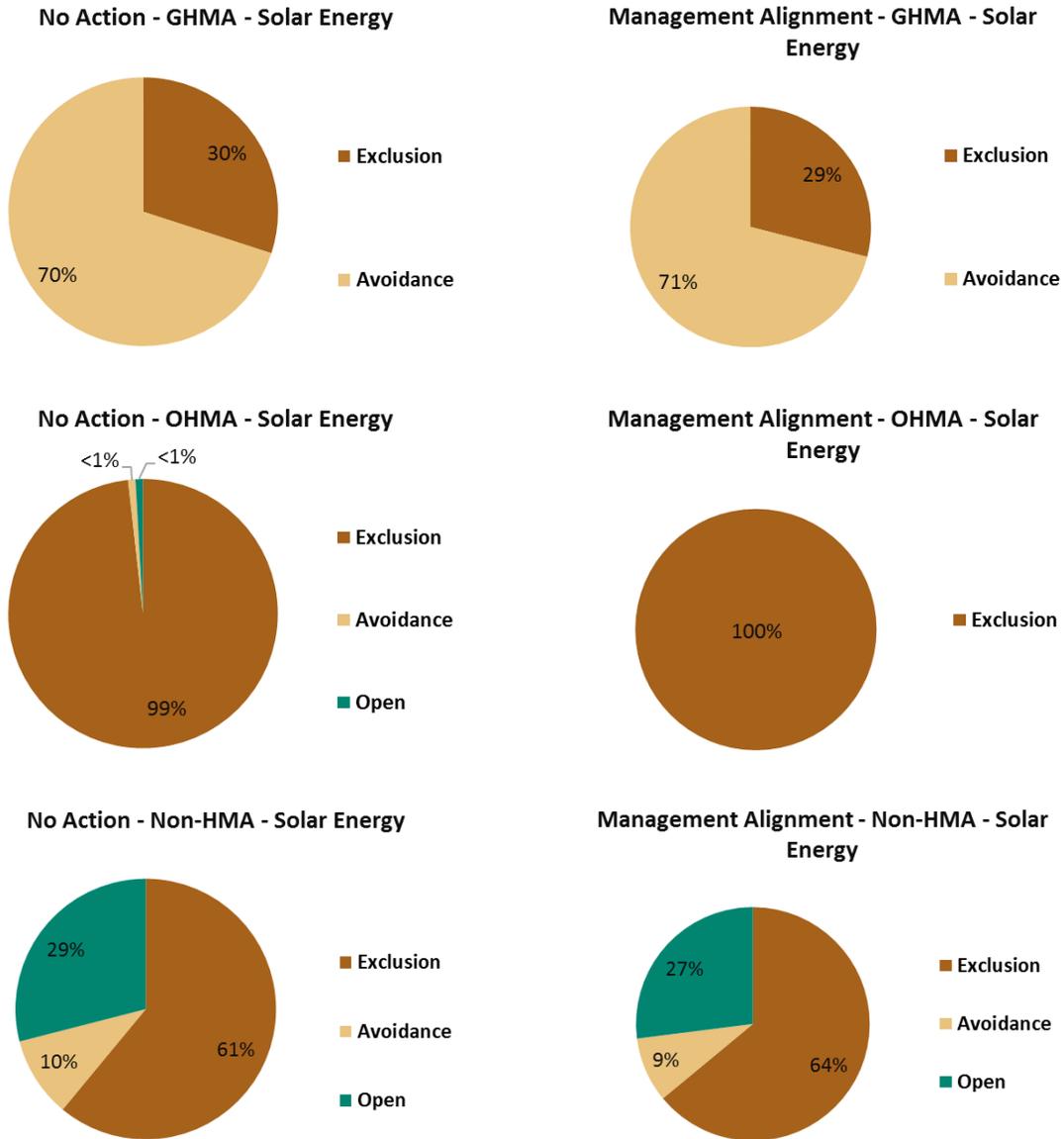


Figure 59 (cont'd) – Solar Energy Decisions within MZ V

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%

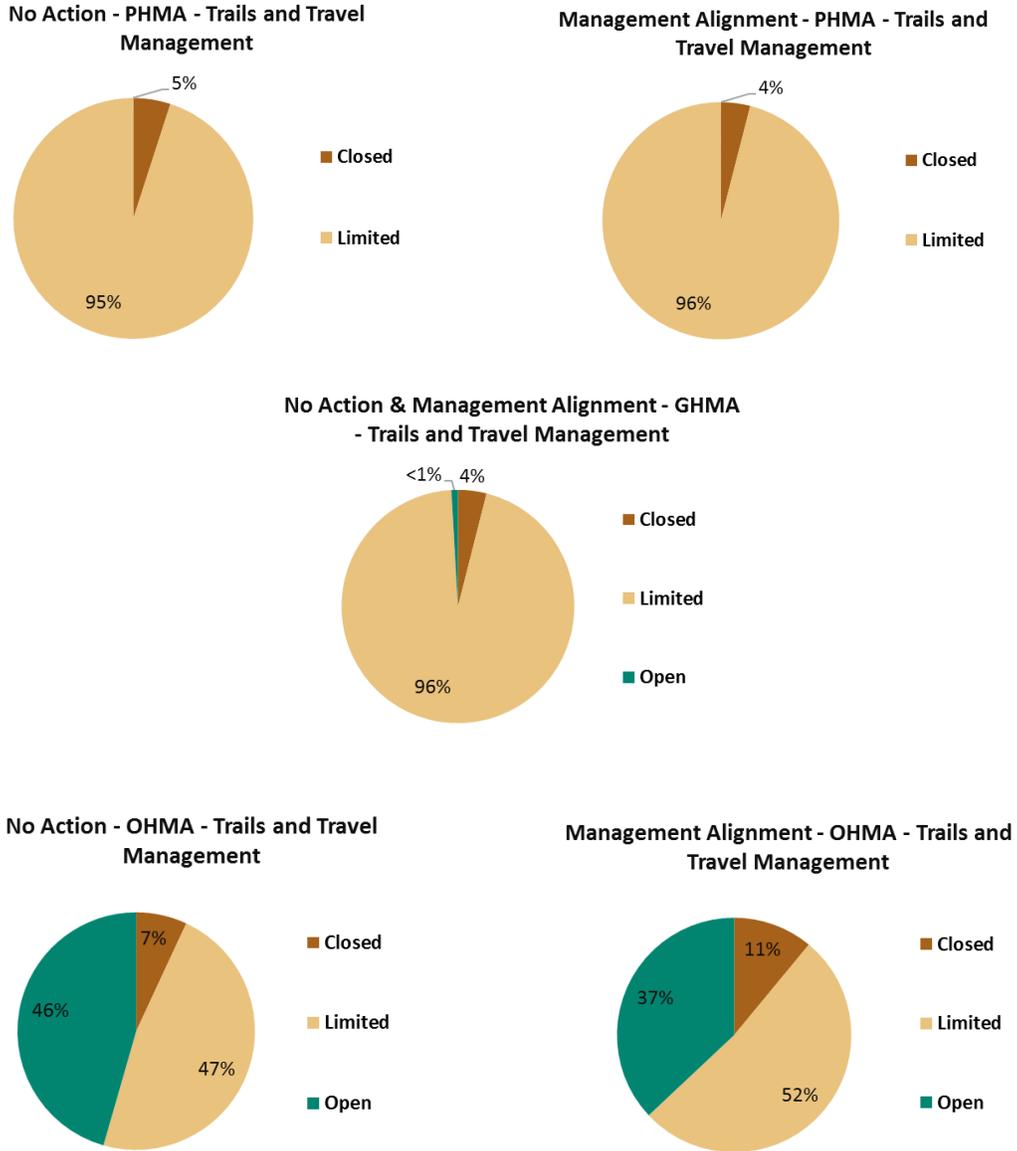
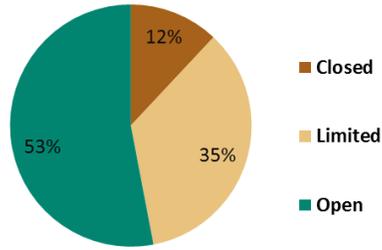


Figure 60 – Trails and Travel Management Decisions within MZ V

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

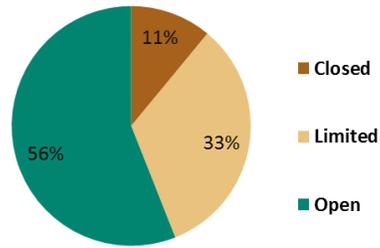


Figure 60 (cont'd) – Trails and Travel Management Decisions within MZ V

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%

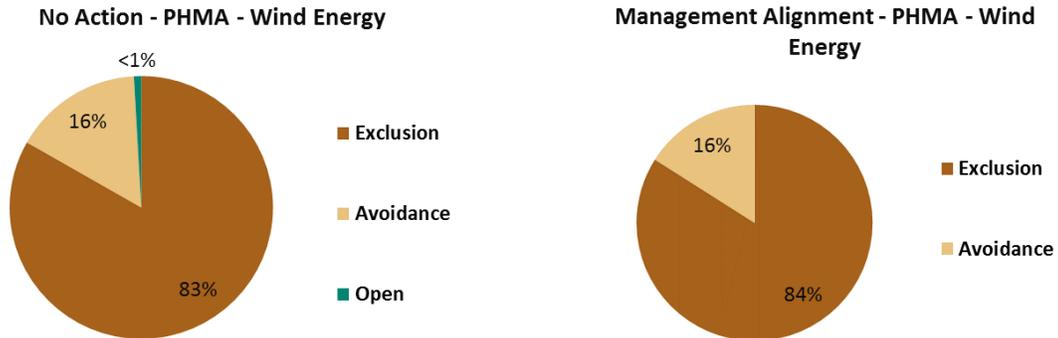


Figure 61 – Wind Energy Decisions within MZ V

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.

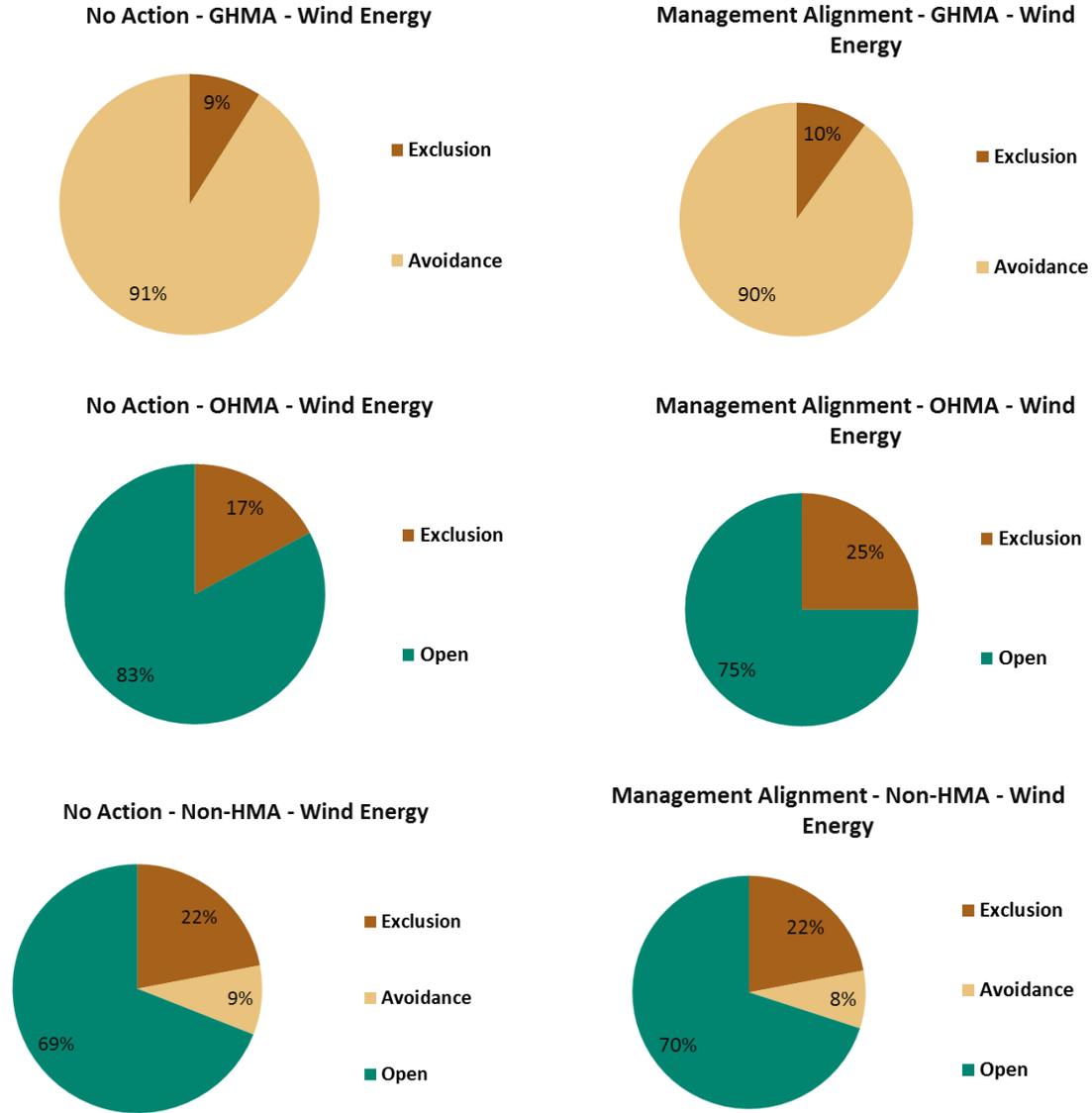


Figure 6I (cont'd) – Wind Energy Decisions within MZ V

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 C

Responses to Substantive Public Comments
on the Draft EIS

Appendix C. Responses to Substantive Public Comments on the Draft EIS

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

C.1 RANGEWIDE COMMENT RESPONSES

C.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.

C.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.

C.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 GRSG conservation. BLM is committed to the continued implementation of Greater 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 at <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.

C.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.

C.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 at <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.

Juliusson, 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

C.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.

C.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.

C.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.

C.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.

C.I.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.

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

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

C.I.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.

C.I.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.

C.I.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.

C.I.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.

C.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.

C.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.

C.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.

C.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.

C.1.19 Prioritization of Mineral Leasing

Summary: No summary—implementation-level decision

C.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.

C.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.

C.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.

C.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.

C.1.24 Greater 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.

C.I.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.

C.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.

C.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.

C.2 OREGON-SPECIFIC COMMENT RESPONSES

C.2.1 Purpose and Need

Summary: A commenter recommended that a commitment to conserve, enhance and restore Greater Sage-Grouse habitat be reflected in the purpose and need statement and in the forthcoming record of decision.

Response: 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 State of Oregon's management. The purpose and need reflects this intent consistent with the agency's mission and Administration's priorities. Therefore, this comment is outside of the scope of BLM's current undertaking. A commitment to conserve, enhance, and restore Greater Sage-Grouse habitat was made in the 2015 ROD for the Oregon ARMPA and the BLM continues to implement management actions to achieve those goals. BLM did not identify any new information suggesting a change to those goals was necessary to improve alignment with state management.

Summary: The all-or-nothing approach fails to meet the Draft EIS's purpose and need statement.

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. The BLM considered 3 additional alternatives, which are described in Section 2.2.2.

Summary: The Final EIS should include the key research purposes of the 2015 ROD/ARMPA. Commenters further recommend the Final EIS summarize the BLM's determination of whether management under previous district management provisions will preclude the BLM from achieving the quoted or specifically referenced key research purposes of the 2015 ROD/ARMPA.

Response: Text has been added to Section 4.5 to better explain the research purpose and whether it could be met without the closure described under the No Action Alternative.

Summary: The Scope of Analysis is limited to grazing on RNAs in this RMPA/Draft EIS. The BLM should address and analyze the additional issues between the 2015 Oregon Greater Sage-Grouse Action Plan and the 2015 ARMPA.

Response: In 2015 the Governor of Oregon had the opportunity to provide a consistency review of the Oregon Final EIS and Proposed RMP and concluded that the Proposed Oregon Plan amendments were consistent with State Laws, Regulations, Policies, and Plans. The purpose of the 2018 national BLM amendment process was to promote alignment and consistency of the BLM's Greater Sage-Grouse plans across the west with state plans and strategies. The Governor of Oregon's scoping letter for the 2018 amendment process re-affirmed that the 2015 Oregon ARMPA was consistent with the State's 2015

Sage-Grouse Action Plan in most important aspects. The Governor's letter also noted that any minor inconsistencies between the two plans could be addressed without a major plan amendment. Oregon BLM is reevaluating one specific decision in the 2015 ARMPA, as described in Sections 1.1 and 1.2 of the 2018 EIS. The BLM did not identify any new information that warranted amendments to the 2015 plans.

Summary: The BLM should clarify if limiting the representation of variable vegetation communities meets the relevant 2015 ROD/ARMPA purposes.

Response: The BLM added text to Section 4.5 addressing whether limiting the number of vegetation communities represented would meet the relevant 2015 ARMPA purposes.

C.2.2 Issues Dismissed from Detailed Analysis

Summary: The justification for issue dismissal was challenged by commenters on numerous issues, including the following:

- The grass and forb height standards to reflect site specific conditions
- Lek buffer distance to be made flexibly based on local conditions.
- Effectiveness of any changes to the mitigation scheme
- Prioritization, unintended impacts, the likelihood of success, and ecological thresholds of restoration and rehabilitation
- WEMs for renewable energy infrastructure or development
- Modifying avoidance areas.
- A deadline-related management response to incentivize more immediate corrective actions when necessary.
- Focal areas were not presented and properly analyzed in the draft RMPA.
- Specific areas within PHMA that warrant additional regulation on a site by site basis.
- Thresholds on grazing permits was not analyzed in the Draft EIS but included in the Final EIS therefore a supplement is required.
- SFAs should be removed
- Predator control should be analyzed in detail.
- All mitigation options must be available to conserve the habitat and populations necessary.

Response: BLM is focused on aligning our management with the states. BLM's stated purpose and need is to achieve consistency with each State's management for Greater Sage-Grouse. The rationale for dismissing certain issue was described in Section 1.2.

Summary: The BLM did not provide an analysis as to why the reference areas are being eliminated.

Response: The analysis includes reasons for why reference areas could be eliminated. These are located in Section 1.2.

C.2.3 Livestock Grazing Management

Summary: There needs to be a stronger emphasis on the threat of invasive species impacting the conservation of Greater Sage-Grouse and less attention on characterizing livestock grazing as a threat.

Response: Text was added to Section 4, stating that the RNA closures are not intended to address any threats to Greater Sage-Grouse that may be present within the RNA boundaries, but are instead used to provide control areas to study grazing effects including the threat of improper grazing. The BLM is currently implementing other actions to address the threat of invasive species across Greater Sage-Grouse habitats.

Summary: Commenters recommend the agencies should provide certainty that they will not modify any grazing permits based on Greater Sage-Grouse population or habitat criteria pending finalization of the land use plan amendments underway. Modifying grazing permits without monitoring and site-specific data establishing causation is unworkable.

Response: BLM regulations and policies allow for continued implementation of existing plans while new plans or amendments are in development, including monitoring, conducting rangeland health assessments, and processing of permit renewals. These types of actions must comply with the applicable plans, policies, regulations, and laws. The 43 CFR 4100 regulations allow for the BLM to make adjustments to livestock grazing at any time when problems arise (e.g. fire, drought, flood, or unusual events). The BLM will continue to implement its grazing permit administration to ensure the agency achieves land health standards. Where the BLM is not achieving its standards, it will assess causal factors and take appropriate action.

Summary: The analysis needs to reflect that RNAs are currently being grazed.

Response: A statement that RNAs are currently being grazed is located at the end of **Chapter 3**. Additional language has been added to ensure it is more explicit.

Summary: The socioeconomic impacts of retiring grazing permits were not adequately analyzed.

Response: Detail was added to section 4.10.

Summary: RNAs should be enlarged for better site protection rather than being opened for livestock grazing.

Response: The enlargement of RNAs is outside the scope of the analysis, because it fails to promote alignment or consistency with the State of Oregon's Greater Sage-Grouse management. Oregon BLM is reconsidering one specific decision in the 2015 ARMPA as described in Sections 1.1 and 1.2 of the 2018 EIS and did not identify new information that would warrant reconsideration of the size of RNAs. A range of alternatives addressing Greater Sage-Grouse conservation and management goals were assessed in the 2015 Final EIS.

Summary: Commenters are concerned that opening RNAs would jeopardize the Greater Sage-Grouse.

Response: In section 4.5, the BLM concluded that grazing has effects to Greater Sage-Grouse habitat; however, properly managed livestock grazing is compatible with managing for Greater Sage-Grouse conservation outcomes. Oregon BLM is reevaluate at one specific decision in the 2015 ARMPA as described in Sections 1.1 and 1.2 of the 2018 EIS.

C.2.4 Reserve Common Allotments

Summary: Livestock should be excluded from RNAs.

Response: Oregon BLM is reconsidering one specific decision in the 2015 ARMPA as described in Sections 1.1 and 1.2 of the 2018 EIS. BLM added 3 additional alternatives in section 2.2.2: reducing the size of grazing exclusions in all 13 RNAs, reinstating grazing in the 5 RNAs with the largest economic impact, and reducing the size the size of grazing exclusions in the 5 RNAs. In section 4.5, BLM concluded that grazing has effects to Greater Sage-Grouse habitat; however, properly managed livestock grazing is compatible with managing for Greater Sage-Grouse conservation outcomes.

C.2.5 Preferred Alternative

Summary: The BLM should avoid making large areas of public lands off limits to productive use.

Response: The No Action alternative closes less than 1% of the land base otherwise open to grazing. The Proposed Plan would remove much of that restriction.

Summary: The BLM should analyze and disclose the impacts under the preferred alternative.

Response: Chapter 4 of the Draft EIS/Final EIS discloses and analyzes the expected impacts of the preferred alternative.

Summary: Commenters advocate for the reintroduction of livestock grazing in the two RNAs that have been closed to grazing.

Response: Reintroducing livestock to RNAs is outside of the scope of the analysis, because doing so fails to promote the alignment and consistency with State of Oregon's management of Greater Sage-Grouse. The BLM has determined that Foster Flat and Guano Creek-Sink Lakes RNAs should remain closed to livestock grazing as described in Section 1-3. In one case the RNA was closed to livestock grazing by Congress and would require an Act of Congress to reopen that area.

Summary: Grazing should be used for vegetative management and habitat enhancement in all 15 of the RNAs.

Response: The use of grazing for vegetation management and habitat enhancement in RNAs is outside of the scope of the analysis, because doing so fails to promote the alignment and consistency with State of Oregon's management of Greater Sage-Grouse. Oregon BLM is reevaluating one specific decision in the 2015 ARMPA as described in Sections 1.1 and 1.2 of the 2018 EIS. The BLM has determined that Foster Flat and Guano Creek-Sink Lakes RNAs will remain closed to livestock grazing as described in Section 1-3.

C.2.6 Range of Alternatives

Summary: The Draft EIS fails to provide the information necessary to ensure informed decision making.

Response: The BLM was unable to discern from this comment(s) what information the commenter thought was missing and was therefore unable to make adjustments.

Summary: The Draft EIS fails to follow through on the issue regarding whether smaller areas of grazing exclusion could still meet the 2015 ARMPA's purposes.

Response: The BLM considered an alternative that would reduce the size of grazing exclusions. This alternative is discussed in Section 2.2.2 and is dismissed from detailed analysis with summary rationale.

Summary: The Draft EIS assumes some socioeconomic impact to individual permittees, but it presents no specific information to support that assumption.

Response: Economic data and information is insufficiently granular to support the BLM in determining exact economic effects on individual permittees. Generally, the BLM is prohibited from asking permittees for private financial information. General economic effects on permittees is presented in Section 4.10 (Socioeconomics). Additional information and analysis were added on the cost of private land lease rates in Oregon.

Summary: The BLM failed to study reinstating grazing only in the five direct economic impacts RNAs as a reasonable alternative.

Response: The BLM considered an alternative that would reinstate grazing to the five RNAs. This alternative is discussed under Section 2.2.2 and is dismissed from detailed analysis with summary rationale.

Summary: The BLM should either select the No Action alternative or develop new alternatives.

Response: In addition to the No-Action alternative and the Proposed Plan Amendment, the BLM considered three additional alternatives. These are discussed in Section 2.2.2: reducing the size of grazing exclusions in all 13 RNAs, reinstating grazing in the 5 RNAs with the largest economic impact, and reducing the size the size of grazing exclusions in the 5 RNAs. These alternatives are dismissed from detailed analysis with summary rationale.

Summary: The BLM should include a conservation alternative.

Response: In addition to the No-Action alternative and the Proposed Plan Amendment, the BLM considered three additional alternatives. These are discussed in Section 2.2.2: reducing the size of grazing exclusions in all 13 RNAs, reinstating grazing in the 5 RNAs with the largest economic impact, and reducing the size the size of grazing exclusions in the 5 RNAs. These alternatives are dismissed from detailed analysis with summary rationale.

C.2.7 Assumptions and Methodology

Summary: The Draft EIS assumes some socioeconomic impact to individual permittees, but it does not present specific information to support the assumption.

Response: Economic data and information is insufficiently granular to support BLM in determining exact economic effects on individual permittees. Generally, the BLM is prohibited from asking permittees for private financial information. Section 4.10 can only discuss general effects. BLM added and analyzed additional information on the cost of private land lease rates in Oregon in Section 4.10.

Summary: The BLM should not remove grazing in the RNAs.

Response: Oregon BLM is reconsidering one specific decision in the 2015 ARMPA as described in Sections 1.1 and 1.2 of the 2018 EIS. BLM added 3 additional alternatives in Section 2.2.2: reducing the size of grazing exclusions in all 13 RNAs, reinstating grazing in the 5 RNAs with the largest economic impact, and reducing the size the size of grazing exclusions in the 5 RNAs.

Summary: The RNA grazing closures should be preserved.

Response: Oregon BLM is reconsidering one specific decision in the 2015 ARMPA as described in Sections 1.1 and 1.2 of the 2018 EIS. BLM added 3 additional alternatives in Section 2.2.2: reducing the size of grazing exclusions in all 13 RNAs, reinstating grazing in the 5 RNAs with the largest economic impact, and reducing the size the size of grazing exclusions in the 5 RNAs.

C.2.8 Livestock Grazing

Summary: The BLM should not remove grazing from the RNAs.

Response: The BLM is investigating the potential to modify federal management to better align with state management - which includes the reduction of livestock in RNAs. Oregon BLM is reconsidering one specific decision in the 2015 ARMPA as described in Sections 1.1 and 1.2 of the 2018 EIS. BLM added 3 additional alternatives in Section 2.2.2: reducing the size of grazing exclusions in all 13 RNAs, reinstating grazing in the 5 RNAs with the largest economic impact, and reducing the size the size of grazing exclusions in the 5 RNAs.

Summary: A commenter recommends the BLM includes in the Draft EIS a summary of the BLMs determination on whether making areas unavailable addresses threats.

Response: Added text to section 4.5 stating that removal of grazing in the 13 RNAs is not intended to address any threats within the boundaries of the RNAs. Grazing was not identified as a primary threat to Greater Sage-Grouse, making RNAs unavailable to grazing does not address a threat.

Summary: The BLM should maintain the 2015 grazing removal in at least the two RNAs.

Response: Oregon BLM is reconsidering one specific decision in the 2015 ARMPA as described in Sections 1.1 and 1.2 of the 2018 EIS.

C.3 RANGEWIDE COMMENTS

C.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.

C.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.

C.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] [I]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-1 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.

C.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.

C.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-I 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.

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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-1 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 (Apa 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 Final EIS 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 cyclicality, 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.

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.

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.")

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 68 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 ("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.

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 cyclicality, 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.

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) 72 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.

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 winddispersed 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 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 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 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 as 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 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 (SynthdSi'S) 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 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 Geological 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 IMPORTANVE 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.I., 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 from 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 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 Gafield 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, loW. 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 (Apa 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.I., 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.

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.

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 1-18. 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 as 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.

C.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

C.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.

C.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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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

C.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.

C.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.

C.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.

C.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.⁶⁷In 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.⁷⁰Retaining 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.⁷¹States 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 though 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.

C.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.

C.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).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.

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.

C.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.

C.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 3.11 Noise 3.11.5.2 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 3.11 Noise 3.11.5.2 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 3.11 Noise 3.11.5.3 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 3.11 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 f 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 PAPA web page (<http://www.wy.blm.gov/jio-papo/>). Instead the analysis drew comparisons only to a study conducted in Lander WY.

C.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.

C.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. I-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.

C.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-I 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 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.

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.

C.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.

C.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 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.

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.

C.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

C.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.

C.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.

C.4 OREGON-SPECIFIC COMMENTS

C.4.1 Purpose and Need

Purpose and Need Statement The purpose and need for the RMP amendments should be expanded to better align with the overall goal-conserving the species and maintaining the U.S. Fish and Wildlife Service's 2015 "not warranted" decision. We recommend the commitment to conserve, enhance and restore sage-grouse habitat be reflected in the purpose and need statement and in the forthcoming record of decision.

The DEIS presents only two alternatives: no action or full grazing. See DEIS at 2-5 (Table 2-2 showing zero acres unavailable for all RNAs except for the two previously-closed ones, Foster Flat and Guano Creek-Sink Lakes). This all-or-nothing approach fails to meet the DEIS's purpose and need statement. See, e.g., *City of Carmel-by-the-Sea v. U.S. Dep't. of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1997) (scope of an alternatives analysis depends on goal of proposed project and requires evaluation of all feasible alternatives that are reasonably related to project's purpose). BLM should study reasonable alternatives that incorporate issues left out of the ARMPA the first time around and also reasonable alternatives that actually address the agency's question whether smaller exclusion areas could satisfy the ARMPA's conservation objectives.

Regarding Issue #2: The DEIS indicates the no-action alternative would cover 48 vegetation communities that would represent the variability of conditions in Oregon's greater sage-grouse habitat.² The DEIS indicates the action alternative would cover nine vegetation communities and provide a limited representation of variability.³ The DEIS does not state whether providing a limited representation of variability would meet stated 2015 ROD/ARMPA purposes. We recommend the Final EIS include a summary of the BLM's determination of whether providing a limited representation of variable vegetation communities meets the relevant 2015 ROD/ARMPA purposes.

Regarding Issue #3: We recommend the Final EIS include the key research purposes of the 2015 ROD/ARMPA. We further recommend the Final EIS summarize the BLM's determination of whether

management under previous district management provisions will preclude the BLM from achieving the quoted or specifically referenced key research purposes of the 2015 ROD/ARMPA.

The purpose of this Land Use Plan Amendment as stated in 1.2, page 1-2, 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/or conservation measures and Department and BLM mitigation policy". Because the Scope of Analysis is limited to grazing on Research Natural Areas (RNAs) in this RMPA/DEIS, the BLM has not met the purpose and need for this action. In order to meet this, the BLM will need to, at a minimum, address and analyze the additional issues and discrepancies between the 2015 Oregon Greater Sage-Grouse Action Plan and the 2015 ARMPA.

Development on existing leases should be managed per regulations that are currently in place, which limit surface occupancy and disturbance. Years of research leaves no doubt that sage-grouse do not do well in close proximity to energy development. More development in the most important habitat will not help conserve the species.

C.4.2 Issues Dismissed from Detailed Analysis

Habitat Objectives Tables 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. Allowing local BLM offices to develop appropriate habitat objectives and consider variability across sites and years will improve implementation and provide the opportunity for results of that implementation to be recognized and rewarded. This approach also provides a collaborative pathway forward.

Mitigation You have requested public comment regarding "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." Mitigation does provide benefits to species whose habitat is impacted by development. When used as intended, mitigation is a tool that results first in avoidance of impacts to important habitats, then in minimization of unavoidable impacts. When compensatory mitigation is appropriately analyzed and applied as an option to offset residual impacts, there are increased opportunities for landowners to participate in programs intended to improve habitats. The full suite of mitigation options, including compensatory mitigation, must be available to conserve the habitat and populations necessary to avoid a future listing under the ESA. Whether compensatory mitigation strategies are addressed in BLM land-use plans, or through other mechanisms such as guidance or memorandums of understanding, the approach should not diminish opportunities for landowners to work with permitting entities and project proponents to improve greater sage-grouse conservation efforts.

[comment:32-25; 105.02]Manage Lek Buffers on a Site-Specific Basis.Lek buffers increased dramatically in size and breadth in terms of restrictions during the plan amendment processes for the 2015 Sage Grouse Plans. If certain areas around leks require closure due to certain activity, such as restrictions on grazing within lek buffers, those areas should be identified and managed on a site-by-site basis. Since there is no single distance that is appropriate for all populations and all habitats across the range, it makes abundant sense to revise the Oregon LUPs so that decisions about distance can be made flexibly based on local conditions, using guidelines that assess the specific topography and vegetation near the lek.[comment end]

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.

In ONDA's earlier comments and its June 29, 2015 administrative protest, it complained that the 2015 ARMPA failed, among other things, to study and include in its plan (1) genetic connectivity corridors and (2) winter habitat within Priority Habitat Management Areas ("PHMA"). In BLM's protest resolution report the agency never discussed genetic connectivity or winter habitat in any protest resolution subsection. An agency must disclose and discuss any "responsible opposing views" and scientific information. 40 C.F.R. § 1502.9(b); *Ctr. for Biol. Diversity v. U.S. Forest Serv.*, 349 F.3d 1157, 1167-68 (9th Cir. 2003).

Any weakening or removal of the existing mitigation scheme would render it ineffective. Moreover, the DEIS fails to assess the effectiveness of any changes to the mitigation scheme. As ONDA explained in its scoping letter, the mitigation hierarchy described in Appendix F of the 2015 ARMPA is already "rooted in flexibility and adaptability." Ultimately, many proposed actions are likely to be approved through avoidance or mitigation of impacts to sage-grouse habitat. For those projects that would create impacts to sage-grouse habitat, the ARMPA describes a system of compensatory mitigation that allows for direct and indirect mitigation to achieve a net-conservation gain. ONDA explained that this "conceptual framework has been the subject of significant effort from Oregon stakeholders since adoption of the ARMPA and is closely coordinated between BLM and the State. Any amendment to the ARMPA changing mitigation would create substantial uncertainty for proponents of development actions, as well as uncertainty for sage-grouse habitat protection." Furthermore, any change to the mitigation hierarchy would create inconsistency and lack of coordination with the State of Oregon's Action Plan for Greater Sage-grouse in direct contradiction to the stated purpose and need for the DEIS.

Population triggers were tripped in eight Priority Areas of Conservation ("PAC") in 2017. Key RNAs occur in five of those PACs. DEIS at 3-5 (Cow Lakes, Crowley, Dry Valley/Jack Mountain, Trout Creeks, Warners). However, BLM determined that while grazing "may" play a role in the Cow Lakes PAC trigger-trip, grazing was not clearly identified as a causal factor for the other four. *Id.* at 3-7. If anything, this again counsels in favor of preserving (and actually implementing) the RNA closures so that we can either continue to confirm when and how grazing is not playing a causal role in declines, or, conversely, to better understand the ways in which grazing may be or is playing a role in such declines. The DEIS also makes clear that there are significant information gaps impairing BLM's analysis. For example, BLM explains that in the Cow Lakes PAC where there was a tripped population trigger, the agency lacked

information to determine what role grazing had in tripping the trigger. DEIS at 3-7. This is because BLM had not yet implemented the 2015 grazing removal, which may have provided relevant information. Again, if anything, this counsels against reinstating grazing in at least the two RNAs that occur within this PAC. Under NEPA, for example, if there is "incomplete information relevant to reasonably foreseeable significant adverse impacts" and it is "essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the [EIS]." 40 C.F.R. § 1502.22(a) (emphasis added); see also 43 U.S.C. § 1711(a) (FLPMA duty to "prepare and maintain on a continuing basis an inventory of all public lands and their resources and other values").

The LUPA has significant flaws in assessing restoration and rehabilitation potential and impacts outside of fire rehabilitation. The document does not address the need to prioritize areas for restoration where natural disturbance such as fire has occurred. It also does not address the need to evaluate unintended negative consequences, as well as the cost and the likelihood of success in restoration projects. The document also does not discuss areas that have crossed an ecological threshold. Specifically, the GRSG LUPA in (at least) Oregon include the following Goal and Objective which demonstrate these flaws / consequences: Goal VEG 2: Within Greater Sage-grouse habitat, re-establish sagebrush cover, native grasses, and forbs in areas where they have been reduced below desired levels or lost. Use ecological site descriptions to determine appropriate levels of sagebrush cover and appropriate native grasses and forbs. Objective VEG 5: Increase native plant diversity (number of species) to at least 50 percent of the potential diversity listed for the relevant ecological site description and sagebrush cover where it is less than 15 percent in half of crested wheatgrass seedings in PHMA. If existing diversity equals or exceeds 50 percent of potential diversity, no forb restoration is needed.

Table ES-2 identifies issues and corresponding resource topics addressed in the DRMPIDEIS. Significantly, issue number 5 addresses waivers, exceptions, and modifications to no-surf ace-occupancy ("NSO") stipulations that apply to fluid minerals. However, as noted above, the 2015 plan essentially creates no-surf aceoccupancy for wind energy by designating all PHMA as exclusion areas. The DRMPIDEIS fails to explain why it is addressing waivers, exceptions, and modifications to NSO stipulations for fluid minerals but does not address waivers, exceptions, and modifications for the equivalent NSOs in the context of wind energy. The final EISIRMP should specifically address the need for waivers, exceptions and modifications to allow wind energy development and transmission siting in exclusion areas. This change would be consistent with Governor Otter's sage-grouse plan which is the stated basis for the flexibility in the NSO stipulations in the context of fluid minerals. Specifically, Governor Otter's plan, at DRMPIDEIS Appendix I, allows for the development of infrastructure in priority habitat where that infrastructure project could "demonstrate, among other things, a significant high value benefit to the State of Idaho as well as provide compensatory mitigation consistent with the guiding principles above." Appendix I at 25. The Governor recommended a key criterion for obtaining an exemption to an exclusion requirement - where the project proponent can demonstrate that the project will provide a high value benefit to meet critical existing needs and/or important societal objectives to the State of Idaho. Id. at 27. Further, the Governor's alternative recognizes that "federal officials are not well-positioned to determine whether a project under this exemption provides a 'high value' benefit to the State." Id. The Governor calls for the creation of an Implementation Commission to determine what is of high value to the State and its economic vitality. Id. Consequently, the Governor's plan provides an opportunity for LS Power to demonstrate the high value benefits to the State and its economy from 5 the development of wind energy and transmission in Idaho. Given the President's and the Secretary's emphasis on domestic energy production, including renewable energy, it is

recommended that the BLM follow the Governor's approach and provide an opportunity for infrastructure in PHMA to demonstrate its societal benefits, as would be consistent with the type of flexibility that is granted in the DRMPIDEIS to fluid mineral production. Not to do so would infer that the BLM has concluded wind energy development to be more impactful than fluid mineral production. LS Power is not aware of any body of evidence supporting this conclusion. The Governor's plan further outlined how infrastructure could be developed in priority habitat in situations where the development could (1) not be reasonably accomplished outside of core habitat, (2) demonstrate that the sage-grouse population was stable or increasing over a three-year period, (3) ensure that project impacts would not accelerate or cause a population decline within the relevant area, (4) co-locate with existing infrastructure to the maximum extent practicable, and (5) mitigate unavoidable impacts through compensatory mitigation. *Id.* at 33-34. Again, this logical, step-by-step approach provides an opportunity for a project proponent to show that its project can avoid, minimize or compensate for impacts to sage-grouse and, if so, locate within PHMA habitat without the threat of outright prohibition based upon gross scale habitat maps creating exclusion zones. For these reasons, the BLM should reconsider its position within the DRMPIDEIS that wind energy development in PHMA does not require additional analysis. (DRMPIDEIS at ES-4.) Similarly, BLM should reevaluate its decision not to conduct additional analysis on the imposition of avoidance area zoning on rights-of-way in PHMA. *Id.* Failure to do so leaves in place those Obama Administration policies. *Id.* at ES-5.

We, therefore, recommend the BLM consider a deadline-related management response to incentivize more immediate corrective actions when necessary, and to discuss this in the FEIS. Consider, for example, turning a soft trigger monitoring result into an automatic hard trigger management response if relevant soft trigger adaptive management deadlines are not met.

Livestock grazing has never been a primary sage grouse threat. See 2013 Utah Conservation Program (noting decrease of grazing with corresponding decrease in birds); Wyo. E.O. 2015-04 (grazing is de minimus activity); and others. Yet grazing is treated as a primary threat. If the BLM LUPAs were to truly address threats to sage grouse, there would be a much greater emphasis on management of wild horse populations, the threat of invasive species (such as juniper encroachment), wildfire prevention (such as hazardous fuel treatments) and predator control.

Sagebrush Focal Areas: These areas were not presented in the RMPA draft and were not properly analyzed. There are already several levels of sage-grouse habitat with associated restrictions. If there are specific areas within PHMA that warrant additional regulation, address those areas on a site by site basis.

Thresholds on grazing permits: This was added in the Final RMPA and not included in the draft. The public did not have an opportunity to comment on this action. The BLM already had the authority under current grazing regulations to make immediate changes to livestock management if grazing management is deteriorating habitat. Additional thresholds are unnecessary.

The Oregon State Plan does not designate Sagebrush Focal Areas (SFA). However, the BLM has designated 1,929,580 acres as SFA in Oregon (2015 ARMPA; MD SSS 2; page 2-6). The SFAs have even greater management restrictions than even the Preferred Habitat Management Areas (PHMAs). SFAs were not presented in the 2015 Draft RMPA and were not properly analyzed. There are already several levels of sage-grouse habitat with associated restrictions. We understand that SFAs are being removed in several states as part of the sage-grouse plan review process. For these reasons, and many others, SFAs should be removed from the Oregon ARMPA.

Section 1.2, page 1-7 of the 2015 ARMPA states the major threats to sage-grouse. Predation is not listed, yet much of the monitoring components of HAF/AIM and Habitat Objectives focus on vegetative cover attributes. Cover is essential when predation is a major factor in the decline of a prey species. If the BLM and the United States Fish and Wildlife Service (RMPA Section 1.2, pgs. 1-7: COT Report (USFWS 2013a)) do not recognize predation as a causal factor in the decline of this species, why is so much emphasis placed on cover and stubble height objectives?

Predation- BLM attempts to absolve the agency from the responsibility of addressing the problem in the 2015 ARMPA by stating the BLM is responsible for managing habitat only and the ODFW is responsible for managing animals. Predator control was eliminated from any detailed analysis in the Draft 2015 RMPA. However, the public is aware of the various studies on sage-grouse with telemetry, actually trapping birds and tracking them. Many of these types of studies are funded by the BLM and BLM biologists are active participants. The agency biologists confer and make recommendations on predator control.

The ARMPA failed to address the primary threats to Greater Sage-Grouse (GRSG) and GRSG Habitat of wildfire, invasives (annual grasses and other noxious weeds) and conifer (primarily western juniper) encroachment (2015 RMPA pgs. 1-7 to 1-8: COT Report (USFWS 2013a)). Instead, the final ARMPA increased regulatory measures on many of the secondary threats and on perceived threats that are not pertinent.

C.4.3 Livestock Grazing Management

There is no rational reason under the Federal Land Policy and Management Act ("FLPMA") to close certain areas to livestock grazing on a large land scale, particularly where proper grazing is compatible with the ecology of the local areas. We are further concerned that incorrect assumptions and speculation, rather than science, is being used to support these broad closures. Many RNAs have accommodated livestock grazing since their inception, which has been found to be compatible with GRSG conservation by reducing fuels, helping to control the spread of invasive species, and maintaining rangeland health. BLM should more explicitly recognize that livestock grazing practices complement Sage-Grouse conservation and may improve habitat by sustaining a diversity of plants that are important to Sage-Grouse and by reducing the risk of wildfire that destroys the habitat.

Livestock grazing has never been a primary GRSG threat. Yet grazing is treated as a primary threat. Draft Oregon RMPA/EIS at 4-14. If the BLM LUPA amendments are to truly address threats to GRSG, there should be a much greater emphasis on the threat of invasive species (such as annual grasses), juniper encroachment, wildfire prevention (such as hazardous fuel treatments), and predator control.

Fuel Treatments. Although wildland fire threats were discussed in the 2015 Final EIS, over the past several years "there has been more habitat lost to wildfire than has been gained through treatment." Draft Oregon RMPA/EIS at 3-7. The draft RMPA projects that BLM nationally intends to implement more habitat improvements, and that strategies such as the Great Basin Ecosystem Strategy will be prepared for fuel breaks and fuels reduction and rangeland restoration and to "further define the tools and priorities for these activities." OCA and OFB believe that the Draft Oregon RMPA/EIS should more explicitly address and promote the use of grazing in combination with conservation efforts to the maximum extent possible. Properly managed grazing practices are effectively used to reduce fuel loads and reduce the severity and frequency of wildfire.

Grazing permits in grazing districts should be made available for grazing by a bona fide stock owner who qualifies for preference as set out in the Taylor Grazing Act. BLM should follow existing laws and authorities related to permit retirement. Plan amendment language should be clarified to reflect this and not expand upon that authority. Where voluntary permit relinquishment occurs, BLM would normally make lands available to another potential permittee or lessee. Plan amendment language should recognize this while also recognizing the ability to consider other options within the scope of established law, including consistency with referenced Oregon laws: ORS 215.243(2); OAR 660-015-0000(3) (Statewide Land Use Planning Goal 3 -Agriculture); OAR 660-015-0000(9) (Statewide Land Use Planning Goal 9 - Economic Development). Permit retirements increase risks to GRSG by removing livestock grazing as a key tool to manage fuel loads and noxious weed management by permit holders. Retirements also undermine the rural communities that depend on livestock grazing and the ranching community as a key driver of their local economy. This has a direct effect on our economically depressed rural communities who depend on ranches as a key component of their tax base.

Grazing Season Language. Language under the 2015 Sage Grouse Plans about timing and location of livestock turnout impacting livestock concentrations on leks during the breeding season is also vague and unclear and leads to uncertainty and ambiguity for ranchers and agency range staff. Appendix C page 6 states, "Do not concentrate livestock in nesting habitat or leks from March 1 through June 30. The timing and location of livestock turnout and trailing should not contribute to livestock concentrations on leks during the GRSG breeding season." We suggest clarifying this existing text, with the following addition: "This pertains to things like mineral placement, point of introduction to the pasture, and active management actions that concentrate livestock, it is not to be interpreted that the presence of livestock in a pasture during the March 1 through June 30 timeframe at normal rangeland densities is inappropriate."

The agencies should provide certainty that they will not modify any grazing permits based on GRSG population or habitat criteria pending finalization of the land use plan amendments underway. For all of the reasons set forth in these comments, modifying grazing permits without monitoring and site-specific data establishing causation is unworkable.

LIVESTOCK GRAZING IN RESEARCH NATURAL AREAS The only change proposed in the Oregon DEIS is to make an additional 22,000 acres available for grazing in all or portions of thirteen key BLM Research Natural Areas (RNAs). Oregon DEIS at 2-4. In fact, however, no actual management change or impact would occur on the ground, since permitted grazing has not already been formally removed from the key RNAs. Id. at 4-15. While we do not oppose this change, it is difficult to determine the overall impact of the proposed amendment because a good deal of pertinent information is not available. This includes needed rangeland health assessments. We recommend that for the final plan amendment and EIS, BLM collect and present as much of this information as possible to ensure a more comprehensive record.

Any decision from this process would amend all Plans to remove any elements as related to permitted livestock grazing, and to defer GRSG management to the BLM via continued implementation of 43 C.F.R. Part 4100, subpart 4180. See Issue #2. This language was pushed from the top down and needs removed. Table 2-2 was intended to provide objectives for habitat conditions. These documents continually elevate livestock grazing to a primary threat, and utilize Table 2-2 as Standards not objectives. This management direction furthers that misguidance.

The largest change that has occurred is the modification to livestock grazing decisions with Research Natural Areas (RNAs). In No-Action Alternative based on the 2015 FEIS, 21,959 acres in 13 key RNAs would have been unavailable for livestock grazing. Now, through collaboration with the State and stakeholders, the Bureau wants to modify livestock grazing decisions within RNAs. In the Bureau's Preferred Management Alignment, those 21,959 acres are now available. Another change is that fewer RNAs will be managed as undistributed baseline reference areas for the sagebrush plant communities, but this will leave the Greater Sage-Grouse vulnerable. Furthermore, the management direction that set guidelines for grazing would be deleted. Instead the Bureau would manage by pre-2015 ARMPA and other appropriate 2015 ARMPA decisions. American Bird Conservancy believes incorporating aspects of the conservation alternative that provide more protection for RNAs to enhance protection for the Greater Sage-Grouse in Oregon.

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 Oregon to include this conservation alternative.

Lek Buffers- The restrictions placed on lek buffers defined in the 2015 RMPA have no basis in science or historical frame of reference. Leks have been successful with livestock grazing throughout history. This should not be an issue with current grazing management if decisions are science based and logical. For these reasons, the artificial distance termed "Lek Buffer" in the 2015 RMPA should be removed as an Amendment within the 2018 DRMPA/DEIS.

Section 3.3- Population triggers in 8 Priority Area for Conservation (PACs) were tripped in 2016 and 7 PACS in 2017. Foster Flat RNA is located in the Dry Valley/Jack Mountain PAC that tripped the hard population trigger in 2017. Foster Flat RNA encompasses 2,687 acres that has been closed to grazing (both livestock and wild horses) since 1994. In the Cow Lakes PAC, the soft trigger for habitat and population were both tripped in 2016-2017 which resulted in tripping a combined hard trigger. The interdisciplinary team for the Cow Lakes PAC "lacked sufficient information to determine what role, if any, current grazing practices and the condition of allotments may be playing..." (pg. 3-7) Both of these instances further solidify that livestock grazing is not a causal factor in sage-grouse population decline or habitat degradation.

Harney SWCD agrees that mining should continue under preexisting regulation as mining and mineral withdrawal activities are not causal factors in the decline of the sage-grouse population and should not have been addressed in the ARMPA. However, neither was grazing a causal factor. Therefore, grazing restrictions regarding SFAs should also be removed from the ARMPA.

I am very opposed to the proposal to open up Research Natural Areas to livestock grazing, logging or mining. I worked with these areas in Oregon and other states. It is very important to maintain these natural benchmarks for scientific study, monitoring (control areas for comparison to managed areas), protection of native species and ecosystems, and their aesthetic and spiritual values. Relatively speaking, these areas are minuscule in size and if anything some should be enlarged for better site protection.

C.4.4 Reserve Common Allotments

Substantial evidence exists to suggest that exotic animals, including livestock that we brought from Europe significantly modify the landscape. RNAs provide opportunities to observe how landscapes change in the absence of livestock grazing. They are one of the only areas in which this is possible.

I am an ecosystem scientist with expertise in forestry and a number of related fields. Research Natural Areas are critical reference areas for natural processes and for understanding how ecosystems respond to a variety of important Earth system changes such as climate change, and recovery from natural disturbances. They also protect rare botanical, geological or other sensitive natural areas that are critical to preserving landscape biodiversity and representations of rare habitats. Maintaining areas for research purposes is thus imperative to having robust scientific information about Sage Steppe Ecosystems.

Reserve Common Allotments (grass banks) - The exact verbiage in the 2015 ARMPA, MD LG 15 is, "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 a reserve common allotment. This does not apply to or impact grazing preference transfers, which are addressed in 43 CFR, Part 4110.23." Harney SWCD appreciates the fact that between the draft RMPA and the final, the BLM added clarification that this does not impact grazing preference transfers. However, that additional wording does not alleviate the main concerns in this MD. The key phrase is "or be used for other management objectives, such as reserve common allotments", it does not state that they will be used as common allotments (grass banks), they could also be used in a myriad of other ways such as permanent retirement, wherein livestock grazing would be permanently removed. Not only would such an action be detrimental to rural community economics and that of the cattle industry, it may very likely increase catastrophic wildfire threats (#1 threat to sage-grouse) and subsequently lead to an increase in invasive species (#2 threat to sage-grouse). Of equal importance, the retirement of a permit in this way is in direct violation of the Taylor Grazing Act of 1934 as amended, and the Federal Land Policy and Management Act (FLPMA) of 1976 as amended.

C.4.5 Waivers, Exceptions, Modifications for Development Actions within Priority Habitat

In evaluating the prospect for flexible operations within designated habitat management areas for GRSG, a similar test for a waiver, exception, or modification for PHMA could be developed by BLM as is utilized for destruction or adverse modification of critical habitat. To provide for operational flexibility in correctly-designated HMAs, the overall range of the GRSG must be considered with respect to flexibility for site-specific activities.

The 2015 Oregon sage-grouse plan include numerous stipulations that apply to development to protect sage-grouse and sage-grouse habitat, including no surface occupancy stipulations, timing limitations and surface use limitations.³ The protections provided by the stipulations, however, are only reliable and effective to the extent that the safeguards are applied. It is especially important to fully consider waivers, exceptions, and modifications (WEM) in Sagebrush Focal Areas (SFA) where an NSO stipulation applies to oil and gas leasing with no WEMs permitted. We can accept narrowly prescribed WEMs to lease stipulations that are based on very specific criteria. But broad standards, such as those currently included in the Nevada Draft RMP Amendment/EIS, are not acceptable. As an example, the conditions

included in the Draft Colorado RMP Amendment related to no surface occupancy stipulations are very 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 occur because of terrain or habitat type - but can only be applied after consultation with Colorado Parks and Wildlife. Colorado Draft RMP Amendment/EIS, pp. 2-4 - 2-5. Citation 3 See, e.g., 2015 Oregon Plan, pp. 2-22-2-25 (Mineral Resources) 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. WEMs should only be granted from NSO stipulations, or any stipulations in PHMA, after a 30-day public notice and comment period. Further, the FWS should have the opportunity to submit information for consideration prior to granting any WEMs. Finally, it is critical that BLM track WEMs 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 WEMs on the overall function of the plans. This information will also allow BLM to determine if the availability of or criteria for granting WEMs needs to be further narrowed in order to ensure sufficient protection for sage-grouse habitat. The 2018 U.S. Geological Survey Synthesis of sage-grouse science states, 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 vary based on the size, intensity and persistence of the human activity, and can range from displacement to local extirpation of sage-grouse.⁴ Accordingly, we recommend that the Oregon 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 Utah Division of Wildlife Resources. * 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 Utah Division of Wildlife Resources. * Prior to granting any WEMs, BLM will insure that the FWS has the opportunity to submit information for consideration. * For NSO stipulations or stipulations in PHMA, WEMs will only be granted following a 30-day public notice and comment period. * BLM will maintain an ongoing record of requests for WEMs and whether those requests are granted and will publish those cumulative results on a quarterly basis.

The 2015 Oregon sage-grouse plan include numerous stipulations that apply to development to protect sage-grouse and sage-grouse habitat, including no surface occupancy stipulations, timing limitations and surface use limitations.³ The protections provided by the stipulations, however, are only reliable and effective to the extent that the safeguards are applied. It is especially important to fully consider waivers, exceptions, and modifications (WEM) in Sagebrush Focal Areas (SFA) where an NSO stipulation applies to oil and gas leasing with no WEMs permitted. We can accept narrowly prescribed WEMs to lease stipulations that are based on very specific criteria. But broad standards, such as those currently included in the Nevada Draft RMP Amendment/EIS, are not acceptable. As an example, the conditions included in the Draft Colorado RMP Amendment related to no surface occupancy stipulations are very 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 occur because of terrain or habitat

type - but can only be applied after consultation with Colorado Parks and Wildlife. Colorado Draft RMP Amendment/EIS, pp. 2-4 - 2-5. Citation 3 See, e.g., 2015 Oregon Plan, pp. 2-22-2-25 (Mineral Resources) 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. WEMs should only be granted from NSO stipulations, or any stipulations in PHMA, after a 30-day public notice and comment period. Further, the FWS should have the opportunity to submit information for consideration prior to granting any WEMs. Finally, it is critical that BLM track WEMs 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 WEMs on the overall function of the plans. This information will also allow BLM to determine if the availability of or criteria for granting WEMs needs to be further narrowed in order to ensure sufficient protection for sage-grouse habitat. The 2018 U.S. Geological Survey Synthesis of sage-grouse science states, 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 vary based on the size, intensity and persistence of the human activity, and can range from displacement to local extirpation of sage-grouse.⁴ Accordingly, we recommend that the Oregon 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 Utah Division of Wildlife Resources. * 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 Utah Division of Wildlife Resources. * Prior to granting any WEMs, BLM will insure that the FWS has the opportunity to submit information for consideration. * For NSO stipulations or stipulations in PHMA, WEMs will only be granted following a 30-day public notice and comment period. * BLM will maintain an ongoing record of requests for WEMs and whether those requests are granted and will publish those cumulative results on a quarterly basis.

The 2015 Oregon sage-grouse plan include numerous stipulations that apply to development to protect sage-grouse and sage-grouse habitat, including no surface occupancy stipulations, timing limitations and surface use limitations.³ The protections provided by the stipulations, however, are only reliable and effective to the extent that the safeguards are applied. It is especially important to fully consider waivers, exceptions, and modifications (WEM) in Sagebrush Focal Areas (SFA) where an NSO stipulation applies to oil and gas leasing with no WEMs permitted. We can accept narrowly prescribed WEMs to lease stipulations that are based on very specific criteria. But broad standards, such as those currently included in the Nevada Draft RMP Amendment/EIS, are not acceptable. As an example, the conditions included in the Draft Colorado RMP Amendment related to no surface occupancy stipulations are very 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 occur because of terrain or habitat type - but can only be applied after consultation with Colorado Parks and Wildlife. Colorado Draft RMP Amendment/EIS, pp. 2-4 - 2-5. Citation 3 See, e.g., 2015 Oregon Plan, pp. 2-22-2-25 (Mineral Resources) 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. WEMs should only be granted from NSO stipulations, or any stipulations in PHMA,

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* Do not strip the fundamental mitigation goal of "net conservation gain" from the plans. A no net loss of habitat merely prevents additional habitat loss and is not adequate to achieve long-term conservation of sage-grouse.

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C.4.6 Preferred Alternative

The 2015 ROD identified locations of 15 key RNAs in the larger planning area for Oregon. Although the draft Oregon RMPA proposes not to eliminate grazing in 13 of those RNAs, the elimination of grazing is still slated for two RNAs. Foster Flat in the Burns District and Guano Creek-Sink Lakes in the Lakeview District are RNAs that are proposed to remain closed to livestock grazing. OCA and OFB oppose any proposed management direction that serves to maintain closure of these two remaining RNAs to grazing as arbitrary and not supported by science. Instead, as with the proposal for the 13 RNAs, grazing should be incorporated into conservation practices to allow grazing management flexibility. Grazing should be used to assist in achieving conservation strategy, vegetation management, and fire management. BLM should avoid making large areas of public lands off limits to productive land use and this management tool under the guise of "undisturbed baseline reference areas." Draft RMPA/EIS at 2-4.

Here, BLM acknowledges that removal of grazing from key RNAs "has not been implemented and impacts to livestock grazing have not yet been realized." DEIS at ES-8. The DEIS states that if BLM selects the preferred alternative, "no actual management change or impact would occur on the ground since grazing has not been formally removed from the key RNAs." Id. In other words, BLM contends that selecting the preferred alternative would have no environmental impact because it represents no change to current conditions. While this may be true on the ground, BLM should disclose and analyze that the impacts to RNAs under the preferred alternative will actually be a lack of recovery from grazing if grazing is allowed to continue. The same is true with regard to the lack of ungrazed reference areas. Although selecting the preferred alternative technically just continues the current lack of closure of these thirteen ungrazed reference areas, the DEIS elsewhere makes clear enough what BLM is foregoing

by not selecting that alternative: uniquely important reference (i.e., baseline) areas to evaluate the impacts of livestock grazing on sage-grouse. See, e.g., *S. Fork Band Council of W. Shoshone v. U.S. Dep't of Interior*, 588 F.3d 718, 725-26 (9th Cir. 2009) (decision approving a proposal to extend gold mining activities was unlawful because "BLM is incorrect in asserting that these effects need not be considered simply because no change in the rate of shipping and processing is forecast. That may be so, but the mine expansion will create ten additional years of such transportation that is, ten years of environmental impacts that would not be present in the no-action scenario."). The same is true here: although selecting the preferred alternative may not change the on-the-ground fact of continued grazing, a true "hard look" at the environmental consequences of that choice would contrast that with what should be the more environmentally-protective status quo-no grazing in the RNAs.

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The OBSC encourages the BLM to select the Management Alignment Alternative for its proposed RMPA and final EIS by following Oregon's conservation plan for habitat. Because of the importance of grazing on public lands to the communities in Malheur County and the surrounding counties, we ask that

you continue to keep the RNAs being grazed now, open. The OBSC believes that several public and private partnerships aimed at protecting Sage Grouse habitat and existing BLM management policies are adequate, without adding additional layers of restrictions on those who have permits and assist in taking care of the land.

Chapter 2: Alternatives- Harney SWCD supports the preferred Alternative B, the Management Alignment Alternative, and return livestock grazing to 13 RNAs. We also advocate for the re-introduction of prescribed livestock grazing in the two RNA's that have been closed to grazing for decades (Foster Flat RNA and Guano Creek-Sink Lakes RNA). Livestock grazing can be used and should be used for vegetative management and habitat enhancement in all 15 of the RNAs.

C.4.7 Range of Alternatives

The DEIS also fails to follow through on the second issue identified under BLM's description of the "scope" of the analysis: whether "smaller areas of grazing exclusion" could still meet the 2015 ARMPA's purposes of serving as comparison areas and functioning as areas for baseline monitoring? Again, the DEIS presents only two alternatives: no action or full grazing. Other reasonable alternatives might include, for example, restoring grazing to some but not all of the key RNAs or providing only for smaller enclosures within the RNAs. These kinds of alternatives do not seem particularly compelling given the already meager grazing closure- just 22,765 acres out of a total of 12,106,387 acres grazed in sage-grouse habitat in Oregon. Yet, like the winter habitat and connectivity issues, this is one more example of how the DEIS fails to provide the information necessary to ensure informed decision making.

The DEIS vaguely references a "substantial" economic impact on "some" of the "individual permittees." DEIS at 3-22. Yet, at the same time it also makes clear that at the statewide scale the loss of just 1,772 AUMs is "negligible." *Id.* The DEIS assumes some socioeconomic impact to individual permittees, but it presents no specific information to support that assumption. See *id.* at 4-17. In fact, the DEIS later notes that only five (Black Canyon, Fish Creek Rim, Rahilly-Gravelly, Spring Mountain, and Toppin Creek Butte) of the thirteen RNAs would have "direct economic impacts." *Id.* Ranching operations in the other eight RNAs could "absorb" the change. *Id.* In other words, continuing grazing in those eight RNAs at a minimum is not necessary to the continuing viability of the affected grazing operations. (This also points to yet another reasonable alternative BLM failed to study as required by NEPA: reinstating grazing only in the five "direct economic impacts" RNAs.)

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 Oregon to include this conservation alternative.

From our analysis, American Bird Conservancy believes the Bureau's proposed Oregon plan would weaken existing protection and fail to address foreseeable impacts of mineral extraction. The plan leaves 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 Oregon.

Chapter 2 - Alternatives Table 2-1, Summary Comparison of Alternatives, maintains the 2015 status quo by indicating that wind energy remains excluded from PHMA and should be avoided in important habitat ("IHMA") under both the noaction alternative and the management alignment alternative presented in the DRMPIDEIS. For reasons stated above, LS Power strongly disagrees with these blanket proscriptions preventing development of wind energy in PHMA and making it very difficult to develop in IHMA by providing no opportunity for application of the mitigation hierarchy or Governor Otter's project filter approach.

The DEIS also fails to follow through on the second issue identified under BLM's description of the "scope" of the analysis: whether "smaller areas of grazing exclusion" could still meet the 2015 ARMPA's purposes of serving as comparison areas and functioning as areas for baseline monitoring? Again, the DEIS presents only two alternatives: no action or full grazing. Other reasonable alternatives might include, for example, restoring grazing to some but not all of the key RNAs or providing only for smaller enclosures within the RNAs. These kinds of alternatives do not seem particularly compelling given the already meager grazing closure—just 22,765 acres out of a total of 12,106,387 acres grazed in sage-grouse habitat in Oregon. Yet, like the winter habitat and connectivity issues, this is one more example of how the DEIS fails to provide the information necessary to ensure informed decision making.

BLM should either select the No Action alternative or develop new alternatives to consider additional protective measures for critical areas like winter habitat and genetic connectivity corridors.

C.4.8 Assumptions and Methodology

By contrast, there is no support for the proposition that reinstating (continuing) grazing in the RNAs is necessary—certainly not for the sage-grouse or for purposes of scientific study, and generally not for affected grazing operations. The DEIS vaguely references a "substantial" economic impact on "some" of the "individual permittees." DEIS at 3-22. Yet, at the same time it also makes clear that at the statewide scale the loss of just 1,772 AUMs is "negligible." Id. The DEIS assumes some socioeconomic impact to individual permittees, but it presents no specific information to support that assumption.

C.4.9 Sage-Grouse

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 there will be negative effects for Sage Grouse 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 (RFPAs) will lose critical mass as permittees exit

Closing the RNAs in the Vale District to grazing would be devastating. There is no scientific data to support allegations that grazing is a threat to Sage Grouse. In fact, just the opposite. That is why it is hard for our organization to understand why banning grazing is traditionally the first thing threatened when attempting to protect the species. Wildfires, however, are a proven and number one threat to Sage Grouse. By banning grazing, more fuel is available for fires, making fires larger and more destructive to the ecosystem which the Sage Grouse depend. The OBSC believes that the removal of grazing, recommended in the RNAs of the Oregon Greater Sage-Grouse 2015 ROD/ARMPA, will be detrimental to these areas, leading to unnecessary waste and destruction of these ecosystems by fire.

C.4.10 Livestock Grazing

The draft RMPA amendment also states that the RNA grazing removal is not at a scale to effect fire as a threat. While perhaps somewhat true when viewed range wide, on a local level, removal of this habitat from grazing will create an increased fuel load and will burn. The current well-designed grazing will help prevent ignition and in the case of ignition reduce mortality in the native bunch grass community.

The DEIS only assumes that the loss of AUMs will harm permittees. See DEIS at 4-17. That is not the same thing as a loss of acres available for grazing. This is evident from the DEIS's statement that the "forage loss" for operations in eight of the RNAs could "be absorbed into the remaining permit area." Id. What additional or nearby forage is available to the operations that graze in the Black Canyon, Fish Creek Rim, Rahilly-Gravelly, Spring Mountain, and Toppin Creek Butte RNAs? What other permits do these operations hold? What private land forage do they have available? Are the "lost AUMs" referenced in the DEIS the permitted AUMs or the actually-grazed AUMs? This type of key information is a "relevant aspect of the problem" that BLM must disclose and consider as part of the NEPA process-let alone to evaluate "unnecessary or undue degradation" under FLPMA. Reinstating grazing in key RNAs is "unnecessary"-and therefore prohibited under FLPMA-because the DEIS explains that these areas are in fact necessary to implementing the plan because of their unique ecological settings and habitats. Likewise, reinstating grazing is "undue" or "excessive" because the RNAs constitute such a small number of acres relative to the more than twelve million acres still available for grazing-and how will BLM understand the effects of grazing on those twelve million acres without these unique reference areas? See, e.g., *Mineral Pol'y Ctr.*, 292 F. Supp. 2d at 43 (defining "reasonable interpretation[s]" of the words "unnecessary" and "undue").

Regarding Issue #1: The DEIS includes researchers' views of whether making areas unavailable to livestock grazing addresses threats to greater sage-grouse. We recommend, in addition to the researchers' views, the Final EIS also include a summary of the BLM's determination on whether making areas unavailable addresses threats.

The draft RMPA amendment also states that the RNA grazing removal is not at a scale to effect fire as a threat. While perhaps somewhat true when viewed range wide, on a local level, removal of this habitat from grazing will create an increased fuel load and will burn. The current well-designed grazing will help prevent ignition and in the case of ignition reduce mortality in the native bunch grass community.

C.4.11 Socioeconomics

3.8 Socioeconomics- In regard to the closed grazing on 13 RNA's in the 2015 ARMPA, "the economic impact to individual permittees through expected loss in AUM's, was substantial in some cases." (pg. 3-22) There were direct cuts in AUMs in the 2015 ARMPA regarding RNAs. The BLM did not fully analyze the socioeconomic effects of the cumulative regulatory measures in the ARMPA. The multitude of restrictions on grazing, road closures restricting access and tourism and mitigation required by Electric Cooperatives will have detrimental economic impacts to struggling rural communities and will have the ability to destabilize Oregon's livestock industry. This is especially egregious considering none of these activities are major threats to sage-grouse and their habitat. Again, this is in direct opposition to SO #3349 and EO #13771.

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Appendix D

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
Oregon Planning Process

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D.1 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.

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.

D.2 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 Oregon 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 rationales 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.

D.3 EXCERPTS FROM THE OREGON FINAL EIS NOVEMBER 2018

- **Chapter I: Purpose of and Need for Action**
 - **Section I.1 Introduction. p. I-2.** On June 7, 2017, the Secretary issued SO 3353 for the 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 United States Geological Survey (USGS), to coordinate with the Sage-grouse Task Force, which is comprised of representatives of the governors of each of the 11 states. 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 I.4 Planning Criteria. p. I-7.** The BLM has identified the following planning criteria:
 - The BLM will comply with all laws, regulations, policies, and guidance related to public lands management on BLM-administered lands.
 - Greater Sage-Grouse is a state-managed species dependent on sagebrush steppe habitats managed in partnership by federal, state, and local authorities. State game and fish agencies' Greater Sage-Grouse data and expertise will be used to the fullest extent practicable in making management determinations on BLM-administered lands.
 - Lands addressed in the RMPA/EIS will be BLM-administered land in Greater Sage-Grouse habitats, including surface and split-estate lands with federal mineral rights. Any decisions in the RMPA/EIS will apply only to BLM-administered lands.
 - This RMPA/EIS will comply with SOs, including 3353 (Greater Sage-Grouse Conservation and Cooperation with Western States), which strives for compatibility with state conservation plans.
 - This RMPA/EIS will incorporate, as appropriate, information in a USGS report that identified and annotated Greater Sage-Grouse science published since January 2015 (Carter et al. 2018) and a report that synthesized and outlined the potential management implications of this new science (Hanser et al. 2018).
 - This RMPA/EIS will recognize valid existing rights.
 - All activities and uses within Greater Sage-Grouse habitats will follow existing and current land health standards (Standards for Rangeland Health and Guidelines for Livestock Grazing Management, 1997).

- Where restrictive land use allocations or decisions are in effect for other resources (e.g., wilderness study areas, areas of critical environmental concern/research natural areas, cultural resources, and riparian areas) under existing RMPs, those more restrictive land use allocations or decisions will not be amended by this RMPA/EIS.
- **Chapter 2: Alternatives**
 - **Section 2.2.1 Varying Constraints on Land Uses and Development Activities. p. 2-2 - 3.** 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 LUPs, the BLM partnered with the USGS to review the best available information published since January 2015, develop an annotated bibliography of that Greater Sage-Grouse science (Carter et al. 2018; see Section 3.1), and incorporate 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 (see Sections 4.4.6, pages 4-112 and 113; Section 4.5.6, pages 4-132 and 133; Section 4.8.6, Alternative C, page 4-193; Section 4.16.6, page 4-278; Section 4.20.3, page 4-330; Section 4.20.4, pages 4-351 to 4-355) and hereby incorporated by reference, 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 GRSG Plans and Instruction Memorandums (IMs) to identify opportunities to promote consistency with State plans." (Report to the Secretary at 3.) This process overlapped to some degree with the BLM's scoping process, which also assisted the BLM in identifying the scope of issues to be addressed and significant issues, and with coordination with the States occurring after the Report.
 - **Section 3.1 Introduction. p. 3-2.** Based on available information, including the USGS reports described below, the BLM has concluded that the existing condition is not

substantially different from that in 2015; therefore, for those resource topics discussed in detail in this RMPA/EIS, the data and information presented in the 2015 Final EIS regarding the affected environment is hereby incorporated by reference into this RMPA/EIS. Specific section and page number references for this incorporation by reference are provided in Section 3.2, Resources Affected, below. Where notable changes to the baseline condition have occurred since 2015, a discussion is included in this RMPA/EIS. Each resource topic listed below includes the following:

- A reference to the location of the affected environment discussion of that resource topic in the 2015 Final EIS, incorporating by reference the cited information.
 - A brief description of new data or information, if that data or information would substantially alter the description of the existing condition of that resource topic from the description that was presented in the 2015 Final EIS.
 - A description of changes to the existing condition of the resource topic that have occurred since the 2015 Final EIS (e.g., a large wildfire), if applicable to the resource topic.
- Actions that have been authorized since the 2015 ARMPA were authorized consistent with the 2015 Final EIS. The BLM will continue to implement the decisions in the 2015 ARMPA, unless and until those decisions are amended.

Acreage figures and other numbers are approximated using geographic information systems (GIS) technology and do not reflect exact measurements or precise calculations. These GIS-derived acreages are reasonable approximations for planning purposes.

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 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 4.5 Impacts on Greater Sage-Grouse. p. 4-6.** Grazing impacts would vary within and among the key 13 RNAs under the Proposed Plan Amendment, depending on site productivity, timing of grazing, stocking intensity, and duration of grazing within each RNA. General impacts from grazing on Greater Sage-Grouse are described in the 2015 Final EIS, Section 4.3, pages 4-7 to 4-94, and are hereby incorporated by reference. More specifically, pages 4-16 to 4-20 describe the impacts on Greater Sage-Grouse and its habitat from improper livestock grazing, an identified threat in the Conservation Objectives Team (COT) Report (USFWS 2013). Improper grazing, defined as grazing practices that are inconsistent with local ecological conditions and result in degradation of habitat for local wildlife species, can have adverse effects on Greater Sage-Grouse and its habitat, and may work synergistically with other potential threats, such as invasive plants and wildfire, to increase impacts (USFWS 2015). In its 2015 decision to not list Greater Sage-Grouse, the USFWS concluded that “although livestock grazing is widespread in the sagebrush ecosystem, and we expect some continued impacts from improper grazing at local scales, existing Federal regulations with full implementation, in combination with voluntary efforts on non-Federal rangelands are reducing the prevalence of improper grazing and its impacts to sage-grouse” (50 CFR Part 17 page 5991 I). Properly managed livestock grazing is compatible with managing for Greater Sage-Grouse conservation outcomes and can be used to reduce fuel loads (Davies et al. 2010; Davies et al. 2011), to protect intact sagebrush habitat, and to increase habitat extent and continuity (Connelly et al. 2004).
- **Section 4.5 Impacts on Greater Sage-Grouse. p. 4-7.** The Proposed Plan Amendment would result in 21,959 fewer undisturbed acres within Oregon available for additional research in plant communities important to Greater Sage-Grouse to further determine the impact of livestock grazing on Greater Sage-Grouse and their habitats. Beck and Mitchell (2000) indicated there is a lack of ungrazed comparison areas for evaluating livestock impacts on seasonal needs of Greater Sage-Grouse. Hockett (2002) noted the lack of large representative tracts of ungrazed habitat makes it nearly impossible to determine and monitor the actual consequences of livestock grazing. Although the USFWS (2015) has determined improper livestock grazing can have adverse effects on Greater Sage-Grouse habitat, properly-managed grazing may benefit the species. Here, the RNAs would remain subject to management, to promote the key characteristics of the RNAs, including regulation of grazing, to maintain and promote the key characteristics of the RNAs. Moreover, the RNAs are so small in size relative to the size of the species' range that any impacts of livestock grazing on Greater Sage-Grouse populations using these areas are minimal and undetectable. Moreover, closing the key RNAs to livestock grazing would not address any threats to Greater Sage-Grouse habitat identified in the COT report (USFWS 2013) that may exist within the boundaries of the RNAs.
- **Section 4.9 Impacts on Livestock Grazing. p. 4-17.** The contrasting impacts of proper and improper livestock grazing on Greater Sage-Grouse, Vegetation, Fish and Wildlife, and Special Status Species are discussed in detail in the 2018 RMPA/EIS in Sections 4.5, 4.6, 4.7, and 4.8 respectively. As noted in other sections of this EIS, all activities and uses within Greater Sage-Grouse habitats will follow existing and current

land health standards (Standards for Rangeland Health and Guidelines for Livestock Grazing Management, 1997).

- Impacts of improper livestock grazing on Greater Sage-Grouse and its habitat were discussed in detail in the 2015 Final EIS in Section 4.3 (pages 4-7 to 4-94, and specifically pages 4-16 to 4-20), Section 4.4 (page 4-112), Section 4.5 (page 4-133), and Section 4.7 (4-170), and are hereby incorporated by reference. Pages 4-16 to 4-20 describe the impacts of improper livestock grazing on Greater Sage-Grouse as an identified threat in the COT Report (USFWS 2013). The 2015 Final EIS noted that improper grazing could result in overutilization of forage by livestock, leading to increased competition with wildlife for forage, and potentially reduced cover and nesting habitat for other species. Livestock could also spread invasive plants, which would degrade habitats. Special status wildlife could be displaced from their habitats, which could increase competition for resources in adjacent habitats. Impacts would vary depending on the extent of vegetation removal, type of habitat impacted, and season of use and duration of the grazing period. Livestock could degrade riparian areas, which could impact riparian-dependent, aquatic, and fish species.
- The 2015 Final EIS also discussed the beneficial impact proper livestock grazing can have on Greater Sage-Grouse and its habitat (Sections 4.3, 4.4, 4.5 and 4.8). Sections 4.5, 4.6, 4.7, and 4.8 of this EIS similarly discuss the beneficial impact of properly managed grazing on habitat conditions for Greater Sage-Grouse. When properly grazed, beneficial impacts can include sustainable, diverse, and vigorous mixtures of native vegetation for Greater Sage-Grouse forage and habitat. In addition, proper management of grazing livestock can control invasive plants and reduce fuel accumulations, protect intact sagebrush habitat, and increase habitat extent and continuity.
- **Section 4.11 Cumulative Impacts. p. 4-20.** This RMPA/EIS incorporates by reference the analysis in the 2015 Final EISs and the 2016 SFA Withdrawal Draft EIS, which comprehensively analyzed the cumulative impacts associated with these planning decisions under consideration in that process. The 2015 EISs, and to some degree the 2016 SFA EIS evaluated the cumulative impacts associated with the No-Action Alternative in this RMPA/EIS. The Proposed Plan Amendment's effects are effectively within the range of effects analyzed by the 2015 and 2016 EISs. The 2015 Final EISs are quite recent, and the BLM has determined that conditions in the Great Basin have not changed significantly based, in part, on the USGS science review (see Chapter 3), as well as the BLM's review of additional past, present, and reasonably foreseeable actions in 2018.
- **Section 4.11.1 Range-wide Cumulative Effects Analysis – Greater Sage-Grouse. p. 4-23.** The BLM's assessment that conditions and cumulative impacts have not changed significantly is based, in part, on the USGS science review (see Chapter 3) and the BLM's review of additional past, present, and reasonably foreseeable actions in 2018. Since the nature and context of the cumulative effects scenario have not appreciably changed since 2015, and the 2015 plans included analysis by WAFWA MZ across the entire range of the Greater Sage-Grouse, the cumulative effects analysis in the 2015 Final EIS applies to this planning effort and provides a foundation for the BLM to identify any additional cumulative impacts.

- **Section 4.11.1 Why Use WAFWA Management Zones? p. 4-24-26.** 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 vegetative conditions important Greater Sage-Grouse habitat management. Each suite of threats to specific Greater Sage-Grouse populations have been identified in the COT report, 2015 Regional RODs, and the Listing Decision. The 2015 Regional RODs identify how planning level allocation decisions address the identified threats to populations, which are aggregated in this analysis by MZs. The threats vary geographically and may have more or less impact on Greater Sage-Grouse and its habitat in some parts of the MZs, depending on such factors as climate, land use patterns, and topography.
- **Chapter 5: Consultation and Coordination**
 - NTT, COT, and USGS do not appear.
- **Appendix A: Additional RNA Information**
 - NTT, COT, and USGS do not appear.
- **Appendix B: Cumulative Effects Supporting Information**
- **Appendix C: Responses to Substantive Public Comments on the Draft EISNTT, COT, and USGS appear.**
- **Acronyms and Abbreviations**
 - NTT, COT, and USGS 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)

D.4 COT, NTT AND USGS 2018 GENERAL INFORMATION

Outline:

- 1) 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).

D.5 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 Oregon'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).

D.5.1 Issue: Grazing in Key Research Natural Areas

The COT Report includes a table that characterizes threats to Greater Sage-Grouse by population. One of the threats assessed included improper grazing. For 2 of the 5 Oregon populations assessed, threats from improper grazing were identified as "unknown". For 3 of the 5 Oregon populations assessed, threats from improper grazing were identified as "present and widespread" (see COT Report, Table 2, pages 16 through 29).

The COT Report objective for livestock grazing in general is to “conduct grazing management...in a manner consistent with local ecological conditions that maintains or restores healthy sagebrush shrub and native perennial grass and forb communities and conserves the essential habitat components for sage-grouse (e.g. shrub cover, nesting cover)” (COT Report, page 45). It goes on to note that “areas which do not currently meet this standard should be managed to restore these components.” Under the 2019 RMPA, livestock grazing management is governed by the livestock grazing provisions in the 2015 ARMPA apart from making 13 of the 15 key RNAs available for livestock grazing. Livestock grazing in the 13 key RNAs aligns with COT objectives as these 13 key RNAs are required to meet rangeland health standards and other applicable BLM regulations and policies. The BLM requires changes to livestock grazing management when a rangeland health assessment identifies livestock grazing as a causal factor in the failure to meet rangeland health standards.

One of the general conservation objectives identified in the COT report (pg. 35) is to prioritize, fund, and implement research to address existing uncertainties associated with sage-grouse and sagebrush habitat management. One way the BLM Oregon is meeting this objective is by funding a grazing effects study on sagebrush obligate avian species, including sage-grouse. In addition, BLM Oregon has increased standardized monitoring in sagebrush communities within RNAs. Research remains a priority in Research Natural Areas and the districts retain the authority to implement research in the key RNAs. The BLM would continue to manage all RNAs for the values they were designated for, per District RMPs, following existing management guidance and consistent with direction for PHMA.

As a whole, the 2015 OR ARMPA, as amended in 2019, including the livestock grazing objectives and management actions, are consistent with the COT report.