

Northwest Colorado Greater Sage-Grouse

Draft Resource Management Plan Amendment and Environmental Impact Statement



US Department of the Interior,
Bureau of Land Management
May 2018



The Bureau of Land Management's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

Cover Photo: Steve Ting



United States Department of the Interior

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In Reply Refer To:
1793 (CO-930)

Dear Reader:

The Colorado Greater Sage-Grouse Draft Resource Management Plan Amendment (RMPA) and Draft Environmental Impact Statement (EIS) is available for your review and comment. The Bureau of Land Management (BLM) prepared this document in consultation with cooperating agencies and in accordance with the National Environmental Policy Act of 1969, as amended; the Federal Land Policy and Management Act of 1976, as amended; implementing regulations; the BLM's Land Use Planning Handbook (H-1601-1); and other applicable law and policy.

The planning area includes the BLM Colorado Grand Junction, Kremmling, Little Snake, White River and Colorado River Valley field offices and encompasses approximately 1.7 million surface acres administered by the BLM and approximately 2.8 million subsurface acres in the ten northwest Colorado counties of Eagle, Garfield, Grand, Jackson, Larimer, Mesa, Moffat, Rio Blanco, Routt, and Summit.

As directed by BLM Planning Regulations, the Management Alignment Alternative has been identified in the Draft EIS as the preferred alternative. Identification of the preferred alternative does not indicate any commitments on the part of the BLM with regard to a final decision. In developing the Proposed RMPA/Final EIS, 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 RMPA/Draft EIS for the purpose of creating a management strategy that best meets the needs of the resources and values in this area under the BLM's multiple use and sustained yield mandate.

The BLM encourages the public to review and provide comments on the Draft RMPA/Draft EIS. The Draft RMPA/Draft EIS is available on the project website at: <https://goo.gl/kmLtwT>. Hard copies are also available for public review at BLM offices within the planning area.

Public comments will be accepted for ninety (90) calendar days following the Environmental Protection Agency's publication of its Notice of Availability in the *Federal Register*. The BLM can best use 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:
Website: <https://goo.gl/kmLtwT>
2. Written comments may also be mailed directly or delivered to the BLM at:

Bureau of Land Management
Attn: Bridget Kobe Clayton
Colorado Sage-Grouse Coordinator
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Grand Junction, CO 81506

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

Public meetings will be held at various locations around the planning area to provide the public with opportunities to submit comments and seek additional information. The locations, dates, and times of these meetings will be announced at least 15 days prior to the first meeting via a press release and on the project website: <https://goo.gl/kmLtwT>

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

Sincerely,



Gregory P. Shoop
Acting State Director

**Colorado Greater Sage-Grouse
Draft Resource Management Plan Amendment and
Draft Environmental Impact Statement**

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

Abstract: This draft resource management plan (RMP) amendment and draft environmental impact statement (EIS) has been prepared by the United States Department of the Interior (DOI), Bureau of Land Management (BLM) with input from cooperating agencies. The purpose of this RMP amendment (RMPA) is to enhance cooperation with the States by modifying the approach to Greater Sage-Grouse management in existing RMPs to better align with individual state plans and/or conservation measures and DOI and BLM policy. This document is considering amendments to five BLM RMPs in Colorado. The EIS describes and analyzes two alternatives for managing Greater Sage-Grouse habitat on approximately 1.7 million acres of BLM-administered surface estate and 2.8 million acres of BLM subsurface federal mineral estate. The No-Action Alternative is a continuation of current management; use of public lands and resources would continue to be managed under the current BLM RMPs, as amended in 2015. The Management Alignment Alternative was derived through coordination with the State and cooperating agencies to align with the State conservation plan and to support conservation outcomes for Greater Sage-Grouse. This is the agency's preferred alternative, though this does not constitute a final decision and there is no requirement that the preferred alternative identified in the draft EIS be selected as the agency's decision in the Record of Decision. Fluid minerals leasing is the primary planning issue addressed in this plan amendment.

Review Period: Comments on the Colorado Greater Sage-Grouse Draft Resource Management Plan Amendment and Draft Environmental Impact Statement will be accepted for 90 calendar days following publication of the United States Environmental Protection Agency's Notice of Availability in the *Federal Register*.

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APPENDIX

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

H	Guidelines for Implementation and Adaptive Management
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ACRONYMS AND ABBREVIATIONS

Full Phrase

ADH	all designated habitat
ARMPA	approved resource management plan amendment
BLM	Bureau of Land Management
BMP	best management practice
BSU	biologically significant unit
CEQ	Council on Environmental Quality
CPW	Colorado Parks and Wildlife
DOI	US Department of the Interior
EIS	environmental impact statement
FLMPA	Federal Land Management and Policy Act
GHMA	General Habitat Management Area
LCHMA	Linkage/Connectivity Habitat Management Area
LUPA	Land Use Plan Amendment
NEPA	National Environmental Policy Act
NSO	no surface occupancy
PHMA	Priority Habitat Management Area
RDF	required design feature
RMP	resource management plan
RMPA	resource management plan amendment
ROD	record of decision
ROW	right of way
SO	Secretarial Order
USGS	US Geological Survey
USFWS	US Fish and Wildlife Service

Executive Summary

ES.I INTRODUCTION

Greater Sage-Grouse is a state-managed species that is dependent on sagebrush steppe ecosystems. These ecosystems are managed in partnership across the range of the Greater Sage-Grouse by federal, state, and local authorities. Efforts to conserve the species and its habitat date back to the 1950s. Over 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 United States Department of the Interior (DOI) and the Bureau of Land Management (BLM) have broad responsibilities to manage federal lands and resources for the public benefit. Nearly half of Greater Sage-Grouse habitat is managed by the BLM.

In September 2015, the US Fish and Wildlife Service (USFWS) determined that the Greater Sage-Grouse did not warrant listing under the Endangered Species Act of 1973. In its “not warranted” determination, the USFWS based its decision in part on regulatory certainty from the conservation commitments and management actions in the BLM and US Forest Service (Forest Service) Greater Sage-Grouse land use plan amendments (LUPAs) and revisions, as well as on other private, state, and federal conservation efforts. Since 2015 the BLM, in discussion with partners, recognized that several refinements and policy updates would help strengthen conservation efforts, while providing increased economic opportunity to local communities.

The BLM continues to build upon its commitment to on-the-ground management to promote conservation through close collaboration with State governments, local communities, private landowners, and other stakeholders. **Table ES-I** shows the acres of on-the-ground treatment activity between 2015 and 2017 and planned for 2018, based upon annual budgets allocated by Congress. BLM’s accomplishments reflect contributions from programs other than Greater Sage-Grouse, including fuels, riparian, and range management.

Table ES-I
Acres of On-The-Ground Treatment Activity for Fiscal Years 2015 to 2017
and Planned for 2018

Fiscal Year	Conifer Removal	Fuelbreaks	Invasive Species Removal	Habitat Protection	Habitat Restoration	Total
2015	98,876	15,000	63,612	41,003	75,952	294,443
2016	165,963	14,614	66,621	42,305	95,748	385,251
2017	185,032	65,455	124,582	10,428	93,474	479,000
2018 ¹	118,384	65,442	68,512	9,240	54,509	316,087

¹Planned

The BLM is now engaged in a planning effort to further enhance its continued cooperation with western states by ensuring greater consistency between individual state plans and the BLM’s multiple-use mission. This executive summary highlights the major components of this planning document and outlines the potential impacts from the proposed management changes. The BLM’s efforts seek to improve

management alignment in ways that will increase management flexibility, maintain access to public resources, and promote conservation outcomes.

ES.2 PURPOSE OF AND NEED FOR ACTION

The BLM's purpose and need for this planning action helps define the scope of proposed alternative actions and issues the agency must analyze. 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 coordinate the land use planning process with other federal and state plans. Further, FLPMA specifically provides that it neither enlarges nor diminishes the authority of the states in managing fish and wildlife. As the sovereign with the lead role in managing game species, including Greater Sage-Grouse, states play a critical role in conserving and restoring the Greater Sage-Grouse and its habitat.

The purpose of this resource management plan amendment/environmental impact statement (RMPA/EIS) is to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing RMPs to better align with individual state plans and conservation measures and with DOI and BLM policy.

ES.3 ISSUES AND RELATED RESOURCE TOPICS IDENTIFIED THROUGH SCOPING

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 impacts; as such, they can help shape the proposal and alternatives.

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

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

- Issues and related resource topics retained for further consideration in this RMPA/EIS— These were issues raised during scoping for which alternatives were developed to address the issues.
- 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 are those brought up during scoping that were not carried forward in this RMPA/EIS—These are issues brought up during scoping that are not carried forward in this RMPA/EIS. While some of these issues are considered, they do not require additional analysis because they were analyzed in the 2015 Final EIS, and no new information has been identified that would warrant further analysis. Others are not carried forward in this RMPA/EIS because they do not further the purpose of aligning with the state's conservation plan or management strategies.

ES.3.1 Issues and Related Resource Topics Retained for Further Consideration in this RMPA/EIS

The issues identified in **Table ES-1**, below, were previously analyzed in the 2015 Final EIS; however, based on the proposed changes, the resource topics and potential impacts that may require additional analysis are as follows: Greater Sage-Grouse, fluid minerals, and socioeconomics; therefore, these resource topics are carried forward for analysis.

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

Table ES-2
Issues and Related Resource Topics

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

ES.3.2 Clarification of Planning Decisions in the 2015 Approved Resource Management Plan Amendment

The following issues with existing planning decisions were raised during scoping. These issues require clarification to the Approved Resource Management Plan Amendment (ARMPA) language but do not require new analysis. The clarifying language for these planning decisions is displayed in this planning document to communicate how these issues are being addressed.

Clarifying the Use of Lek Buffers in Appendix B of the Record of Decision (ROD)/ARMPA

In order to clarify the intention of lek buffers and to better align with state efforts, **MD SSS-2** (2.2.1 Special Status Species) from the 2015 ROD/RMPA will be modified to the following:

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

Clarifying Mitigation Procedures in Appendix H of the ROD/ARMPA

During the scoping process, the State of Colorado recommended close coordination between BLM and Colorado Parks and Wildlife (CPW) when evaluating projects that have a potential to impact Greater Sage-Grouse or Greater Sage-Grouse habitat in order to ensure consistent application of the mitigation

hierarchy, including compensatory mitigation programs, such as the Colorado Habitat Exchange and local conservation programs developed by local working groups. To further clarify the coordination between the BLM and CPW and identify the process for mitigation, MD SSS-3 (Section 2.2.1, Special Status Species) from the 2015 ROD/ARMPA will be modified to:

MD SSS-3: *In all Greater Sage-Grouse habitat, in undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss or degradation, the BLM will require and ensure mitigation activities consistent with the recommendation of Colorado Parks and Wildlife in the programs. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions.*

*If the BLM and Colorado Parks and Wildlife determine that there are unacceptable residual impacts on the Greater Sage-Grouse or Greater Sage-Grouse habitat, the BLM will require mitigation that provides a conservation uplift and achieves the outcome consistent with the principles outlined in **Appendix H** (Guidelines for Implementation and Adaptive Management), consistent with the State of Colorado's Habitat Exchange and mitigation strategy.*

Modifying Habitat Management Areas (Priority Habitat Management Areas [PHMA] and General Habitat Management Areas [GHMA])

PHMA and GHMA are identified using a set of criteria by CPW. The process for evaluating new information and modifying the boundaries is discussed in **Section 2.6** (Monitoring and Adaptive Management) and further detailed in **Appendix H** (Guidelines for Implementation and Adaptive Management). While no impacts are associated specifically with the process for modification of habitat boundaries, the decisions that apply to those boundaries may result in new impacts on resources listed in **Table ES-2**, Issues and Related Resource Topics.

ES.3.3 Issues and Resource Topics Not Carried Forward for Additional Analysis (Scoping Issues Outside the Scope and Scoping Issues Previously Analyzed)

Because the following issues and resource topics were analyzed in the 2015 Final EIS, and no significant new information has emerged since the publication of that document, they do not require additional analysis in this RMPA/EIS:

- Population-based management
- Restrictions on rights-of-way (ROWs) and infrastructure
- Wind energy development in PHMA
- ROW avoidance in PHMA and GHMA
- Retention of lands identified as PHMA or GHMA in federal ownership
- Varying stipulations applied to oil, gas, and, geothermal development
- Impacts of no surface occupancy (NSO) stipulations on Greater Sage-Grouse habitat on land not administered by the BLM
- Mitigation for oil and gas development
- Prioritization of fluid mineral leases outside PHMA and GHMA
- Numerical noise limitations in PHMAs
- Contribution of disturbance caps toward Greater Sage-Grouse conservation objectives
- Required design features
- Habitat objectives and ability to achieve rangeland health standards
- Vegetation treatments and wildfire response
- Adaptive management

- Habitat assessment framework
- Mitigation standard
- Greater Sage-Grouse hunting
- Predator control

Changing the management decision and other modifications proposed in this statement are expected to have a similar impact on the resources identified below, as described in Chapter 4 of the 2015 Final EIS (Section 4.5.2). Therefore, the resource topics below are not carried forward for detailed analysis:

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

ES.4 ALTERNATIVES CONSIDERED

Alternatives development and analysis is the heart of an EIS. The alternatives considered in this document address all the issues brought forward by the public and considered by BLM. The comparative analysis between alternatives establishes a framework for decision makers to understand important trade-offs and identify the most effective way to meet the purpose and need and BLM's multiple use mission. The alternatives analysis can support the BLM in adapting its management when information and circumstances change.

ES.4.1 No-Action Alternative

Under the No-Action Alternative, the BLM would not amend current Greater Sage-Grouse management, as described in the 2015 Final EIS. 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 such activities as mineral leasing and development, recreation, lands and realty, and livestock grazing would also remain the same.

ES.4.2 Management Alignment Alternative (Preferred Alternative)

This alternative is derived through coordination with the state and cooperating agencies to align with the state conservation plan and to support conservation outcomes for Greater Sage-Grouse. The BLM continues to build upon the 2015 planning effort as envisioned in Secretarial Order (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 BLM's multiple use mission.

This enhanced cooperation between the BLM and the Governor's office would lead to improved management and coordination across the range of Greater Sage-Grouse. It would also provide the flexibility for BLM to work with the State of Colorado on landscape-scale decisions, which would provide protections for Greater Sage-Grouse habitat while allowing reasonable development of other resources, in support of local communities and economies. **Table 2-2** in **Chapter 2** further specifies the proposed changes needed to address consistency between state and federal plans.

At the request of the State, the Management Alignment Alternative in this Draft RMPA/EIS does not modify the net conservation gain standard for compensatory mitigation that the BLM incorporated into its plans in 2015. DOI and the BLM, however, have 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, 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.

ES.5 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

This section includes a summary comparison of environmental consequences from implementing the No-Action Alternative and the Management Alignment Alternative. A detailed description of environmental consequences is included in **Chapter 4**.

No-Action Alternative	Management Alignment Alternative
Greater Sage-Grouse	
Under this alternative, 224,200 acres are closed to fluid minerals and the remainder of PHMA is open, subject to a very restrictive NSO stipulation. The restrictions on surface disturbance are expected to have beneficial impacts for Greater Sage-Grouse by reducing surface disturbance and disruption in Greater Sage-Grouse habitat. The nature and type of effects on Greater Sage-Grouse is further detailed in the 2015 Final EIS (Section 4.5).	Under this alternative, 224,200 acres would be open to fluid mineral leasing; Colorado-specific criteria for waivers, exceptions, and modifications are identified. Although the additional acres would be available to leasing, those acres would also be subject to an NSO stipulation; therefore, the impact on Greater Sage-Grouse would be similar to the No-Action Alternative. This is because surface disturbance, fragmentation, and indirect habitat loss would not be expected to increase, due to restrictions on surface disturbance. Additionally, state-specific waivers, exceptions, and modifications are expected to improve coordination with the State of Colorado and provide more of an all-lands approach which, due to multiple jurisdictions with regulatory authority over land and mineral ownership, may result in better landscape-scale protections for Greater Sage-Grouse and its habitat. See Section 4.5 for more information.
Fluid Minerals	
Under this alternative, 224,200 acres are closed to fluid minerals, and the remainder of PHMA is open, subject to a very restrictive NSO stipulation. The closure reduces the resource available for leasing, and the NSO stipulation may increase costs and decrease efficiency for	Opening 224,200 acres to fluid mineral resources would be beneficial for oil and gas development, but it is difficult to predict if these changes to availability of leases and increased flexibility of the WEMs would lead to additional oil and gas development or a varied

No-Action Alternative	Management Alignment Alternative
development of fluid minerals. Development is a function of project- and site-specific considerations and of market forces at the time; it is possible that some well pads, access roads, pipelines, and other facilities would be affected to the extent that marginal projects are economically nonviable, reducing the number of future oil and gas wells. The nature and type of effects on fluid minerals are further detailed in the 2015 Final EIS (Section 4.9.1, Fluid Leasable Minerals).	approach to the same level of development. See Section 4.6 for more information.
Socioeconomics	
Under this alternative, 224,200 acres are unavailable for fluid minerals leasing. The decrease in development potential due to closed areas and restrictive WEMs may have a negative impact on economic potential and are expected to disproportionately affect the oil and gas producing areas and where workers and service providers reside. The nature and type of effects on fluid minerals is further detailed in the 2015 Final EIS (Section 4.25.3, Economic Impacts, Fluid Leasable Minerals).	It is uncertain whether the 224,200 acres proposed to be open to fluid mineral leasing under this alternative will be leased and developed; however, the opportunity for them to be leased provides for the potential economic activity associated with leasing and development (for example, revenues, jobs, and labor income) to occur that would not occur under the No-Action Alternative for these acres. See Section 4.7 for more information.

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Chapter I. Purpose of and Need for Action

I.1 INTRODUCTION

Greater Sage-Grouse (*Centrocercus urophasianus*) is a state-managed species that depends on sagebrush steppe ecosystems. These ecosystems are managed in partnership across its range by federal, state, and local authorities. State agencies responsible for fish and wildlife management possess broad responsibility for protecting and managing fish, wildlife, and plants within their borders, except where preempted by federal law. Similarly, DOI has broad responsibilities to manage federal lands and resources for the public's benefit. Approximately half of Greater Sage-Grouse habitat is managed by the BLM and 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, USFWS determined that listing the Greater Sage-Grouse under the Endangered Species Act 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 Endangered Species Act of 1973. 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.

On March 29, 2017, the Secretary of the Interior issued SO 3349. It ordered 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 SO 3353 with a purpose of enhancing cooperation among 11 western states and the BLM in managing and conserving Greater Sage-Grouse. SO 3353 directed an Interior Review Team, consisting of the BLM, the USFWS, and US Geological Survey (USGS), to coordinate with the Sage-Grouse Task Force. They also were directed to review the 2015 Greater Sage-Grouse plans and associated policies to identify provisions that may require modification to make the plans more consistent with the individual state plans and better balance the BLM's multiple-use mission, as directed by SO 3349, American Energy Independence.

On August 4, 2017, the Interior Review Team submitted its Report in Response to Secretarial Order 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, 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 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.

I.2 PURPOSE OF AND NEED FOR ACTION

In 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 coordinate the land use planning process with other federal and state plans. Further, FLPMA specifically provides that it neither enlarges nor diminishes the authority of the states in managing fish and wildlife. As the sovereign with the lead role in managing game species, including Greater Sage-Grouse, states play a critical role in conserving and restoring the Greater Sage-Grouse and its habitat.

The purpose of this resource management plan amendment/environmental impact statement (RMPA/EIS) is to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and conservation measures and with DOI and BLM policy.

I.3 PLANNING AREA AND CURRENT MANAGEMENT

The planning area boundary includes all lands regardless of jurisdiction (see **Figure I-1**, Northwest Colorado Planning Area). **Table I-1** lists the number of surface acres that are administered by specific federal agencies, states, and local governments and lands that are privately owned in the planning area. The planning area includes other BLM-administered lands that are not allocated as habitat management areas for Greater Sage-Grouse. This plan amendment does not establish any additional management for these lands; they will continue to be managed according to the existing, underlying land use plan for the areas.

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

Figure I-1
Northwest Colorado Planning Area

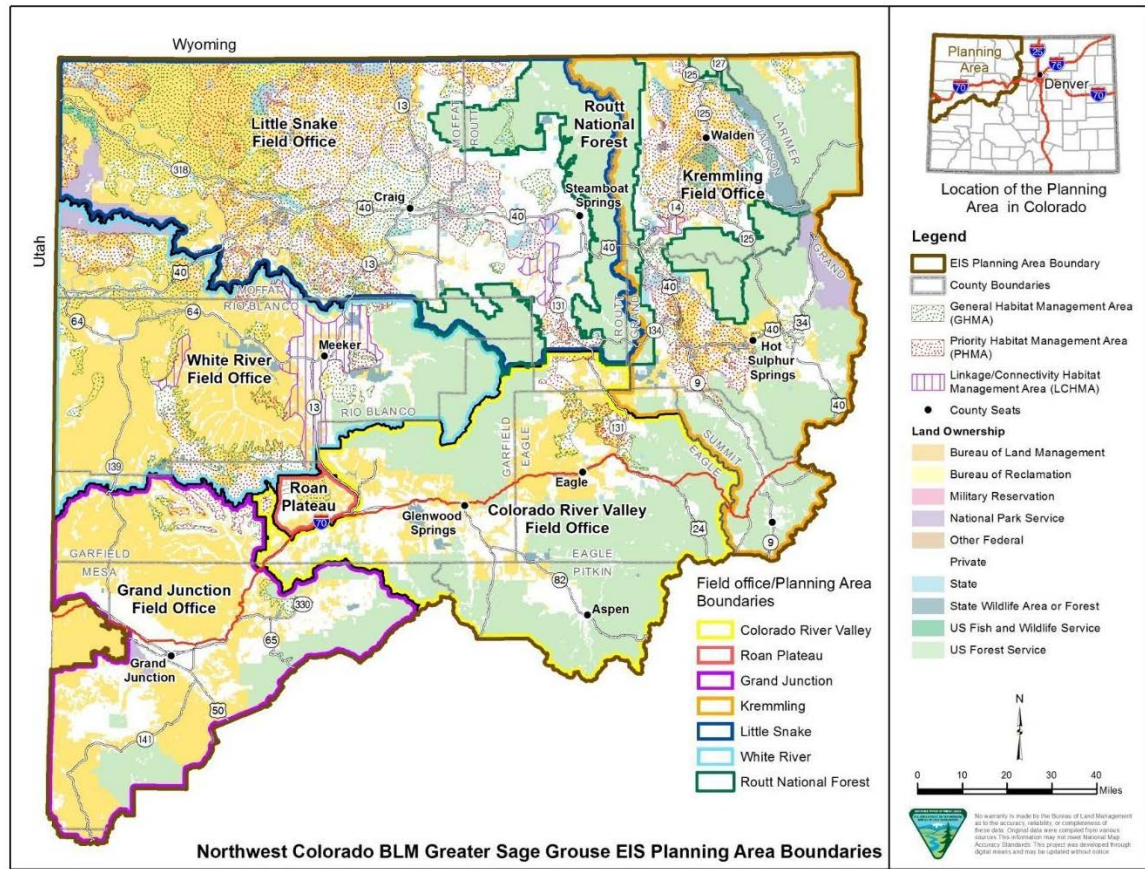


Table I-1
Land Management in the Planning Area

Surface Land Management	Total Surface Land Management Acres in Greater- Sage-Grouse Habitat
BLM	1,731,400
United States Department of Agriculture, Forest Service, Routt National Forest (Forest Service)	20,100
Private	2,051,500
USFWS	34,700
Other	300
State	263,400
National Park Service	9,900
Local government	41,700
Total	4,153,000

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

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

Table I-2
Acres of PHMA and GHMA in the Decision Area for
the RMPA/EIS

Surface Land Management	PHMA	GHMA
BLM	921,500	728,000
Subsurface Management	PHMA	GHMA
BLM	1,241,700	896,000

PHMA are areas that meet some stage of the Greater Sage-Grouse life-cycle requirements, based on best available science. These broad habitat maps are necessary at the resource management plan-scale of planning in order to include a variety of important seasonal habitats and movement corridors that are spread across geographically diverse and naturally fragmented landscapes. Greater Sage-Grouse use multiple areas to meet seasonal habitat needs throughout the year and the resulting mosaic of habitats (e.g., winter, breeding, nesting, early brood-rearing, late brood-rearing, transitional, and movement corridor habitats) can encompass large areas. Broad habitat maps increase the likelihood that all seasonal habitats (including transition and movement corridors) are included. While areas of non-habitat, in and of themselves, may not provide direct habitat value for Greater Sage-Grouse (e.g., canyons, water bodies, and human disturbances), these areas may be crossed by birds when moving between seasonal habitats. Therefore, these habitat management areas are not strictly about managing habitat but are about providing those large landscapes that are necessary to meet the life-stage requirements for Greater Sage-Grouse. These areas will include areas that do not meet the habitat requirements described in the Seasonal Habitat Objectives table in the 2015 Final EIS. These areas meet Greater Sage-Grouse habitat needs by maintaining large, contiguous expanses of relatively intact sagebrush vegetation community.

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

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

County	2015 ROD/ARMPA		Total
	PHMA	GHMA	
Eagle	20,900	16,100	37,000
Garfield	24,800	35,900	60,700
Grand	60,700	11,300	72,000
Jackson	137,600	1,100	138,700
Larimer	0	6,700	6,700
Mesa	0	4,500	4,500
Moffat	623,300	542,000	1,165,300
Rio Blanco	36,400	108,800	145,200
Routt	17,100	1,600	18,700
Summit	700	0	700
Total	921,500	728,000	1,649,500

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

BLM Field Office	RMPA/EIS		Total
	PHMA	GHMA	
Colorado River Valley Field Office	24,700	40,200	64,900
Grand Junction Field Office	5,600	8,900	14,500
Kremmling Field Office	198,900	18,900	217,800
Little Snake Field Office	570,400	479,700	1,050,100
White River Field Office	122,000	180,200	302,200

I.4 PLANNING CRITERIA

Planning criteria establish constraints, guidelines, and standards for the planning process and help the BLM define the scope of planning and analysis.

The criteria below are based on the standards prescribed by applicable laws and regulations, agency guidance, analysis pertinent to the planning area, professional judgment, and the results of consultation and coordination with the public and other federal, state, and local agencies.

The BLM has identified these planning criteria:

- It will comply with all laws, regulations, policies, and guidance related to public lands management and implementing NEPA on BLM-administered lands.
- Greater Sage-Grouse is a state-managed species that depends on sagebrush steppe habitats managed in partnership by federal, state, and local authorities. In making management determinations on BLM-administered lands, the BLM will use, to the fullest extent practicable, Colorado Parks and Wildlife Greater Sage-Grouse data and expertise.
- Lands addressed in the RMPA/EIS will be BLM-administered land in Greater Sage-Grouse habitats, including surface and split-estate lands with federal subsurface mineral rights. Any decisions in the RMPA/EIS will apply only to BLM-administered lands.

- This RMPA/EIS will comply with orders of the Secretary, including SO 3353 (Greater Sage-Grouse Conservation and Cooperation with Western States), which strives for compatibility with state conservation plans.
- This RMPA will incorporate, as appropriate, information in a USGS report that identified and annotated Greater Sage-Grouse science published since January 2015 (Carter et al. 2018) and a report that synthesized and outlined the potential management implications of this new science (Hanser et al. 2018).
- This RMPA/EIS will comply with BLM Manual 6840, Special Status Species Management.
- This RMPA/EIS will recognize valid existing rights.
- All activities and uses in Greater Sage-Grouse habitats will be managed to achieve Greater Sage-Grouse objectives and land health standards.
- This RMPA/EIS will not amend more restrictive land use allocations or decisions for other resources under existing RMPs, such as wilderness study areas, areas of critical environmental concern, cultural resources, and riparian areas.

I.5 ISSUES AND RELATED RESOURCE TOPICS IDENTIFIED THROUGH SCOPING

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 impacts; as such, issues can help shape the proposal and alternatives. The BLM used internal, agency, and public scoping to identify issues to consider in the environmental analysis. A summary of the scoping process is presented in 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 RMPA/EIS, the interdisciplinary team considered, among other things, the following:

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

Ultimately, it is important for decision-makers and the public to understand the impacts that the alternatives would have on specific resources; therefore, the BLM uses resource topics as a heading to indicate which resources would be affected by a management change. 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, as well as related resource topics, are considered in this RMPA/EIS. Generally, they fall into the following categories:

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

1.5.1 Issues and Related Resource Topics Retained for Further Consideration in this RMPA/EIS

The issues identified in **Table 1-5**, below, have been previously analyzed; however, based on the proposed changes, the resource topics and potential impacts that may require additional analysis are as follows: Greater Sage-Grouse, fluid minerals, and socioeconomics; therefore, these resource topics were carried forward for analysis.

Table 1-5 identifies the corresponding resource topics to which the issues relate. The level of detail in the description of each resource topic and the impacts from implementing any of the alternatives are described in **Chapters 3** and **4**.

Table 1-5
Issues and Related Resource Topics

Issues	Resource Topics Related to the Issues
Changing “No leasing within 1 mile of active leks” to “Open to leasing subject to NSO”	Greater Sage-Grouse, fluid minerals, and socioeconomic
Modifying Waivers, Exceptions, and Modifications on no surface occupancy (NSO) Stipulations <ul style="list-style-type: none"> • Change in the ability to achieve Greater Sage-Grouse conservation objectives • Change in requirements for USFWS to approve waivers, exceptions, or modifications 	Greater Sage-Grouse, fluid minerals, and socioeconomic

**Table I-5
Issues and Related Resource Topics**

Issues	Resource Topics Related to the Issues
<ul style="list-style-type: none"> • Impact of oil and gas leasing on achieving Greater Sage-Grouse conservation outcomes • Flexibility in waivers, exceptions, and modifications, based on terrain and other considerations 	

I.5.2 Clarification of Planning Decisions in the 2015 ROD/ARMPA

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

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

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

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

Clarifying Mitigation Procedures in Appendix H of the ROD/ARMPA

During the scoping process, the State of Colorado recommended close coordination between BLM and CPW when evaluating projects that have a potential to impact Greater Sage-Grouse or its habitat in order to ensure consistent application of the mitigation hierarchy. This includes compensatory mitigation programs, such as the Colorado Habitat Exchange and local conservation programs developed by local working groups. To further clarify the coordination between the BLM and CPW and to identify the process for mitigation, **MD SSS-3** (2.2.1 Special Status Species) from the 2015 ROD/ARMPA will be modified to:

MD SSS-3: *In all Greater Sage-Grouse habitat, in undertaking BLM management actions, and consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss or degradation, the BLM will require and ensure mitigation activities consistent with the recommendation of Colorado Parks and Wildlife. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions.*

*If the BLM and Colorado Parks and Wildlife determine that there are unacceptable residual impacts on the Greater Sage-Grouse or its habitat, the BLM will require mitigation that provides a conservation uplift and achieves the outcome consistent with the principles outlined in **Appendix H** (Guidelines for Implementation and Adaptive Management), consistent with the State of Colorado's Habitat Exchange and mitigation strategy.*

Modifying Habitat Management Areas (PHMA and GHMA)

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

I.5.3 Issues and Resource Topics Not Carried Forward for Additional Analysis (Scoping Issues Outside the Scope and Scoping Issues Previously Analyzed)***Issues and Related Resource Topics Not Carried Forward for Additional Analysis***

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

Because the issues listed below were analyzed under resource topics in the 2015 Final EIS, and no significant new information has emerged since the publication of that document, they do not require additional analysis in this RMPA/EIS. The related resource topics are dismissed from additional analysis. The types of impacts on these resources are described in the range of alternatives in the 2015 Final EIS. The impacts of implementing the alternatives in this RMPA/EIS are within the range of alternatives previously analyzed; therefore, the following resource topics were not carried forward for additional analysis:

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

Resource Topics Not Carried Forward for Additional Analysis

Changing the management decision from “no leasing” to “open to leasing, subject to NSO” is expected to have a similar impact on the resources identified below, as described in Chapter 4, Section 4.5.2 of the 2015 Final EIS. Additionally, the rest of the changes being considered to the management of Greater Sage-Grouse in Colorado (modification of habitat management areas and providing clarification for criteria that waivers, exceptions, and modifications are based on) are not land use plan-level decisions and would not result in additional impacts for analysis on the following resources:

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

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

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

I.6.1 State Plans

State plans considered during this planning effort are the following:

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

- North Park Greater Sage-Grouse Conservation Plan (CPW 2000)
- Northwestern Colorado Greater Sage-Grouse Conservation Plan (CPW 2008a)
- Parachute-Piceance-Roan Plateau Greater Sage-Grouse Conservation Plan (CPW 2008b)
- Parachute-Piceance-Roan Plateau Greater Sage-Grouse Work Group (CPW 2008c)

I.6.2 Local Plans

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

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

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Chapter 2. Alternatives

2.1 INTRODUCTION

This chapter describes the alternatives evaluated as a part of this RMPA/EIS. This RMPA/EIS analyzes in detail the No-Action Alternative and Management Alignment Alternative, which was developed to meet the purpose and need presented in **Chapter 1**. In addition to the alternatives considered in detail, this chapter also describes an alternative considered but eliminated from detailed analysis.

Components of Alternatives

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

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

2.2 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

2.2.1 Varying Constraints on Land Uses and Development Activities

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

This planning process does not revisit every issue that the BLM evaluated in 2015. Instead, the BLM now addresses refinements to the 2015 ROD/ARMPA decisions, consistent with the BLM's purpose and need for action. Accordingly, this RMPA/EIS has its foundation in the comprehensive 2015 Final EIS and

¹For example, this 2018 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)

ROD/ARMPA and incorporates those documents by reference—including the entire range of alternatives evaluated through the 2015 planning process:

- Alternative A would have retained the current management goals, objectives, and direction specified in the existing BLM RMPs.
- Alternative B was based on the conservation measures developed by the National Technical Team (NTT) planning effort in Washington Office Instructional Memorandum (IM) Number 2012-044. As directed in the IM, the conservation measures developed by the NTT must be considered and analyzed, as appropriate, through the land use planning process and NEPA by all BLM state and field offices that contain occupied Greater Sage-Grouse habitat. Most management actions included in Alternative B would be applied to PHMA.
- Alternative C was based on a citizen group's recommended alternative. This alternative emphasizes improvement and protection of habitat for Greater Sage-Grouse and was applied to all occupied Greater Sage-Grouse habitat. Alternative C would limit commodity development in areas of occupied Greater Sage-Grouse habitat and would close or designate portions of the planning area to some land uses.
- Alternative D, which was identified as the Preferred Alternative in the Draft EIS, balanced opportunities to use and develop the planning area and ensures protection of Greater Sage-Grouse habitat based on scoping comments and input from Cooperating Agencies involved in the alternatives development process. Protective measures would be applied to Greater Sage-Grouse habitat.
- The Proposed LUPA incorporated guidance from specific State Conservation strategies, as well as additional management based on the NTT recommendations. This alternative emphasized management of Greater Sage-Grouse seasonal habitats and maintaining habitat connectivity to support population objectives.

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

Further, additional constraints on land uses or development without a documented need would not meet the purpose of SO 3353. The BLM did not discover new information that would indicate the agency should increase the level of conservation, management, and protection to achieve its land use plan objective. As part of the consideration of whether to amend the 2015 Greater Sage-Grouse RMPs, the BLM requested the USGS to develop an annotated bibliography of Greater Sage-Grouse science published since January 2015 (Carter et al. 2018; see **Section 3.1**). In addition, SO 3353 directs the BLM to promote habitat conservation, while contributing to economic growth and energy independence. As analyzed in the 2015 Final EIS (Section 4.24, Social and Economic Impacts), all of the previously analyzed alternatives, including one proposing constraints stricter than the current management plan, were predicted to result in a loss of development opportunities on public lands.

2.3 DESCRIPTION OF ALTERNATIVES

2.3.1 No-Action Alternative

Under the No-Action Alternative, the BLM would not amend current Greater Sage-Grouse management as described in the 2015 ROD/ARMPA. Greater Sage-Grouse habitat would continue to be managed under current management direction. Goals and objectives for BLM-administered lands and federal mineral estate would not change. Allowable uses and restrictions pertaining to activities such as mineral leasing and development, recreation, lands and realty, and livestock grazing would also remain the same.

2.3.2 Management Alignment Alternative

This alternative is derived through coordination with the State and cooperating agencies to align with the State conservation plan and to support conservation outcomes for Greater Sage-Grouse. The BLM continues to build upon the 2015 planning effort as envisioned in SO 3353 by collaborating with states and stakeholders to improve alignment between federal management plans and other plans and programs at the state level, while ensuring consistency with the BLM's multiple use mission.

This enhanced cooperation between the BLM and the Governor's office would lead to improved management and coordination with states across the range of Greater Sage-Grouse. It would also provide the flexibility for the BLM to work with the State of Colorado on landscape-scale decisions, which would provide protections for Greater Sage-Grouse habitat while allowing reasonable development of other resources, in support of local communities and economies. **Table 2-2** in **Section 2.5**, below, further specifies the proposed changes needed to address consistency between State and federal plans.

At the request of the State, the Management Alignment Alternative in this Draft RMPA/EIS does not modify the net conservation gain standard for compensatory mitigation that the BLM incorporated into its plans in 2015. DOI and the BLM, however, have 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, 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.

2.4 COMPARATIVE SUMMARY OF ALTERNATIVES

This section summarizes and compares the No-Action Alternative and Management Alignment Alternative. Combined with the appendices and maps, **Table 2-1** provides the differences among the alternatives. The table below summarizes the major changes in decision and allocations considered in this plan.

2.5 COMPARISON OF ALTERNATIVES

Table 2-2 shows the actions from the 2015 ARMPA that are being considered for change in this plan. The decision number from the 2015 ARMPA is included.

**Table 2-1
Comparative Summary of Alternatives**

Decision Topic	No-Action Alternative	Management Alignment Alternative
Fluid Mineral Leasing		
NSO	PHMA: 921,500 acres	PHMA: 921,500 acres
Closed	224,200 acres	0 acres
Waivers, exceptions, and modifications for NSO in PHMA	No waivers or modifications; Exceptions granted based on criteria and only with USFWS approval	Includes criterion for Waivers, Exceptions, and Modifications

**Table 2-2
Comparison of Alternatives**

Topic	2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
New Fluid Minerals Leasing within 1 Mile from Active Leks	MD MR-1	No new leasing 1 mile from active leks in ADH.	<p>One (1) mile from active leks open to leasing subject to NSO-I.</p> <p>NSO-I: No surface occupancy. Exceptions or modifications may be considered if, in consultation with the State of Colorado, it can be demonstrated that there is no impact on Greater Sage-Grouse based on one of the following:</p> <ul style="list-style-type: none"> • Topography/areas of non-habitat create an effective barrier to impacts • No additional impacts would be realized above those created by existing major infrastructure (for example, State Highway 13) • The exception or modification precludes or offsets greater potential impacts if the action were proposed on adjacent parcels (for example, due to landownership patterns) <p>Waiver: No waivers are authorized unless the area or resource mapped as possessing the attributes protected by the stipulation is determined during collaboration with the State of Colorado to lack those attributes or potential attributes. A 30-day public notice</p>

**Table 2-2
Comparison of Alternatives**

Topic	2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
Waivers, Exceptions, and Modification on NSO Stipulation in PHMA	MD MR-2	No Surface Occupancy (NSO) without waiver or modification in PHMA.	and comment period is required before waiver of a stipulation. Waivers would require BLM State Director approval.
		<p>Waivers, modifications, and exceptions: No waivers or modifications to fluid mineral lease NSO stipulation will be granted. The BLM Authorized Officer may grant an exception to this NSO stipulation only where the proposed action:</p> <ul style="list-style-type: none"> (i) Would not have direct, indirect, or cumulative effects on Greater Sage-Grouse or its habitat; or (ii) Is proposed to be undertaken as an alternative to a similar action occurring on a nearby parcel, and would provide a clear conservation gain to Greater Sage-Grouse. <p>Exceptions based on conservation gain (ii) may only be considered in:</p> <ul style="list-style-type: none"> (a) PHMA of mixed ownership where federal minerals underlie less than 50 percent of the total surface; or (b) areas of BLM-administered lands where the proposed exception is an alternative to an action occurring on a nearby parcel subject to a valid federal fluid mineral lease existing as of the date of this RMP [revision or amendment]. <p>Exceptions based on conservation gain must also include measures, such as enforceable institutional controls and buffers, sufficient to allow the BLM to conclude that such benefits will endure for the duration of the proposed action's impacts.</p> <ul style="list-style-type: none"> • The BLM Authorized Officer may approve any exceptions to this lease stipulation only 	<p>No Surface Occupancy (NSO) with waivers, exceptions, or modifications in PHMA.</p> <p>Waiver: No waivers are authorized unless the area or resource mapped as possessing the attributes protected by the stipulation is determined during collaboration with the State of Colorado to lack those attributes or potential attributes. A 30-day public notice and comment period is required before waiver of a stipulation. Waivers would require BLM State Director approval.</p> <p>Exception: In consultation with the State of Colorado, an exception to Greater Sage-Grouse NSO could be granted on a one-time basis (any occupancy must be removed within 1 year of approval) based on the following factors:</p> <ul style="list-style-type: none"> I. It is determined, based on site-specific information (using tools such as the Habitat Assessment Framework, the Colorado Habitat Exchange Habitat Quantification Tool, or others), that the impacts anticipated by the proposed activity would be fully offset through compensatory mitigation developed in coordination with the State of Colorado that meets principles of compensatory mitigation including, but not limited to: <ul style="list-style-type: none"> • achieving measurable outcomes for Greater

**Table 2-2
Comparison of Alternatives**

Topic	2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
		<p>with the concurrence of the BLM State Director. The BLM Authorized Officer may not grant an exception unless the applicable state wildlife agency, USFWS, and BLM unanimously find that the proposed action satisfies (i) or (ii). A team of one field biologist or other Greater Sage-Grouse expert shall initially make such finding from each respective agency. In the event the initial finding is not unanimous, the finding may be elevated to the appropriate BLM State Director, USFWS State Ecological Services Director, and state wildlife agency head for final resolution. In the event their finding is not unanimous, the exception will not be granted. Approved exceptions will be made publicly available at least quarterly.</p>	<p>Sage-Grouse habitat function that are at least equal to the lost or degraded values</p> <ul style="list-style-type: none"> • providing benefits that are in place for at least the duration of the impacts • accounting for a level of risk that the mitigation action may fail or not persist for the full duration of the impact <p>and/or</p> <p>2. It is determined that there is no impact on Greater Sage-Grouse based on an evaluation of the proposed lease activities in relation to the site-specific terrain and habitat type. For example, in the vicinity of leks, local terrain features such as ridges and ravines may shield potential disruptive impacts from affecting nearby Greater Sage-Grouse habitat</p>
			<p>Modification: In consultation with the State of Colorado, a modification (changes to the stipulation either temporarily or for the term of either part of or the entire lease) to Greater Sage-Grouse NSO could be granted based on an analysis of the following factors:</p> <ol style="list-style-type: none"> 1. It is determined, based on site-specific information (using tools such as the Habitat Assessment Framework, the Colorado Habitat Exchange Habitat Quantification Tool, or others), that the impacts anticipated by the proposed activity would be fully offset through compensatory mitigation developed in coordination with the State of Colorado that meets

**Table 2-2
Comparison of Alternatives**

Topic	2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
			<p>principles of compensatory mitigation including:</p> <ul style="list-style-type: none"> • achieving measurable outcomes for Greater Sage-Grouse habitat function that are at least equal to the lost or degraded values; • providing benefits that are in place for at least the duration of the impacts; • accounting for a level of risk that the mitigation action may fail or not persist for the full duration of the impact <p>and/or</p> <p>2. It is determined that there is no impact on Greater Sage-Grouse based on an evaluation of the proposed lease activities in relation to the site-specific terrain and habitat type. For example, in the vicinity of leks, local terrain features such as ridges and ravines may shield potential disruptive impacts from affecting nearby Greater Sage-Grouse habitat</p>

2.6 PREFERRED ALTERNATIVE

BLM regulations require the agency to identify a preferred alternative in the Draft RMPA/EIS (43 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 has identified the Management Alignment Alternative 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 Draft RMPA/EIS be selected as the agencies' decision in the ROD. Various parts of separate alternatives that are analyzed in this Draft RMPA/EIS can be "mixed and matched" to develop a proposed plan. With respect to mitigation in particular, at the request of the State, the Management Alignment Alternative in this Draft

RMPE/EIS does not modify the net conservation gain standard for compensatory mitigation that the BLM incorporated into its plans in 2015. DOI and the BLM, however, have 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, 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.

2.7 MONITORING AND ADAPTIVE MANAGEMENT

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

Chapter I (Section I.3, Planning Area and Current Management) describes the decision area as those lands allocated as PHMA and GHMA and includes a definition of PHMA and GHMA. During plan evaluation, areas designated as PHMA and GHMA can be modified based on an adaptive management process, including an evaluation of data by CPW in consultation with BLM management as described in Appendix H (Guidelines for Implementation and Adaptive Management). Monitoring data gathered over time are examined and used to draw conclusions on whether management actions are meeting stated objectives, and if not, why not. Conclusions are then used to make recommendations on whether to continue current management or to identify what changes need to be made in management practices to meet objectives. The BLM will use land use plan evaluations to determine if the decisions in the 2015 ROD/ARMPA, supported by the accompanying NEPA analysis, are still valid in light of new information and monitoring data. Evaluations will follow the protocols established by the BLM Land Use Planning Handbook (H-1601-1) or other appropriate guidance in effect at the time the evaluation is initiated.

The 2015 ROD/ARMPA also includes an adaptive management strategy that includes soft and hard triggers and responses. These triggers are not specific to any particular project but identify habitat and population factors. Soft triggers represent an indication that management changes may be needed at the implementation level to address habitat or population losses. If a soft trigger were tripped during the life of the plans, the BLM's response may be to apply more conservative or restrictive conservation measures or to identify habitat improvement projects to mitigate for the specific cause in the decline of populations or habitats, with consideration of local knowledge and conditions. These adjustments will be made to preclude tripping a "hard" trigger (which signals more severe habitat loss or population declines).

Hard triggers represent a threshold indicating that immediate action is necessary to stop a severe deviation from Greater Sage-Grouse conservation objectives set forth in the ARMPA. 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 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

revisions if necessary. More information regarding the ARMPA's adaptive management strategy can be found in Appendix H of the ARMPA. Additional information about changes to the adaptive management strategy in this plan are provided in Appendix D (Greater Sage-Grouse Monitoring Framework).

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Chapter 3. Affected Environment

3.1 INTRODUCTION

The purpose of this chapter is to describe the existing biological, physical, and socioeconomic characteristics of the planning area, including human uses that could be affected by implementing the alternatives described in **Chapter 2**. The affected environment provides the context for assessing the potential impacts described in **Chapter 4**. The resource topics in this chapter reflect those that are identified in **Table I-1** as corresponding to an issue carried forward for detailed analysis in this RMPA/EIS.

The geographic extent of this environmental analysis is the same as that in the 2015 Final EIS. The BLM acknowledges that there have been changes to the landscape since 2015; however, because this analysis covers approximately 1,649,500 acres of BLM-administered lands and approximately 2,137,700 acres of federal mineral estate, the data collected consistently across the range indicate that the extent of these changes is relatively minimal. For example, BLM monitoring data collected and analyzed annually at the biologically significant unit (BSU) scale, as outlined in the Greater Sage-Grouse Monitoring Framework (Appendix D of the 2015 ROD/ARMPA), indicate that there has been a less than 1 percent range-wide overall increase in estimated disturbance from 2015 through 2017. Moreover, there has been an overall decrease of less than 1 percent range-wide from 2012 through 2015 in sagebrush availability in PHMA within BSUs.

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

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

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

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

USGS Reports

As part of the consideration of whether to amend some, all, or none of the 2015 Greater Sage-Grouse land use plans, the BLM requested the USGS to develop an annotated bibliography of Greater Sage-Grouse science published since January 2015 (Carter et al. 2018)¹ and a report that synthesizes and outlines the potential management implications of this new science (Hanser et al. 2018).²

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

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

Following the 2015 plans, the scientific community has continued to improve the knowledge available to inform management actions and an overall understanding of Greater Sage-Grouse populations, habitat requirements, and their response to human activity. The review discussed the science related to six major topics identified by the USGS and BLM, as follows:

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

Multiscale Habitat Suitability and Mapping Tools

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

Discrete Human Activities

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

Diffuse Activities

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

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

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

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

Fire and Invasive Species

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

Restoration Effectiveness

Since 2015, tools have been developed to help managers strategically place and design restoration treatments where they will have the greatest benefit for Greater Sage-Grouse. Conifer removal benefited Greater Sage-Grouse through increased female survival and nest and brood success. Treatment method and site potential can affect post-treatment vegetation characteristics. Sagebrush manipulation treatments seemed to benefit Greater Sage-Grouse populations and brood-rearing habitat availability, but benefits may be limited to areas with high sagebrush cover at higher elevations and in mountain big sagebrush (*A. tridentata vaseyana*) communities. Studies indicate that Greater Sage-Grouse populations did not benefit from, or were negatively affected by, prescribed fire and mechanical sagebrush removal (Hanser et al. 2018, p. 3).

Population Estimation and Genetics

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

3.2 RESOURCES AFFECTED

In accordance with **Chapter 1, Section 1.5**, the following resources may have potentially significant impacts based on the actions considered in **Chapter 2. Table 3-1**, below, provides the location of baseline information in the 2015 Final EIS.

Table 3-1
Affected Environment Incorporated by Reference

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

3.3 CHANGES TO AFFECTED ENVIRONMENT SINCE 2015

3.3.1 Greater Sage-Grouse

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

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

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

3.3.2 Fluid Minerals

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

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

Table 3-3
Oil and Gas Well Numbers

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

Source: BLM 2015 Final EIS Table N.17

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

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

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

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

APDS approved (federal minerals)

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

Spuds (federal APDs)

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

3.3.3 Socioeconomics

The socioeconomic study area for this RMPA/EIS are the ten Colorado counties that make up the Northwest Colorado sub-region: Eagle, Garfield, Grand, Jackson, Larimer, Mesa, Moffat, Rio Blanco, Routt, and Summit. This is slightly different from the primary socioeconomic study area used in the 2015 Final EIS. In that EIS, the primary socioeconomic study area contained only eight counties: Eagle, Garfield, Grand, Jackson, Mesa, Moffat, Rio Blanco, and Routt. The rationale was because each of these eight counties contains considerable amounts of PHMA or GHMA. Larimer and Summit Counties also have Greater Sage-Grouse habitat in the Northwest Colorado sub-region but were excluded from the primary socioeconomic study area because they have considerably less habitat than other counties (less than 10,000 acres) and they are not considered important service areas for the remaining counties. In

the case of Larimer County, it would have considerably altered the data presented for the primary socioeconomic study area. This is because of the size of the county's population and economy; however, Larimer and Summit Counties and three counties outside of Colorado (Uintah County, Utah, and Carbon County and Sweetwater County, Wyoming) were included in the secondary socioeconomic study area.

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

As discussed in the 2015 Final EIS, many of the counties within the socioeconomic study area have historical connections to mining, quarrying, and oil and gas extraction and are still influenced by the oil and gas industry. All of the socioeconomic study area counties except for Larimer County, have seen fluctuations in mining, including oil and gas extraction jobs over the years, resulting in fewer jobs in 2016 than in 2010 (Bureau of Economic Analysis 2017), likely reflecting the changes in number of active drilling rigs in the region.

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

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

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

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

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

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

Source: US Census Bureau 2017a

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

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

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

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

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

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

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

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

As discussed in the 2015 Final EIS, development and production may result in environmental impacts, demands on physical infrastructure and public services, increased traffic, “boom and bust” economic cycles, and other impacts that have economic and social costs. For instance, development may create new demands on public services, such as road maintenance and emergency services. Development may create a large influx of employees and new residents that can overwhelm community services, impact housing availability and prices, and affect community cohesion. These types of impacts have been observed in areas that have seen large and rapid development of oil and gas resources (James and Aadland 2011; Weber 2012; Brown 2014; Ratledge and Zachary 2017).

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

Chapter 4. Environmental Consequences

4.1 INTRODUCTION

This chapter presents the anticipated direct and indirect impacts on the human and natural environment from implementing the alternatives in **Chapter 2**. The purpose of this chapter is to describe to the decision-maker and the public how the environment could change if either of the alternatives were implemented. It is meant to aid in the decision of which amendment decisions, if any, to adopt.

This chapter is organized by topic, based on the affected resources identified in **Chapters 1** and **3**. Only those issues listed in **Table 1-5** were carried forward for analysis.

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

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

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

4.2 ANALYTICAL ASSUMPTIONS

Several overarching assumptions have been made in order to facilitate the analysis of the project impacts. These assumptions set guidelines and provide reasonably foreseeable projected levels of development that would occur in the planning area during the planning period. These assumptions should not be interpreted as constraining or redefining the management objectives and actions proposed for 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 the RMP-level decisions in this RMPA would be subject to further environmental review, including that under NEPA.
- Direct and indirect impacts of implementing the RMPA would primarily occur on public lands administered by the BLM in the planning area.
- The discussion of impacts is based on best available data. Knowledge of the planning area and decision area and professional judgment, based on observation and analysis of conditions and responses in similar areas, are used for environmental impacts where data are limited.

- Restrictions (such as siting, design, and mitigation measures) would apply, where appropriate, to surface-disturbing activities associated with land use authorizations and permits issued on BLM-administered lands and federal mineral estate.
- GIS data have been used in developing acreage calculations and to generate the figures in **Chapters 1–4**. Calculations depend on the quality and availability of data. Acreage figures and other numbers are approximate projections for comparison and analysis only; readers should not infer that they reflect exact measurements or precise calculations. In the absence of quantitative data, best professional judgment was used. Impacts were sometimes described using ranges of potential impacts, or they were described qualitatively, when appropriate.

4.3 GENERAL METHOD FOR ANALYZING IMPACTS

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

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

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

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

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

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

For ease of reading, the impacts of the management actions for a particular alternative on a specific resource are generally compared with the status quo or baseline for that resource; however, in order to properly and meaningfully evaluate the impacts under each alternative, its expected impacts should be measured against those projected to occur under the No-Action Alternative. This alternative is the baseline for comparing the alternatives to one another. This is because it represents what is anticipated to occur should the LUPAs not take place.

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

which resources are considered permanently changed; irretrievable commitments of resources result from actions in which resources are considered permanently lost.

4.3.1 Impacts from No-Action Alternative

The impacts of the No-Action Alternative, or current management, of this RMPA/EIS were analyzed as the Proposed Plan in the 2015 Final EIS, and the BLM has reviewed new information to verify that the analysis in the 2015 Final EIS remains sound; therefore, impacts from implementing the No-Action Alternative are substantially the same as those analyzed in the 2015 Final EIS.

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

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

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

4.3.2 Impacts from the Management Alignment Alternative

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

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

Plan Alignment Decision	Considered in 2015?
Within 1 mile of a lek – open to leasing subject to NSO.	<p>Open to Leasing subject to NSO was analyzed under Alternative D - GRSG PHMA NSO-46d as part of Open to Leasing subject to NSO (applied to all PHMA).</p> <p>The sections below provide specific analysis of the anticipated changes in the impacts on those resources listed in Sections 4.5–4.7 from implementing the Management Alignment Alternative – from “closed to leasing within one mile of active leks” to Open to leasing subject to NSO (restrictive WEMs) <i>within one mile of active leks</i>.</p>

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

Plan Alignment Decision	Considered in 2015?
NSO with waivers, exceptions, or modifications	<p>Open to Leasing subject to NSO was analyzed under Alternative D - GRSG PHMA NSO-46d as part of Open to Leasing subject to NSO (applied to all PHMA). The analysis included very strict exception criteria and no waivers or modifications.</p> <p>The sections below provide specific analysis of the anticipated changes in the impacts on those resources listed in Sections 4.5–4.7 from implementing the Management Alignment Alternative – replacing very strict exception criteria (requiring consensus with the USFWS, BLM, and CPW) and no waivers or modifications to Colorado-specific criteria as defined in Appendix G – Stipulations Applicable to Fluid Minerals.</p>

4.4 INCOMPLETE OR UNAVAILABLE INFORMATION

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

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

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

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

- Comprehensive planning area-wide inventory of wildlife and special status species occurrence and condition
- Site-specific surveys of cultural and paleontological resources
- The discussion of impacts is based on best available data. Knowledge of the planning area and decision area and professional judgment, based on observation and analysis of conditions, including commodity prices, and responses in similar areas, are used for environmental impacts where data are limited.

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

In addition, some impacts could not be quantified, given the proposed management actions. Where there was this gap, impacts were projected in qualitative terms or, in some instances, were described as unknown. Subsequent site-specific project-level analyses would provide the opportunity to collect and

examine site-specific inventory data to determine appropriate application of LUP-level guidance. In addition, the BLM and other agencies in the planning area continue to update and refine information used to implement this plan.

4.5 IMPACTS ON GREATER SAGE-GROUSE

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

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

The Management Alignment Alternative would open approximately 224,200 acres for fluid mineral leasing that are closed under the No-Action Alternative. The 224,200 acres would be open for fluid mineral leasing subject to an NSO stipulation. Although the additional acres would be available to leasing, their impact on Greater Sage-Grouse would be similar to the No-Action Alternative because surface disturbance, fragmentation, and indirect habitat loss would not be expected to increase due to restrictions on surface disturbance.

The Management Alignment Alternative also amends the criteria for waivers, exceptions, and modifications in PHMA beyond 1 mile from active leks to allow for surface occupancy in cases where specific mitigation standards are met in consultation with Colorado Parks and Wildlife and/or it can be demonstrated that, due to topography, no impact on Greater Sage-Grouse or Greater Sage-Grouse habitat would occur.

Better coordination with the State of Colorado provides more of an all-lands approach that, due to multiple jurisdictions with regulatory authority over land and mineral ownership, may result in better landscape-scale protections for Greater Sage-Grouse and Greater Sage-Grouse habitat.

4.6 IMPACTS ON FLUID MINERALS

Under the Management Alignment Alternative, approximately 224,200 acres that are closed to fluid mineral leasing under the No-Action Alternative would be open for fluid mineral leasing subject to NSO stipulations, as discussed in **Table 2-2**. Opening the 224,200 acres for fluid mineral leasing means that there is the potential for revenue generation associated with leasing, developing, and producing the federal fluid minerals as discussed in **Section 3.3.2**; however, it is unknown when or if the 224,200 acres will actually be leased and/or developed. As discussed in the 2015 Final EIS, approximately 34 percent of the federal mineral estate in PHMA is currently unleased, including approximately 29 percent with high potential for oil and gas. There are numerous considerations that operators take into account before acquiring and developing leases, including market value of the commodity being produced (oil, natural gas, or associated hydrocarbons), operational costs, ease of access to lease minerals, practicality of necessary infrastructure such as roads and pipelines, and technological capabilities. As a result, it is difficult to predict if these changes to availability of leases and increased flexibility of the WEMs would lead to additional oil and gas development or a varied approach to the same level of development.

4.7 IMPACTS ON SOCIOECONOMICS

As discussed in **Section 3.3.3**, given the uncertainty of whether or not the 224,200 acres will be leased and developed, it is assumed that any development and production that may occur under the

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

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

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

4.8 CUMULATIVE EFFECTS

This section presents the anticipated cumulative impacts on the environment from implementing the alternatives presented in **Chapter 2**. A cumulative impact is the effect 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 non-federal) or person undertakes such other 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 RMP decisions 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 to amend land management plans for National Forests in Idaho, Montana, Nevada, Utah, Colorado, and Wyoming. Those plans were amended in September 2015 to incorporate measures to support the conservation of Greater Sage-Grouse and their habitat. As a result, the sum of the effects of these incremental impacts involves determinations that often are complex, are limited by the availability of information, and, to some degree, are subjective.

This RMPA/EIS incorporates by reference the analysis in the 2015 Final EIS. It comprehensively analyzed the cumulative impacts associated with the planning decisions under consideration in that process, including the impacts associated with the alternative approved in the 2015 ROD. The 2015 ARMPA is the No-Action Alternative in this RMPA/EIS and was part of the cumulative impact analysis in the 2015 Final EIS. Additionally, the cumulative impacts anticipated from the Management Alignment Alternative 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 Colorado to verify that they have not changed significantly. 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**), as well the BLM's review of additional past, present, and reasonably foreseeable actions in 2018. 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 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.

Table 4-3, below, includes the incremental impacts across the range of BLM and Forest Service lands being amended in concurrent plan amendments. See Chapter 5 of the 2015 Final EIS with this information.

Table 4-3
Cumulative Effects Analysis Incorporated by Reference

Resource Topic	Location of Cumulative Effects Analysis
Greater Sage-Grouse	<p>The range of alternatives addressed in the 2015 cumulative effects analysis includes both the current No-Action Alternative (2015 FEIS ARMPA) and the current Management Alignment Alternative (2015 FEIS, Alternative D).</p> <p>The 2015 Final EIS concluded that the cumulative impacts of the actions in Alternative D were substantially similar to the 2015 Final EIS Proposed LUPA. The cumulative effects analysis for all the action alternatives in the 2015 FEIS stated that "Alternatives B, C, and D and the Proposed LUPA [are] anticipated to result in a net</p>

Table 4-3
Cumulative Effects Analysis Incorporated by Reference

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

Table 4-4 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 management zone. WAFWA Management Zones 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 management zones are based on floristic provinces that reflect ecological and biological issues and similarities, not political boundaries.

At the regional scale, WAFWA Greater Sage-Grouse management zones and responsible BLM offices include I (Great Plains: BLM Montana and Wyoming), II (Wyoming Basins: BLM Wyoming, Colorado, and Utah), III (Southern Great Basin: BLM Nevada, Northeastern California, and Utah), IV (Snake River Plain: BLM Idaho, Oregon, Nevada, Colorado, Utah, and Montana), V (Northern Great Basin: BLM Oregon, Northeastern California, and Nevada), VI (Columbia Basin: BLM Oregon), and VII (Colorado Plateau: BLM Northwest Colorado and Utah). These zones are an important resource for Greater Sage-Grouse management; and at a regional scale, the following projects are past, present, and reasonably foreseeable that cumulatively effect one or more of the WAFWA management zones. For Nevada and northeastern California, those actions in WAFWA Zones III, IV, and V, which overlap Utah, Idaho, Oregon, and Colorado, would have the greatest potential to contribute to cumulative effects. Note that not all of the projects listed for Utah, Idaho, Oregon, and Colorado are in WAFWA Zones III, IV, and V, and so may not contribute to cumulative effects.

Further, the entire sum of past, present, and reasonably foreseeable actions listed below represent cumulative effects across the range of Greater Sage-Grouse habitat and management areas. These effects are important to consider for future management of the species as a whole and are not solely being analyzed at the local or state level. That is why all ongoing BLM RMPAs/EISs refer to every past, present, and reasonably foreseeable action across all states undergoing a plan amendment.

Wildland fire and invasive species remain the greatest threat to Greater Sage-Grouse in the Great Basin. Between 2008 and 2017, wildfires burned an average of 900,000 acres per year in Greater Sage-Grouse habitat management areas range-wide¹; this is within the range of projected wildland fire analyzed in the 2015 Final EIS. The BLM has committed resources to habitat restoration and has treated 1.4 million acres of Greater Sage-Grouse habitat range-wide over the past 5 years.

Table 4-4
Range-Wide Impacts from Past, Present, and Reasonably Foreseeable Future 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.

¹Removing 2012 and 2017, which were above-average wildland fire years, the 8-year average is approximately 500,000 acres burned per year.

Table 4-4
Range-Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
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.
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.
Plans		
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.

Table 4-4
Range-Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
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.
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 (BOSH)	BLM: Future removal of juniper encroaching into Greater Sage-Grouse habitat	BOSH 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.

Table 4-4
Range-Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
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.
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 same mitigation standard under the management alignment alternative as described in the 2015 EIS, so no additional cumulative impacts beyond those described in 2015 are anticipated. 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.

Table 4-4
Range-Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
	BLM: Future pending	BLM has a scheduled lease sale in June 2018 that will offer 110,556 acres in HMAs. Lease stipulations would still be as described in 2015 until a decision is made on this draft.
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. 6 geothermal development permits have been approved and drilled on existing pads on existing leases. McGinness Hills Phase 3 EA authorized up to 42 acres of disturbance on existing leases, which will be offset according to the mitigation hierarchy.
Geothermal	Forest Service: Future Pending	6,901 acres of HMA pending forest service concurrence to lease, no pending geothermal development permits. If in HMAs, stipulations would be as described in 2015.
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 PEIS	BLM: Future – Great Basin-wide programmatic habitat fuel break project	Programmatic document effects will be realized when the field implements projects.
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).

Table 4-4
Range-Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
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 RNA (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.
Fire Restoration (Emergency Stabilization and Rehabilitation)	Acres of habitat restoration following wildland fires	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. Effect: Potentially improve or increase habitat due to vegetative restoration activities.
Vegetation		
Habitat Treatments	Acres of habitat improvement projects	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. Effect: Potentially improve or increase habitat due to vegetative restoration activities. 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

Table 4-4
Range-Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
		<p>habitat protection/restoration across all populations.</p> <p>Effect: Potentially improve or increase habitat due to vegetative restoration activities.</p>
Lands and Realty		
Land Use and Realty (issued and pending) 2015-2018	ROWs issued or pending on BLM land	<p>Past: Issued 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 same mitigation standard under the management alignment alternative as described in the 2015 EIS, so no additional cumulative impacts beyond those described in 2015 are anticipated.</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 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>

Table 4-4
Range-Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
Enefit Utility Project	Five rights-of-way across public lands for infrastructure (a road, 3 pipelines, and 2 powerlines) to support development of a mine on private lands. Estimated 1,037 acres of disturbance for the rights-of-way (7,000-9,000 acre mine and 320-acre processing plant).	<p>Still in planning and NEPA stages – 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: BLM has a scheduled lease sale in June 2018 that will offer 646 acres in HMAs. Additionally, 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>
Oil and Gas Wells	Oil and Gas exploration and development	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

Table 4-4
Range-Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
		<p>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>
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>Still in planning and NEPA stages – 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>

Table 4-4
Range-Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
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	Still in planning and NEPA stages; could impact the Carbon population. 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.
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	The area has been leased, but development is on hold due to litigation. Would affect the Emery population. 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.
Flat Canyon Coal Lease by Application	Lease by Application 3,792 acres; and Exploration License, 595 acres	Leased and under production in the Carbon population. 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.
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	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. 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.

Table 4-4
Range-Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
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>
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</p>

Table 4-4
Range-Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
Motorized Travel Plan Implementation	Implementation of motorized route designation plans across the planning region	<p>removed by management standards identified in the selected alternative.</p> <p>Implementation actions underway statewide, with travel planning reasonably foreseeable in the Sheeprocks, Uintah, Carbon and Panguitch populations.</p> <p>Effect: The development of a motorized travel plan would potential help to reduce fragmentation of habitat and centralizing disturbance into areas of lesser importance.</p>
Grand Staircase-Escalante National Monument Management Plan	Development of a resource management plan	<p>Still in early 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 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>
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 standard to the State's 11 SGMAs.</p> <p>Effect: The plan establishes the management actions necessary for the State of Utah to continue to enhance and</p>

Table 4-4
Range-Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
		<p>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.
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 sage grouse habitat, effects were offset by the management prescriptions in the RMPs and ARMPA.

Table 4-4
Range-Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
	BLM: Future pending	There are approximately 590 ROW applications pending review and analysis. New ROWs under the Management Alignment Alternative 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 proposed in the Management Alignment Alternative 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 Management Alignment Alternative does not propose changes to any decisions associated with locatable minerals, which were sufficiently analyzed on the existing plans.
	BLM: Future pending	The BLM is currently reviewing 26 plans of operation for new mines, mine expansions and notice-level activities. This number also includes 10 pending mine patents, which are in the process of being patented into private ownership. The Management Alignment Alternative 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 sage grouse habitat, effects were offset by the management prescriptions in the RMPs and ARMPA.
Leasable Mineral Projects (Coal)	BLM: Future pending	BLM Wyoming is currently reviewing 4 coal lease applications/modifications totaling 10,148.56 acres. No management

Table 4-4
Range-Wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
Sage-Grouse Conservation	Forest Service: Future	<p>decisions for leasable minerals are proposed for change under the Management Alignment Alternative.</p> <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 will propose alignment with state management plans and strategies.</p>

Under the Management Alignment alternative, opening areas within 1 mile of an active lek to new fluid mineral leasing subject to NSO stipulations with waivers, exceptions, or modifications would potentially allow for more development to occur near leks than under the No-Action Alternative; however, the availability of minerals does not guarantee leasing, and leasing does not guarantee subsequent development.

If development were to occur, the permitted actions would still be required to follow the goals, objectives, and RMP decisions for Greater Sage-Grouse conservation. Further, there would continue to be no ground disturbance from fluid mineral leasing within 1 mile of the leks. The exception would be in rare situations, where such development would have no impact or would benefit Greater Sage-Grouse management, which would mitigate the magnitude of potential impacts in those areas closest to the lek.

Additionally, in Colorado, most of the high potential areas for fluid mineral development within 1 mile of active leks are already leased. This reduces the likelihood that new fluid mineral leases and any potential development will occur in these areas; therefore, there will be no appreciable additive impact from the implementation of this aspect of the Management Alignment Alternative.

Under the Management Alignment Alternative, waivers, exceptions, and modifications to NSO stipulations on fluid mineral development in PHMA would be available under specified criteria. This availability would increase the possibility of leasing, permitting, and subsequent ground-disturbing activities occurring within PHMA; however, the established criteria for the granting of a waiver, exception, or modification include the condition that the grant does not negatively impact Greater Sage-Grouse. For example, a waiver could be authorized if the BLM State Director determines, in collaboration with the State of Colorado, that the area lacks the attributes or potential attributes that the stipulation is designed to protect; therefore, because of this condition in the criteria, there would be no appreciable additive incremental impacts over time on Greater Sage-Grouse from the implementation of this aspect of the Management Alignment Alternative.

Although waivers, exceptions, or modifications could be granted in locations where Greater Sage-Grouse would not be impacted, the grant would authorize ground-disturbing activities that could impact other resources or resource uses. Further, leasing does not guarantee subsequent development, and if development were to occur, the proponent of the permitted actions would still be required to follow the goals, objectives, and RMP decisions for Greater Sage-Grouse conservation. This in turn means that few ground-disturbing activities are likely to occur, and there would be no appreciable additive impact

from the implementation of this aspect of the Management Alignment Alternative, as compared to the No-Action alternative.

Summary

In consideration of the analysis completed in 2015 and new information about potential impacts from past, present, and reasonably foreseeable actions, including the ongoing Greater Sage-Grouse planning efforts, the cumulative impacts expected from the management actions considered in the No-Action and the Management Alignment Alternatives are substantially similar. The Management Alignment Alternative may present increased flexibility for oil and gas development across the analysis area. It is currently speculative if this would have an impact on production levels. As concluded in the 2015 Final EIS, cumulative impacts between Alternative D and the Proposed LUPA identified no discernable difference in the resources impacted by the actions proposed in this amendment; therefore, there should be similar impacts between the No-Action and the Management Alignment Alternatives.

4.9 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Section 102(2)(C) of NEPA requires a discussion of any irreversible or irretrievable commitments of resources from an alternative, should it be implemented. An irreversible commitment of a resource is one that cannot be reversed, such as the extinction of a species or loss of a cultural resource site without proper documentation. An irretrievable commitment of a resource is one in which the resource or its use is lost for a period of time, such as extraction of oil and gas. Should oil and gas deposits underlying Greater Sage-Grouse habitat be extracted, that oil and gas resource would be lost.

4.10 UNAVOIDABLE ADVERSE IMPACTS

Section 102(C) of 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.

Section 4.27 (page 4–621) of the 2015 Final EIS describes unavoidable adverse impacts from the implementation of the decisions. No additional unavoidable adverse impacts are expected from the No-Action Alternative or the Management Alignment Alternative of this RMPA/EIS.

4.11 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

Section 102(C) of NEPA requires a discussion of the relationship between local, short-term uses of 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; long term is defined as following the first 5 years of implementation but within the life of the RMPA/EIS.

See Section 4.28, Relationship between Local Short-term Uses and Long-term Uses (page 4–623) of the 2015 Final EIS for more details.

Chapter 5. Consultation and Coordination

This chapter describes the efforts undertaken by the BLM throughout the process of developing the RMPA/EIS to ensure the process remained open and inclusive to the extent possible. This chapter also describes efforts taken to comply with legal requirements to consult and coordinate with various government agencies. These efforts include public scoping; identifying and designating cooperating agencies; consulting with applicable federal, state, and tribal governments; and identifying “any known inconsistencies with State or local plans, policies or programs” (43 CFR 1610.3-2(e)).

5.1 PUBLIC INVOLVEMENT

5.1.1 Public Scoping

The scoping period began with the publication of the NOI in the *Federal Register* on October 11, 2017. The NOI was titled Notice of Intent to Amend Land Use Plans Regarding Greater Sage-Grouse Conservation and Prepare Associated Environmental Impact Statements or Environmental Assessments. During the 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 whether the BLM should pursue a state-by-state amendment process or structure its planning effort differently, for example by completing a national programmatic process. Representatives of the BLM engaged with the Western Governors’ Association Sage Grouse Task Force in October of 2017 and January of 2018 to discuss the progress of scoping efforts. In addition, the DOI Deputy Secretary has emphasized that input from state governors would weigh heavily when considering what changes should be made and ensuring consistency with the BLM’s multiple use mission.

Information about scoping meetings, comments received, comment analysis, and issue development can be found in the scoping report available online here: <https://goo.gl/FopNgW>.

5.1.2 Future Public Involvement

Public participation efforts will be ongoing throughout the remainder of the RMPA/EIS process. One substantial part of this effort is the opportunity for members of the public to comment on the Draft RMPA/EIS during the comment period. This Proposed RMPA/Final EIS will respond to all substantive comments that the BLM receives during the 90-day comment period. An NOA will be published in the *Federal Register* to notify the public of the availability of the Proposed RMPA and Final EIS. The NOA will also outline protest procedures during the 30-day period. A Governor’s Consistency Review will occur concurrent with this protest period. Such protests will be addressed in the RODs, and necessary adjustments may be made to the RMPA/EIS. A ROD will then be issued by the BLM after the release of the Proposed RMPA/Final EIS, the Governor’s Consistency Review, and any resolution of protests received on the Proposed RMPA/Final EIS.

5.2 COOPERATING AGENCIES

Federal regulation directs the BLM to invite eligible federal agencies, state and local governments, and federally recognized Indian tribes to participate as cooperating agencies when amending RMPs Notice of Intent to Amend Land Use Plans Regarding Greater Sage-Grouse Conservation and Prepare Associated Environmental Impact Statements or Environmental Assessments (43 CFR 1610.3-1(b)). A cooperating agency is any such agency or tribe that enters into a formal agreement with the lead federal agency to

help develop an environmental analysis. More specifically, cooperating agencies “work with the BLM, sharing knowledge and resources, to achieve desired outcomes for public lands and communities within statutory and regulatory frameworks” (BLM Land Use Planning Handbook H-1601-1). These agencies are invited to participate because they have jurisdiction by law or can offer special expertise. Cooperating agency status provides a formal framework for these government units to engage in active collaboration with a lead federal agency in the planning process.

BLM Colorado invited the following cooperating agencies (see **Table 5-1**, below) to participate in the 2018 Draft Environmental Impact Statement in March 2018.

Table 5-1
Cooperating Agencies

Agencies and Tribes Invited to be Cooperators	Agencies that Accepted	Agencies that Signed Memoranda of Understanding
Counties		
Moffat County	X	X (X = have signed MOU)
Rio Blanco County		
Grand County		
Routt County	X	
Mesa County	X	
Garfield County	X	
Jackson County		
State Agencies		
Colorado Parks and Wildlife	X	
Colorado Department of Natural Resources	X	
Colorado State Land Board	X	
Denver Water Board		
White River and Douglas Creek Conservation Districts	X	
Federal Agencies		
United States Fish and Wildlife Service	X	
Arapaho National Wildlife Refuge		
Natural Resource Conservation Service		
Tribes		
Eastern Shoshone Tribe (Wind River Reservation)		
Northern Arapaho Tribe		
Northern Cheyenne Tribe		
Southern Ute Indian Tribe		
Ute Indian Tribe (Uintah and Ouray Reservation)		
Ute Mountain Ute Tribe		
Other		
Associated Governments of Northwest Colorado		

The BLM worked closely with the State of Colorado, cooperating agencies, and stakeholders to develop an alternative that would more closely align with the State’s plans for management of Greater Sage-Grouse and a better balance of conservation strategies and policies with the BLM’s multiple-use mission.

5.3 AMERICAN INDIAN TRIBAL CONSULTATION

Various federal laws require the BLM to consult with American Indian tribes during the planning/NEPA decision-making process. The BLM contacted all Native American tribes and organizations with interests in the planning area by mail requesting a consultation and inviting participation in the planning process:

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

5.4 LIST OF PREPARERS

This RMPA/EIS was prepared by an interdisciplinary team of staff from the Colorado BLM, in collaboration with Environmental Management and Planning Solutions, Inc.

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Glossary

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

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

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

Avoidance/avoidance area. These terms usually address mitigation of some activity (i.e., resource use). Paraphrasing the CEQ Regulations (40 CFR 1508.20), avoidance means to circumvent, or bypass, an impact altogether by not taking a certain action, or parts of an action. Therefore, the term “avoidance” does not necessarily prohibit a proposed activity, but it may require the relocation of an action, or the total redesign of an action to eliminate any potential impacts resulting from it. Also see “right-of-way avoidance area” definition.

Best Management Practices (BMPs). A suite of techniques that guide or may be applied to management actions to aide in achieving desired outcomes. BMPs are often developed in conjunction with land use plans, but they are not considered a planning decision unless the plans specify that they are mandatory.

Biologically Significant Unit (BSU). A geographical/spatial area within Greater Sage-Grouse habitat that contains relevant and important habitats that is used as the basis for comparative calculations to support evaluation of changes to habitat.

Compensatory mitigation. Compensating for the residual impact by replacing or providing substitute resources or environments (40 CFR 1508.20).

Cooperating agency. Assists the lead federal agency in developing an environmental assessment or environmental impact statement. These can be any agency with jurisdiction by law or special expertise for proposals covered by NEPA (40 CFR 1501.6). Any tribe or Federal, State, or local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency.

Council on Environmental Quality (CEQ). An advisory council to the President of the US established by the National Environmental Policy Act of 1969. It reviews federal programs to analyze and interpret environmental trends and information.

Cumulative effects. The direct and indirect effects of a proposed project alternative's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action.

Decision area. Public lands and mineral estate managed by the US Department of Interior, Bureau of Land Management that are within the planning area and are encompassed by all designated habitat.

Direct impacts. Direct impacts are caused by an action or implementation of an alternative and occur at the same time and place.

Environmental impact statement (EIS). A detailed statement prepared by the responsible official in which a major federal action that significantly affects the quality of the human environment is described, alternatives to the proposed action are provided, and effects are analyzed.

Fluid minerals. Oil, gas, coal bed natural gas, and geothermal resources.

General Habitat Management Area (GHMA). Areas of seasonal or year-round Greater Sage-Grouse habitat outside of priority habitat.

Geographic Information System (GIS). A system of computer hardware, software, data, people, and applications that capture, store, edit, analyze, and display a potentially wide array of geospatial information.

Habitat. An environment that meets a specific set of physical, biological, temporal, or spatial characteristics that satisfy the requirements of a plant or animal species or group of species for part or all of their life cycle.

Impact. The effect, influence, alteration, or imprint caused by an action.

Indirect impacts. Indirect impacts result from implementing an action or alternative but usually occur later in time or are removed in distance and are reasonably certain to occur.

Leasable minerals. Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. These include energy-related mineral resources such as oil, natural gas, coal and geothermal, and some non-energy minerals, such as phosphate, sodium, potassium, and sulfur. Geothermal resources are also leasable under the Geothermal Steam Act of 1970.

Lease stipulation. A modification of the terms and conditions on a standard lease form at the time of the lease sale.

Lek. An arena where male sage-grouse display for the purpose of gaining breeding territories and attracting females. These arenas are usually open areas with short vegetation within sagebrush habitats, usually on broad ridges, benches, or valley floors where visibility and hearing acuity are excellent.

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

Long-term effect. The effect could occur for an extended period after implementation of the alternative. The effect could last several years or more.

Management decision. A decision made by the BLM to manage public lands. Management decisions include both land use plan decisions and implementation decisions.

Minimization mitigation. Minimizing impacts by limiting the degree or magnitude of the action and its implementation (40 CFR 1508.20 (b)).

Mitigation. Includes specific means, measures or practices that could reduce, avoid, or eliminate adverse impacts. Mitigation can include avoiding the impact altogether by not taking a certain action or parts of an action, minimizing the impact by limiting the degree of magnitude of the action and its implementation, rectifying the impact by repairing, rehabilitation, or restoring the affected environment, reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, and compensating for the impact by replacing or providing substitute resources or environments.

Modification. A change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.

No surface occupancy (NSO). A major constraint where use or occupancy of the land surface for fluid mineral exploration or development and all activities associated with fluid mineral leasing (e.g., truck-mounted drilling and geophysical exploration equipment off designated routes, construction of wells and/or pads) are prohibited to protect identified resource values. Areas identified as NSO are open to fluid mineral leasing, but surface occupancy or surface-disturbing activities associated with fluid mineral leasing cannot be conducted on the surface of the land. Access to fluid mineral deposits would require horizontal drilling from outside the boundaries of the NSO area.

Planning area. The geographical area for which resource management plans are developed and maintained regardless of jurisdiction.

Planning criteria. The standards, rules, and other factors developed by managers and interdisciplinary teams for their use in forming judgments about decision making, analysis, and data collection during planning. Planning criteria streamlines and simplifies the resource management planning actions.

Planning issues. Concerns, conflicts, and problems with the existing management of public lands. Frequently, issues are based on how land uses affect resources. Some issues are concerned with how land uses can affect other land uses, or how the protection of resources affects land uses.

Policy. This is a statement of guiding principles, or procedures, designed and intended to influence planning decisions, operating actions, or other affairs of the BLM. Policies are established interpretations of legislation, executive orders, regulations, or other presidential, secretarial, or management directives.

Priority Habitat Management Areas (PHMA). Areas that have been identified as having the highest conservation value to maintaining sustainable Greater Sage-Grouse populations; they include breeding, late brood-rearing, and winter concentration areas.

Required Design Features (RDFs). Means, measures, or practices intended to reduce or avoid adverse environmental impacts. A suite of features that would establish the minimum specifications for certain activities (i.e., water developments, mineral development, and fire and fuels management) and mitigate adverse impacts. These design features would be required to provide a greater level of regulatory certainty than through implementation of Best Management Practices. In general, the design features are accepted practices that are known to be effective when implemented properly at the project level.

Resource management plan (RMP). A land use plan as prescribed by the Federal Land Policy and Management Act that establishes, for a given area of land, land-use allocations, coordination guidelines for multiple-use, objectives, and actions to be achieved.

Short-term effect. The effect occurs only during or immediately after implementation of the alternative.

Stipulation (general). A term or condition in an agreement or contract.

Stipulation (oil and gas). A provision that modifies standard oil and gas lease terms and conditions in order to protect other resource values or land uses and is attached to and made a part of the lease. Typical lease stipulations include No Surface Occupancy, Timing Limitations, and Controlled Surface Use. Lease stipulations are developed through the land use planning process.

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Appendix H

Guidelines for Implementation and
Adaptive Management

Appendix H. Guidelines for Implementation and Adaptive Management

H.1 INTRODUCTION

This appendix provides guidelines for the implementation of the Northwest Colorado ARMPA, including Adaptive Management. The goals and objectives of the ARMPA address threats to Greater Sage-Grouse and Greater Sage-Grouse habitat and include management actions designed to maintain and enhance populations and distribution of Greater Sage-Grouse. The specific management actions provide details by resource program. BLM programs include objectives designed to avoid direct disturbance of Greater Sage-Grouse habitat or displacement of Greater Sage-Grouse, and conditions under which it is necessary to minimize and mitigate the loss of habitat and habitat connectivity. To implement the ARMPA, the BLM would assess all proposed land uses or activities in PHMA and GHMA that potentially could result in direct habitat disturbance.

The following steps identify the screening process by which the BLM will review proposed activities or projects in PHMA and GHMA. This process will provide a consistent approach and ensure that authorization of these projects, if granted, will appropriately mitigate impacts and be consistent with the ARMPA goals and objectives for Greater Sage-Grouse. The following steps provide for a sequential screening of proposals. However, Steps 2 through 6 can be done concurrently.

The screening process is meant to apply to externally generated projects that would cause discrete anthropogenic disturbances. See **Section H.3**, Restoration/Reclamation of Landscape-Scale Disturbances – Objectives for Greater Sage-Grouse Habitat, for guidelines regarding landscape-scale disturbances such as wildfire and habitat restoration.

H.2 SCREENING PROCESS

H.2.1 Step 1 – Determine Proposal Adequacy

This screening process is initiated upon formal submittal of a proposal for authorization for use of BLM-administered lands to the field office. The actual documentation of the proposal would include, at a minimum, a description of the location, scale of the project, and timing of the disturbance. The acceptance of the proposal(s) for review would be consistent with existing protocol and procedures for each type of use. Upon a determination that the proposed project would affect Greater Sage-Grouse or Greater Sage-Grouse habitat, the project lead would initiate a land use plan conformance worksheet.

H.2.2 Step 2 – Evaluate Proposal Consistency with LUPA

The Sage-Grouse Coordinator and the field office interdisciplinary team would evaluate whether the proposal would be allowed as prescribed in the ARMPA. For example, some activities or types of development are prohibited in PHMA or GHMA. Evaluation of projects will also include an assessment of the current state of the adaptive management hard and soft triggers (see Adaptive Management, below). If the proposal is for an activity that is specifically prohibited, the applicant should be informed that the application is being rejected since it would not be an allowable use, regardless of the design of the project.

H.2.3 Step 3 – Determine if Greater Sage-Grouse Habitat Can be Avoided

If the project can be relocated so that it would not have an impact on Greater Sage-Grouse and Greater Sage-Grouse habitat and still achieve objectives of the proposal, relocate the proposed activity and proceed with the appropriate process for review, decision, and implementation (NEPA and decision record).

H.2.4 Step 4 – Determine Proposal Consistency with Density and Disturbance Limitations

If the proposed activity occurs within PHMA and is subject to the disturbance cap (see **Disturbance Cap Guidance**), the Sage-Grouse Coordinator would evaluate whether the disturbance from the activity would exceed 3 percent in the Colorado Management Zone using the Disturbance Analysis and Reclamation Tracking Tool (SDARTT) or a local disturbance database. If current disturbance within the activity area or the anticipated disturbance from the proposed activity exceeds this threshold, the project would be deferred until such time as the amount of disturbance within the area has been reduced below the threshold (see **Section H.3**), redesigned so as to not result in any additional surface disturbance (collocation), or redesigned to move it outside of PHMA.

Colorado BLM has completed an inventory of all PHMA by Colorado Management Zone and would track actual disturbance using a local data management system and/or SDARTT. The data management system would be used to inventory, prioritize, and track disturbance data within the decision area, including those projects that cross field office boundaries. The data would be used to determine the actual disturbance by Colorado Management Zone.

Disturbance Cap Guidance

The disturbance cap would apply to anthropogenic disturbances in PHMA on new leases and land use authorizations (such as rights-of-way). Anthropogenic disturbance refers to physical removal of habitat, including, but not limited to, paved highways, graded gravel roads, transmission lines, substations, wind turbines, oil and gas wells, pipelines, and mines. The disturbance cap is limited to 3 percent and would be calculated for each Colorado Greater Sage-Grouse Management Zone. Only physical disturbance would counted for the 3 percent disturbance cap. Disruptive impacts, such as wildfire, would be considered in the site-specific analysis when surface-disturbing proposals are being considered.

Types of anthropogenic disturbance that *would be* counted toward the disturbance cap under the ARMPA include the following:

- Any anthropogenic disturbance on BLM surface lands
- Projects on private land in the public record because they entail a federal nexus due to funding or authorizations. Specifically included would be energy development, rights-of-way, or range projects approved by the BLM because they have components on both public and private land. Also included would be anthropogenic disturbance on private surface attributable to the authorized recovery of federal minerals
- Industrial operations on any surface ownership with a readily apparent impact on Greater Sage-Grouse habitat
- Any disturbance data volunteered by private landowners

Types of projects that *would not* be counted toward the disturbance cap under the ARMPA include the following:

- Disturbance on individual sites such as stands of pinyon/juniper determined lacking in Greater Sage-Grouse habitat potential
- Disturbance on private lands other than what has been described above. The BLM would not inventory or evaluate private property not linked to a specific project with a federal nexus. Private residences would not be inventoried or evaluated. Infrastructure on private land associated with family farm or ranch operations would not constitute “an industrial operation with a readily apparent impact on Greater Sage-Grouse habitat.” Base property associated with grazing permits would not be considered a federal nexus in this context. Conservation easements would not trigger a federal nexus, and be cause for inventory of private lands. Conservation-oriented activities associated with the US Department of Agriculture, Natural Resources Conservation Service would also not be counted.

Reclamation Criteria for Anthropogenic Disturbances

In order for disturbance to be considered reclaimed and no longer counted against the Northwest Colorado disturbance cap, the following requirements would be insisted upon:

- Reclamation requirements would be consistent with the existing Northwest Colorado land use decisions and regulations.
- Reclamation success criteria in Greater Sage-Grouse habitat would be contingent on evidence of successful establishment of desired forbs and sagebrush. Reclaimed acreage would be expected to progress without further intervention to a state that meets Greater Sage-Grouse cover and forage needs (see **Table H-1**) based on site capability and seasonal habitat, as described in the Colorado Greater Sage-Grouse Conservation Plan (Colorado Greater Sage-Grouse Steering Committee 2008).
- Depending on site condition, the BLM may require a specific seed component and/or sagebrush (i.e., material collected on-site or seed propagated from “local” collections) where appropriate to accelerate the redevelopment of sagebrush.

H.2.5 Step 5 – Determine Projected Sage-Grouse Population and Habitat Impacts

If it is determined that the proposed project may move forward, based on Steps 1 through 3, above, then the BLM would analyze whether the project would have a direct or indirect impact on Greater Sage-Grouse populations or habitat within PHMA or GHMA. The analysis would include an evaluation of the following:

- Review of Greater Sage-Grouse Habitat delineation maps
- Use of the US Geological Survey report *Conservation Buffer Distance Estimates for Greater Sage-Grouse—A Review* (Manier et al. 2014) to assess potential project impacts based upon the distance to the nearest lek, using the most recent active lek (as defined by Colorado Parks and Wildlife; see Glossary) data available from the state wildlife agency. This assessment would be based upon the buffers identified below for the following types of projects:
 - Linear features within 3.1 miles of leks
 - Infrastructure related to energy development within 3.1 miles of leks

- Tall structures (e.g., communication or transmission towers and transmission lines) within 2 miles of leks
 - Low structures (e.g., rangeland improvements) within 1.2 miles of leks
 - All other surface disturbance not associated with linear features, energy development, tall structures, or low structures within 3.1 miles of leks
- Noise and related disruption activities (including those that do not result in habitat loss) at least 0.25 miles from leks
- Review and application of current science recommendations
- Consultation with state wildlife agency biologist
- Evaluating consistency with (at a minimum) state Greater Sage-Grouse regulations
- Other methods needed to provide an accurate assessment of impacts
- If the proposal will not have a direct or indirect impact on either the habitat or population, document the findings in the NEPA analysis and proceed with the appropriate process for review, decision, and implementation of the project.

H.2.6 Step 6 – Determine Minimization Measures

If impacts on Greater Sage-Grouse or Greater Sage-Grouse habitat cannot be avoided by relocating the project, then consider the tools above to apply appropriate minimization measures. Minimization measures could include timing limitations, noise restrictions, and design modifications.

H.2.7 Step 7 – Apply Compensatory Mitigation or Reject/Defer Proposal

If it is determined after screening of the proposal (Steps 1 through 6) that there are unacceptable residual impacts, the BLM can approve of the project if CPW's recommendation for compensatory mitigation is followed, which achieves the following:

- Achieves measurable outcomes for habitat function that can be documented
- Results in conservation actions that remove or ameliorate a potential threat to Greater Sage-Grouse, have a positive influence on and lead to improvement of habitat function and the overall conservation status of the species, are scientifically sound, and are conservation actions above what would have occurred absent the mitigation action
- Provides habitat/conservation values, services, and functions that are at least equal to the lost or degraded values, services, and functions caused by the impact
- Incorporates measures to account for a level of risk that a particular mitigation action may fail or not achieve its stated objectives, and uncertainty about the level and duration of the estimated impacts
- Provides benefits that are durable and in place for at least the duration of the residual impacts
- Encourages the application of offsets prior to the impact occurring to ensure no lag time occurs between impacts and offsets
- Offers transparency and certainty to developers and regulators

H.3 RESTORATION/RECLAMATION OF LANDSCAPE-SCALE DISTURBANCES – OBJECTIVES FOR GREATER SAGE-GROUSE HABITAT

For landscape-scale disturbances, including wildfire, livestock grazing, and habitat treatments, the objective is to maintain a minimum of 70 percent of lands capable of producing sagebrush with a minimum of 15 percent sagebrush canopy cover, or a similar standard consistent with specific ecological site conditions in PHMA. See **Table H-I**.

Table H-I
Seasonal Habitat Desired Conditions for Greater Sage-Grouse

ATTRIBUTE	INDICATORS	DESIRED CONDITON
BREEDING AND NESTING^{1,2,3} (Seasonal Use Period March 1–June 15) Apply 4 miles from active leks.¹⁵		
Lek Security	Proximity of trees ⁴	Trees or other tall structures are none to uncommon within 1.86 miles of leks ^{5,6}
	Proximity of sagebrush to leks ⁵	Adjacent protective sagebrush cover within 328 feet of lek ⁵
Cover	Seasonal habitat extent ⁶	>80% of the breeding and nesting habitat
	Sagebrush canopy cover ^{5,6,7,17} Arid sites Mesic sites	15 to 30% 20 to 30% ¹⁷
	Sagebrush height ^{6,17} Arid sites ^{5,6,9} Mesic sites ^{5,6,10}	11.8 to 31.5 inches (30 to 80 cm) 15.7 to 31.5 inches (40 to 80 cm)
	Predominant sagebrush shape ⁵	>50% in spreading ¹¹
	Perennial grass canopy cover ^{5,6,17} Arid sites ^{6,9} Mesic sites ^{6,10,17}	≥10% ≥20% ¹⁷
	Perennial grass and forb height ^{5,6,7}	>6 inches ^{6,16,17}
	Perennial forb canopy cover ^{5,6,7} Arid sites ⁹ Mesic sites ¹⁰	≥5% ^{5,6,17} ≥15% ^{5,6,17}
BROOD-REARING/SUMMER¹ (Seasonal Use Period June 16–October 31)		
Cover	Seasonal habitat extent ⁶	>40% of the brood-rearing/summer habitat
	Sagebrush canopy cover ^{5,6,7,17} Arid sites Mesic sites	10 to 25% 10 to 25%
	Sagebrush height ^{6,7,17} Arid sites Mesic sites	11.8 to 31.5 inches (30 to 80 cm) 13.8 to 31.5 inches (35 to 80 cm)
	Perennial grass canopy cover and forbs ^{6,7,17} Arid sites Mesic sites	>15% ¹⁷ >25% ¹⁷
	Riparian areas (both lentic and lotic systems)	Proper Functioning Condition ¹³
	Upland and riparian perennial forb availability ^{5,6}	Preferred forbs are common with several preferred species present ¹²

Table H-1
Seasonal Habitat Desired Conditions for Greater Sage-Grouse

ATTRIBUTE	INDICATORS	DESIRED CONDITON
WINTER¹ (Seasonal Use Period November 1–February 28)		
Cover and Food	Seasonal habitat extent ^{5,6,7}	>80% of the winter habitat
	Sagebrush canopy cover above snow ^{5,6,7,17}	>20% Arid, 25% Mesic ¹⁷
	Sagebrush height above snow ^{5,6,7}	>10 inches ¹⁴

¹ Seasonal dates can be adjusted; that is, start and end dates may be shifted either earlier or later, but the amount of days cannot be shortened or lengthened by the local unit.

² Doherty 2008

³ Holloran and Anderson 2005

⁴ Baruch-Mordo et al. 2013

⁵ Stiver et. al. 2014

⁶ Connelly et al. 2000

⁷ Connelly et al. 2003

⁹ 10–12 inch precipitation zone; *Artemisia tridentata wyomingensis* is a common big sagebrush sub-species for this type site (Stiver et. al. 2014).

¹⁰ ≥12 inch precipitation zone; *Artemisia tridentata vaseyana* is a common big sagebrush sub-species for this type site (Stiver et. al. 2014).

¹¹ Sagebrush plants with a spreading shape provide more protective cover than sagebrush plants that are more tree- or columnar shaped (Stiver et. al. 2014).

¹² Preferred forbs are listed in Habitat Assessment Framework Table III-2 (Stiver et. al. 2014). Overall, total forb cover may be greater than that of preferred forb cover since not all forb species are listed as preferred in Table III-2.

¹³ Existing land management plan desired conditions for riparian areas/wet meadows (spring seeps) may be used in place of properly functioning conditions, if appropriate for meeting Greater Sage-Grouse habitat requirements.

¹⁴ The height of sagebrush remaining above the snow depends upon snow depth in a particular year. Intent is to manage for tall, healthy, sagebrush stands.

¹⁵ Buffer distance may be changed only if 3 out of 5 years of telemetry studies indicate the 4 miles is not appropriate.

¹⁶ Measured as “droop height”; the highest naturally growing portion of the plant.

¹⁷ Colorado Greater Sage-Grouse Steering Committee 2008

These habitat objectives in **Table H-1** summarize the characteristics that research has found represent the seasonal habitat needs for Greater Sage-Grouse. The specific seasonal components identified in the table were adjusted based on local science and monitoring data to define the range of characteristics used in this sub-region. Thus, the habitat objectives provide the broad vegetative conditions the BLM strives to obtain across the landscape that indicate the seasonal habitats used by Greater Sage-Grouse. These habitat indicators are consistent with the rangeland health indicators used by the BLM.

The habitat objectives will be part of the Greater Sage-Grouse habitat assessment to be used during land health evaluations. These habitat objectives are not obtainable on every acre within the designated Greater Sage-Grouse habitat management areas. Therefore, the determination of whether the objectives have been met will be based on the specific site’s ecological ability to meet the desired condition identified in **Table H-1**.

H.4 ADAPTIVE MANAGEMENT

Adaptive management is a decision process that promotes flexible resource management decision-making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps with adjusting resource management directions as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a “trial and error” process, but rather emphasizes learning

while doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits.

In relation to the BLM's National Greater Sage-Grouse Planning Strategy, adaptive management would help identify if Greater Sage-Grouse conservation measures presented in this RMPA/EIS contain the needed level of certainty for effectiveness. Principles of adaptive management are incorporated into the conservation measures in the LUPA to ameliorate threats to a species, thereby increasing the likelihood that the conservation measure and LUPA would be effective in reducing threats to that species. The following provides the BLM's adaptive management strategy for the Northwest Colorado Greater Sage-Grouse LUPA. In making amendments to this LUP, the BLM will coordinate with partners as the BLM continues to meet their objective of conserving, enhancing, and restoring Greater Sage-Grouse habitat by reducing, minimizing, or eliminating threats to that habitat.

H.4.1 Adaptive Management – Monitoring

This RMPA/EIS contains a monitoring framework (**Appendix D**, Greater Sage-Grouse Monitoring Framework) that includes an effectiveness monitoring component. The agencies intend to use the data collected from the effectiveness monitoring to identify any changes in habitat conditions related to the goals and objectives of the LUPA and other range-wide conservation strategies (US Department of the Interior 2004; Stiver et al. 2006; USFWS 2013). In addition to local knowledge and CPW data, the information collected through the monitoring framework can provide information to assist in determining when adaptive management triggers (discussed below) are met.

H.4.2 Northwest Colorado Adaptive Management Plan – Triggers

The Northwest Colorado Adaptive Management Plan includes an overarching adaptive management strategy consistent with national policy that includes soft and hard triggers for specific populations and an approach for developing responses. These triggers may not be specific to any particular project, but identify habitat and population thresholds. The BLM, in cooperation with the USFWS and the State of Colorado, has identified appropriate triggers. Triggers would be based on the two key metrics that would be monitored: habitat loss and/or population declines.

Soft Triggers

Soft triggers represent an intermediate threshold indicating that management changes are needed at the LUPA implementation level to address habitat or population losses. Examples of soft triggers and responses are:

- *Soft trigger:*
Based on local knowledge, a population is determined to have limited brood-rearing habitat, which is resulting in low recruitment.
- *Response:*
Prioritize funding for habitat improvement projects in mesic areas designed to improve brood-rearing.
- *Soft trigger:*
Monitoring crews find several Greater Sage-Grouse mortalities along fence line.

- *Response:*
Evaluate utility of existing fences, mark necessary fences, and prohibit new fences in the vicinity of leks.

In the examples above, a soft trigger is tripped, and consequently the BLM would change management to be more restrictive or identify habitat improvement projects identified to address a specific causal or limiting factor based on local knowledge and conditions. These adjustments should be made to preclude tripping a “hard” trigger (which signals more severe habitat loss or population declines).

During implementation of this LUPA, population trends would be monitored by the Northwest Colorado Sage-Grouse Statewide Implementation Team, which would consist of technical experts including BLM, CPW, NRCS, and USGS biologists. This group would meet annually and would evaluate the health of each population and make recommendations to the BLM on any changes to fine site management. This statewide implementation team would also evaluate the effects to Greater Sage-Grouse habitat and populations due to BLM-permitted activities throughout the previous year(s) and make recommendations for changes in management or locations that should be avoided, for example. The group would also work with existing local population Greater Sage-Grouse working groups (e.g., Northwest Colorado, Parachute-Piceance-Roan, Middle Park, and North Park) to gather local knowledge that could inform adaptive management. This group would also evaluate the effectiveness of mitigation and make recommendations on alternative mitigation strategies and locations, such as the Colorado Habitat Exchange.

Hard Trigger

In the event that soft triggers and disturbance caps prove to be ineffective, the hard trigger represents a threshold indicating that immediate action is necessary to stop a severe deviation from Greater Sage-Grouse conservation objectives. The hard trigger is intentionally set at or below the normal range of variation to provide a threshold of last resort should either chronic degradation or a catastrophic event occur. The hard trigger is not intended to be an on-again/off-again toggle that would be exceeded periodically throughout the life of the LUPA.

Colorado Greater Sage-Grouse occur in six distinct populations. Two of these populations (Northwest Colorado and North Park) account for about 88 percent of the males in Colorado. Northwest Colorado includes Colorado MZs I through IO. North Park includes Colorado MZ II. The remaining four populations are smaller by an order of magnitude, and, even in the aggregate, do not provide the significant numbers of Greater Sage-Grouse necessary to contribute meaningfully to the hard trigger, and, in some cases, lack the long-term population trend information necessary to support trigger implementation. All six populations are important to Greater Sage-Grouse conservation in Colorado; however, only the Northwest Colorado and North Park populations are large enough to reliably indicate the level of severe decline intended by this hard trigger. While the hard triggers focus on the two largest populations, all six populations should be rigorously managed via the soft triggers. If soft triggers work as intended, a hard trigger should never be breached.

Development of the Hard Trigger

The hard trigger is based on two metrics: Greater Sage-Grouse lek (high male) counts and habitat loss.

Lek Counts. The lek count threshold is determined from the 25 percent quartile of the high male count in each of the Northwest Colorado and North Park populations over the period of years for which consistent lek counts are available: 17 years from 1998 to 2014 for Northwest Colorado and 41 years from 1974 to 2014 for North Park. The 25 percent quartiles were determined using the annual high male counts rather than the 3-year running average to ensure that normal variation in lek counts is above the threshold. The hard trigger for Northwest Colorado is 1,575 counted males, and for North Park is 670 counted males.

Habitat Loss. The habitat loss threshold is determined by 30 percent cumulative loss of PHMA, measured independently in Northwest Colorado and North Park. For the purpose of the hard trigger, habitat loss will be measured from the date of the ROD on this LUPA. Hard trigger habitat loss includes both anthropogenic (i.e., the disturbance cap) and non-anthropogenic forms of habitat loss (e.g., wildfire). The 30 percent habitat loss calculation is limited to loss of PHMA in each of Northwest Colorado and North Park populations; GHMA and any habitat loss in the other four populations are not included in the hard trigger. Restored or recovered habitat is not considered in this threshold, although it is tracked and summarized by the BLM's data management system.

Breaching the Hard Trigger

In order for the hard trigger to be breached, both the lek count (1,575 males in Northwest Colorado and 670 males in North Park) and habitat loss thresholds must be breached in both the Northwest Colorado and North Park populations simultaneously. In any other set of circumstances (e.g., when a threshold is violated in a single population), the management response will be as described in the *Soft Trigger* section, above.

Lek Counts. The lek count threshold is compared to the 3-year running average of the high male count in Northwest Colorado and North Park, measured independently. The 3-year running average value is used because it is considered to be more indicative of the population trend than annual high male counts. The 3-year running average in Northwest Colorado and North Park must fall below the threshold concurrently for this portion of the hard trigger to be breached. The Colorado Department of Natural Resources, Parks and Wildlife will conduct lek counts and provide this information annually to the statewide implementation team as described in the *Soft Trigger* section, above.

Habitat Loss. The habitat loss threshold is measured by 30 percent cumulative loss of PHMA, beginning when the ROD on this LUPA is signed. The loss will be measured independently in Northwest Colorado and North Park. The BLM will track anthropogenic and non-anthropogenic habitat loss. The statewide implementation team as described in the *Soft Trigger* section, above, will review summary information, above.

Hard Trigger Response

Upon determination that a hard trigger has been tripped, the BLM will immediately defer issuance of discretionary authorizations for new actions for a period of 90 days. In addition, within 14 days of a determination that a hard trigger has been tripped, the Northwest Colorado Greater Sage-Grouse Statewide Implementation Team will convene to develop an interim response strategy and initiate an assessment to determine the causal factor or factors (hereafter the "causal factor assessment").

H.4.3 Adaptive Management – Habitat Boundaries

The BLM relies on CPW's expertise and responsibility to manage wildlife and to provide habitat information on a multitude of species. CPW evaluates habitat boundaries for all species that they manage, including Greater Sage-Grouse, on a regular basis. If CPW determines, based on their regular evaluation, or on new information, that the Greater Sage-Grouse habitat area boundaries should be updated, the BLM would:

1. Evaluate the proposed changes to determine if the modifications to habitat area boundaries would continue to allow the BLM to meet objectives of the Land Use Plan. The determination would include evaluation of the magnitude of the change and the ability of the BLM to effectively apply management decisions. If it is determined that the BLM can effectively apply management to the new habitat area boundaries and the Land Use Plan objectives would be met, the new habitat area boundaries would be adopted administratively.
2. If the BLM, in consultation with CPW, determines that additional management clarification is required to define whether proposed changes to habitat boundaries would continue to meet the goals and objectives of the 2015 NWCO Greater Sage-Grouse ARMPA/ROD, incorporation of the new habitat maps may need to be analyzed under a new NEPA process and incorporated through the appropriate planning process (i.e., plan maintenance or plan amendment).

H.5 REFERENCES

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