

Idaho and Southwestern Montana Greater Sage-Grouse

Proposed
Land Use Plan Amendment and
Final Environmental Impact Statement

Volume II



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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.

The Forest Service mission is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations.

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Chapter 4

Environmental Consequences



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Changes to Chapter 4 between Draft LUPA/EIS and Proposed LUPA/Final EIS

- The likely direct and indirect impacts on the human and natural environment that could occur from implementing the Proposed Plan Amendment presented in **Chapter 2** were incorporated into **Chapter 4**. Analysis shown under the draft alternatives may be referenced in the Proposed Plan Amendment analysis with such statements as “impacts would be the same as, or similar to, Alternative D” or “impacts would be similar to Alternative D, except for...”

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Chapter 4. Environmental Consequences

Chapter 4, Environmental Consequences, presents the direct and indirect impacts on the human and natural environment anticipated to occur from implementing the alternatives presented in **Chapter 2**. Cumulative impacts are presented in **Chapter 5**. The purpose of this chapter is to describe to the decision maker and the public how the environment could change if any of the alternatives in Chapter 2 were to be implemented. It is meant to aid in deciding which land use plan amendment, if any, to adopt.

This chapter is organized by topic, similar to Chapter 3. Each topic area includes the following:

- A method of analysis section that identifies indicators and assumptions
- An analysis of impacts for each of the six alternatives

Management actions proposed in Chapter 2 are planning-level direction that do not result in direct on-the-ground changes. The analysis focuses on impacts that could eventually result in on-the-ground changes. It does this by planning for land use on surface estate and federal mineral estate administered by the BLM and Forest Service over the life of the plan.

Some management actions may affect only certain resources and alternatives. This impact analysis focuses on those impacts that could impair a resource. If an activity or action is not addressed in a given section, either there are no impacts or the impacts are negligible, based on professional judgment.

The projected impacts on land use activities and the associated environmental impacts of land uses are characterized and evaluated for each of the alternatives. Impacts for the following resources are expected to be negligible, therefore they are not discussed in detail: air resources, soil resources, water resources, special status species (other than GRS), fish and wildlife, cultural resources, tribal interests, paleontological resources, visual resources, cave and karst resources, forestry, recreation, and special designations (e.g., National Historic Trails, Wild and Scenic Rivers, Wilderness Areas, Wilderness Study Areas, National Monuments, and National Conservation Areas).

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

- The BLM and Forest Service planning team's knowledge of resources and the project area
- Reviews of existing literature
- Information provided by experts in the BLM and Forest Service, other agencies, cooperating agencies, interest groups, and concerned citizens

The baseline used for the impact analysis is the current condition or situation, as described in Chapter 3. Impacts on resources and resource uses are analyzed and discussed in detail,

commensurate with resource issues and concerns identified through the process. At times, impacts are described using ranges of potential impacts or in qualitative terms.

4.1 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 and assumptions section for that resource:

- Sufficient funding and personnel would be available for implementing the final decision.
- Implementing actions from any of the LUPA alternatives would comply with all valid existing rights, federal regulations, BLM and Forest Service policies, and other requirements.
- Implementation-level actions necessary to execute the land use plan-level direction in this LUPA would be subject to further environmental review, including that under NEPA, as appropriate.
- Direct and indirect impacts of implementing the LUPA would primarily occur on BLM-administered and National Forest System lands in the planning area.
- Local climate patterns of historic record and related conditions for plant growth may change with warmer, drier conditions likely to occur over the life of this plan.
- In the future, as tools for predicting climate changes in a management area improve and climate change affects resources and necessitates changes in how resources are managed, the BLM and Forest Service may be required to reevaluate direction provided as part of this planning process and adjust management accordingly. It is speculative at this time to predict the specific nature or magnitude of such changes.
- The BLM and Forest Service would carry out appropriate maintenance for the functional capability of all developments.
- The discussion of impacts is based on best available data. Knowledge of the planning area and decision area and professional judgment, based on observation and analysis of conditions and responses in similar areas, are used for environmental impacts where data are limited.
- Restrictions (such as siting, design, and mitigation measures) apply, where appropriate, to surface-disturbing activities associated with land use

authorizations and permits issued on BLM-administered and National Forest System lands.

- New information may lead to changes in delineated GRSG habitat. New habitats, or areas that are no longer habitat, may be identified. This adjustment would typically result in small changes to areas. Modifications to GRSG habitat would be updated in the existing data inventory through LUP maintenance or plan amendment, as necessary.
- Acreage figures and other numbers used in the analyses are approximate projections for comparison and analysis only. Readers should not infer that they reflect exact measurements or precise calculations.
- For alternatives with an adaptive management component, hard trigger responses would impose PHMA/CHZ management decisions in IHMA/IHZ.
- There are no wild burros in Idaho or southwestern Montana, so impacts would apply only to wild horses.

4.1.1 General Methodology for Analyzing Impacts

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

Type of impact—Because types of impacts can be interpreted differently by different people, this chapter does not differentiate between beneficial and adverse impacts (except in cases where such characterization is required by law, regulation, or policy). The presentation of impacts for key planning issues is intended to provide the BLM and Forest Service decision makers and readers with an understanding of how multiple uses are balanced for each alternative.

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

Duration—This describes the duration of an effect, either short term or long term. Unless otherwise noted, short term is defined as anticipated to begin and end within the first 10 years after the action is implemented; long term is defined as lasting beyond 10 years to the end of or beyond the life of this LUPA.

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

Direct, indirect, and cumulative 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. Cumulative impacts are effects on the environment that result from the impact of implementing any one of the Idaho and Southwestern Montana GRSG LUPA/EIS alternatives in combination with other actions outside the scope of this plan, either within the planning area or next to it. The cumulative effects analysis is provided in **Chapter 5**.

Required Design Features (RDFs) have been incorporated into the Forest Service Proposed Plan Amendment as planning-level guidelines, which will be implemented during site-specific project analysis.

4.1.2 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. 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 itself and from outside sources.

Under the FLPMA, the inventory of BLM-administered and National Forest System land resources is ongoing and continuously updated. However, certain information was unavailable for use in developing the LUPA because inventories either have not been conducted or are not complete. Some of the major types of data that are incomplete or unavailable are the following:

- Comprehensive state-wide inventory of wildlife and special status species occurrence and condition
- Geographical information system data used for disturbance calculations on private lands

For these resources, estimates were made concerning the number, type, and significance of these resources based on previous surveys and existing knowledge. In addition, some impacts cannot be quantified, given the proposed management actions. Where this gap occurs, impacts are projected in qualitative terms or, in some instances, are described as unknown. Subsequent site-specific project-level analysis 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 LUPA.

4.1.3 Mitigation

This chapter describes the environmental consequences associated with the impacts to GRSG and its habitat from activities carried out in conformance with this plan, in addition to BLM and Forest Service management actions. In undertaking BLM and Forest Service management actions, and consistent with valid existing rights and applicable law, in authorizing third party actions that result in habitat loss and degradation, the BLM and Forest Service will require mitigation that provides a net conservation gain to the species including accounting for any uncertainty associated with the effectiveness of such mitigation. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions. In addition, to help implement this Idaho and Southwestern Montana Sub-region GRSG LUPA/EIS, a WAFWA Management Zone Regional Mitigation Strategy (per **Appendix J**) will be developed within one year of the issuance of the Record of Decision. The strategy will elaborate on the components identified in Chapter 2 (avoidance, minimization, compensation, additionality, timeliness, and durability), and will be considered by the BLM and Forest Service for BLM and Forest Service will consider it for their management actions and third party actions that result in habitat loss and degradation. The implementation of a Regional Mitigation Strategy will benefit GRSG, the public, and land -users by providing a reduction in threats, increased public transparency and confidence, and a predictable permit process for land-use authorization applicants.

4.2 Sage-Grouse and Sage-Grouse Habitat

This section discusses impacts on GRSG from proposed management actions under each alternative. Existing conditions concerning GRSG are described in **Section 3.2**.

4.2.1 Methods and Assumptions

Indicators of impacts on GRSG are as follows:

- Acres of sagebrush
- Direct habitat loss or gain
- Habitat fragmentation
- Impacts on life history requirements
- Population loss or gain
- Habitat degradation
- Habitat restoration and improvement

Effects listed above may be characterized for each resource and alternative, as appropriate, and, where available, quantified by the indicators described below.

- Identified GRSG Habitat (SFA, PHMA, IHMA, and GHMA)—Identified habitat includes those considered vital to the persistence of GRSG populations at

all scales. Acres impacted or improved by each resource is a general metric for acres of sagebrush, direct habitat loss, habitat degradation, and habitat restoration and improvement. The metrics provide a basis for a qualitative discussion of habitat loss and fragmentation and species life history requirements.

- Populations—A surrogate metric for population information used in this analysis is the number of occupied leks. Leks are strongly correlated with nesting habitat since hens fitted with radio collars tend to nest within several miles of their lek of capture (Connelly et al. 2000b). In Idaho, lek-to-nest distances may vary spatially over large landscapes, depending on the status of local GRSG populations, but roughly 80 percent of nests statewide occur within 5 to 7.5 miles of the lek of capture (Connelly et al. 2013). In some parts of the state, a small proportion of hens (e.g., five to seven percent) nested in excess of 9 miles from lek of capture (Connelly et al. 2013).

The metric was derived by quantifying each GRSG population area, the number of occupied leks using the most recent lek data available (2014 for IDFG and MFWP; 2013 for Utah Division of Wildlife Resources), and lek occupancy or activity definitions consistent with those respective states. Numbers of occupied leks shown reflect leks with at least two or more displaying males in at least one of the past 5 years (2010 to 2014) for Idaho and for the last 10 years for Montana (2005 to 2014) and Utah (2004 to 2013). This metric provides general insight into the population contribution of specific population areas relative to the sub-region overall, providing additional context for comparison.

The metric also allows for inferences of risk to population persistence from certain threats or resource allocations (such as areas open to ROWs or mineral leasing), assuming that population areas with a smaller number of occupied leks are more vulnerable to resource activities and that areas with a greater number of occupied leks imply larger populations and a greater opportunity for long-term persistence, given effective conservation efforts (see **Section 3.2**). Where land or resource allocations overlap population areas or occupied leks, the allocation is considered to be affecting the grouse population.

- To the extent lands are subject to adaptive management or an anthropogenic disturbance cap, the effects of threats would be further restricted based on the applicable thresholds and caps. Coordination between state and federal managers would further ensure the application and implementation of these thresholds and caps.
- Habitat suitability—Measured by vegetation dynamics development tool (VDDT) modeling, driven by sagebrush canopy cover and lack of conifer encroachment.

- Climate change—Under projected climate change, cooler and moister sagebrush communities (i.e., nesting and brood rearing habitat) would decrease. In addition, Wyoming big sagebrush is expected to decline (Still and Richardson 2014). GRSG may have the ability to move to areas that are currently cooler and wetter, as long as the new regions are suitable and available for sagebrush expansion (BLM 2013a; Knick et al. 2013). Climate change impacts are discussed for each threat where relevant.

Assumptions

Three general categories of human disturbance to habitats or disruption to animals would be the most influential on GRSG and their habitat, as follows:

- Disturbance or disruption from casual use
- Disturbance or disruption from permitted activities
- Changes in habitat condition, such as from fire or presence of noxious weeds and invasive species

The assumptions listed below are intended for large-scale planning-level analysis; project-level assumptions for NEPA may differ:

- GRSG habitat management area designations are assumed to represent habitat adequate to maintain GRSG populations in the sub-region. For Idaho, GRSG habitat designations were derived from modeling completed in 2012, based on 75 percent breeding bird density and 75 percent lek connectivity models, as well as known winter habitat, connectivity considerations and other factors. In Montana, GRSG habitat designations were derived from habitat modeling of core areas by MTFWP with additional input from the BLM. MZs were delineated by WAFWA in order to divide range-wide GRSG habitat into discrete areas for broad-scale planning. Population monitoring for GRSG is still done at finer scales, including state, local working group, and conservation area.
- This analysis uses PPH and PGH categories for Alternative A only to facilitate comparison across the other alternatives. There are currently no BLM-administered or National Forest System lands formally designated as GRSG PPH or PGH in the sub-regional planning area; Alternative A would neither result in the designation of PPH or PGH nor assign additional management actions to PPH or PGH areas.
- Population and subpopulation boundaries (Connelly et al. 2004) were modified to include the entirety of mapped GRSG Habitat Management Area designations in the vicinity (see **Section 3.2**).
- Habitat conditions and trends for each GRSG population area were determined by modeling vegetation dynamics, such as wildfire, succession, insects and disease, habitat restoration projects (e.g., sagebrush seeding, grass seeding, and

herbicide treatment of annual grass), prescribed fire, overgrazing, conifer encroachment and treatment, mechanical sagebrush treatment, and fuels reduction projects using the VDDT (**Appendix X**). Modeling was done for population areas in Idaho, Utah (Sawtooth National Forest portion only), and southwestern Montana. Initial population areas from Connelly et al. (2004) were considered, but some were ultimately combined or delineated further, to accommodate similarities in vegetation models or disturbance regimes.

- Because GRSG are highly sensitive to habitat fragmentation, development, and changes in habitat conditions and require large, intact habitat patches, alternatives proposing to protect the most GRSG habitat from disturbance are considered of greatest beneficial impact. These impacts can be described both qualitatively and quantitatively.
- Seasonal ranges of migratory and nonmigratory GRSG are largely encompassed within GRSG habitat management area designations; however, mapping is incomplete across much of the sub-region, so an accurate assessment of direct impacts is not possible.
- GRSG habitat management area designations encompass adequate habitat for providing connectivity within populations and subpopulations. Connectivity is considered by incorporating population area information in the design and implementing restoration projects.
- Under the Proposed Plan, SFA has been identified by the USFWS as areas that represent recognized “strongholds” for GRSG that have been noted and referenced as having the highest densities of GRSG and other criteria important for the persistence of the species. PHMA focuses on conserving the two key GRSG meta-populations in the sub-region. The PHMA encompasses areas with the highest conservation value to GRSG, based on the presence of larger leks, habitat extent, important movement and connectivity corridors, and winter habitat. IHMA contains additional high value habitat and populations that provide a management buffer for the PHMA, connecting patches of PHMA. IHMA encompasses areas of generally moderate to high conservation value habitat and populations and in some CAs includes areas beyond those identified by USFWS as necessary to maintain redundant, representative, and resilient populations (priority areas for conservation, or PACs). The IHMA are typically next to PHMA but generally reflect somewhat lower GRSG population status or reduced habitat value, due to disturbance, habitat fragmentation, or other factors. GHMA encompasses habitat that is outside of PHMA and IHMA. It is generally characterized by more marginal habitat and few, if any, occupied leks or other important seasonal use areas.
- Impacts on GRSG accrue over varying distances from origin depending on the type and scale of development and the habitat type impacted

- Impacts from transmission lines constructed before 2002 are likely fully manifested. BMPs, RDFs, COAs, and standard operating procedures are used for analysis and would be implemented to reduce impacts on GRSG. These are subject to modification based on subsequent guidance and new science.
 - Ground-disturbing activities could modify habitat and cause loss or gain of individuals, depending on the size of the area disturbed, the nature of the disturbance (e.g., development vs. habitat restoration), and the location of the disturbance. For example, juniper reduction treatments in sagebrush steppe disturb the ground but are assumed to positively modify habitat quality and quantity in the long term.
 - For analysis purposes, a 4.25-mile foraging distance is assumed to adequately encompass possible direct and indirect effects for both nesting and roosting avian predators (Boarman and Heinrich 1999; Leu et al. 2008) in instances where there is an increased threat of predation from human infrastructure (e.g. power lines, wind turbines, communication towers, agricultural and urban development).
 - Energy extraction, such as oil and gas and geothermal, and plan of operation mining can cause impacts up to 11.8 miles, based on direct impacts of field development, including associated infrastructure, noise, lighting, and traffic (Johnson et al. 2011; Taylor et al. 2012).
 - Interstate highways at 4.7 miles and paved roads and primary and secondary routes can cause impacts at 1.9 miles, based on indirect effects measured through road density studies (Connelly et al. 2004; Holloran 2005; Lyon 2000).
 - Site-specific disturbances, such as small-scale mining and mineral material sites, can cause impacts at 1.6 miles, based on indirect influence distance from estimated spread of exotic plants (Bradley and Mustard 2006).
- Quantitative impacts are presented for BLM-administered and National Forest System surface and subsurface only, unless otherwise indicated.
 - Short-term impacts would accrue over a time frame of up to 10 years. Long-term impacts would accrue over time frames exceeding 10 years.

4.2.2 Nature and Type of Effects

Riparian Areas and Wetlands

See Livestock Grazing Management, below.

Water Resources Management

See Livestock Grazing Management, below.

Vegetation and Habitat Restoration

Current treatments and active vegetation management typically focus on vegetation composition and structure for fuels and habitat management and productivity manipulation for improving the habitat and forage conditions for ungulates and other grazers (Knick et al. 2011). The distribution of these treatments can affect the distribution of GRSG and sagebrush habitats by affecting the distribution of suitable cover and forage (Manier et al. 2013, p. 169).

GRSG are more productive in higher-quality habitat conditions, including a diversity of herbaceous species, vegetative and reproductive health of native grasses, and an abundance of sagebrush (Manier et al. 2013, p. 169; Connelly et al. 2000). Residual vegetation cover, especially grass and litter, has often been noted as essential for GRSG for concealment during nesting and brood-rearing (Sveum et al. 1998; Kirol et al. 2012; Doherty et al. 2014). An example of passive restoration is adjustments in management practices, such as grazing systems and seasonal restrictions or closures in seasonal-use areas, have a reasonable chance to improve degraded or altered habitats (Manier et al. 2013, p. 170; Connelly et al. 2004).

Some areas within the Idaho and southwestern Montana sub-region are experiencing severe habitat degradation from undesirable annual invasive species. They have displaced native species, making passive management approaches unsuitable and requiring direct manipulation (Connelly et al. 2004).

The BLM's Northern Great Basin Rapid Ecoregional Assessment (BLM 2013a) states that climate change may worsen the spread of invasive species by increasing the severity of droughts, reducing precipitation, or altering wildfire cycles (BLM 2013a). Over the longer term, climate change may exacerbate the spread of annual invasive plants and woody plants such as juniper, displacing native sagebrush communities. Climate change models indicate less precipitation may occur from July through August in lower elevation sites; this may favor cheatgrass, which becomes dormant in summer, over native perennials, which depend on summer moisture for growth. Elevated temperatures due to climate change may increase the competitive ability of cheatgrass at higher elevations, expanding its range into sites where it currently is not widespread. Climate change may increase the spread of woody plants such as juniper at higher elevations due to increased precipitation in winter and spring and warmer temperatures, which may increase fire risk (BLM 2013a).

Invasive plants alter plant community structure and composition, productivity, nutrient cycling, and hydrology and may competitively exclude native plant populations. In parts of the sub-region, invasive species, such as cheatgrass, or native species, such as juniper, have replaced desirable sagebrush, perennial bunchgrasses, and forbs. Cheatgrass invasion areas typically require active control (e.g., herbicides). Subsequent seeding of desirable native perennial species may be needed for successful restoration, unless deep-rooted bunchgrasses are still present in the understory (Miller et al. 2007). Seeding with nonnative perennials may also be necessary, in drier sites. Juniper encroachment requires active treatment, including manual and mechanical juniper removal. Pinyon pine occurs only locally in parts of southern Idaho and has not been identified as a management concern to date.



Cheatgrass competes with native grasses and forbs that are important components of GRSG habitat. Cheatgrass abundance is negatively correlated with habitat selection by GRSG (Kirol et al. 2012), indicating that changes in composition and structure associated with cheatgrass specifically degrade GRSG habitat. Invasion by medusahead (*Taeniatherum caput-medusae*) may be even worse than cheatgrass. This is because it is unpalatable to herbivores, due to its high silica content, supports high-frequency wildfire intervals, and requires intensive treatment for restoration (Davies 2010; Archer 2001). Invasive species directly degrade sagebrush habitats, affecting local GRSG populations by affecting forage, cover quality and composition, and increased wildfire frequency and intensity. It has the potential to cause GRSG to completely avoid forage (Manier et al. 2013, p. 135).

Expanding conifer woodlands also threaten GRSG populations. This is because woodlands do not provide suitable habitat, and trees can displace shrubs, grasses, and forbs that are required by GRSG, particularly in shallow-rooted soils (Miller et al. 2007). Conifer expansion is also associated with increased bare ground and the potential for erosion, as well as an increase in perch sites for raptors. Juniper encroachment may also expand avian predation threats by providing nesting substrate for raptors and corvids. Studies have shown that GRSG incur population-level impacts as low as 4 percent of conifer encroachment (Baruch-Mordo et al. 2013)

VDDT modeling is described further in **Appendix X**. Stand replacement wildfire, mosaic wildfire, overgrazing, insects and disease, and conifer encroachment were incorporated into the model to quantify changes in GRSG habitat. Modeling did not include changes in habitat conditions associated with climate change or with permitted activities, such as infrastructure development, travel management, or mineral development. The model also estimated treatment acres required to meet target sagebrush habitat quality goals. Based on guidelines provided by the GRSG National Technical Team Report (NTT 2011), 70 percent of an area should be in 10 to 30 percent sagebrush canopy cover to meet GRSG sagebrush habitat objectives. The tables included as part of the vegetation impacts for each alternative present the percentage of a given GRSG analysis area meeting GRSG sagebrush habitat objectives by alternative after 10 years and 50 years.

Livestock Grazing Management

Livestock grazing is the most widespread land use across the sagebrush biome (Connelly et al. 2004, pp. 7-29). Livestock grazing can affect soils, biological soil crust, vegetation, riparian habitat conditions, water, and nutrient availability by consuming or altering vegetation, redistributing nutrients and plant seeds, trampling soils and vegetation, and disrupting microbial composition (Connelly et al. 2004). Livestock may also trample nests and disturb GRSG behavior (NTT 2011, p. 14). Livestock grazing is a diffuse form of biotic disturbance that exerts repeated pressure on a system over many years; unlike point sources of disturbance (e.g., fires), the effects of grazing are not likely to be detected as disruptions but as differences in the processes and functioning of the sagebrush system. Grazing effects are not distributed evenly because historic practices, management, and animal behavior all lead to differential use of the range (Manier et al. 2013, pp. 157-168).

At improper levels of grazing, impacts can lead to loss of vegetation cover, reduced nesting habitat quality forage availability, and water infiltration rates, change in vegetation composition, decreased plant litter, increased bare ground, reduced nutrient cycling, decreased water quality, increased soil erosion, and reduced overall habitat quality for wildlife, including GRSG (Manier et al. 2013, pp. 157-159). Grazing may contribute to the spread of invasive weeds in sagebrush ecosystems by reducing cover of native bunchgrass (Reisner et al. 2013). It may increase desertification or worsen the impacts of climate change on rangeland (Beschta et al. 2014). However properly managed grazing may be compatible with GRSG habitat, does not preclude healthy rangelands, and may reduce wildfire in GRSG habitat by reducing fuel loads in certain circumstances (Strand and Launchbaugh 2013; Svejcar et al. 2014; NTT 2011, p. 14).

Structural range improvements, such as fences (especially woven-wire fences) represent potential movement barriers or predator perches and are a potential cause of direct mortality to GRSG due to collision (Stevens et al. 2012; Manier et al. 2013, p. 50).

Grazing strategies that promote sagebrush ecosystem health would help to maintain the desired seasonal GRSG habitat management objectives on the landscape, including herbaceous cover and height metrics, thereby enhancing habitat for GRSG populations (**Table 2-3**, Seasonal Habitat Desired Conditions for Greater Sage-Grouse).

Fire and Fuels Management

Fire is recognized as a primary threat to GRSG populations in the western half of their distribution (see Secretarial Order 3336). Within the Snake River Plain floristic province, which comprises a substantial portion of the sub-region, approximately 37 percent of the sagebrush area burned between 1980 and 2007 (Baker 2011). Fire is particularly problematic in sagebrush systems because it kills sagebrush plants and, in some cases, re-burns before sagebrush has a chance to become reestablished.

Fuels treatment methods should take into consideration habitat conditions and the presence or absence of cheatgrass or other invasive species. Avoiding treatments and activities that remove sagebrush, degrade native herbaceous species, and promote cheatgrass expansion likely requires a combination of different treatment methods or management actions (Manier et al. 2013, p.81).

Actions to reduce the spread of fire in sagebrush can also benefit GRSG. For example, vegetative fuel breaks have characteristics that disrupt fuel continuity, harbor lower fuel loads, and have lower volatile compounds and increased moisture content (Pellant 1992). Fuel breaks help provide defensible anchor points for facilitating fire suppression and can allow fires to be compartmentalized, ultimately reducing potential fire size.

Fire is a primary threat to GRSG populations, where increasing exotic annual grasses, primarily cheatgrass, are resulting in sagebrush loss and degradation (USFWS 2010a, p. 13932). Cheatgrass can more easily invade and create its own feedback loop in areas that are dry with understory vegetation cover that is not substantial or are experiencing surface-disturbing activities (e.g., road construction). It can facilitate short fire return intervals by



outcompeting native herbaceous vegetation with early germination, early moisture and nutrient uptake, prolific seed production, and early senescence (Hulbert 1955; Mack and Pyke 1983; Pellant 1996). Furthermore, by providing a dry, fine fuel source during the peak of fire season, cheatgrass increases the likelihood of fire, which increases the likelihood of further cheatgrass spread (Pellant 1990). Cheatgrass dominance can also exclude sagebrush seedlings from establishing due to competition. Fire contributes to the problem by accelerating the conversion of native perennial plant communities to annual grasslands, where those species have a foothold. Without shrubs and a healthy diversity of grasses and forbs, such annual grasslands will not support GRSG, and populations would likely be displaced or suffer declines due to increased exposure to predators, loss of forage and cover, and other factors in burned habitat.

Fire risk and the likelihood of perpetuating the cheatgrass-fire cycle in GRSG habitat is highest in arid, low-elevation areas with Wyoming big sagebrush (*Artemisia tridentata* ssp. *tridentata*), which dominates the planning area. Ground disturbance, such as roads, facilitates the establishment and spread of cheatgrass and other invasive weeds (Gelbard and Belnap 2003). While fires do occur in higher elevation mountain big sagebrush habitats (e.g. *Artemisia tridentata* ssp. *vaseyana*), they are typically smaller and more variable in intensity and these ecological communities typically have a higher resilience to disturbance and a lower risk of cheatgrass establishment, resulting in a shorter recovery time and less effect on GRSG compared to lower elevations (Chambers et al. 2014, **Appendix D** of this EIS). Grazing may have a limited ability to reduce the types of fuels (e.g., cheatgrass), as described in **Section 4.3, Vegetation**.

Another factor affecting fire in some sagebrush sites is the encroachment of juniper trees or other conifers, such as Douglas-fir from higher elevations downslope into sagebrush habitats (Baker 2011; Balch et al. 2012). Wildfires that start in conifer stands can increase in size and severity with the available heavier fuel, facilitating their spread into Wyoming big sagebrush stands. Wyoming sagebrush can take 150 years to recover from fire (Cooper et al. 2007). Following fire, sagebrush areas can be opened to invasion by cheatgrass and other annual grasses, which limit the reestablishment of sagebrush. Increased fire severity leads to increased soil loss, which in turn facilitates an increase in the abundance of invasive annuals, resulting in decreased success of rehabilitation. In the Idaho and southwestern Montana sub-region, several population areas or portions thereof have experienced substantial declines in habitat due to fire: the Jarbidge portion of South Snake River, North Snake River, and Weiser. Depending on the extent of habitat available to the birds, a single fire can influence a local population's distribution, migratory patterns, and overall habitat availability (Fischer et al. 1997, p. 89).

In degraded GRSG habitats where cheatgrass is dominant under the sagebrush canopy, the sagebrush may still likely provide adequate winter habitat. However, these areas lack the understory forb diversity and insect abundance necessary for brood-rearing and could result in lower chick survival during summer. These areas would also lack the necessary cover for suitable nesting due to the absence of perennial grasses and forbs. As GRSG habitats become smaller in scale and less connected to adjacent populations, they become increasingly susceptible to random events and local extirpation (Knick and Hanser 2011;

Wisdom et al. 2011). In addition, genetically isolated populations could suffer a decrease in fitness from inbreeding.

Fire causes annual GRSG habitat loss and degradation in portions of the Idaho and southwestern Montana sub-region. Cheatgrass dominance in portions of the sub-region has shortened the fire return interval and exacerbated the loss and degradation of GRSG habitat. While research and management are focused on developing means of controlling cheatgrass on a large scale, the only current management actions under the fire program to minimize the spread of fire in GRSG habitat are fuels treatments, planning, and effective fire suppression geared toward protecting GRSG habitat. Reducing the spread of cheatgrass and the scale of wildfire through BLM and Forest Service post-fire programs, such as ES&R or BAER, could also result in more or improved habitat for GRSG.

Wild Horse and Burro Management

Six horse herd management areas (HMAs) and portions of HMAs occur in or next to four GRSG population areas in the sub-region: Southwest Idaho, Weiser, Mountain Valleys, and South Snake. HMAs occur on 269,800 acres of GRSG habitat in the sub-region. In each HMA, an appropriate management level (AML) was established under which wild horse population levels are managed to meet a Thriving Natural Ecological Balance (BLM Handbook H-4700-1) and prevent deterioration of the range.

Wild horses may alter habitat conditions for GRSG, including reduced total vegetation and grass abundance and cover, lowered sagebrush canopy cover, increased shrub canopy fragmentation, lowered species richness, increased compaction in surface soil horizons, and increased dominance of unpalatable forbs (Manier et al. 2013, p. 100). In addition, horse populations over AML can degrade riparian areas, decrease water quantity and quality, and increase soil erosion. Cumulatively, this can reduce habitat quality for wildlife, including GRSG. Effects of wild horses on habitats may also be more pronounced during periods of drought or vegetation stress (NTT 2011, p. 18).

Fences used to manage horse distribution represent a potential source of direct mortality to GRSG (Manier et al. 2013). In addition, water must be available year-round in HMAs and wild horse territories, in compliance with the Wild and Free-Roaming Horses and Burros Act of 1971. This can lead to riparian areas receiving year-long use by wild horses and could modify riparian areas with additional fencing and troughs in order to accommodate year-long horse use. The range improvements would increase potential perch sites for avian predators (fences) and potential drowning hazards (troughs). They could have negative effects on riparian habitat, depending on how each facility is constructed. Moreover, there would be less water available for wildlife.

Locatable, Leasable, and Salable Minerals Management

Locatable minerals development in the sub-region consists of three tiers based on level of disturbance and type of mining: casual use, notice-level operations, and Plan-level operations. In general, casual use operations are activities that result in “no or negligible disturbance”. Exploration activities that will disturb less than 5 acres require the filing of a notice. All other mining activities, including exploration with disturbance over 5 acres,



require an approved Plan of Operations. Certain operations that would normally not require a plan may be required to do so when certain criteria are met or when the operation is proposed for certain special management areas (43 CFR 3809.11). On National Forest System lands, an operator is required to submit a Notice of Intent to the District Ranger to conduct operations that might cause significant disturbance of surface resources. Activities such as prospecting and sampling where reasonable amounts of the mineral deposit are removed, or marking and monumenting claims, do not require a Notice of Intent. If the District Ranger determines the operation is likely to cause significant disturbance of surface resources, the District Ranger will notify the Operator that a propose Plan of Operations must be submitted 36 CFR 228.4). Salable mineral mining in the sub-region is primarily for gravel and stone. Locatable mineral mining is primarily for gold, silver, and copper but includes other minerals, such as barite and Oakley stone. Leasable minerals in the sub-region include commodities such as potash and phosphate. With the exception of the Bear Lake area, the potential for oil and gas development is low in the sub-region. Development of locatable and leasable mineral resources typically requires significant infrastructure and human activity for construction, operation, and maintenance.

Mineral extraction of all types in GRSG habitat results in habitat loss from construction of infrastructure and the footprint of the surface facilities and pits or aboveground facilities associated with subsurface operations. Sagebrush communities that are lost or modified in locations where mine reclamation is not compromised by the presence or introduction of invasive grasses still may not regain suitable sagebrush cover suitable for GRSG use for 20 to 30 years or longer following interim or final reclamation, depending on scale and site factors (Knick et al. 2013).

GRSG population reestablishment in reclaimed areas may take upwards of 30 years (Braun 1998). Where compromised by invasive grasses, reclamation may be only minimally effective, without additional intervention. Necessary infrastructure, including location, construction, and use of ancillary facilities, staging areas, roads, railroad tracks, buildings and power lines cause additional direct and indirect impacts on GRSG. This is from noise and light pollution, fugitive dust, human disturbance, increases in predator perch sites, and weed proliferation, any of which leads to habitat degradation.

The industrial activity associated with energy and mineral development produces noise and human activity that can disrupt the habitat and life cycle of GRSG. Many studies assessing impacts of energy development on GRSG have found negative effects on populations and habitats (Naugle et al. 2011; Taylor et al. 2012). Walker et al. (2007) found that up to one mile buffers result in an estimated lek persistence of approximately 30 percent, while lek persistence in areas without oil and gas development averaged 85 percent. Holloran (2005) found impacts on abundance at between 3 and 4 miles. Coates et al. (2013) recommended a minimum buffer of 3 miles to protect GRSG from energy development impacts. The USGS recently published a scientific review of conservation buffer distances for GRSG protection from different types of human disturbance (USGS 2014a, see **Appendix DD** of this EIS).

Noise from industrial activity may disrupt GRSG communication, which is at low frequency and potentially masked by low-frequency noise from equipment and vehicles, resulting in

reduced female attendance and yearling recruitment, as seen in sharp-tailed grouse (*Pedioecetes phasianellus*; Amstrup and Phillips 1977). The mechanism of how low-frequency noise affected the birds was not known, but it is known that GRSG depend on acoustical signals to attract females to leks (Gibson and Bradbury 1986; Gratson 1993; Blickley et al. 2012). Noise associated with oil and gas development may have played a factor in habitat selection and a decrease in lek attendance by GRSG in western Wyoming (Holloran 2005). Recent studies in oil and gas areas suggest that GRSG avoid leks exposed to human noise (Blickley et al. 2012; Blickley and Patricelli 2012). Chronic noise pollution can also cause GRSG to avoid otherwise suitable habitat (Patricelli et al. 2013) and can cause elevated stress levels in the birds that remain in noisy areas (Blickley et al. 2012). Given the factors described above, such as the time required to reclaim sagebrush, as well as disturbance from light and noise, avoidance and minimization of impacts, as well as compensatory mitigation of impacts from mineral development may not be sufficient to protect GRSG and sagebrush habitat.

Infrastructure for mining is similar to that required for oil and gas but is more localized in extent. As revealed by studies on oil and gas development, the interaction and intensity of effects of habitat loss could cumulatively or individually lead to habitat fragmentation in the long term (Connelly et al. 2004; Holloran 2005). This would have negative impacts of fragmentation from development and associated infrastructure on lek persistence, lek attendance, winter habitat use, recruitment, yearling annual survival rate, and female nest site choice (Holloran 2005; Aldridge and Boyce 2007; Walker et al. 2007; Doherty et al. 2008).

Land Uses and Realty Management

Transmission lines and major power lines are widespread throughout GRSG range. GRSG generally respond negatively to increased human infrastructure in sagebrush habitats, including roads, power lines, and communication towers (Manier et al. 2013, pp. 71-74). Although transmission and power line construction does not generally result in substantial direct habitat loss, it would temporarily disturb individual GRSG and habitat along the ROW due to the associated human activity, equipment, and noise, and would contribute to habitat fragmentation. In addition, transmission lines can provide perches and nest sites for ravens and raptors, resulting in indirect negative impacts on GRSG survival and reproduction (Gillan et al. 2013; Gibson et al. 2013; Lockyer et al. 2013; Coates et al. 2014; Howe et al. 2014). Collocation of transmission lines could reduce impacts by siting new developments in areas that are previously disturbed. However, collocating new lines can have indirect impacts on GRSG, such as impeding movement and reducing habitat connectivity (Shirk et al. in review; Washington Wildlife Habitat Connectivity Working Group 2012). Roads associated with energy transmission facilities can also reduce the extent and quality of GRSG habitat or serve as inroads for invasive plants to establish.

Following construction, potential GRSG avoidance of tall vertical structures, due to avian predators perching and nesting on the structures, or due to the presence of the structure itself, may result in habitat exclusion via behavioral response. Although not all studies have found that tall structures affect GRSG (Messmer et al. 2013), the tendency of GRSG to fly relatively low and in low light puts them at high risk of collision with power lines (Manier et al. 2013, pp. 50-51). The frequency of raptor/GRSG interactions during the breeding season



increased 65 percent, and golden eagle interactions alone increased 47 percent in an area following installation of transmission lines; nearby lek use declined 72 percent (Ellis 1985, cited in Manier et al. 2013, pp. 50-51). A study of raven occurrence near transmission lines in southern Idaho found increased raven presence near transmission lines up to 1.4 miles from the corridor. Ravens preferred sagebrush edge habitats of patchy, exotic vegetation that occurs following disturbance (Coates et al. 2014; Howe et al. 2013).

Perch deterrents are often used to reduce the impact of avian predation. Prather and Messmer (2010) determined that the effectiveness of perch deterrents was limited by the structure of the power poles and the design and placement of deterrents. In other studies, equipping poles with perch deterrents has been observed to reduce but not eliminate perching by corvids and raptors to prey on GRSG (Lammers and Collopy 2007; Slater and Smith 2010). Similarly, perch-deterrent devices installed following construction of an 18-mile power transmission line significantly reduced raptor use in Wyoming (Oles 2007).

A west-central Idaho study using spatial statistics and point-pattern simulations found that GRSG avoided power transmission lines by approximately 0.37 mile (Gillan et al. 2013). A study of the long-term impacts of the Falcon-Gondor transmission line in Nevada found strong support for an effect of distance from the power line on nest survival and female survival, suggesting an impact from increased predation. The study concluded that placing transmission lines in GRSG habitat areas may negatively influence long-term population dynamics (Gibson et al. 2013).

In areas managed as ROW/SUA exclusion, the BLM and Forest Service would prohibit all development of ROWs/SUAs, with some exceptions provided; in areas managed as ROW/SUA avoidance, the BLM and Forest Service would consider allowing ROW/SUAs on a case-by-case basis. This flexibility may be advantageous where federal and private landownership areas are mixed and exclusion areas may result in more widespread development on private lands if BLM-administered or National Forest System lands could not be used. Land tenure adjustments or withdrawals made in GRSG habitat could reduce the habitat available to sustain GRSG populations, unless provisions were made to ensure that GRSG conservation remained a priority under the new land management regime. Land tenure actions designed to decrease fragmentation of GRSG habitat would help GRSG populations (NTT 2011, p. 12).

Collisions with power lines, vehicles, and property fencing and increased predation by raptors may increase bird deaths at leks (Connelly et al. 2000a; Lammers and Collopy 2007). Roads and power lines may also indirectly affect lek persistence by altering productivity of local populations or survival at other times of the year. GRSG deaths associated with power lines and roads occurs year-round (Aldridge and Boyce 2007). Artificial ponds created by development (Zou et al. 2006) can support breeding mosquitoes known to carry West Nile virus (Walker et al. 2007) and elevate the risk of deaths in late summer (Walker and Naugle 2011). GRSG may also avoid otherwise suitable habitat as development increases (Lyon and Anderson 2003; Holloran 2005; Kaiser 2006; Doherty et al. 2008).

Avoidance of developed areas should not be considered a simple shift in habitat use but a reduction in the distribution of GRSG (Walker et al. 2007). This is because avoidance is likely to result in true population declines when density dependence, competition, or displacement of birds into poorer-quality adjacent habitat lowers survival or reproduction (Holloran and Anderson 2005; Aldridge and Boyce 2007; Holloran et al. 2010). GRSG exhibit extremely high site fidelity, which strongly suggests that unfamiliarity with new habitats may also reduce survival (Baxter et al. 2008), as evidenced in other grouse species (Yoder et al. 2004). GRSG avoid other developments, such as roads, power lines, oil and gas wells, and buildings (Lyon and Anderson 2003; Pruett et al. 2009). Augmentation of dwindling GRSG populations by introducing translocated birds or supplementing existing populations is often unsuccessful (Naugle et al. 2011; Baxter et al. 2008).

Renewable Energy

Because large-scale development of renewable energy resources is recent compared to oil and gas, many of the potential impacts of renewable energy on GRSG have not been studied. However, potential development impacts on GRSG can be anticipated from studies of oil and gas development on the species (Becker et al. 2009). Recent research has found that nest and brood survival are negatively affected with proximity to wind turbines, likely as a result of increased predation (LeBeau 2012; LeBeau et al. 2014). Because GRSG have evolved in habitats with little vertical structure or other man-made features, tall vertical structures such as wind turbines may displace GRSG from their usual habitat (Johnson and Stephens 2011).

Impacts from energy development accrue both locally and cumulatively at the landscape scale. Accumulated evidence across landscape-scale studies show that GRSG populations typically decline following oil and gas development (Holloran 2005; Walker et al. 2007; Doherty et al. 2008). Oil and gas infrastructure and associated human activity have been shown to adversely affect GRSG populations collectively and in some instances, impacts have been directly attributed to certain man-made features (e.g., roads, power lines, noise, and associated infrastructure; Walker et al. 2007; Doherty et al. 2008; Lyon and Anderson 2003; Holloran 2005; Kaiser 2006; Aldridge and Boyce 2007). Direct impacts of energy development on GRSG habitats and populations are from loss of sagebrush canopy or nest failure; these effects have been estimated to occur within a 68-yard radius of leks. Indirect effects are habitat degradation or utilization displacement. These effects have been estimated to occur out to 11.8 miles from leks (Naugle et al. 2011). Population impacts have been observed when leks occur within 2.5 miles of a producing well, when greater than eight active wells are within 3.1 miles of leks, or when more than 200 active wells are within 11 miles of leks. Other impacts have been documented within varying distances from energy infrastructure and at different well densities (USGS 2014a).

Renewable energy development and its infrastructure (e.g., power lines, roads, and construction activities) may negatively affect GRSG populations via several different mechanisms. For example, concerns with wind energy development are noise produced by rotor blades, GRSG avoidance of structures, GRSG killed by flying into rotors, and the presence of new roads and power lines (Connelly et al. 2004; Manier et al. 2013).



Mechanisms responsible for cumulative impacts that lead to population declines depend on the magnitude, frequency, and duration of human disturbance. GRSG may abandon leks if repeatedly disturbed by raptors perching on power lines or other tall vertical structures near leks (Ellis 1984), by vehicular traffic on roads (Lyon and Anderson 2003), or by noise and human activity associated with energy development (Braun et al. 2002; Holloran 2005; Kaiser 2006).

Travel and Transportation Management

The travel and transportation program is principally focused on road networks in the GRSG range. The three types of linear features that comprise the transportation system are roads, primitive roads, and trails. Because roads accommodate year-round passenger vehicles and volume of traffic is the highest, roads by comparison translate into the greatest potential for impacts on GRSG and its habitat. Primitive roads are seasonally passable in many areas and, compared to roads, have a lower traffic volume, lower travel speeds, and fewer impacts on GRSG. Trails are seasonally passable, have the lowest traffic volume, and are typically used only by foot travelers, mountain cyclists, equestrians, and all-terrain vehicle operators; thus the fewest impacts on GRSG are expected from trails.

BLM and Forest Service travel management primarily applies to public use levels within travel management zones under the following designations: closed, limited (to existing or designated roads and trails), or open. Use of roads is predominantly associated with recreation on BLM-administered or National Forest System lands and permitted uses, such as by livestock grazing. Areas currently open to cross-country OHV use would have greater impacts on GRSG than those where travel is limited to existing roads and trails or closed to OHV use. This is because there would be a considerably higher likelihood of disturbance to vegetation, flushing of GRSG, nest abandonment or destruction, increased wildfire risk, and spread of invasive plants and noxious weeds.

GRSG persistence is inversely correlated with road density. Compared with occupied GRSG range, extirpated range was 60 percent closer to highways and had 25 percent higher road densities (Manier et al. 2013, citing Wisdom et al. 2011). Within the GRSG range, 95 percent of the mapped sagebrush habitats are within 1.6 miles of a mapped road; density of secondary roads exceeds 3.1 miles per 247 acres in some regions (Knick et al. 2011). Incremental effects of accumulating length of roads in proximity to leks were apparent range-wide although limited to major roads (state and federal highways and interstates). This effect was demonstrated by decreasing lek counts when there were more than 3.1 miles of federal or state highway within 3.1 miles of leks and when more than 12.4 miles of highway occurs within an 11.2-mile window (Johnson et al. 2011).

Roads have multiple impacts on wildlife in terrestrial ecosystems, including increased deaths from collision with vehicles, changes in behavior, loss, fragmentation, and alteration of habitat, spread of exotic species, and increased human access. These situations facilitate additional human alteration and use of habitats (Forman and Alexander 1998; Jackson 2000; Trombulak and Frissel 2000). The effect of roads can be expressed directly through changes in habitat and GRSG populations and indirectly through avoidance behavior because of

traffic noise (Lyon and Anderson 2003; USFWS 2010a; See **Section 4.2.1** regarding interstates and primary routes).

Roads fragment habitat by the following activities (Formann and Alexander 1998, pp. 207-231):

- Impeding use of migration corridors or seasonal habitats
- Facilitate habitat degradation in the remaining habitats by creating a corridor along which invasive plants can spread
- Allow for increased human noise disturbance, which can result in GRSG avoiding habitat (i.e., functional habitat loss)
- Increase mammalian and avian predator abundance

Connelly and others (2004) suggest road traffic within 4.7 miles of leks negatively influences male lek attendance. Similarly, lek count trends are lower near interstate, federal, or state highways compared with secondary roads (Johnson et al. 2011), and Connelly and others (2004) reported no leks within 1.25 miles of an interstate. In general, leks closer to the interstate had higher rates of decline than leks farther away from the interstate. In Montana and southern Canada, as the length of roads within 2 miles of a lek increased, the likelihood of lek persistence decreased (Manier et al. 2013).

Motorized activities are expected to have a larger footprint on the landscape than nonmotorized users. OHV travel would increase the potential for soil compaction and loss of perennial grasses and forbs and would reduce canopy cover of sagebrush (Payne et al. 1983). Long-term losses in sagebrush canopy would likely be the result of repeated, high frequency, long duration use by cross-country OHV use. Impacts on vegetation communities would likely be greater during the spring and winter, when soil conditions are wet and more susceptible to compaction and rutting. In addition, the chances of wildfire are increased during the summer when fire dangers and recreation are highest. Noise and increased human presence associated with construction, use, and road maintenance may change GRSG behavior, based on the proximity, magnitude, intensity, and duration.

Special Designations

Special designation areas (e.g., ACECs) may be established to protect GRSG and their habitat as a relevant or important value. While existing ACECs do not have GRSG as a relevant or important value, and thus management is not tailored to protect GRSG, some incidental protection may be conferred in existing ACECs by restricting resource uses intended to protect other values.

4.2.3 Impacts on GRSG and GRSG Habitat Common to All Alternatives

The nature and type of impacts described below are common to all alternatives, but the context and intensity may vary by alternative.



Impacts from Vegetation and Soils Management

Vegetation dynamics were modeled to describe vegetation changes across all the alternatives in the short term (10 years) and in the long term (50 years). **Tables 4-1** and **4-2** display these comparisons. Vegetation dynamics modeling is presented separately for the Proposed Plan in **Section 4.2.7**.

Impacts from Renewable Energy Management

The magnitude of impacts is different for all alternatives as the acreages of lands managed for ROWs and zoning designations vary across the alternatives (see **Table 2-3**, Comparative Allocation Summary of Alternatives, in **Chapter 2**). Acres of avoidance and exclusion areas for ROWs and SUAs in GRSG habitat would vary by alternative. **Table 4-3**, GRSG Habitat within Avoidance Areas for ROWs and SUAs in the Idaho and Southwestern Montana Sub-region, and **Table 4-4**, GRSG Habitat within Exclusion Areas for ROWs and SUAs in the Idaho and Southwestern Montana Sub-region, show the acreage where ROWs and SUAs would be restricted under each alternative.

Impacts from Livestock Grazing Management

Acres available or unavailable (closed) to grazing for each of the alternatives are described in **Table 4-5**, GRSG Habitat Acres Closed to Grazing in the Idaho and Southwestern Montana Sub-region.

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Table 4-1
GRSG Habitat Condition¹ and Trend Analysis within the Idaho and Southwestern Montana Sub-region after 10 Years^{2,4}

Analysis Area	Total Acres	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Southwest Idaho	5,600,000	62%	63%	61%	63%	63%	63%
South Side Snake	6,768,000	61%	60%	58%	60%	60%	60%
North Side Snake	3,854,000	70%	71%	71%	71%	71%	71%
Mountain Valleys 1 ³	717,000	82%	82%	82%	82%	82%	82%
Mountain Valleys 2 ³	2,537,000	87%	87%	87%	87%	87%	87%
Bear Lake	2,022,000	76%	77%	75%	77%	77%	77%
East-Central Idaho	320,000	90%	90%	91%	90%	90%	90%
Sawtooth	1,186,000	81%	81%	82%	81%	81%	82%
Weiser	799,000	76%	76%	75%	76%	76%	76%
Southwest Montana	1,977,000	85%	85%	86%	85%	85%	85%
All	25,780,000	70%	71%	70%	71%	71%	71%

Source: Forest Service 2013a

¹Percent of analysis area meeting GRSG sagebrush habitat objectives

²Existing habitat conditions are estimated from a combination of LANDFIRE and ReGap data sets. These data sets are the best available across both National Forest System and BLM-administered lands, but they include some inaccuracy and error. Interpretation of and evaluation of trends in each population area should consider this. Vegetation modeling data is intended to be an approximation of expected conditions in 50 years. In areas where existing habitat conditions are high, such as 80 to 90 percent, it is not unexpected to see a declining trend in habitat conditions. These conditions can be either a result of overestimating existing conditions or vegetation dynamics driving the trends. The vegetation modeling for each alternative assumes the vegetation treatment rates from Alternative A – No Action. For a description of analysis inputs, see **Appendix X**.

³The Mountain Valleys population was divided and modeled as two separate components of the vegetation dynamics model. See **Appendix X** for more details.

⁴Conditions for the Proposed Plan are presented in **Table 4-47**.

Table 4-2
GRSG Habitat Condition¹ and Trend Analysis within the Idaho and Southwestern Montana Sub-region after 50 Years^{2,4}

Analysis Area	Total Acres	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Southwest Idaho	5,600,000	62%	65%	59%	65%	65%	66%
South Side Snake	6,768,000	70%	68%	58%	68%	68%	68%
North Side Snake	3,854,000	74%	78%	68%	76%	76%	78%
Mountain Valleys 1 ³	717,000	73%	73%	73%	73%	73%	72%
Mountain Valleys 2 ³	2,537,000	73%	73%	74%	73%	73%	74%
Bear Lake	2,022,000	67%	69%	59%	69%	69%	69%
East-Central Idaho	320,000	78%	80%	80%	78%	78%	80%
Sawtooth	1,186,000	71%	71%	72%	71%	71%	72%
Weiser	799,000	76%	79%	72%	79%	79%	79%
Southwest Montana	1,977,000	74%	74%	74%	74%	74%	74%
All	25,780,000	70%	71%	64%	70%	70%	71%

Source: Forest Service 2013a

¹Percent of analysis area meeting GRSG sagebrush habitat objectives

²Existing habitat conditions are estimated from a combination of LANDFIRE and ReGap data sets. These data sets are the best available across both National Forest System and BLM-administered lands, but they include some inaccuracy and error. Interpretation of and evaluation of trends in each population area should consider this. Vegetation modeling data is intended to be an approximation of expected conditions in 50 years. In areas where existing habitat conditions are high, such as 80 to 90 percent, it is not unexpected to see a declining trend in habitat conditions. These conditions can be either a result of overestimating existing conditions or vegetation dynamics driving the trends. The vegetation modeling for each alternative assumes the vegetation treatment rates from Alternative A – No Action. For a description of analysis inputs, see **Appendix X**.

³The Mountain Valleys population was divided and modeled as two separate components of the vegetation dynamics model. See **Appendix X** for more details.

⁴Conditions for the Proposed Plan are presented in **Table 4-47**.

Table 4-3
GRSG Habitat within Avoidance Areas for ROWs and SUAs in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative A	Alternative B		Alternative C	Alternative D ¹			Alternative E			Alternative F			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA ¹	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
East-Central Idaho	12,200	67,600	0	0	94,200	7,600	4,670	8,420	0	0	67,600	0	0	33,900	0	0
BLM	4,760	23,500	0	0	23,500	7,600	4,670	4,760	0	0	23,500	0	0	4,120	0	0
Forest Service	7,420	44,100	0	0	70,700	0	0	3,660	0	0	44,100	0	0	29,800	0	0
Mountain Valleys	411,400	521,900	0	0	522,000	422,300	1,884,300	144,900	938,500	1,372,300	521,900	0	0	49,200	993,500	1,338,500
BLM	215,900	196,500	0	0	196,500	232,100	1,621,800	35,700	759,900	1,126,100	196,500	0	0	6,090	802,400	1,070,500
Forest Service	195,400	325,400	0	0	325,500	190,300	262,500	109,300	178,600	246,200	325,400	0	0	43,200	191,100	268,000
Southwest Montana	380,600	363,100	0	0	493,400	160	536,500	166,000	0	124,300	363,100	0	0	166,500	0	536,700
BLM	57,300	212,700	0	0	257,200	80	447,300	16,200	0	36,000	212,700	0	0	16,200	0	447,400
Forest Service	323,400	150,300	0	0	236,100	70	89,200	149,800	0	88,300	150,300	0	0	150,300	0	89,300
North Side Snake	368,200	526,200	0	0	526,200	185,500	1,414,200	163,300	402,000	792,500	526,200	0	13,200	127,900	605,600	928,100
BLM	255,800	440,300	0	0	440,300	167,600	1,403,400	78,600	374,000	792,600	440,300	0	13,200	41,200	577,600	928,100
Forest Service	112,400	85,900	0	0	85,900	17,900	10,800	84,700	28,000	0	85,900	0	0	86,700	28,000	0
South Side Snake	483,800	615,400	0	0	615,400	552,900	1,034,200	190,100	741,600	680,600	615,400	0	1,900	175,500	936,600	608,200
BLM	47,800	446,000	0	0	446,000	505,800	767,300	16,800	578,800	548,500	446,000	0	1,910	10,400	745,600	477,500
Forest Service	435,900	169,400	0	0	169,400	47,100	266,900	173,300	162,800	132,100	169,400	0	0	165,100	191,000	130,700
Southwest Idaho	184,200	330,200	0	0	330,200	72,200	1,346,900	34,800	454,400	978,600	330,200	0	1,900	2,620	439,300	1,171,500

Table 4-3
GRSG Habitat within Avoidance Areas for ROWs and SUAs in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative A	Alternative B		Alternative C	Alternative D ¹			Alternative E			Alternative F			Proposed Plan		
		GHMA	PHMA		PHMA	GHMA	IHMA	PHMA ¹	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA
BLM	184,200	330,200	0	0	330,200	72,200	1,346,900	34,800	454,400	978,600	330,200	0	1,900	2,620	439,300	1,171,500
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear Lake	190	5,300	0	0	27,300	1,130	43,700	0	16,600	26,000	5,300	0	0	0	19,900	30,800
BLM	190	4,690	0	0	4,700	740	42,500	0	15,200	26,000	4,690	0	0	0	18,400	30,800
Forest Service	0	610	0	0	22,600	390	1,230	0	1,370	0	610	0	0	0	1,580	0
Weiser	87,700	87,900	0	0	87,900	0	10	87,700	0	0	87,900	0	200	87,400	0	0
BLM	87,700	87,900	0	0	87,900	0	10	87,700	0	0	87,900	0	60	87,400	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	140	0	0	0
Sawtooth	20,900	21,400	0	0	21,400	0	0	20,900	0	0	21,400	0	0	21,400	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	20,900	21,400	0	0	21,400	0	0	20,900	0	0	21,400	0	0	21,400	0	0
Total	1,949,100	2,539,000	0	0	2,717,990	1,241,800	6,264,600	816,100	2,553,100	3,974,200	2,539,000	0	17,300	664,500	2,994,900	4,613,900

Source: BLM GIS 2015

¹Includes avoidance areas with limited exclusions.

Table 4-4
GRSG Habitat within Exclusion Areas for ROWs and SUAs in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative A	Alternative B		Alt. C	Alternative D			Alternative E			Alternative F			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
East-Central Idaho	580	0	12,300	79,800	550	20	0	20	0	0	0	12,300	0	20	0	0
BLM	20	0	12,300	35,700	0	20	0	20	0	0	0	12,300	0	20	0	0
Forest Service	550	0	0	44,100	550	0	0	0	0	0	0	0	0	1,540	20,600	3,800
Mountain Valleys	44,100	18,900	2,331,800	2,872,600	18,900	2,470	22,700	19,500	21,000	4,100	18,900	2,331,800	0	1,540	19,500	20
BLM	25,000	1,660	1,877,200	2,075,400	1,660	1,800	21,600	2,100	19,700	3,860	1,660	1,877,200	0	0	1,150	3,770
Forest Service	19,000	17,200	454,600	797,200	17,200	670	1,120	17,400	1,250	240	17,200	454,600	0	84,100	0	73,600
Southwest Montana	207,400	84,100	610,300	1,057,500	133,800	0	73,600	84,100	0	73,400	84,100	610,300	0	0	0	0
BLM	0	0	447,400	660,100	0	0	0	0	0	0	0	447,400	0	84,100	0	73,600
Forest Service	207,400	84,100	162,900	397,300	133,800	0	73,600	84,100	0	73,400	84,100	162,900	0	50,800	82,800	20,000
North Side Snake	137,400	31,200	1,705,900	2,263,400	31,200	60,500	45,700	35,400	86,600	15,500	31,200	1,705,900	19,700	50,800	82,800	20,000
BLM	137,400	31,200	1,677,300	2,148,800	31,200	60,500	45,700	35,400	86,600	15,500	31,200	1,677,300	19,700	0	0	0
Forest Service	0	0	28,600	114,500	0	0	0	0	0	0	0	28,600	0	2,500	18,200	39,500
South Side Snake	55,300	17,700	1,624,700	2,257,900	17,700	14,100	23,500	2,800	16,400	37,200	17,700	1,624,700	1,570	2,300	17,600	39,500
BLM	54,600	17,400	1,310,400	1,773,700	17,400	14,100	23,200	2,600	15,900	37,200	17,400	1,310,400	1,570	170	610	0
Forest Service	660	310	314,400	484,100	310	0	350	170	490	0	310	314,400	0	56,800	10,700	412,600
Southwest Idaho	458,500	93,600	1,784,000	2,207,800	93,600	7,660	357,300	43,800	54,100	360,600	93,600	1,784,000	5,320	56,800	10,700	412,600
BLM	458,500	93,600	1,783,997	2,207,800	93,600	7,660	357,300	43,800	54,100	360,600	93,600	1,784,000	5,320	1,540	20,600	3,800

Table 4-4
GRSG Habitat within Exclusion Areas for ROWs and SUAs in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative A	Alternative B		Alt. C	Alternative D			Alternative E			Alternative F			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear Lake	850	0	45,155	50,500	570	0	280	0	0	280	0	45,200	0	0	0	280
BLM	280	0	43,532	48,200	0	0	280	0	0	280	0	43,500	0	0	0	280
Forest Service	560	0	1,623	2,240	560	0	0	0	0	0	0	1,620	0	0	0	0
Weiser	124,300	47,100	77,224	212,200	47,100	55,500	21,700	124,300	0	0	47,100	77,200	12,800	135,800	0	0
BLM	124,300	47,100	77,224	212,200	47,100	55,500	21,700	124,300	0	0	47,100	77,200	12,800	135,800	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sawtooth	40	40	0	21,500	40	0	0	40	0	0	40	0	0	40	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	40	400	0	21,500	40	0	0	40	0	0	40	0	0	40	0	0
Total	1,028,500	292,700	8,191,346	11,023,100	343,400	140,300	544,800	310,000	178,000	491,100	292,700	8,191,300	39,400	331,500	132,400	549,800

Source: BLM GIS 2015

Table 4-5
GRSG Habitat Acres Closed to Grazing in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
East-Central Idaho	1,600	900	700	79,800	900	700	0	1,600	0	0	900	700	0	1,500	0	0
BLM	1,400	700	700	35,800	700	700	0	1,400	0	0	700	700	0	1,400	0	0
Forest Service	100	100	0	44,100	100	0	0	100	0	0	100	0	0	100	0	0
Mountain Valleys	52,800	23,700	29,100	2,878,400	23,800	2,300	26,800	22,000	17,300	13,500	23,700	29,100	0	2,000	23,100	8,200
BLM	22,500	1,000	21,500	2,079,200	1,000	400	21,100	100	11,800	10,600	1,000	21,500	0	200	15,400	6,000
Forest Service	30,300	22,700	7,600	799,300	22,700	1,900	5,700	21,900	5,500	2,900	22,700	7,600	0	1,800	7,700	2,200
Southwest Montana	59,300	31,600	14,700	1,105,500	44,600	0	14,700	31,600	0	14,600	31,600	14,700	0	31,600	0	14,700
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	59,300	31,600	14,700	708,200	44,600	0	14,700	31,600	0	14,600	31,600	14,700	0	31,600	0	14,700
North Side Snake	3,000	900	2,100	2,286,500	900	1,200	1,000	900	2,000	200	900	2,100	0	600	1,800	500
BLM	600	200	400	2,172,000	200	0	400	200	200	200	200	400	0	0	100	500
Forest Service	2,400	700	1,700	114,500	700	1,200	600	700	1,700	0	700	1,700	0	600	1,700	0
South Side Snake	17,100	6,100	11,000	2,274,300	6,100	1,600	9,400	6,000	11,100	0	6,100	11,000	0	5,100	13,300	1,100
BLM	2,500	1,000	1,500	1,790,200	1,000	1,500	100	2,000	500	0	1,000	1,500	0	1,400	1,400	1,100
Forest Service	14,600	5,100	9,500	484,100	5,100	200	9,300	4,000	10,600	0	5,100	9,500	0	3,600	11,900	0
Southwest Idaho	148,500	26,600	121,900	2,223,700	26,600	100	121,800	8,500	700	139,300	26,600	121,900	0	7,600	1,000	144,900
BLM	148,500	26,600	121,900	2,223,700	26,600	100	121,800	8,500	700	139,300	26,600	121,900	0	7,600	1,000	144,900
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear Lake	600	0	300	50,500	300	0	300	0	0	200	0	300	0	0	0	200
BLM	200	0	200	48,200	0	0	200	0	0	200	0	200	0	0	0	200
Forest Service	400	0	0	2,200	300	0	0	0	0	0	0	0	0	0	0	0
Weiser	0	0	0	212,200	0	0	0	0	0	0	0	0	0	0	0	0

Table 4-5
GRSG Habitat Acres Closed to Grazing in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
BLM	0	0	0	212,200	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sawtooth	4,800	4,800	0	21,500	4,800	0	0	4,800	0	0	4,800	0	0	4,800	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	4,800	4,800	0	21,500	4,800	0	0	4,800	0	0	4,800	0	0	4,800	0	0
Total	287,600	94,500	179,800	11,132,500	107,800	5,900	173,900	75,200	31,100	168,000	94,500	179,800	0	53,100	39,200	169,800

Source: BLM GIS 2015

Impacts from Travel Management

Acres designated as open, limited, or closed for OHV use are described in **Table 4-6**, GRSG Habitat Where OHV Travel Would Be Limited to Roads, Primitive Roads, and Trails in the Idaho and Southwest Montana Sub-Region.

Impacts from ACEC Management

Several alternatives identify the potential designation of new ACECs. These areas are described in **Table 4-7**, GRSG Habitat within BLM ACECs and Forest Service Zoological Areas in the Idaho and Southwestern Montana Sub-region.

4.2.4 Alternative A

Impacts from Vegetation and Soils Management

Under Alternative A, current management implements the Integrated Vegetation Management Handbook policies (DOI 2008-H-1740-2, Rel.1-1714), Land Health Standards, Vegetation Treatments Using Herbicides Programmatic EIS (BLM 2007a), and other policies and plans. The Integrated Vegetation Management Handbook requires an interdisciplinary and collaborative process to plan and implement vegetation treatments that improve biological diversity and ecosystem function while promoting and maintaining native plant communities that are resilient to disturbance and invasive species. Land-health standards are ecologically based goal statements which include watershed function, ecological processes, water quality, and habitat quality for threatened and endangered and special status species (43 CFR 4180.1). Land Health Standards Assessments are used to establish program priorities, determine the status of current conditions and set the stage for evaluations that are used to determine achievement or non-achievement of land-health standards.

Implementation of the above policies and plans would improve vegetation condition by decreasing invasive species, provide for native vegetation establishment in sagebrush habitat, reduce the risk of wildfire, restore fire-adapted ecosystems and repair lands damaged by fire. These policies also recognize the need to improve the diversity, resiliency and productivity of native vegetation health and persistence (BLM 2008g).

Conifer expansion is predominant in mountain sagebrush but also occurs within Wyoming and low sagebrush. Juniper dominance or encroachment is particularly problematic in portions of the Southwest Idaho and South Side Snake population areas. Douglas-fir or other conifer encroachment is also an issue locally in the Mountain Valleys, Sawtooth and Southwest Montana population areas, and possibly others. In all of the population areas, current treatment rates are not keeping pace with continued conifer encroachment.

Mechanical removal of encroaching conifers, primarily juniper species and others such as Douglas-fir would result in short-term disturbances of soils and sagebrush due to heavy equipment, skid trails, and temporary roads. Mechanical and manual treatments would also increase noise, vehicular traffic and human presence. However, once the disturbed area is recovered, there would be an increase in forage, vegetation cover quality and composition,

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Table 4-6
GRSG Habitat Where OHV Travel Would Be Limited to Roads, Primitive Roads, and Trails in the Idaho and Southwest Montana Sub-Region

Analysis Area	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
East-Central Idaho	105,500	57,900	12,300	70,200	85,100	7,600	4,670	69,800	0	0	57,900	12,300	0	54,500	0	0
BLM	25,800	13,900	12,300	26,100	13,900	7,600	4,670	25,700	0	0	13,900	12,300	0	24,700	0	0
Forest Service	79,700	44,100	0	44,100	71,300	0	0	44,100	0	0	44,100	0	0	29,800	0	0
Mountain Valleys	2,286,700	529,200	2,314,800	2,844,000	529,200	426,800	1,888,000	493,100	749,900	1,360,700	529,200	2,314,800	0	218,300	1,005,400	1,328,600
BLM	1,409,700	186,300	1,858,500	2,044,700	186,300	234,100	1,624,400	116,400	568,300	1,114,200	186,300	1,858,500	0	175,100	811,000	1,056,800
Forest Service	877,100	342,900	456,400	799,200	342,900	192,700	263,600	376,700	181,600	246,500	342,900	456,400	0	43,200	194,400	271,800
Southwest Montana	1,266,300	473,400	621,300	1,094,700	644,700	160	621,200	473,800	0	620,500	473,400	621,300	0	473,400	0	621,400
BLM	739,500	239,000	458,500	697,400	281,000	80	458,400	239,100	0	458,300	239,000	458,500	0	239,000	0	458,500
Forest Service	526,800	234,400	162,900	397,300	363,700	70	162,800	234,800	0	162,200	234,400	162,900	0	234,400	0	163,000
North Side Snake	524,300	574,900	1,569,600	2,144,400	574,900	237,500	1,332,000	248,600	94,500	696,500	574,900	1,569,600	24,800	922,500	656,000	838,600
BLM	408,500	489,400	1,541,700	2,031,200	489,400	220,500	1,321,300	162,600	67,300	696,500	489,400	1,541,700	24,800	836,200	628,800	838,600
Forest Service	115,800	85,400	27,800	113,300	85,400	17,100	10,800	86,100	27,200	0	85,400	27,800	0	86,300	27,200	0
South Side Snake	1,952,100	611,000	1,588,700	2,199,700	611,000	551,700	1,037,000	640,900	616,700	691,900	611,000	1,588,700	32,800	497,800	929,700	615,400
BLM	1,433,000	441,300	1,274,300	1,715,600	441,300	504,500	769,800	452,200	453,400	559,800	441,300	1,274,300	32,800	332,600	738,000	484,700
Forest Service	519,100	169,700	314,400	484,100	169,700	47,100	267,300	188,700	163,300	132,100	169,700	314,400	0	165,200	191,600	130,700
Southwest Idaho	2,110,400	334,100	1,454,900	1,789,000	334,100	73,800	1,381,100	326,700	460,800	1,006,400	334,100	1,454,900	141,100	249,900	455,600	1,201,900

Table 4-6
GRSG Habitat Where OHV Travel Would Be Limited to Roads, Primitive Roads, and Trails in the Idaho and Southwest Montana Sub-Region

Analysis Area	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
BLM	2,110,400	334,100	1,454,900	1,789,000	334,100	73,800	1,381,100	326,700	460,800	1,006,400	334,100	1,454,900	141,100	249,900	455,600	1,201,900
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear Lake	75,800	5,300	44,900	50,200	27,800	1,130	43,800	7,810	16,600	26,000	5,300	44,900	0	1,420	19,900	30,800
BLM	51,000	4,690	43,300	47,900	4,700	740	42,500	6,880	15,200	26,000	4,700	43,300	0	1,420	18,400	30,800
Forest Service	24,800	610	1,620	2,240	23,100	390	1,230	940	1,370	0	610	1,620	0	0	1,580	0
Weiser	100,400	134,200	77,000	211,300	134,200	55,400	21,700	60,000	0	0	134,200	77,000	36,100	274,100	0	0
BLM	100,300	134,200	77,000	211,300	134,200	55,400	21,700	60,000	0	0	134,200	77,000	35,900	274,100	0	0
Forest Service	150	0	0	0	0	0	0	0	0	0	0	0	150	0	0	0
Sawtooth	21,500	21,500	0	21,500	21,500	0	0	21,500	0	0	21,500	0	0	21,500	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	21,500	21,500	0	21,500	21,500	0	0	21,500	0	0	21,500	0	0	21,500	0	0
Total	8,443,000	2,741,400	7,683,500	10,425,000	2,962,500	1,354,100	6,329,400	23,42,300	1,938,500	4,402,000	2,741,400	7,683,500	234,900	2,713,500	3,066,700	4,636,600
BLM Total	6,278,100	1,842,800	6,720,400	8,563,300	1,884,900	1,096,700	5,623,700	1,389,600	1,565,000	3,861,200	1,842,800	6,720,400	234,700	2,133,200	2,651,800	4,071,200
Forest Service Total	2,164,900	898,600	963,100	1,861,700	1,077,600	257,400	705,700	952,700	373,500	540,800	898,600	963,100	150	580,300	414,900	565,400

Source: BLM GIS 2015

Table 4-7
GRSG Habitat within BLM ACECs and Forest Service Zoological Areas in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F—Option A			Alternative F—Option B			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
East-Central Idaho	2,660	2,450	210	2,660	2,450	200	0	2,660	0	0	2,450	12,300	0	2,450	200	0	2,010	0	0
Mountain Valleys	105,000	18,100	86,800	434,200	18,100	11,300	75,500	8,240	35,600	67,000	18,100	2,336,900	0	18,100	303,500	0	15,900	52,600	30,200
BLM	105,000	18,100	86,800	395,500	18,100	11,300	75,500	8,230	35,600	67,000	18,100	1,880,500	0	18,100	263,600	0	15,900	52,600	30,200
Forest Service	10	0	10	38,700	0	0	10	0	0	0	0	456,400	0	0	39,900	0	0	0	0
Southwest Montana	42,200	1,490	35,200	36,700	7,030	0	35,200	1,490	0	35,200	1,480	623,500	0	1,480	35,200	0	1,490	0	35,200
BLM	42,200	1,480	35,200	36,600	7,030	0	35,200	1,480	0	35,200	1,480	460,600	0	1,480	35,200	0	1,480	0	35,200
Forest Service	30	0	20	20	0	0	20	0	0	20	0	162,900	0	0	20	0	0	0	20
North Side Snake	29,400	7,640	21,800	29,400	7,640	0	21,800	9,160	12,600	7,650	7,630	1,706,700	2,410	7,630	407,500	2,410	11,000	8,850	12,200
BLM	29,400	7,630	21,800	29,400	7,630	0	21,800	9,140	12,600	7,650	7,630	1,678,100	2,410	7,630	407,500	2,410	11,000	8,850	12,200
Forest Service	20	20	0	20	20	0	0	20	0	0	0	28,600	0	0	0	0	20	0	0
South Side Snake	71,500	34,800	36,700	801,000	34,800	11,700	25,000	15,200	13,200	43,700	34,800	1,638,100	1,050	34,800	487,100	1,050	10,900	16,400	46,700
BLM	71,500	34,800	36,700	801,000	34,800	11,700	25,000	15,200	13,200	43,700	34,800	1,323,700	1,050	34,800	303,500	1,050	10,900	16,400	46,700
Forest Service	0	0	0	0	0	0	0	0	0	0	0	314,400	0	0	183,600	0	0	0	0
Southwest Idaho	210,700	50,000	160,600	1,845,600	50,000	1,010	159,600	7,030	530	203,100	50,000	1,796,100	0	50,000	671,900	0	4,840	1,650	207,300
Bear Lake	280	0	280	280	0	0	280	0	0	280	0	45,200	0	0	39,000	0	0	0	280

Table 4-7
GRSG Habitat within BLM ACECs and Forest Service Zoological Areas in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F—Option A			Alternative F—Option B			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
BLM	280	0	280	280	0	0	280	0	0	280	0	43,500	0	0	38,800	0	0	0	280
Forest Service	0	0	0	0	0	0	0	0	0	0	0	1,620	0	0	200	0	0	0	0
Weiser	7,590	6,740	850	7,590	6,740	850	0	7,590	0	0	6,740	77,200	01	6,740	850	0	11,800	0	0
Total	469,300	121,300	342,500	3,157,500	126,900	25,100	317,400	51,400	62,000	356,900	121,300	8,235,900	3,460	121,300	1,945,200	3,460	57,900	79,400	331,900

Source: BLM GIS 2015

reduction in predator perches, decrease in heavier fuels and fire intensity and a potential increase in water availability at nearby springs meadows and seeps. Vegetation management would create mosaic vegetation patterns and natural fuel breaks by promoting healthy, diverse vegetation communities that generally fuel low-intensity fires.

Annual grass expansion and/or repeated fires in low-elevation sagebrush habitat in portions of the North and South Snake River population areas are outpacing existing treatment or restoration efforts.

Vegetation dynamics modeling shows that, under Alternative A, all of the eight GRSG analysis areas that are currently meeting GRSG sagebrush habitat objectives in terms of sagebrush cover on the landscape would continue to meet these objectives in 10 years, though most would show a decline in the percentage meeting the habitat objectives. This percentage would continue to drop for most of the GRSG analysis areas after 50 years. However, several analysis areas, including Southwest Idaho, South Side Snake, and Weiser, would increase their proportion meeting habitat objectives over this time frame (See **Tables 4-1** and **4-2**).

Impacts from Livestock Grazing Management

Under Alternative A, 11,073,800 acres of identified PPH and PGH are open for livestock grazing affecting 98 percent of GRSG habitat within the sub-region. Livestock grazing would continue to be managed through existing grazing plans, with methods and guidelines from the existing plans followed to maintain ecological conditions according to Standards for Rangeland Health, which include maintaining healthy, productive and diverse populations of native plants and animals. Older LUPs do not contain specific language in regards to GRSG conservation and livestock management, although many offices are covered under various conservation strategies for GRSG. Recent LUPs have more specific language regarding the management of livestock and its relation to GRSG conservation, including references to state and local GRSG plans. National and state drought policies are in place and would be followed to minimize impacts on rangelands under drought conditions. Continuation of these policies would not specifically protect GRSG habitat, although the policies could provide indirect benefits through more conservative use of existing sagebrush habitat. Direct impacts on GRSG have been reduced in some areas due to GRSG-specific management found in some conservation strategies or LUPs.

According to National BLM policy, riparian habitats would be managed to achieve PFC. On National Forest System lands, riparian areas are managed through a combination of utilization standards and design features discussed/documented each year in the Annual Operating Instructions. Functional condition of riparian areas and wetlands are considered in the development of riparian utilization standards. In some cases this management would require livestock removal or restrictions in riparian areas to reduce impacts caused by livestock, such as trampling and overuse of riparian areas. Managing for PFC helps to improve riparian vegetation health through increased production and diversity of vegetation and helps to improve water retention on those sites. As a result, brood-rearing habitats for GRSG would be improved or preserved where they are applied.

Range improvements would be designed to meet both wildlife and range objectives, and would include building, modifying or marking fences to permit passage of wildlife and reduce the chance of bird strikes, use of off-site water facilities, and in some cases modification or removal or improvements not meeting resource needs. Modifications may involve moving troughs, adding or changing wildlife escape ramps, or ensuring water is available on the ground for a variety of different wildlife species. Although not directly created to protect GRSG, these approaches would protect and enhance GRSG habitat by reducing the likelihood of surface disturbance in sensitive areas and ensuring brood-rearing habitat is available to GRSG.

Impacts from Fire and Fuels Management

Within the planning area, all LUPs address fire suppression and fuels management and all federal lands (Forest Service and BLM) are covered under fire management plans, most of which address GRSG habitat. The more recent LUPs contain more specific objectives and management action for suppression and management of fires within sagebrush vegetation communities and GRSG habitat in accordance with local conservation strategies. Each LUP supports the development and adherence to a more detailed fire management plan that outlines priorities and levels of suppression for particular vegetation classes, or resource protection. Most plans support the objective of re-introducing fire into fire-dependent ecosystems and utilize the FRCC framework to aid in prioritizing response to wildfires and determining where fire can be used to meet land management plan objectives. Plans place priority for suppression on the protection of human life, followed by property and other important resource values including wildlife, including GRSG and big game.

In general, current fire suppression activities, fuels management, post-fire emergency stabilization and fire restoration efforts focus to a large degree on the protection or improvement of GRSG habitat. Some LUPs promote the use of native seed for stabilization and restoration, which may help increase native plant diversity and thereby benefit GRSG, but this guidance is not consistently applied across the decision area. More direction for the BLM has been provided in IM 2013-128, which provides habitat maps, guidelines, and BMPs for wildland fire suppression and fuels management in GRSG habitat.

Under Alternative A, wildfires would continue to be especially problematic in several of the population areas, including North Side Snake, South Side Snake, and Southwest Idaho, primarily due to lightning and spread of cheatgrass. GRSG habitat would subsequently continue to be degraded or lost. Small and heavily disturbed populations with dominance of invasive annual grass understory would be particularly susceptible to these impacts. Additionally, there may be some direct and indirect effects on individual GRSG from direct mortality or disturbance due to fire suppression or fuels treatment activities in sagebrush areas, but this is assumed to be relatively minor, given the tradeoffs.

Impacts from Wild Horse and Burro Management

The Idaho and southwestern Montana sub-region does not contain wild burros but does contain six wild horse HMAs. Under Alternative A, overall management direction is to manage populations of wild horses to achieve a thriving natural ecological balance with respect to wildlife and other uses. Wild horses would continue to be managed on 378,200



acres of HMAs, which overlap 228,500 acres of PPH and 41,300 acres of PGH in the sub-region. Wild horses would be managed at AML, with gathers based on gather schedules, budgets, or other priorities such as emergency gathers during drought periods. Keeping horses at AML would reduce overall impacts on vegetation, especially nesting cover and riparian brood-rearing habitats during periods of drought.

Impacts from Leasable Minerals Management

Within the sub-region, most BLM-administered and National Forest System lands are open to oil and gas leasing. Specific closures of areas to leasing, such as ACECs or crucial or essential wildlife habitat, exist throughout the sub-region.

Currently, over 9.5 million acres of GRSG habitat are managed as open to fluid minerals leasing and over 2.7 million acres of GRSG habitat are closed to fluid minerals leasing. Lands closed to fluid minerals leasing comprise over 1.7 million acres of PPH and nearly 1 million acres of PGH. Closed areas provide an increased level of protection to GRSG seasonal habitats because they remove the potential for disturbance and impacts on habitat, as described in **Section 4.2.2** (see **Table 4-8**).

Table 4-8
Alternative A: Percent of GRSG Habitat and Occupied Leks in Areas Closed or with NSO Stipulations for Oil and Gas Leasing by Population Area

Population Area	Habitat Area	Number of Occupied Leks
East-central Idaho	35.8	2
Mountain Valleys	36	30
Southwest Montana	54.5	42
North Side Snake	36.2	83
South Side Snake	21.7	11
Southwest Idaho	23.6	34
Sawtooth	75.8	0
Bear Lake	58.9	6
Weiser	28.9	0

Source: BLM GIS 2015

Currently, over 2.2 million acres of GRSG habitat are closed to nonenergy leasable mineral leasing. Lands closed to fluid minerals leasing comprise over 1.3 million acres of PPH and nearly 900,000 acres of PGH. Closed areas provide an increased level of protection to GRSG seasonal habitats because they remove the potential for disturbance and impacts on habitat, as described in **Section 4.2.2** (see **Table 4-8**).

Table 4-9
Alternative A: Percent of GRSG Habitat and Occupied Leks in Areas Closed to
Nonenergy Leasable Mineral Leasing by Population Area

Population Area	Habitat Area	Number of Occupied Leks
East-central Idaho	25.5%	1
Mountain Valleys	26.4%	18
Southwest Montana	25.8%	1
North Side Snake	13.6%	12
South Side Snake	8.4%	7
Southwest Idaho	18.5%	29
Sawtooth	75.7%	0
Bear Lake	34.4%	3
Weiser	0.6%	0

Source: BLM GIS 2015

Impacts from Locatable Minerals Management

BLM-administered and National Forest System lands within the sub-region are generally open to mineral location, causing effects similar to those described in **Section 4.2.2**. There are specific locatable mineral withdrawals for particular ROWs, designated wilderness areas, ACECs, and other administrative needs, but none specific to protecting GRSG habitat. All locatable mineral activities are managed under the regulations at 43 CFR Part 3800 through approval of a Notice of Intent or a Plan of Operations. Mitigation of effects on GRSG and its habitat are identified through the NEPA process approving plans of operation. Goals and objectives for locatable minerals are to provide opportunities to develop the resource while preventing undue or unnecessary degradation of BLM-administered and National Forest System lands.

Lands closed to locatable mineral entry under the General Mining Act of 1872 comprise over 1.3 million acres of PPH and 433,200 acres of PGH. Current withdrawals provide an increased level of protection to GRSG seasonal habitats (see **Table 4-10**).

Impacts from Salable Minerals Management

Within the sub-region, most BLM-administered and National Forest System lands are open to salable mineral material development. Specific closures of areas to salable mineral materials such as ACECs or crucial or essential wildlife habitat exist throughout the sub-region.

Currently, there are over 1.8 million acres closed to material sales within PPH and PGH combined. Closed areas provide an increased level of protection to GRSG seasonal habitats from loss, fragmentation and other impacts discussed in **Section 4.2.2** (see **Table 4-11**).



Table 4-10
Alternative A: Percent of GRSG Habitat and Occupied Leks in Existing and Proposed Locatable Mineral Withdrawals by Population Area

Population Area	Habitat Area	Number of Occupied Leks
East-central Idaho	5.0	1
Mountain Valleys	12.7	30
Southwest Montana	2.5	3
North Side Snake	25	57
South Side Snake	7.7	8
Southwest Idaho	21.2	29
Sawtooth	10.6	0
Bear Lake	8.7	2
Weiser	5.0	0

Source: BLM GIS 2015

Table 4-11
Alternative A: Percent of GRSG Habitat and Occupied Leks Affected by Closure to Salable Minerals by Population Area

Population Area	Habitat Area	Number of Occupied Leks
East-central Idaho	25.3	1
Mountain Valleys	23.7	6
Southwest Montana	22.1	0
North Side Snake	15.7	23
South Side Snake	8.9	9
Southwest Idaho	18.9	29
Sawtooth	12.7	0
Bear Lake	14.4	1
Weiser	0	0

Source: BLM GIS 2015

Impacts from Lands Uses and Realty Management

Under Alternative A, all BLM-administered lands are held in retention unless identified for disposal. Disposal criteria typically include considerations of sensitive or crucial resources such as wildlife habitat. While older LUPs in the sub-region do not have specific goals related to GRSG, some newer plans, such as those in Pocatello and Dillon, do have specific measures related to GRSG disturbance and habitat. Land tenure adjustments would be subject to current disposal/exchange/acquisition criteria, which include retaining lands with threatened or endangered species, high quality riparian habitat, or plant and animal populations or natural communities of high interest. While not explicitly stated in some existing RMPs, this would likely include retention of areas with GRSG, and would thus retain occupied habitats under BLM administration. This would reduce the likelihood of habitat conversion to agriculture, urbanization, or other uses that would remove sagebrush

habitat. Mitigation is typically developed under the NEPA process, and most ROW and surface developments are subject to limited operation periods or other stipulations in local GRSG conservation strategies.

This alternative designates 1.9 million acres of ROW avoidance areas within existing PPH/PGH where certain actions would be considered on a case-by-case basis through subsequent site specific NEPA analysis, including the consideration of mitigation measures to reduce impacts. This alternative designates over 1 million acres for ROW exclusion within PPH/PGH where all development would be prohibited. Acres identified as available for disposal total 749,900 acres of PPH and PGH under Alternative A. Under this alternative, avoidance areas provide an increased level of protection to habitat and exclusion areas provide an increased level of protection occupied leks in the sub-region. These management actions would be expected to reduce both direct and indirect impacts on GRSG.

Impacts from Renewable Energy Management

In 2005 and 2008, the BLM programmatically amended its LUPs for renewable energy resources through the Wind Energy PEIS and Geothermal PEIS, respectively. These programmatic documents outline BLM-administered or National Forest System lands available and unavailable for these resource uses and provide direction on processing ROWs and geothermal lease applications, as well as establishing BMPs for conducting these activities on BLM-administered lands. The BMPs contain some general guidance for addressing GRSG and its habitat. LUPs would continue to have different stipulations for geothermal resources and under Alternative A, over 7.9 million acres of PPH and PGH could be open for wind development.

Under Alternative A, 1.9 million acres are managed for exclusion and 1.3 million acres are managed for avoidance of wind energy in existing PPH/PGH. This represents nearly 30 percent of the available PPH and PGH in the planning area being excluded or avoided. Outside these areas, there would be more impacts on GRSG and their habitat than inside the areas excluded or avoided.

Impacts on GRSG and their habitat from construction and operation of wind energy facilities are discussed in **Section 4.2.2** above. Management under Alternative A identified more acres of GRSG habitat available for wind energy and could lead to more impacts, including habitat degradation, increased predation, and others discussed in **Section 4.2.2**, compared to the action alternatives (Alternatives B through F).

There are 1,028,500 acres of PPH and PGH managed as ROW exclusion and 1,956,200 acres of PPH and PGH managed as ROW avoidance within the sub-region. Proposed exclusion and avoidance areas provide an increased level of protection to GRSG seasonal habitats (see **Table 4-12**).



Table 4-12
Alternative A: Percent of GRSG Habitat and Occupied Leks Affected by ROW Exclusion or Avoidance by Population Area

Population Area	Percent of Habitat Area			Number of Occupied Leks		
	Exclusion	Avoid with Exclusions	Avoidance	Exclusion	Avoid with Exclusions	Avoidance
East-central Idaho	0.5	0	11.4	0	0	0
Mountain Valleys	1.5	0	14.3	1	0	17
Southwest Montana	16.4	0	30.2	0	0	1
North Side Snake	6	0	16.1	5	0	12
South Side Snake	2.4	0	21.3	3	0	27
Southwest Idaho	20.6	0	8.3	29	0	9
Sawtooth	0.2	0	97.2	0	0	0
Bear Lake	1.2	0	0.3	0	0	0
Weiser	58.6	0	41.3	1	0	0

Source: BLM GIS 2015

Impacts from Geothermal Energy Development

Within the sub-region, most BLM-administered and National Forest System lands are open to geothermal development. Specific closures of areas to geothermal such as ACECs or critical or essential wildlife habitat exist throughout the sub-region.

Under this alternative, over 9.5 million acres of PPH and PGH would be designated as open for geothermal development. This alternative leaves the remaining PPH and PGH closed or limited for geothermal development. Closed areas provide an increased level of protection to GRSG seasonal habitats (see **Table 4-13** Error! Reference source not found. Error! Reference source not found.).

Table 4-13
Alternative A: Percent of GRSG Habitat and Occupied Leks Within Areas Closed or with NSO Stipulations for Geothermal Energy by Population Area

Population Area	Percent of Habitat Area	Number of Occupied Leks
East-central Idaho	35.1	2
Mountain Valleys	36	30
Southwest Montana	54.4	42
North Side Snake	36.3	83
South Side Snake	21.9	12
Southwest Idaho	23.6	34
Sawtooth	75.8	0
Bear Lake	39.7	4
Weiser	28.7	0

Table 4-13
Alternative A: Percent of GRSG Habitat and Occupied Leks Within Areas Closed or with NSO Stipulations for Geothermal Energy by Population Area

Population Area	Percent of Habitat Area	Number of Occupied Leks
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Source: BLM GIS 2015

Impacts from Travel and Transportation Management

Under current management, Travel Management Areas have not been consistently identified in LUPs beyond the basic allocations of open, closed, and limited. Closed areas are comprised of congressionally designated areas, WSAs, and, as directed, some ACECs. Areas within PPH and PGH that are limited to existing designated roads include over 2 million acres of National Forest System lands. Under current management, over 700,000 acres of PPH/PGH are closed to OHVs, 7.7 million acres are limited to existing routes for motorized vehicles, and 2.8 million acres are open to all modes of cross country travel (see **Table 4-14**). Lands within the Dillon Field Office are currently restricted to designated routes only.

Table 4-14
Alternative A: Percent of GRSG Habitat and Occupied Leks Affected by Travel Management by Population Area

Population Area	Percent of Habitat Area			Number of Occupied Leks		
	Open	Limited	Closed	Open	Limited	Closed
East-central Idaho	0.37	91	9	0	2	0
Mountain Valleys	25	74	1	37	99	1
Southwest Montana	0	98	2	0	40	0
North Side Snake	74	20	6	163	46	5
South Side Snake	15	82	3	21	143	3
Southwest Idaho	0	80	20	0	126	27
Sawtooth	0	100	0	0	0	0
Bear Lake	0	100	0.39	0	7	0
Weiser	71	28	0.41	0	1	0

Source: BLM GIS 2015

Impacts from Special Designations Management

Under Alternative A, the BLM would continue to manage 59 ACECs within the sub-region (**Table 4-7**). The Forest Service would not manage any Zoological Areas under Alternative A. Existing ACECs likely protect GRSG habitat through use restrictions; these impacts are analyzed under each existing RMP within the planning area. As a result, there would be no additional effects from ACEC or Zoological Area management on GRSG under this alternative.



4.2.5 Impacts Common to All Action Alternatives

While the nature and type of effects listed below from each alternative are similar, the impacts may differ by intensity, extent, or context.

GRSG Habitat Designations

Each action alternative designates GRSG habitat. **Table 4-15**, Acres of Designated Habitat Types in the Idaho and Southwestern Montana Sub-region, displays the acres of each habitat designation within each alternative.

Impacts on USFWS Priority Areas for Conservation

In 2013, the USFWS identified GRSG priority areas for conservation (USFWS 2013a). The relation of priority areas for conservation to the GRSG habitat designations in each alternative is shown in **Table 4-16**, Acres of Priority Areas for Conservation within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region.

Mitigation

Each action alternative includes a mitigation framework. Mitigation does not eliminate direct project effects, its inclusion in projects at the site-specific level is designed to provide an associated benefit to GRSG and eliminate detrimental cumulative effects.

Alternatives B, C, D, and F address mitigation through a Regional Mitigation Strategy (**Appendix J**). As part of this mitigation strategy, the BLM would establish a Mitigation Implementation Team for each WAFWA MZ. These teams would develop a Mitigation Strategy consistent with the BLM Regional Mitigation Manual Section (1794). The teams will coordinate recommended mitigation strategies between LUP planning areas, WAFWA MZs, and local and state jurisdictions for mitigation consistency. In addition, one of the goals in Alternative D is to provide for no unmitigated loss to occupied GRSG habitat.

Alternative E would utilize an Implementation Task Force to assess project proposals and their mitigation packages to determine whether to recommend an exemption for the governor's consideration. This would primarily affect CHZ areas where additional infrastructure development is restricted with narrow exceptions. Mitigation would be assessed according to Idaho's Mitigation Framework (**Appendix J**).

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Table 4-15
Acres of Designated Habitat Types in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan			
	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ ¹	IHZ	CHZ ¹	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA	SFA
East-central Idaho	67,600	12,300	79,800	94,800	7,630	4,670	79,800	0	0	67,600	12,300	0	64,200	0	0	0
BLM	23,500	12,300	35,800	23,500	7,630	4,670	35,800	0	0	23,500	12,300	0	34,400	0	0	0
Forest Service	44,100	0	44,100	71,300	0	0	44,100	0	0	44,100	0	0	29,800	0	0	0
Mountain Valleys	541,600	2,336,900	2,878,400	541,600	427,300	1,909,500	566,100	964,000	1,377,000	541,600	2,336,900	0	218,400	1,019,300	346,400	996,500
BLM	198,700	1,880,500	2,079,200	198,700	234,600	1,645,900	189,400	782,400	1,130,500	198,700	1,880,500	0	175,300	824,900	252,800	818,400
Forest Service	342,900	456,400	799,300	342,900	192,700	263,600	376,700	181,600	246,500	342,900	456,400	0	43,200	194,400	93,600	178,200
Southwest Montana	456,400	623,500	1,079,900	638,100	160	623,300	456,800	0	622,700	456,400	623,500	0	456,381	0	623,600	0
BLM	222,000	460,600	682,600	268,200	80	460,500	222,000	0	460,400	222,000	460,600	0	221,950	0	460,600	0
Forest Service	234,400	162,900	397,300	369,900	70	162,800	234,800	0	162,300	234,400	162,900	0	234,430	0	163,000	0
North Side Snake	579,800	1,706,700	2,286,500	579,800	246,400	1,460,400	993,100	489,400	808,100	579,800	1,706,700	246,800	926,500	680,900	17,400	941,900
BLM	493,900	1,678,100	2,172,000	493,900	228,500	1,449,600	906,600	461,300	808,100	493,900	1,678,100	246,800	839,747	652,800	17,400	941,900
Forest Service	85,900	28,600	114,500	85,900	17,900	10,800	86,500	28,000	0	85,900	28,600	0	86,700	28,000	0	0
South Side Snake	636,200	1,638,100	2,274,300	636,200	567,900	1,070,300	791,200	759,100	729,100	636,200	1,638,100	36,300	504,700	957,500	75,600	580,400
BLM	466,500	1,323,700	1,790,200	466,500	520,800	803,000	602,400	595,800	597,000	466,500	1,323,700	36,300	339,400	765,800	3,540	521,700
Forest Service	169,700	314,400	484,100	169,700	47,100	267,300	188,700	163,300	132,100	169,700	314,400	0	165,200	191,600	72,100	58,600
Southwest Idaho	427,700	1,796,100	2,223,700	427,700	80,700	1,715,300	368,900	514,800	1,345,100	427,700	1,796,100	146,500	290,800	466,100	266,900	1,324,100
BLM	427,700	1,796,100	2,223,700	427,700	80,700	1,715,300	368,900	514,800	1,345,100	427,700	1,796,100	146,500	290,800	466,100	266,900	1,324,100
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear Lake	5,310	45,200	50,500	27,800	1,130	44,000	7,810	16,600	26,300	5,300	45,200	0	1,420	19,900	31,100	0
BLM	4,690	43,500	48,200	4,700	740	42,800	6,880	15,200	26,300	4,690	43,500	0	1,420	18,400	31,100	0
Forest Service	610	1,620	2,240	23,100	390	1,230	940	1,370	0	610	1,620	0	0	1,570	0	0
Weiser	135,000	77,200	212,200	135,000	55,600	21,700	212,200	0	0	135,000	77,200	70,700	275,000	0	0	0

Table 4-15
Acres of Designated Habitat Types in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan			
	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ ¹	IHZ	CHZ ¹	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA	SFA
BLM	135,000	77,200	212,200	135,000	55,600	21,700	212,200	0	0	135,000	77,200	70,600	275,000	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	150	0	0	0	0
Sawtooth	21,500	0	21,500	21,500	0	0	21,500	0	0	21,500	0	0	21,500	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	21,500	0	21,500	21,500	0	0	21,500	0	0	21,500	0	0	21,500	0	0	0
Total	2,870,900	8,235,900	11,106,900	3,102,400	1,386,800	6,849,200	3,497,400	2,743,800	4,908,100	2,870,900	8,235,900	500,300	2,758,800	3,143,700	1,361,000	3,842,900

Source: BLM GIS 2015

¹Acres in PHMA in Utah and Montana are included with PHMA acres for Idaho; acres in GHMA in Montana are included in GHMA for Idaho.

Table 4-16
Acres of Priority Areas for Conservation within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region

GRSG Analysis Area	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
East-central Idaho	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mountain Valleys	2,320,400	115,400	2,205,100	2,320,400	115,400	360,000	1,845,100	1,376,900	4,410	964,000	115,400	2,205,100	0	93,700	876,500	1,203,800
BLM	1,895,900	76,100	1,819,800	1,895,900	76,100	212,200	1,607,600	1,130,500	1,520	782,400	76,100	1,819,800	0	90,900	758,900	1,007,000
Forest Service	424,500	39,300	385,300	424,500	39,300	147,800	237,500	246,500	2,890	181,600	39,300	385,300	0	2,700	117,600	196,900
Southwest Montana	623,500	0	623,500	623,500	0	150	623,300	622,700	160	0	0	623,500	0	0	0	623,500
BLM	460,600	0	460,600	460,600	0	80	460,500	460,400	80	0	0	460,600	0	0	0	460,600
Forest Service	162,900	0	162,900	162,900	0	60	162,800	162,300	80	0	0	162,900	0	0	0	162,900
North Side Snake	1,293,500	16,800	1,276,700	1,293,500	16,800	148,500	1,128,200	808,100	60	489,400	16,800	1,276,700	1,290	17,900	367,800	910,200
BLM	1,265,400	15,700	1,249,700	1,265,400	15,700	131,700	1,118,000	808,100	60	461,300	15,700	1,249,700	1,290	15,600	333,400	919,000
Forest Service	28,000	1,030	27,000	28,000	1,000	16,800	10,200	0	0	28,000	1,030	27,000	0	2,300	25,600	0
South Side Snake	1,485,700	82,300	1,403,500	1,485,700	82,300	418,200	985,300	729,100	2,700	759,000	82,300	1,403,500	4,610	52,200	781,600	644,200
BLM	1,190,100	61,400	1,128,700	1,190,100	61,400	402,600	726,100	597,000	2,390	595,700	61,400	1,128,700	4,610	51,700	616,600	513,500
Forest Service	295,600	20,900	274,800	295,600	20,900	15,600	259,200	132,100	300	163,300	20,900	274,800	0	440	164,900	130,700
Southwest Idaho	1,867,600	106,300	1,761,300	1,867,600	106,300	71,400	1,689,900	1,345,100	10,800	514,800	106,300	1,761,300	0	7,020	323,300	1,537,500
BLM	1,867,600	106,300	1,761,300	1,867,600	106,300	71,400	1,689,900	1,345,100	10,800	514,800	106,300	1,761,300	0	7,020	323,300	1,537,500
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear Lake	42,800	680	42,000	42,700	730	1,040	41,000	26,300	80	16,600	680	42,000	0	0	15,800	26,300
BLM	41,400	680	40,800	41,400	680	680	40,100	26,300	80	15,200	680	40,800	0	0	14,900	26,300
Forest Service	1,340	0	1,290	1,300	50	360	930	0	0	1,370	0	1,290	0	0	860	0
Weiser	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sawtooth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	7,633,500	321,400	7,312,000	7,633,400	321,400	999,300	6,312,700	0	0	0	321,400	7,312,000	5,890	170,700	2,365,100	4,945,500

Table 4-16
Acres of Priority Areas for Conservation within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region

GRSG Analysis Area	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
BLM	6,721,100	260,200	6,460,900	6,721,100	260,200	818,700	5,642,200	0	0	0	260,200	6,460,900	5,890	165,200	2,047,200	4,464,000
Forest Service	912,400	61,200	851,200	912,400	61,200	180,600	670,600	0	0	0	61,200	851,200	0	5,500	309,000	490,400

Source: BLM GIS 2015

Adaptive Management

Each action alternative contains an adaptive management strategy. Effects of Alternatives D and E strategies are described in the associated section within the alternative impacts section below.

For Alternatives B, C, and F an adaptive management framework is described; however, specific triggers and resulting actions have not been described. A subsequent adaptive management plan would be developed that:

- Identifies science based soft and hard adaptive management triggers applicable to each population or subpopulation within the planning area
- Addresses how the multiple scale data from the Monitoring Framework Plan (**Appendix E**) would be used to gauge when adaptive management triggers are met
- Charters an adaptive management working group to assist with responding to soft adaptive management triggers

4.2.6 Alternative B

PHMA and GHMA would be designated under Alternative B (**Table 4-15**). The BLM and Forest Service would apply a maximum 3 percent disturbance cap to human activities in PHMA. The 3 percent disturbance cap was recommended in the NTT report and is designed to minimize impacts on GRSG habitat by limiting disturbances in sensitive habitat areas. The agencies would implement numerous conservation measures, as described under the resource headings below, to reduce impacts from human activities in PHMA. Restricting surface-disturbing activities would reduce the likelihood for habitat loss, fragmentation and direct disturbance to GRSG.

Impacts from Vegetation and Soils Management

Under Alternative B, restoration projects would be prioritized in seasonal GRSG habitats thought to be limiting the distribution and abundance of GRSG. Re-establishment of sagebrush cover and desirable understory plants would be the highest priority for restoration efforts. Restoration treatments would incorporate habitat parameters defined by Connelly et al. 2000, Hagen et al. 2007, and state GRSG conservation plans. Native seed would be required for restoration treatments and the establishment of designated seed harvest areas for sagebrush seed collection in fire prone areas. Climate change would be a consideration when proposing native seed collection. In addition, post-restoration management plans would be implemented to ensure long-term persistence of vegetation treatments.

Alternative B management prescriptions for vegetation and soil applied to PHMA and GHMA would provide greater protection and restoration efforts for GRSG habitat compared with those under Alternative A. This is because prescriptions under Alternative B are based on the NTT report recommendations, which were designed specifically for GRSG conservation.

Management under Alternative B would ensure the long-term availability and resiliency of native seed for restoration treatments by establishing native seed harvest areas which incorporate climate change effects. This and post-treatment management plans would improve the success of restoration treatments and the future persistence of GRSG and their habitat.

Vegetation treatment rates would be greater than under Alternative A and would further reduce the impacts of invasive grasses, affecting the population areas where invasive grasses are a substantial threat. Treatment rates would further reduce the impacts of conifer encroachment on the population areas where conifer is a substantial threat. Trends for habitat at 10 and 50 years would improve compared with Alternative A (See **Tables 4-1 and 4-2**).

Impacts from Livestock Grazing Management

Under Alternative B, the same number of acres would be open to livestock grazing as under Alternative A. Agencies, in coordination with permittees, would prioritize a number of management actions in PHMA to incorporate GRSG habitat objectives and management considerations into livestock grazing management, though there would be no change to the acreage open for grazing or available AUMs unless an allotment is retired from grazing. Management actions would include developing specific vegetation objectives based on Ecological Site Descriptions to conserve, enhance, or restore PHMA habitat and riparian areas would be managed for proper functioning condition. Vegetation treatments to increase livestock forage would only be allowed if they conserved, enhanced or restored GRSG habitat. This alternative would also implement modifications to season of use, numbers of livestock or livestock types to meet seasonal GRSG requirements based on site-specific conditions during permit renewal. New water developments would only be authorized when they would benefit PHMA. In PHMA, older developments would also be analyzed in order to determine if modifications of the system are necessary to maintain the integrity of the riparian area. Removal, modification, or marking of fences would be considered under this alternative.

This alternative would provide long-term benefits to GRSG through improvements in both upland and riparian GRSG habitats, and would reduce both short and long-term impacts by reducing direct impacts on GRSG on their seasonal ranges. However, restricting or removing water developments could reduce water availability for GRSG on a site-specific basis. Compared with Alternative A, Alternative B management actions would further reduce, but would not eliminate, impacts from grazing on GRSG and their habitat.

Impacts from Fire and Fuels Management

Under Alternative B, impacts on GRSG from fire suppression activities would be largely the same as Alternative A. On BLM-administered and National Forest System lands, 8.2 million acres of GRSG habitat would be designated as PHMA, and 2.8 million acres would be designated as GHMA. With regard to fuels management projects, GRSG would benefit from the direction provided to protect important aspects of habitat within PHMA (e.g., canopy cover). Hazardous fuels projects focused on protecting GRSG habitat would be prioritized in these areas. Any fuels treatment in sagebrush would carefully consider if there



is a net benefit for GRSG before implementation, and fuels treatments would not be allowed in winter habitat. Not allowing fuel treatment in winter habitat may greatly limit the ability to protect winter habitat from fire.

Prescribed fire in low precipitation areas (less than 12 inches) would generally not be allowed. Post-fire rehabilitation would be conducted using primarily native species, based on availability and adaptation. Rest from grazing would be required for two full growing seasons, unless vegetation recovery dictates otherwise. These activities may decrease the likelihood for fire in GRSG habitats and would help restore GRSG habitat in fire-affected areas. However, relative to the amount of GRSG habitat that is expected to burn based on current trends and is outside the control of the BLM or Forest Service, these actions may provide localized but minimal protections and improvements to the populations in the sub-region where fire contributes significantly to current declining trends.

Impacts from Wild Horse and Burro Management

Under Alternative B, wild horses would be managed at AML on the same number of acres as Alternative A, with gathers prioritized based on PHMA habitat and emergency environmental issues. HMA plans, when developed or updated, would incorporate GRSG habitat objectives. Implementation of any range improvements would follow the same guidance as identified for livestock grazing in this alternative, including designing and locating new improvements only where they “conserve, enhance, or restore GRSG habitat through improved grazing management.” Design features could include developing or modifying water developments to mitigate for West Nile virus, removing or modifying fences to reduce the chance of bird strikes, or monitoring and treating invasive species associated with range improvements. Additional range improvements would specifically address the needs of GRSG. Compared with Alternative A, Alternative B would prioritize GRSG habitat objectives in HMA plans and base assessment of AMLs on achieving or maintaining GRSG habitat needs.

Impacts from Leasable Minerals Management

Management under Alternative B would close 9.1 million acres of PHMA to fluid mineral leasing. Closed lands would provide an increased level of protection to habitat associated with leks. (See **Table 4-17**).

Management under Alternative B would close over 8 million acres of PHMA to nonenergy leasable mineral leasing. Closed lands would provide an increased level of protection to habitat associated with leks (See **Error! Reference source not found.8**).

Table 4-17
Alternative B: Percent of GRSG Habitat and Occupied Leaks in Areas Closed or with NSO Stipulations for Oil and Gas Leasing by Population Area

Population Area	Percent of Habitat Area	Number of Occupied Leaks
East-central Idaho	40	3
Mountain Valleys	93.1	159
Southwest Montana	80.8	47
North Side Snake	82	261
South Side Snake	80.2	157
Southwest Idaho	85	152
Sawtooth	75.8	0
Bear Lake	93.3	7
Weiser	47.4	0

Source: BLM GIS 2015

Table 4-18
Alternative B: Percent of GRSG Habitat and Occupied Leaks in Areas Closed to Nonenergy Leasable Mineral Leasing by Population Area

Population Area	Percent of Habitat Area	Number of Occupied Leaks
East-central Idaho	26.2%	3
Mountain Valleys	82.6%	138
Southwest Montana	61.1%	45
North Side Snake	58%	226
South Side Snake	71.4%	157
Southwest Idaho	72%	152
Sawtooth	75.7%	0
Bear Lake	66.4%	8
Weiser	27.1%	0

Source: BLM GIS 2015

Impacts from Locatable Minerals Management

Management under Alternative B would include withdrawals and processes for management. In addition, PHMA would be recommended for mineral withdrawal and existing mining claims would be subject to validity exams. For these reasons, Alternative B would be more protective of GRSG than Alternative A.

Lands withdrawn or recommended for withdrawal are 9.3 million acres of PHMA. Withdrawn lands would provide an increased level of protection to habitat associated with leaks (see **Table 4-19**).



Table 4-19
Alternative B: Percent of GRSG Habitat and Occupied Leks Affected by Mineral Withdrawal by Population Area

Population Area	Percent of Habitat Area	Number of Occupied Leks
East-central Idaho	25.9	4
Mountain Valleys	83	138
Southwest Montana	52.2	70
North Side Snake	78.3	228
South Side Snake	75.3	167
Southwest Idaho	85.1	152
Sawtooth	17.2	0
Bear Lake	85.5	8
Weiser	43.5	0

Source: BLM GIS 2015

Impacts from Salable Minerals Management

Management under Alternative B would be more protective than Alternative A and would close PHMA to mineral material sales.

Alternative B closes 8.7 million acres of PHMA to mineral material sales. Closed lands would provide an increased level of protection to habitat associated with leks (see **Table 4-20**).

Table 4-20
Alternative B: Percent of GRSG Habitat and Occupied Leks Affected by Closure to Salable Minerals by Population Area

Population Area	Percent of Habitat Area	Number of Occupied Leks
East-central Idaho	8.6	3
Mountain Valleys	68.9	159
Southwest Montana	31.9	45
North Side Snake	60.8	252
South Side Snake	58.2	155
Southwest Idaho	69.9	152
Sawtooth	7.8	0
Bear Lake	42.7	7
Weiser	18.6	0

Source: BLM GIS 2015

Impacts from Land Uses and Realty Management

Under Alternative B, more habitat would be managed as ROW avoidance (2.5 million acres) and exclusion (8.4 million acres) areas than under Alternative A. There is an approximate 503,600-acre difference between Alternatives A and B in terms of acres for disposal in

GRSG habitat, with Alternative B having fewer acres available for disposal within PHMA and GHMA compared to the acres in PPH and PGH. PHMA would be managed as exclusion areas for new ROW permits, with some exceptions. Mitigation and restoration efforts would take place related to existing ROWs in PHMA. In GHMA, avoidance areas would be set up in relation to new ROWs, collocating ROWs as much as possible. Under Alternative B, PHMA would be retained unless mitigation or land tenure adjustment would better benefit GRSG habitat. Avoidance areas provide an increased level of protection to modeled nesting habitat associated with leks representing 64 percent of the sub-regional population, and exclusion areas provide an increased level of protection to 30 percent of the sub-regional population. In relation to Alternative A, management under Alternative B would provide fewer direct impacts on GRSG by greatly increasing acreage subject to ROW avoidance and exclusion and by protection and acquisition of important GRSG habitats.

Impacts from Renewable Energy Management

Under Alternative B, impacts from management of lands for wind and solar energy development would be the same as for Alternative A.

Impacts from Wind Energy Development on Sub-populations

Alternative B does not specify acreages to set aside specifically for GRSG conservation. Because no action is specified under Alternative B, the default is that the same action would be taken for Alternative B as proposed for Alternative A.

Within the sub-region, 8.5 million acres of PHMA and GHMA would be excluded and 2.3 million acres of PHMA and GHMA would have ROW avoidance for wind energy development. This represents 97 percent of the available PHMA and GHMA in the planning area being excluded or avoided in the planning area. Proposed ROW exclusion and avoidance areas provide an increased level of protection to habitat associated with leks (see **Table 4-21**).

Table 4-21
Alternative B: Percent of GRSG Habitat and Occupied Leks Affected by ROW Exclusion or Avoidance by Population Area

Population Area	Percent of Habitat Area			Number of Occupied Leks		
	Exclusion	Avoid with Exclusions	Avoidance	Exclusion	Avoid with Exclusions	Avoidance
East-central Idaho	0	15.4	84.6	0	1	1
Mountain Valleys	1.5	80.1	18.1	1	131	5
Southwest Montana	33.6	49.3	33.6	0	38	1
North Side Snake	6.1	69.9	23	5	207	2
South Side Snake	27.1	69.8	27.1	3	157	7
Southwest Idaho	14.8	63.8	14.8	29	123	1
Sawtooth	0.2	0	99.8	0	0	0
Bear Lake	0.6	88.9	10.5	0	6	0
Weiser	41.4	0	41.4	1	0	0

Source: BLM GIS 2015



Impacts from Geothermal Energy Development on Sub-populations

Alternative B does not specify acreage to set aside specifically for GRSG conservation. Because no action is specified under Alternative B, the default is that the same action would be taken for Alternative B as proposed for Alternative A.

Within the sub-region, most BLM-administered and National Forest System lands are open to geothermal development. Specific closures of areas to geothermal such as ACECs or crucial or essential wildlife habitat exist throughout the sub-region.

Under this alternative, 2.3 million acres of GHMA would remain open for geothermal development. PHMA would be closed to geothermal development (**Table 4-22**).

Table 4-22
Alternative B: Percent of GRSG Habitat and Occupied Leks Within Areas Closed or with NSO Stipulations for Geothermal Energy by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	39.3%	3
Mountain Valleys	93.2%	159
Southwest Montana	80.8%	46
North Side Snake	82.2%	261
South Side Snake	80.3%	157
Southwest Idaho	85%	152
Sawtooth	75.8%	0
Bear Lake	90.3%	7
Weiser	47.4%	0

Source: BLM GIS 2015

Impacts from Travel and Transportation Management

Under Alternative B, any designated open roads within PHMA would be managed as limited to existing roads for OHV travel, with the exception of existing closed areas within PHMA or GHMA.

Under Alternative B, over 700,000 acres of PHMA and GHMA would be closed to OHVs, over 10 million acres would be limited to existing roads, and 1,350 acres would be open to all modes of cross-country travel (see **Table 4-23**).

Table 4-23
Alternative B: Percent of GRSG Habitat and Occupied Leks Affected by Travel Management Designations by Population Area

Population Area	Habitat Area			Occupied Leks		
	Open ¹	Limited	Closed	Open ¹	Limited	Closed
East-central Idaho	0.5%	87.4%	12.1%	0	2	0
Mountain Valleys	1.5%	97.4%	1.2%	3	133	1
Southwest Montana	0%	99%	1%	0	40	0
North Side Snake	18.4%	75.5%	6.2%	2	207	5
South Side Snake	0%	80.4%	19.6%	2	162	3
Southwest Idaho	5.1%	91.6%	3.3%	0	126	27
Sawtooth	0%	100%	0%	0	0	0
Bear Lake	0%	99.4%	0.6%	0	6	0
Weiser	41.6%	58.0%	0.4%	0	1	0

Source: BLM GIS 2015

¹Acres closed to OHV travel represent existing acres closed. No additional areas would be closed under any alternative.

Impacts from Special Designations Management

Impacts from ACEC management under Alternative B are the same as those described for Alternative A (Table 4-7).

4.2.7 Alternative C

Under Alternative C, the BLM and Forest Service would manage lands to conserve, enhance, and restore sagebrush ecosystems. Management actions would be applied to all occupied GRSG habitats (Table 4-15). Management would focus on removing livestock grazing from occupied habitats, with most other management similar that to Alternative A. The 3 percent disturbance cap would be the same as under Alternative B, but would apply to all occupied habitat.

Impacts from Vegetation and Soils Management

Given the limited current distribution of suitable GRSG habitat, management plans that strategically protect intact sagebrush and restore impacted areas to enhance existing habitats have the best chance of increasing the amount and quality of GRSG habitat (Manier et al. 2013, p. 171). Management under Alternative C would decrease vegetation treatments needed to increase the amount and quality of GRSG habitat, compared with Alternative A. Habitat trends for 10 and 50 years indicate a slight decline, from increased influence of invasive grasses and continued dominance of conifer, in impacted populations and subpopulations as compared with Alternative A.

Under Alternative C, vegetation management would prioritize the restoration of crested wheat seedings and focus fuels treatments in areas of urban interface and significant existing disturbances, establish monitoring sites, require risk assessments, minimize or eliminating the



use of herbicides, address vectors of weed infestations, and require the use of mowers to remove thatch from meadows and to manage existing fuel breaks.

Management prescriptions under Alternative C would focus vegetation treatments in unoccupied GRSG habitats (e.g., crested wheat grass seeding, urban interface, areas where livestock management infrastructure is removed, and other areas of significant disturbances). Broad-scale treatment of invasive grasses would be achieved through natural recovery following the removal of livestock, and juniper removal projects would be limited.

Impacts from Livestock Grazing Management

Under Alternative C, all PHMA would be unavailable to livestock use. About 100 percent of the GRSG populations in the sub-region would be affected. Under this alternative, both passive and active restoration would occur, including removal of livestock, roads, water developments, fences, and other range infrastructure that may contribute to GRSG predators or increase habitat for mosquitoes that may carry the West Nile virus. Additional active restoration would include reseeding of roads and crested wheatgrass seedings with native shrubs and grasses.

Under Alternative C, impacts on GRSG would be reduced compared with Alternative A in upland sites. This is because of reduced trampling of nests by livestock during nesting season and increased herbaceous understory vegetation. Under this alternative, the removal of livestock would result in greater amounts of residual upland cover both in the short term and long term. Reseeding of crested wheatgrass seedings and roads would reduce and minimize impacts from invasive species and increase cover of native plant species. Removal of fencing would reduce the potential of GRSG direct strikes, but in areas where wild horses are present, riparian damage or nest trampling in brood-rearing habitats may increase from horses accessing riparian sites. Removal of troughs and other artificial watering devices would make more water available on the ground for GRSG, their habitats, and other wildlife species. Additional fencing might be required to separate federal no-grazing areas from private ranchlands, leading to increased risk of GRSG strikes along those boundaries.

A complete grazing exclusion can also promote exotic annual grass invasion in some situations. Davies et al. (2009) determined that long-term grazing exclusion followed by fire resulted in exotic annual grass invasion, while fire following moderate levels of grazing did not promote invasion. Moderate grazing made the perennial herbaceous component of the sagebrush plant communities more tolerant of fire (Davies et al. 2009), perhaps due to a reduction in crown litter (Davies et al. 2010a). Targeted grazing may be a critical tool for breaking the exotic annual grass-fire cycle by decreasing the probability of fire disturbance (Diamond et al. 2009). Well-managed livestock grazing may have limited impact (Courtois et al. 2004) or beneficial effects, including decreased risk of conversion to exotic annual grass communities (Davies et al. 2009, 2010a). If management under Alternative C were to reduce ranchers' ability to keep ranches maintained or profitable, they may be sold and developed, causing loss of habitat (Wilkins et al. 2003). Ultimately, the effects of removing grazing in GRSG habitats on a landscape scale are unknown, and it is unclear whether complete removal would improve GRSG habitat or increase population levels.

Impacts from Fire and Fuels Management

Under Alternative C, impacts on GRSG from wildfire suppression and fuels management would be the same as Alternative B; 11.1 million acres of GRSG habitat would be designated as PHMA. However, this alternative adopts a passive restoration approach relying on a long-term improvement of habitat conditions by closing PHMA to livestock grazing. The alternative does not rely on fuel treatments, such as fuel breaks, to limit the impacts of fire and limits cheatgrass control to natural restoration over chemical treatment, which is restricted. The combination of reducing the direct measures to combat invasive species and limit fire spread would increase the likelihood of continued GRSG habitat decline within the GRSG populations where fire is a threat.

Impacts from Wild Horse and Burro Management

Under Alternative C, wild horses would be managed on the same HMA acreage as under Alternative A. Wild horses would be managed at AML. Use of contraceptives and other population growth suppression to manage wild horse numbers would be similar to actions under Alternative A. Management under Alternative C would not allow the use of helicopters for gathers and would be expected to lead to decreased gather efficiency resulting in increases of wild horses, making it more difficult to manage wild horses at AML. Combined with the removal of some fences during active restoration processes related to livestock grazing, wild horses would be expected to range over a larger area than under Alternative A and would necessitate the need for increased gather outside of HMA boundaries. To the extent wild horses are present in an area, the increase in access to fenced riparian and upland habitats and the expected temporary increases in horses over AML would reduce food and cover for GRSG over time. These increases also would change water-holding capacities of riparian brood-rearing sites compared with Alternative A.

Impacts from Leasable Minerals Management

Leasable Minerals Management under Alternative C would afford the highest level of protection of all alternatives. Leasable mineral entry would be precluded for all ACECs, including all PHMA, under this alternative. Closed acreage would include all PMUs in the sub-region, protecting all occupied or potentially occupied GRSG habitat and increasing the level of protection to all associate, populations and sub-populations.

Management under Alternative C would close PHMA, including split-estate (over 20 million acres in total) to oil and gas leasing. Closure would increase protection of all acres of PHMA within habitat associated with leks (see **Table 4-24**).

Management under Alternative C would close PHMA to nonenergy leasable mineral leasing. Closure would increase protection of all acres of PHMA within habitat associated with leks (see **Table 4-25**).



Table 4-24
Alternative C: Percent of GRSG Habitat and Occupied Leks Within Areas Closed or with NSO Stipulations for Oil and Gas Leasing by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	100%	5
Mountain Valleys	100%	164
Southwest Montana	100%	47
North Side Snake	100%	263
South Side Snake	100%	162
Southwest Idaho	100%	153
Sawtooth	100%	0
Bear Lake	100%	7
Weiser	100%	0

Source: BLM GIS 2015

Table 4-25
Alternative C: Percent of GRSG Habitat and Occupied Leks Within Areas Closed to Nonenergy Leasable Mineral Leasing by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	96.2%	5
Mountain Valleys	100%	143
Southwest Montana	100%	46
North Side Snake	100%	229
South Side Snake	100%	162
Southwest Idaho	100%	153
Sawtooth	100%	0
Bear Lake	99.9%	7
Weiser	100%	0

Source: BLM GIS 2015

Impacts from Locatable Minerals Management

Management under Alternative C would afford the highest level of protection of all alternatives. Mineral entry withdrawal would be recommended for all ACECs, including all PHMA, under this alternative, protecting all occupied or potentially occupied GRSG habitat and increasing the level of protection to all associated GRSG populations and sub-populations.

Management under Alternative C would recommend withdrawing PHMA, including split-estate, from locatable mineral entry (13.3 million acres). Closure would increase protection of all acres of PHMA within habitat associated with leks (see **Table 4-26**).

Table 4-26
Alternative C: Percent of GRSG Habitat and Occupied Leks Affected by Mineral Withdrawal by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	100%	9
Mountain Valleys	100%	143
Southwest Montana	100%	79
North Side Snake	100%	230
South Side Snake	100%	173
Southwest Idaho	100%	153
Sawtooth	100%	0
Bear Lake	100%	8
Weiser	100%	0

Source: BLM GIS 2015

Impacts from Salable Minerals Management

Management under Alternative C would close PHMA to mineral materials sales, providing the highest level of protection among the alternatives (same as Alternative B).

Management under Alternative C would close PHMA, including split-estate, to mineral materials sales (19.4 million acres in total). Closure would increase protection of all acres of PHMA habitat associated with leks (**Table 4-27**).

Table 4-27
Alternative C: Percent of GRSG Habitat and Occupied Leks Affected by Closure to Salable Minerals by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	100%	5
Mountain Valleys	100%	164
Southwest Montana	100%	46
North Side Snake	100%	263
South Side Snake	100%	162
Southwest Idaho	100%	153
Sawtooth	100%	0
Bear Lake	100%	7
Weiser	100%	0

Source: BLM GIS 2015

Impacts from Land Uses and Realty Management

Under Alternative C, ROW avoidance acres would remain the same as under Alternative A. Within PHMA, there are more acres managed as ROW exclusion under Alternative C (11 million acres) than under Alternative A (1 million acres). This difference would provide



protections to more of the sub-regional GRSG population than Alternative A. This difference is due to resource use restrictions in all PHMA as well as potential ACECs. Required buffers of 5 to 10 miles between occupied habitats and wind development in the alternative are also part of the increased acreage. Acres identified for disposal are less than Alternative A. Under Alternative C, all BLM-administered and National Forest System lands in proposed ACECs (all PHMA) and identified restoration and rehabilitation lands would be retained in public ownership. New corridors or facilities including communication towers would only be allowed in nonhabitat areas, with existing towers undergoing reviews for adverse effects. All existing transmission or pipeline corridors would be assessed under this alternative, and ROWs would be amended to require features that enhance GRSG habitat security. This alternative would result in fewer direct or indirect impacts on GRSG and their habitats compared with Alternative A because most effects from the land and realty program would be outside of occupied habitat, and effects within current ROWs would be minimized over time. Additionally, this alternative would prioritize more areas for acquisition compared with Alternative A (see **Table 4-28**).

Table 4-28
Alternative C: Percent of GRSG Habitat and Occupied Leks Affected by ROW Exclusion or Avoidance by Population Area

Population Area	Habitat Area			Occupied Leks		
	Exclusion	Avoid with Exclusions	Avoidance	Exclusion	Avoid with Exclusions	Avoidance
East-central Idaho	100%	0	0	2	0	0
Mountain Valleys	99.8%	0	0	137	0	0
Southwest Montana	97.9%	0	0	39	0	0
North Side Snake	99%	0	0	214	0	0
South Side Snake	99.3%	0	0	167	0	0
Southwest Idaho	99.3%	0	0	153	0	0
Sawtooth	100%	0	0	0	0	0
Bear Lake	100%	0	0	6	0	0
Weiser	100%	0	0	1	0	0

Source: BLM GIS 2015

Impacts from Renewable Energy Management

Under Alternative C, management of lands for renewable energy development would be the same as for Alternative B.

Impacts from Wind Energy Development on Sub-populations

Under Alternative C, management of lands for wind energy development would be the same as for Alternative B.

Impacts from Geothermal Energy Development on Sub-populations

Under this alternative, over 20 million acres of PHMA, including split-estate, would be closed to geothermal leasing (Table 4-29).

Table 4-29
Alternative C: Percent of GRSG Habitat and Occupied Leks Within Areas Closed or with NSO Stipulations for Geothermal Energy by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	100%	5
Mountain Valleys	100%	164
Southwest Montana	100%	46
North Side Snake	100%	263
South Side Snake	100%	162
Southwest Idaho	100%	153
Sawtooth	100%	0
Bear Lake	100%	7
Weiser	100%	0

Source: BLM GIS 2015

Impacts from Travel and Transportation Management

Under Alternative C, any designated open areas within PHMA would be managed as limited for OHVs with the exception of existing closed areas within PHMA (see Table 4-30).

Table 4-30
Alternative C: Percent of GRSG Habitat and Occupied Leks Affected by Travel Management Designations by Population Area

Population Area	Habitat Area			Occupied Leks		
	Open ¹	Limited	Closed	Open ¹	Limited	Closed
East-central Idaho	0%	87.9%	12.1%	0	2	0
Mountain Valleys	0%	98.8%	1.2%	0	136	1
Southwest Montana	0%	99%	1%	0	40	0
North Side Snake	0.1%	93.8%	6.2%	0	209	5
South Side Snake	0%	80.4%	19.6%	0	126	27
Southwest Idaho	0%	96.7%	3.3%	0	2	0
Sawtooth	0%	100%	0%	0	0	0
Bear Lake	0%	99.4%	0.6%	0	6	0
Weiser	0%	99.6%	0.4%	0	1	0

Source: BLM GIS 2015

¹Acres closed to OHV travel represent existing acres closed. No additional areas would be closed under any alternative.



Impacts from Special Designations Management

Under Alternative C, the BLM would designate 39 new ACECs (**Table 4-7**). Impacts from management of ACECs are as described under **Section 4.2.2**.

4.2.8 Alternative D

Alternative D would delineate GRSG management areas into PHMA, IHMA, and GHMA within the sub-region (see **Table 4-15**). GRSG habitat in Idaho would include all three management areas, while habitat in Montana includes only PHMA and GHMA. Management areas in Utah would be all PHMA. PHMA would receive the highest degree of protection from impacts caused by resource uses. The goal would be to retain priority GRSG habitats for each WAFWA management zone (Stiver et al. 2006) across the current geographic range of GRSG, including no net unmitigated loss of GRSG habitat. These habitats would have to be large enough to stabilize populations in the short term and to enhance populations over the long term. There would be additional provisions to protect larger intact areas of sagebrush to reduce fragmentation.

Impacts from Vegetation and Soils Management

Vegetation dynamics modeling shows the same general trend under Alternative D compared with Alternative A (see **Tables 4-1** and **4-2**).

Under Alternative D, the BLM and Forest Service would prioritize vegetation treatment projects to further improve GRSG abundance and distribution. Factors contributing to higher emphasis include the likelihood of conifer encroachment into GRSG habitat. In addition, the vegetation management tools described in Alternative B would help to reduce encroachment in PHMA and avoid the impacts discussed under **Section 4.2.2**.

Impacts from Livestock Grazing Management

Management under Alternative D includes the same provisions as Alternative B, and also prioritizes land health assessments and managing riparian areas and wet meadows toward PFC in priority and medial habitat. These efforts would improve forage and cover in PHMA and IHMA, to sustain nesting GRSG and protect them from population loss due to predation. Together, these efforts would reduce impacts on GRSG from grazing, such as loss of nesting cover, described in **Section 4.2.2**, compared with Alternative A. Acreage closed to grazing under each alternative is shown in **Table 4-5**.

Impacts from Fire and Fuels Management

Alternative D would implement the same policies as Alternative B to prioritize fire suppression and restoration in sagebrush areas by using native plants and limiting damage to sagebrush habitat from wildfire. Alternative D includes additional measures and planning such as ES&R guidance, preparations in high-risk areas, and additional training for firefighters to better prepare for fire outbreaks in high-risk areas such as sagebrush. Adaptive management under Alternative D would expand more restrictive management from PHMA to less restrictive IHMA based on specific and measurable triggers relating to habitat and population metrics. Overall, Alternative D would reduce impacts from wildfire, similar to Alternative B.

Impacts from Wild Horse and Burro Management

Impacts would be the same as described for Alternative B.

Impacts from Leasable Minerals Management

Management would be similar to Alternative B but would apply to PHMA, IHMA, and GHMA (see **Table 2-9**). In unleased areas of PHMA and IHMA, no exploration or leasing of fluid minerals would be allowed. GHMA would be open to leasing with stipulations. Policies for locatable and salable minerals are otherwise the same as under Alternative B.

Management under Alternative D would close 8.8 million acres of PHMA, IHMA and GHMA to fluid mineral leasing. Closure would increase protection of habitat associated with leks, which would impact 13 percent of the GRSG population for the sub-region, and by sub-population (**Table 4-31**). These approaches would reduce the impacts of mining on GRSG habitat, as described in **Section 4.2.2**, in ways similar to Alternative B, by closing nearly 9 million acres to fluid mineral leasing and protecting additional acreage using timing limitations.

**Table 4-31
Alternative D: Percent of GRSG Habitat and Occupied Leks Within Areas Closed or with NSO Stipulations for Oil and Gas Leasing by Population Area**

Population Area	Habitat Area	Occupied Leks
East-central Idaho	44.4%	4
Mountain Valleys	93.1%	163
Southwest Montana	72.7%	46
North Side Snake	82.2%	263
South Side Snake	80.7%	160
Southwest Idaho	85.2%	153
Sawtooth	76.5%	0
Bear Lake	75%	8
Weiser	48.1%	0

Source: BLM GIS 2015

Management under Alternative D would close 2.2 million acres of PHMA, IHMA and GHMA to future nonenergy leasable mineral leasing. Impacts would be similar to those described for Alternative A, though would be reduced under Alternative D by requiring timing restrictions, BMPs, and restoration for existing leases (**Table 4-32**).

Impacts from Locatable Minerals Management

Alternative D would leave areas open for locatable mineral removal and would require operators to include measures to avoid or minimize adverse effects on GRSG and GSG habitat when 3809 Plans and notices are required (**Table 4-33**). RDFs for locatable minerals removal would be applied to PHMA, IHMA, and GHMA consistent with applicable law. As no additional habitat would be withdrawn from mineral entry, there would continue to be



Table 4-32
Alternative D: Percent of GRSG Habitat and Occupied Leks Within Areas Closed to Nonenergy Leasable Mineral Leasing by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	36.8%	3
Mountain Valleys	90.9%	138
Southwest Montana	66.3%	45
North Side Snake	78%	226
South Side Snake	76.1%	156
Southwest Idaho	83.7%	152
Sawtooth	75.7%	0
Bear Lake	84.6%	8
Weiser	37.2%	0

Source: BLM GIS 2015

Table 4-33
Alternative D: Percent of GRSG Habitat and Occupied Leks Affected by Mineral Withdrawal by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	5%	1
Mountain Valleys	12.7%	30
Southwest Montana	2.5%	3
North Side Snake	25%	57
South Side Snake	7.7%	8
Southwest Idaho	21.2%	29
Sawtooth	17.2%	0
Bear Lake	10.6%	2
Weiser	8.7%	0

Source: BLM GIS 2015

effects on GRSG and their habitat, as described in **Section 4.2.2**. Use of RDFs to the extent consistent with applicable law (see **Appendix B**) under this alternative might reduce these impacts as compared with Alternative A.

Impacts from Salable Minerals Management

Management under Alternative D would close acres to salable minerals removal. Closure would increase protection on habitat associated with leks (see **Table 4-34**).

Table 4-34
Alternative D: Percent of GRSG Habitat and Occupied Leks Affected by Closure to Salable Minerals by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	36.4%	4
Mountain Valleys	38.0%	135
Southwest Montana	32.3%	43
North Side Snake	40.5%	250
South Side Snake	34.5%	153
Southwest Idaho	40.7%	147
Sawtooth	12.7%	0
Bear Lake	42.8%	7
Weiser	7.0%	0

Source: BLM GIS 2015

Impacts from Land Uses and Realty Management (Wind and Geothermal Energy)

Under Alternative D, PHMA, GHMA, and IHMA would be designated ROW avoidance (but not exclusion) areas to allow for management flexibility (Tables 4-3 and 4-4). In PHMA, the BLM and Forest Service would exclude development of larger transmission facilities (greater than 50 kilovolts); wind and solar developments; commercial geothermal development; nuclear, gas, and oil developments; airports; paved and gravel roads; and landfills. Communication sites would not be excluded. In IHMA and GHMA, the BLM and Forest Service would avoid siting these facilities or would collocate them when possible in order to minimize impacts (see Table 4-35).

Table 4-35
Alternative D: Percent of GRSG Habitat and Occupied Leks Affected by ROW Exclusion or Avoidance by Population Area

Population Area	Habitat Area			Occupied Leks		
	Exclusion	Avoid with Exclusions	Avoidance	Exclusion	Avoid with Exclusions	Avoidance
East-central Idaho	0.5%	4.4%	95.1%	0	0	2
Mountain Valleys	1.5%	65.5%	32.8%	1	127	9
Southwest Montana	16.4%	42.5%	39.1%	0	38	1
North Side Snake	6%	61.9%	31.1%	5	201	8
South Side Snake	2.4%	45.5%	51.4%	3	130	34
Southwest Idaho	20.6%	60.6%	18.1%	29	122	2
Sawtooth	0.2%	0%	99.8%	0	0	0
Bear Lake	1.2%	59.9%	38.9%	0	6	1
Weiser	58.6%	0%	41.4%	1	0	0

Source: BLM GIS 2015



Impacts from Geothermal Energy Development on Sub-populations

Under this alternative, 8.8 million acres of PHMA, IHMA, and GHMA would be closed to geothermal development. This alternative leaves the remaining GRSG management areas open or limited for geothermal development (**Table 4-36** Error! Reference source not found. Error! Reference source not found.).

Table 4-36
Alternative D: Percent of GRSG Habitat and Occupied Leks Within Areas Closed or with NSO Stipulations for Geothermal Energy by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	37.4%	4
Mountain Valleys	88.4%	156
Southwest Montana	77.7%	45
North Side Snake	68.1%	255
South Side Snake	31.9%	154
Southwest Idaho	81.5%	153
Sawtooth	76.5%	0
Bear Lake	47.4%	8
Weiser	40.7%	0

Source: BLM GIS 2015

Impacts from Travel Management

Alternative D would limit OHVs to existing roads, primitive roads and trails on all BLM-administered lands within field offices containing GRSG habitat unless specific open areas have been previously designated to support recreational activities. None of these open areas would overlap PHMA or IHMA areas. Acres where OHVs would be limited to roads, primitive roads, and trails in entire BLM field offices containing GRSG habitat are shown on **Table 4-37**.

Table 4-37
Alternative D: Percent of GRSG Habitat and Occupied Leks Affected by Travel Management Designations by Population Area

Population Area	Habitat Area			Occupied Leks		
	Open ¹	Limited	Closed	Open ¹	Limited	Closed
East-central Idaho	0%	91%	9%	0	2	0
Mountain Valleys	0%	98.8%	1.2%	0	136	1
Southwest Montana	0%	98.2%	1.8%	0	40	0
North Side Snake	0.1%	93.8%	6.2%	0	209	5
South Side Snake	0%	80.4%	19.6%	0	164	3
Southwest Idaho	0%	96.7%	3.3%	0	126	27
Sawtooth	0%	100%	0%	0	0	0
Bear Lake	0%	99.6%	0.4%	0	7	0
Weiser	0%	99.6%	0.4%	0	1	0

Source: BLM GIS 2015

Table 4-37
Alternative D: Percent of GRSG Habitat and Occupied Leks Affected by Travel Management Designations by Population Area

Population Area	Habitat Area			Occupied Leks		
	Open ¹	Limited	Closed	Open ¹	Limited	Closed

¹ Acres closed to OHV travel represent existing acres closed. No additional areas would be closed under any alternative.

This approach would reduce the likelihood of impacts from infrastructure within GRSG habitat (PHMA, IHMA, and GHMA) and would support comprehensive travel management planning for the entire field office subsequent to this planning effort. Impacts from areas limited to existing roads are as described in **Section 4.2.2**.

Impacts from Adaptive Management

Alternative D includes an adaptive management strategy that would apply the more restrictive measures of PHMA to the IHMA areas if hard adaptive triggers were tripped. In Alternative D, adaptive management is evaluated at the population area scale, so if a population area trips a hard trigger then the IHMA areas within that population area would then be managed as PHMA on BLM-administered and National Forest System lands, until the habitat or population recovers and the trigger no longer applies. While the management actions and allocations described for this alternative are anticipated to reduce impacts on GRSG, an adaptive management approach is included in the event that habitat or populations continue to decline to the point that hard habitat or population triggers are tripped. **Table 4-38** describes the extent of habitat and number of occupied leks on BLM-administered and National Forest System IHMA that would be affected and managed as PHMA, should a trigger be tripped in a particular population area.

Table 4-38
Alternative D: Percent of GRSG Habitat and Occupied Leks Affected by Adaptive Management Trigger in IHMA by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	5.8%	1
Mountain Valleys	76.6%	4
Southwest Montana	79.9%	0
North Side Snake	48.9%	6
South Side Snake	83.6%	28
Southwest Idaho	82.3%	1
Sawtooth	0%	0
Bear Lake	27.2%	0
Weiser	42.2%	0

Source: BLM GIS 2015

Impacts from Special Designations Management

Impacts from ACEC management under Alternative D are the same as those described for Alternative A (**Table 4-7**).

4.2.9 Alternative E

Under Alternative E, the BLM and Forest Service would manage to maintain, conserve, enhance, and restore sagebrush ecosystems. CHZ, IHZ, and GHZ would be designated in Idaho, with PHMA and GHMA in Montana and PHMA in Utah (**Table 4-15**). In CHZ and IHZ, the BLM and Forest Service would incorporate management flexibility to permit high value infrastructure with appropriate mitigation and best management practices tailored for the sub-region. Management and impacts are similar to Alternative D, though Alternative E would require less stringent use restrictions, as the disturbance cap would be applied to fluid mineral development only and would restrict development to 5 percent disturbance. Further, Alternative E would designate the least amount of CHZ compared to the other alternatives' management area designations.

Impacts from Vegetation and Soils Management

Alternative E categorizes management areas within Idaho into CHZ, IHZ, and GHZ. For lands within Utah, management areas are categorized as PHMA, and Montana management areas would be the same as Alternative A (see **Table 4-15**). CHZ would receive the highest degree of protection and management would focus on the maintenance and enhancement of habitats, populations, and connectivity. In important habitat these goals would coexist with high-value infrastructure projects.

Vegetation dynamics modeling shows the same trend under Alternative E compared with Alternative D; even though habitat condition trends appear to be slightly downward after 50 years, the model projections still show that habitat is meeting desired conditions.

Alternative E would maintain the policies described under Alternative A, along with additional provisions to protect CHZ, IHZ, and GHZ. These habitats would be managed to prevent invasion. Invasive plants threatening GRSG habitat would be eradicated or controlled in CHZ and IHZ. Invasive plants would be monitored for three years following a fire. The policies under Alternative E would reduce the impacts from invasive plants in these habitats to a limited degree compared with Alternative A, though current management already addresses this threat.

Under Alternative E, the BLM and Forest Service would prioritize the removal of conifers. This would be accomplished through methods appropriate for the terrain and most likely to facilitate GRSG population and habitat recovery in core and important habitat through methods determined appropriate for the terrain at the site-specific level. In addition, as described in **Section 4.2.6**, CHZ, IHZ, and GHZ would be managed to prevent invasion.

The policies under Alternative E would do more to reduce the impacts from conifer encroachment described under **Section 4.2.2** compared with Alternative A.

Table 4-39, Alternative E: Percent of GRSG Habitat Designations and Occupied Leks within each Conservation Area, describes the acres of CHZ, IHZ and GHZ and occupied leks within each conservation area.

Table 4-39
Alternative E: Percent of GRSG Habitat Designations and Occupied Leks within each Conservation Area

Population Area	Habitat Area			Occupied Leks		
	CHZ	IHZIHMA	GHZ	CHZ	IHZ	GHZ
Mountain Valleys	41%	32%	27%	64.5	31.8	3.6
Desert	41%	17%	43%	73.3	11.1	15.6
West Owyhee	60%	23%	17%	51.8	39.6	8.6
Southern	29%	33%	38%	82.4	16.9	0.7

Source: BLM GIS 2015

Impacts from Livestock Grazing Management

Management under Alternative E would add GRSG guidelines to grazing management plans in core and important habitats. Land health assessments would be prioritized in areas with declining GRSG populations, subject to existing legal requirements, and management changes would be tailored to specifically address GRSG habitat objectives. In core areas, grazing plans could be altered by enhancing grazing in areas with lower habitat value. Acreage closed to grazing is shown in **Table 4-5**. These efforts would reduce impacts from grazing on GRSG, relative to Alternative A.

Impacts from Fire and Fuels Management

Alternative E would focus resources to reduce wildfire in sagebrush areas. It would prioritize fire suppression in CHZ, IHZ, and GHZ and would maintain fuel breaks in core and important habitat. Fuels treatments would protect existing sagebrush ecosystems. Fire response times to CHZ and IHZ would be reduced to limit fire damage. Alternative E includes an adaptive management strategy based on population and habitat triggers for each conservation area. These policies may limit the prevalence of wildfire in sagebrush areas and would reduce damage to GRSG habitat; impacts are similar to those described for Alternative B.

Impacts from Wild Horse and Burro Management

Impacts would be the same as described for Alternative A.

Impacts from Leasable Minerals Management

Alternative E would designate CHZ and IHZ as open to oil and gas leasing subject to an NSO stipulation. In CHZ in Idaho, Alternative E would stipulate that the Idaho BLM State Director may waive the stipulation only in situations where the development will not accelerate and/or cause declines in GRSG populations within the relevant CA, based on the application of certain criteria. Development would be allowed in important habitat if it would not cause a decline in GRSG populations. The policy does not state how such an



assurance would be provided in advance of development. Impacts on GRSG from energy development would be reduced, relative to Alternative A.

Under Alternative E, 2.6 million acres would be closed to oil and gas leasing. Closure would increase protection on habitat associated with leks (**Table 4-40**, Alternative E: Percent of GRSG Habitat and Occupied Leks Within Areas Closed or with NSO Stipulations for Oil and Gas Leasing by Population Area).

Table 4-40
Alternative E: Percent of GRSG Habitat and Occupied Leks Within Areas Closed or with NSO Stipulations for Oil and Gas Leasing by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	31.9%	2
Mountain Valleys	93%	162
Southwest Montana	51.1%	42
North Side Snake	72%	244
South Side Snake	73.3%	148
Southwest Idaho	85.5%	152
Sawtooth	75.8%	0
Bear Lake	90.6%	6
Weiser	28.9%	0

Source: BLM GIS 2015

Under Alternative E, 2.1 million acres of GRSG habitat would be closed to nonenergy leasable mineral leasing. Closure would increase protection on habitat associated with leks (**Table 4-41**).

Table 4-41
Alternative E: Percent of GRSG Habitat and Occupied Leks Within Areas Closed to Nonenergy Leasable Mineral Leasing by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	21.2%	1
Mountain Valleys	26.5%	18
Southwest Montana	23.8%	1
North Side Snake	13.6%	12
South Side Snake	8.4%	7
Southwest Idaho	18.5%	29
Sawtooth	75.7%	0
Bear Lake	24.6%	2
Weiser	0.6%	0

Source: BLM GIS 2015

Impacts from Locatable Minerals Management

Impacts would be the same as described for Alternative A.

Impacts from Salable Minerals Management

Management under Alternative E would close areas to salable minerals removal. Closure would increase protection on habitat associated with leks (see **Table 4-42**).

Table 4-42
Alternative E: Percent of GRSG Habitat and Occupied Leks Affected by Closure to Salable Minerals by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	57.7%	5
Mountain Valleys	41.7%	164
Southwest Montana	33.9%	46
North Side Snake	2.3%	264
South Side Snake	18.7%	163
Southwest Idaho	11.5%	153
Sawtooth	0%	0
Bear Lake	56.4%	7
Weiser	0%	0

Source: BLM GIS 2015

Impacts from Land Uses and Realty Management (Wind Energy)

Under Alternative E, CHZ and IHZ would be identified as ROW avoidance areas (**Tables 4-3 and 4-4**). The BLM and Forest Service would collocate new ROWs or SUAs with existing infrastructure. They would aim to remove, bury, or modify existing power lines in these areas when possible. In important habitat areas, new infrastructure could be built if habitat protection criteria were met. In CHZ, no new infrastructure would be permitted, except in-place upgrades. (**Table 4-43**).

Table 4-43
Alternative E: Percent of GRSG Habitat and Occupied Leks Affected by ROW Exclusion or Avoidance by Population Area

Population Area	Habitat Area			Occupied Leks		
	Exclusion	Avoid with Exclusions	Avoidance	Exclusion	Avoid with Exclusions	Avoidance
East-central Idaho	0%	0%	10.5%	0	0	0
Mountain Valleys	1.5%	0%	84.5%	1	0	135
Southwest Montana	14.6%	0%	27.5%	0	0	1
North Side Snake	6%	0%	59.3%	5	0	185
South Side Snake	2.5%	0%	70.7%	3	0	152
Southwest Idaho	20.6%	0%	65.9%	29	0	123
Sawtooth	0.2%	0%	97.2%	0	0	0
Bear Lake	0.6%	0%	84%	0	0	6
Weiser	58.6%	0%	41.3%	1	0	0

Source: BLM GIS 2015



Impacts from Geothermal Energy

Under this alternative, over 2.6 million acres of CHZ, IHZ, and GHZ would be closed to geothermal development. This alternative leaves the remaining GRSG management areas open or with an NSO stipulation for geothermal development (**Table 4-44**).

Table 4-44
Alternative E: Percent of GRSG Habitat and Occupied Leks Within Areas Closed or with NSO Stipulations for Geothermal Energy by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	31.1%	2
Mountain Valleys	93.2%	162
Southwest Montana	51%	42
North Side Snake	72.2%	244
South Side Snake	73.5%	149
Southwest Idaho	85.5%	152
Sawtooth	75.8%	0
Bear Lake	88.1%	6
Weiser	28.7%	0

Source: BLM GIS 2015

Impacts from Travel Management

Alternative E would prioritize travel and transportation planning to minimize impacts on GRSG from road travel. It also would reduce the risk of wildfire from cross-country OHV travel because OHVs would be restricted to existing routes in CHZ and IHZ. Timing and seasonal restrictions would be applied to activities known to disturb nesting GRSG while travel management planning is underway. Impacts from roads and ROWs in CHZ and IHZ would be reduced, compared with Alternative A. Impacts from road construction and use in collocated areas and GHZ are similar to Alternative A. **Table 4-45** describes the percent of habitat and occupied leks affected by travel management decisions in this alternative.

Impacts from Adaptive Management

As described in Chapter 2, Alternative E includes an adaptive management strategy composed of soft and hard triggers that are based on population and habitat changes. Each trigger is determined by conservation area, so the strategy is more locally responsive than if triggers were determined on a sub-regional or statewide basis. When a conservation area meets a soft trigger there is no required adaptive response. When a hard trigger is met, the IHZ areas within that conservation area would be managed according to the CHZ regulations primarily impacting the ability to consider infrastructure projects until the habitat or population recovers and the trigger no longer applies. The Implementation Task Force would be engaged in situations where a soft trigger is met or when the cause of meeting the hard trigger is related to wildfire or invasive species or to analyze the secondary threats to determine the appropriate management response. The triggers are based on lek monitoring

Table 4-45
Alternative E: Percent of GRSG Habitat and Occupied Leks Affected by Travel Management Designations by Population Area

Population Area	Habitat Area			Occupied Leks		
	Open ¹	Limited	Closed	Open ¹	Limited	Closed
East-central Idaho	0.5%	87.4%	12.1%	0	2	0
Mountain Valleys	9.3%	89.6%	1.2%	2	134	1
Southwest Montana	0%	99%	1%	0	40	0
North Side Snake	48.4%	45.4%	6.2%	42	168	5
South Side Snake	0%	80.5%	19.5%	11	154	3
Southwest Idaho	11.2%	85.5%	3.3%	0	126	27
Sawtooth	0%	100%	0%	0	0	0
Bear Lake	0%	99.4%	0.6%	0	6	0
Weiser	71.3%	28.3%	0.4%	0	1	0

Source: BLM GIS 2015

¹Acres closed to OHV travel represent existing acres closed. No additional areas would be closed under any alternative.

completed and compiled by IDFG on an annual basis and on habitat change. **Table 4-46** describes the percentage of habitat and percentage of occupied leks that would be affected should a trigger be met in a particular population area.

Table 4-46
Alternative E: Percent of GRSG Habitat and Occupied Leks Affected by Adaptive Management Trigger in IHZ by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	0%	0
Mountain Valleys	70.9%	38
Southwest Montana	0%	0
North Side Snake	43.6%	37
South Side Snake	82.5%	67
Southwest Idaho	81.2%	29
Sawtooth	0%	0
Bear Lake	29.8%	2
Weiser	0%	0

Source: BLM GIS 2015

Impacts from Special Designations Management

Impacts from ACEC management under Alternative E are the same as those described for Alternative A (**Table 4-7**).



4.2.10 Alternative F

Management under Alternative F would be largely similar to that described for Alternative B, though with more stringent guidance and restrictive management in sagebrush ecosystems. PHMA, GHMA and RHMA would be designated (**Table 4-15**). Impacts from implementing the maximum 3 percent disturbance cap are similar to those described for Alternative B; however, under Alternative F, all surface disturbances (including human disturbance and fire) would count toward this cap. This would further reduce the acreage of vegetation that would be removed or fragmented within all occupied habitat over the long term.

Impacts from Vegetation and Soils Management

Management under Alternative F generally would repeat management actions described under Alternative B with exceptions such as reduced treatment of invasive conifer.

Management under Alternative F would provide about the same level of protection as Alternative B or slightly less. Habitat trends for 10 and 50 years would improve compared with Alternative A and would be similar to Alternative B.

Alternative F would maintain the policies described under Alternative A, along with additional provisions to limit invasive weed spread. It would restrict activities that spread invasives and would ensure the health of vegetation and soil in GRSG habitat. Alternative F also includes post-fire treatment of invasives. Alternative F would prioritize restoration, including reducing invasive plants, as described under Alternative B. These policies would reduce impacts from invasive plants, compared to Alternative A, to a limited degree, though current management already addresses this threat.

Impacts from Livestock Grazing Management

Management under Alternative F would retain the same number of acres open and the same number of acres closed to livestock grazing as found under Alternative A and, therefore, would affect the same percentage of the sub-region's GRSG population. However, management under Alternative F would be more restrictive than Alternative A, with a 25 percent reduction of grazing in each population area and new water developments using spring or seep sources restricted within GRSG habitat. In addition, all prescriptions related to livestock management would apply to all GRSG habitats.

Alternative F includes a reduction in AUMs calculated by applying a 25 percent reduction to the three-year average of billed use. Management under Alternative F would also require that water developments be analyzed and modified or removed if they are found to be impacting a riparian area. Similar modification or removal standards would be applied to other existing range developments such as fences. No salt or other supplements would be allowed. Ensuring riparian areas are at PFC would be the same as for Alternative A. Compared with Alternative A, management under Alternative F would provide more indirect benefits to GRSG. This is because it would increase upland and riparian nesting and brood-rearing habitat amount and quality by reducing by 25 percent livestock grazing each year. Also, it would remove certain livestock-related structures such as fences.

Impacts from Fire and Fuels Management

Impacts would be similar to those under Alternative B, except that a 25 percent reduction in grazing may increase fuel loads in those areas where grazing no longer occurs. Although grazing can be an effective tool to reduce fuel loads, research indicates grazing alters fuel composition and reduces resistance to invasive annual grasses (see **Section 4.3, Vegetation**). Therefore, fine fuel loads and fire frequency in cheatgrass-infested GRSG habitat may not be affected by the absence of grazing.

Impacts from Wild Horse and Burro Management

Impacts would be the same as described for Alternative A.

Impacts from Leasable Minerals Management

Management under Alternative F would close PHMA and GHMA to fluid mineral leasing, including geothermal energy and nonenergy leasable mineral leasing. Quantitative impacts would be the same as for Alternative B.

Impacts from Locatable Minerals Management

Impacts from locatable minerals management would be the same as for Alternative B.

Impacts from Salable Minerals Management

Management under Alternative F would close areas to salable minerals removal. Closure would increase protection on habitat associated with leks (see **Table 4-47**).

**Table 4-47
Alternative F: Percent of GRSG Habitat and Occupied Leks Affected by Closure to Salable Minerals by Population Area**

Population Area	Percent of Habitat Area	Number of Occupied Leks
East-central Idaho	40	3
Mountain Valleys	93.1	159
Southwest Montana	80.8	47
North Side Snake	76.3	262
South Side Snake	79	157
Southwest Idaho	80.4	152
Sawtooth	75.8	0
Bear Lake	93.3	7
Weiser	35.4	0

Source: BLM GIS 2015

Impacts from Land Uses and Realty Management

Under Alternative F, most GHMA would be managed as avoidance areas for new ROWs and all PHMA habitats would be managed as ROW exclusion for new permits with exceptions for collocation of projects within existing footprints and valid, existing rights (**Table 4-48**). Under this alternative, 8.5 million acres would be managed as ROW exclusion. ROW exclusion would protect over eight times more acres of GRSG habitat than under



Alternative A. Management under Alternative F would also include actions to reclaim or modify existing ROWs that may impact GRSG directly (e.g., fences) or indirectly benefit their habitat (e.g., restoring a non-used road). Management under Alternative F would retain public ownership of PHMA where it benefitted overall GRSG habitat and propose PHMA for mineral withdrawal. Management under Alternative F would be expected to provide greater direct protections to GRSG than Alternative A due to the larger number of acres under Alternative F being in the ROW exclusion category. Indirect impacts on habitat would be expected to also be less than Alternative A.

Table 4-48
Alternative F: Percent of GRSG Habitat and Occupied Leks Affected by ROW Exclusion or Avoidance by Population Area

Population Area	Percent of Habitat Area			Number of Occupied Leks		
	Exclusion	Avoid with Exclusions	Avoidance	Exclusion	Avoid with Exclusions	Avoidance
East-central Idaho	15.4	0	84.6	1	0	1
Mountain Valleys	81.7	0	18.1	132	0	5
Southwest Montana	64.3	0	33.6	38	0	1
North Side Snake	69.3	0	21.3	212	0	2
South Side Snake	71.2	0	26.7	160	0	7
Southwest Idaho	79.4	0	14	152	0	1
Sawtooth	0.2	0	99.8	0	0	0
Bear Lake	89.5	0	10.5	6	0	0
Weiser	48.5	0	31.1	1	0	0

Source: BLM GIS 2015

Impacts from Renewable Energy Management

Impacts from Wind Energy Development

Impacts would be the same as described for Alternative B. Under Alternative F, wind energy projects would not be sited within occupied GRSG habitat or within five miles of an active lek. This would result in 8.6 million acres managed as ROW exclusion.

Impacts from Geothermal Energy Development

Impacts from geothermal energy management would be the same as those presented for Alternative B.

Impacts from Travel and Transportation Management

Impacts from travel and transportation management under Alternative F would be similar to those described for Alternative B. Acres and leks protected would be slightly different due to the management of RHMA under Alternative F (**Table 4-49**).

Table 4-49
Alternative F: Percent of GRSG Habitat and Occupied Leks Affected by Travel Management Designations by Population Area

Population Area	Percent of Habitat Area			Number of Occupied Leks		
	Open ¹	Limited	Closed	Open ¹	Limited	Closed
East-central Idaho	0	87.9	12.1	0	2	0
Mountain Valleys	0	98.8	1.2	0	136	1
Southwest Montana	0	99	1	0	40	0
North Side Snake	8.7	85.6	5.7	2	210	5
South Side Snake	0	81.4	18.6	0	165	3
Southwest Idaho	0.1	96.6	3.3	0	126	27
Sawtooth	0	100	0	0	0	0
Bear Lake	0	99.4	0.6	0	6	0
Weiser	12.3	87.4	0.3	0	1	0

Source: BLM GIS 2015

¹Acres closed to OHV travel represent existing acres closed. No additional areas would be closed under any alternative.

Impacts from Special Designations Management

Under Alternative F, the BLM would designate one of two sub-alternatives: F1, which would designate all PPH as an ACEC, and F2, which would designate a subset of PPH as an ACEC (Table 4-7). Impacts from management of ACECs are as described under Section 4.2.2 and impacts from Zoological Areas are expected to be similar.

4.2.11 Proposed Plan

Impacts from Lands and Realty Management

Under the Proposed Plan, PHMA and IHMA would be identified as ROW/SUA avoidance areas to allow for management flexibility (Table 4-3). However, PHMA would be exclusion areas specifically for wind and solar developments. In practice, new ROWs/SUAs in PHMA would not be allowed except in accordance with the Anthropogenic Disturbance Screening Criteria outlined in the Proposed Plan. In IHMA new ROWs/SUAs could be considered if in accordance with the IHMA Anthropogenic Disturbance Development Criteria. The BLM and Forest Service would collocate new ROWs or SUAs with existing infrastructure when possible. The Proposed Plan would apply at implementation a protective buffer from disturbance around leks in PHMA, IHMA and GHMA, depending on the type of disturbance and based on the latest science (USGS 2014a), to be applied at implementation. BLM and Forest Service retain management flexibility to route ROWs/SUAs to minimize overall impacts on GRSG habitat. Existing ROW/SUA corridors are preferred for collocation of new ROWs/SUAs, but could not be widened more than 50 percent greater than the original footprint. These measures would protect GRSG and their habitats from fragmentation, disturbance and predation, and other impacts, as described in Section 4.2.2, associated with ROW construction, operations and maintenance.



There is projected to be no impact from excluding solar energy development on National Forest System land in the planning area. This is because there is limited potential for solar energy development on these lands.

Under the Proposed Plan, land tenure adjustments would include retaining lands with GRSG habitat with exceptions for when there would be no impact or a net conservation gain for GRSG. Exchanges would be allowed if they were to increase the extent or provide for connectivity of habitat. Retention of areas with GRSG would reduce the likelihood of habitat conversion to agriculture, urbanization, or other uses that would remove sagebrush habitat and potentially impact sensitive plants. **Tables 4-50** and **4-51** show the percentage of GRSG habitat and occupied leks affected by major and minor ROW/SUA exclusion or avoidance by population area.

Table 4-50
Proposed Plan: Percent of GRSG Habitat and Occupied Leks Within ROW/SUA Exclusion or Avoidance Areas for Major ROWs/SUAs by Population Area

Population Area	Percent of Habitat Area		Number of Occupied Leks	
	Exclusion	Avoidance	Exclusion	Avoidance
East-central Idaho	0	52.8	0	1
Mountain Valleys	1	92.3	1	135
Southwest Montana	14.6	65.1	0	38
North Side Snake	6	64.7	5	202
South Side Snake	2.8	81.2	4	161
Southwest Idaho	20.4	68.7	29	124
Sawtooth	0.2	99.8	0	0
Bear Lake	0.5	96.8	0	7
Weiser	49.4	31.8	1	0

Source: BLM GIS 2015

Impacts from Habitat Restoration and Vegetation Management

Results from the VDDT are presented in **Table 4-52** below; this modeling is described further in **Appendix X**. Stand replacement wildfire, mosaic wildfire, overgrazing, insects and disease, and conifer encroachment were incorporated into the model to quantify changes in GRSG habitat. The modeling did not include changes in habitat conditions associated with climate change or with permitted activities, such as infrastructure development, travel management, and mineral development.

The model also estimated treatment acres required to meet target sagebrush habitat quality goals. Based on guidelines provided by the GRSG National Technical Team Report (NTT 2011), 70 percent of an area should be in 10 to 30 percent sagebrush canopy cover to meet GRSG sagebrush habitat objectives. The tables included as part of the vegetation impacts

for each alternative present the percentage of a given GRSG analysis area meeting GRSG sagebrush habitat objectives by alternative after 10 years and 50 years.

Table 4-51
Proposed Plan: Percent of GRSG Habitat and Occupied Leaks Within ROW/SUA Exclusion or Avoidance Areas for Minor ROWs/SUAs by Population Area

Population Area	Percent of Habitat Area		Number of Occupied Leaks	
	Exclusion	Avoidance	Exclusion	Avoidance
East-central Idaho	0	52.8	0	1
Mountain Valleys	1	92.3	1	135
Southwest Montana	14.6	65.1	0	38
North Side Snake	6	64.7	5	202
South Side Snake	2.8	81.2	4	161
Southwest Idaho	20.4	68.7	29	124
Sawtooth	0	99.8	0	0
Bear Lake	1	96.8	0	7
Weiser	49.4	31.8	1	0

Source: BLM GIS 2015

Table 4-52
Proposed Plan: Modeled Habitat Trends by Analysis Area

Analysis Area	No Action Modeled ¹ Habitat Condition and Trend ²			Proposed Plan Modeled ¹ Habitat Condition and Trend ²		
	Initial Condition	10 Year Condition	50 Year Condition	Initial Condition	10 Year Condition	50 Year Condition
9 (Bear Lake)	84%	77%	67%	84%	80%	73%
18 (East-Central Idaho)	98%	90%	79%	98%	90%	79%
23 (North Side Snake, Mountain Valleys)	85%	78%	73%	85%	79%	70%
25 (Weiser)	74%	77%	75%	74%	78%	77%
26 (Southwest Idaho)	73%	70%	62%	73%	72%	70%
19 (Southwest Montana)	98%	90%	81%	98%	91%	81%

Source: Forest Service GIS 2015

¹The outputs are not absolutes and are bound by the assumptions and limitations of the data.

²Habitat condition percentages are the amount of the analysis area that meets 10 to 30 percent sagebrush cover.



The acres of treatment proposed in each of the analysis areas are necessary to improve or maintain habitat conditions. The Proposed Plan provides treatment acres by decade sufficient to meet desired habitat conditions (70 percent of the analysis area meeting 10 to 30 percent sagebrush cover; NTT 2011). The trends reflect the combined treatment acres in both BLM and Forest Service Proposed Plans, compared to the treatment rates and types occurring under the No Action Alternative.

In the Alternative A model, results show a declining trend in 5 out of 6 of the analysis areas. Analysis areas 9 and 26 at 50 years would be below the desired conditions, meaning less suitable habitat would be available for GRSG than currently exist, which could result in GRSG population declines in those areas. For the other analysis areas (18, 23, 25, and 19), GRSG populations should remain stable, absent other factors that may not have been accounted for in the model.

In the Proposed Plan, results indicate all areas would meet or exceed desired conditions, based on the vegetation treatment objectives. For all areas GRSG populations should remain stable or would improve, absent other factors that may not have been accounted for in the model.

Conifer removal can provide immediate benefit to GRSG by restoring habitat quality, whereas other vegetation management projects aimed at restoring sagebrush may aid GRSG over the long term, but would not provide immediate habitat improvement. Under the Proposed Plan, the BLM and Forest Service would include treatment programs to reduce the likelihood of conifer encroachment and further improve GRSG abundance and distribution. A total of 107,000 acres of BLM-administered lands and 22,000 acres of National Forest System lands would be treated with mechanical means or prescribed fire to reduce conifer encroachment. Conifer removal would facilitate GRSG population and habitat recovery through methods determined appropriate for the terrain at the site-specific level. Thus, the vegetation management tools described in the Proposed Plan would help to reduce encroachment and improve GRSG habitat.

The policies under the Proposed Plan would also reduce the impacts from invasive plants in these habitats, compared with Alternative A. The Proposed Plan also includes GRSG seasonal habitat objectives (**Tables 2-3** and **2-6**). Monitoring and mitigation components of the Proposed Plan would help to ensure that these seasonal habitat objectives are met.

Impacts from Wildland Fire Management

The Proposed Plan would focus resources to reduce wildfire in sagebrush areas. It would maintain fuel breaks in PHMA and IHMA. Fire response times to PHMA and IHMA would be reduced to limit fire damage. The recommendations from the BLM Fire and Invasives Assessment Tool (FIAT; **Appendix D**) will direct field offices to prioritize landscapes for fire prevention and fuels management within GRSG habitat to minimize the risk of wildfire in PHMA and IHMA. Fuels management treatments and post-fire rehabilitation projects in PHMA would focus on maximizing benefits on GRSG habitats using the resistance and resilience concepts in Chambers et al. (2014), coupled with the FIAT assessments. These concepts would reduce impacts from invasive annual grasses and altered fire regimes on the

sagebrush ecosystem. They also would reduce the rate of conifer encroachment in order to reduce GRSG habitat fragmentation and maintain or reestablish habitat connectivity over the long-term and at a landscape scale. The use of prescribed fire in GRSG habitat would be avoided unless evaluation of site-specific conditions showed a net benefit to GRSG. All of these measures would reduce habitat loss for GRSG.

The Proposed Plan includes an adaptive management strategy based on population and habitat triggers for each conservation area. Adaptive management would expand more restrictive management based on specific and measurable triggers relating to habitat and population metrics, for example, grazing may be restricted in areas adjacent to burns in order to restore habitat capable of supporting GRSG. Enhanced monitoring would be conducted in restoration areas under the Proposed Plan. These policies are designed to limit the prevalence of wildfire in sagebrush areas and would reduce damage to GRSG habitat more than current management.

Impacts from Leasable Minerals Management

Under the Proposed Plan, in unleased areas of PHMA and IHMA, an NSO stipulation would be applied without waivers or modifications. In SFA, NSO stipulations would apply without waiver, exception, or modification. Outside SFA, exceptions to NSO would be considered under certain criteria. GHMA would be open to leasing with BMPs, RDF, and buffer zones (**Appendices B, C and DD**). Restrictive stipulations would increase protection of habitat associated with leks by avoiding surface disturbance during sensitive times and would reduce the impacts of mining on GRSG habitat, as described in **Section 4.1.2**. Mitigation requirements would be implemented to ensure a net conservation gain for GRSG. **Table 4-53** shows the percentage of GRSG habitat and occupied leks in areas closed or with NSO stipulations for oil and gas leasing by population area. **Table 4-54** shows the percentage of GRSG habitat and occupied leks in areas closed or with NSO stipulations for geothermal energy by population area.

Table 4-53
Proposed Plan: Percent of GRSG Habitat and Occupied Leks in Areas Closed or with NSO Stipulations for Oil and Gas Leasing by Population Area

Population Area	Percent of Habitat Area	Number of Occupied Leks
East-central Idaho	31.5	2
Mountain Valleys	94.7	162
Southwest Montana	80.8	47
North Side Snake	72.5	256
South Side Snake	83.6	160
Southwest Idaho	89.1	153
Sawtooth	75.8	0
Bear Lake	96.3	8
Weiser	23	0

Source: BLM GIS 2015



Table 4-54
Proposed Plan: Percent of GRSG Habitat and Occupied Leks Within Areas Closed or with NSO Stipulations for Geothermal Energy by Population Area

Population Area	Habitat Area	Occupied Leks
East-central Idaho	30.5	2
Mountain Valleys	94.6	162
Southwest Montana	80.8	46
North Side Snake	72.9	256
South Side Snake	83.7	161
Southwest Idaho	89.1	153
Sawtooth	75.8	0
Bear Lake	95.2	8
Weiser	22.9	0

Source: BLM GIS 2015

Under the Proposed Plan, PHMA would be closed to nonenergy leasable mineral leasing. IHMA and GHMA within KPLAs would be open to leasing, while IHMA outside KPLAs would be open subject to the anthropogenic disturbance development criteria and the disturbance cap as well as RDF, buffers, and seasonal timing restrictions (**Appendices B, C, and DD**). Restrictive stipulations would increase protection of habitat associated with leks by avoiding surface disturbance during sensitive times and would reduce the impacts of mining on GRSG habitat, as described in **Section 4.1.2**. Mitigation requirements would be implemented to ensure a net conservation gain for GRSG. **Table 4-55** shows the percentage of GRSG habitat and occupied leks in areas closed to nonenergy leasable mineral leasing by population area.

Table 4-55
Proposed Plan: Percent of GRSG Habitat and Occupied Leks in Areas Closed to Nonenergy Leasable Mineral Leasing by Population Area

Population Area	Percent of Habitat Area	Number of Occupied Leks
East-central Idaho	21.5%	1
Mountain Valleys	60.3%	105
Southwest Montana	70.4%	45
North Side Snake	43%	189
South Side Snake	39.9%	84
Southwest Idaho	68.3%	141
Sawtooth	75.7%	0
Bear Lake	67.4%	6
Weiser	0.6%	0

Source: BLM GIS 2015

Impacts from Nonenergy Leasable Minerals Management

Under the Proposed Plan, PHMA areas outside KPLAs would be closed to leasing, while IHMA would be open to leasing in accordance with the Anthropogenic Disturbance Development Criteria, as well as RDFs, BMPs, buffers (based on the USGS 2014 study, and seasonal timing restrictions (**Appendices B, C and DD**)). In GHMA, lands will remain available for leasing subject to RDFs, BMPs, buffers, timing restrictions and stipulations. These provisions may have little impact on GRSG because phosphate resources are located primarily in southeastern Idaho in nonhabitat areas for GRSG. To the extent that phosphate resources are located in GRSG habitat, the provisions provided under the Proposed Plan would protect the habitat from impacts associated with mineral exploration.

Impacts from Locatable Minerals Management

Currently, BLM-administered and National Forest System lands within the sub-region are generally open to locatable mineral development. Mitigation of effects on GRSG and its habitat are identified through the NEPA process approving plans of operation. Goals and objectives for locatable minerals are to provide opportunities to develop the resource while preventing undue or unnecessary degradation of BLM-administered and National Forest System lands.

Under the Proposed Plan, all SFA would be recommended for withdrawal from locatable mineral entry. In addition, consistent with applicable law, the Proposed Plan would require operators to include mitigation measures required to prevent unnecessary or undue degradation as defined in 43 CFR 3809.415. RDFs for locatable minerals removal would be applied to PHMA, IHMA and GHMA consistent with applicable law. As no additional habitat would be withdrawn from mineral entry, there would continue to be effects on GRSG and their habitat. Use of RDFs to the extent consistent with applicable law and buffers (**Appendices B, C, and DD**) under the Proposed Plan might reduce these impacts, compared to Alternative A. **Table 4-56** shows the percentage of GRSG habitat and occupied leks affected by mineral withdrawal by population area.

Table 4-56
Proposed Plan: Percent of GRSG Habitat and Occupied Leks Within Existing and Proposed Locatable Mineral Withdrawals by Population Area

Population Area	Percent of Habitat Area	Number of Occupied Leks
East-central Idaho	6.1	1
Mountain Valleys	43.7	87
Southwest Montana	2.5	3
North Side Snake	47.2	191
South Side Snake	31.4	76
Southwest Idaho	58.7	120
Sawtooth	17.2	0
Bear Lake	8.9	2
Weiser	8.4	0

Source: BLM GIS 2015



Impacts from Salable Minerals Management

Under the Proposed Plan, PHMA would be closed to new development, while IHMA would be open subject to Anthropogenic Disturbance Development Criteria. Closure would increase protection on habitat associated with leks and GRSG habitat across the broader landscape (Table 4-11). In addition, buffer zones, RDFs and BMPs (Appendices B, C, and DD) associated with development in GRSG habitat would provide improved protection from disturbance associated with salable mineral development. Table 4-57 shows the percentage of GRSG habitat and occupied leks affected by closure to salable minerals by population area.

**Table 4-57
Proposed Plan: Percent of GRSG Habitat and Occupied Leks Affected by Closure to Salable Minerals by Population Area**

Population Area	Percent of Habitat Area	Number of Occupied Leks
East-central Idaho	22.6	1
Mountain Valleys	61.5	127
Southwest Montana	68.9	45
North Side Snake	44.7	210
South Side Snake	39.8	84
Southwest Idaho	68.3	141
Sawtooth	12.7	0
Bear Lake	59.4	5
Weiser	0	0

Source: BLM GIS 2015

Impacts from Travel and Transportation Management

The Proposed Plan would prioritize travel planning to designate specific routes and roads within open and closed areas. In the meantime, it would limit OHV travel to existing roads and trails on all BLM-administered lands within field offices containing GRSG habitat, unless specific open areas have been previously designated to support recreational activities. Negative impacts would occur on a small scale in open areas. Timing and seasonal restrictions would be applied to activities known to disturb nesting GRSG while travel management planning is underway.

Under the Proposed Plan, impacts from roads and ROWs/SUAs in PHMA and IHMA would be reduced, compared with Alternative A. Impacts from road construction and use in collocated areas and GHMA are similar to Alternative A. Table 4-58 shows the percentage of GRSG habitat and occupied leks affected by travel management designations by population area.

Table 4-58
Proposed Plan: Percent of GRSG Habitat and Occupied Leks in Each Travel Management Designation by Population Area

Population Area	Percent of Habitat Area			Number of Occupied Leks		
	Open ¹	Limited	Closed	Open ¹	Limited	Closed
East-central Idaho	0	84.9	15.1	0	2	0
Mountain Valleys	0.1	98.9	1	0	136	1
Southwest Montana	0	99	1	0	40	0
North Side Snake	0.1	94.2	5.8	0	212	5
South Side Snake	0	96.5	3.5	0	164	4
Southwest Idaho	0	81.2	18.8	0	126	27
Sawtooth	0	100	0	0	0	0
Bear Lake	0	99.5	0.5	0	7	0
Weiser	0	99.7	0.3	0	1	0

Source: BLM GIS 2015

¹Acres closed to OHV travel represent existing acres closed. No additional areas would be closed under any alternative.

Impacts from Livestock Grazing Management

Under current management, 11,073,800 acres of identified GRSG habitat are open for livestock grazing (**Table 4-5**). Livestock grazing is managed through existing grazing plans, with methods and guidelines from the existing plans followed to maintain ecological conditions according to Standards for Rangeland Health, which include maintaining healthy, productive and diverse populations of native plants and animals. Direct impacts on GRSG have been reduced in some areas due to GRSG-specific management found in some conservation strategies or LUPs.

Range improvements are designed to meet both wildlife and range objectives, and include building, modifying or marking fences to permit passage of wildlife and reduce the chance of bird strikes. Modifications may involve moving troughs, adding or changing wildlife escape ramps, or ensuring water is available on the ground for a variety of different wildlife species. Although not directly created to protect GRSG, these approaches would protect and enhance GRSG habitat by diverting livestock from sensitive areas, thereby reducing the likelihood of surface disturbance in these areas.

Management under the Proposed Plan would add GRSG guidelines to grazing management plans in PHMA, IHMA, and GHMA. Land health assessments would be prioritized in SFA and PHMA, and management changes would be tailored to specifically address GRSG habitat objectives. When an allotment becomes vacant or grazing preference is relinquished in PHMA, IHMA, and GHMA, retirement of the allotment or grazing preference would be considered if it would maintain or enhance GRSG habitat. In addition, the NEPA analysis for renewals and modifications of livestock grazing permits that include lands in SFA and PHMA would include specific management thresholds based on GRSG habitat objectives.



Defined responses would allow the authorizing officer to adjust livestock grazing without conducting additional NEPA analyses. **Table 4-5** shows acres closed to grazing under the Proposed Plan, compared to current management. No additional acres would be closed under the Proposed Plan. Allotment retirement would remove any grazing effects on GRSG habitat in the retired allotment.

Structural range improvements not beneficial to GRSG would be limited in GRSG habitat to reduce the likelihood of additional disturbance. Similar efforts would apply to AML re-evaluations in HMA for wild horse populations. HMA would not be increased in PHMA or in IHMA without consideration of GRSG habitat objectives. Together, these efforts would reduce impacts on GRSG from grazing, such as loss of nesting cover, compared with Alternative A.

Impacts from Special Designations Management

Impacts would be the same as under Alternative A (current management); no additional special designations would be created under the Proposed Plan.

Impacts from Anthropogenic Disturbance Management, Adaptive Management, and Coordination

While the management actions described for the Proposed Plan are anticipated to reduce impacts on GRSG, the adaptive management approach is included in the event that habitat or populations continue to decline to the point that triggers are met. In that event, more restrictive measures could be applied. The goal of adaptive management is to detect effects on GRSG and take action in an appropriate time frame to effectively offset impacts.

In Idaho, the Proposed Plan would incorporate an adaptive management strategy composed of soft and hard triggers that are based on population and habitat changes. BLM and Forest Service would utilize population information collected and maintained by the Idaho Department of Fish and Game to track and identify population changes to assess the population trigger in the adaptive management approach.

Triggers would be determined by Conservation Area, making the strategy more locally responsive than if triggers were determined on a sub-regional or statewide basis. When a soft trigger is met, the response would be additional evaluation. When a hard trigger is met, IHMA areas within that Conservation Area would be managed as PHMA, impacting the consideration of future projects until the habitat or population recovers and the trigger no longer applies. Hard triggers include a 20 percent decline of nesting and/or wintering habitat within PHMA or IHMA compared to an established baseline within a Conservation Area.

Appendix G provides more detail on the adaptive management approaches, triggers and responses. The use of adaptive management would benefit GRSG by limiting disturbance to habitat in PHMA and IHMA in Idaho. **Table 4-59** shows the percentage of GRSG habitat and occupied leks affected by adaptive management triggers by population area.

Table 4-59
Proposed Plan: Percent of GRSG Habitat and Occupied Leks Affected by Adaptive Management Trigger in IHMA by Population Area

Population Area	Percent of Habitat Area	Number of Occupied Leks
East-central Idaho	0	0
Mountain Valleys	73	35
Southwest Montana	0	0
North Side Snake	54.8	30
South Side Snake	80.9	92
Southwest Idaho	37.4	13
Sawtooth	0	0
Bear Lake	29	3
Weiser	0	0

Source: BLM GIS 2015

To limit overall anthropogenic disturbance to GRSG habitat, BLM and Forest Service would impose a cap to limit anthropogenic disturbance to 3 percent of habitat, as calculated within the BSU and project analysis area. This would reduce disturbance on both the local and landscape scales. The BSU is defined as the nesting and wintering habitat within PHMA and IHMA within a Conservation Area. The use of BSUs to calculate disturbance is more protective of GRSG because it assesses disturbance on a finer scale than would be possible using GRSG PACs.

The anthropogenic disturbance cap excludes habitat disturbance from wildfire because wildfire is already factored into the soft and hard habitat triggers. In Idaho, disturbance is measured by direct footprint or by ROW/SUA width, while in Montana disturbance is measured using the Disturbance Density Calculation Tool (**Appendix G**). The management area map and BSU baseline map would be reevaluated every five years. In PHMA, the Anthropogenic Disturbance Screening Criteria would apply stringent criteria to any proposed projects. These criteria would apply in addition to the Anthropogenic Disturbance Development Criteria that apply in IHMA. No disturbance cap would apply in GHMA or GRSG brood-rearing habitat and migration corridors. BSUs include only nesting and wintering habitat.

The impact of the disturbance cap would differ by Conservation Area. In some areas, projected disturbance would not approach the cap, and would avoid impacts on GRSG habitat using buffers (**Appendix DD**), collocation of disturbance, other management under the Proposed Plan. The implementation of the anthropogenic disturbance cap represents a safeguard to maintain GRSG populations and habitat within BSUs. The mitigation requirements under the Proposed Plan would further reduce harm to GRSG from development. Adhering to GRSG habitat objectives (**Tables 2-3 and 2-6**) in mitigation and monitoring would ensure that restoration efforts improve nesting and wintering habitat for GRSG.



Coordination among agencies under the Proposed Plan will allow for effective, integrated management of GRSG to achieve desired habitat and population conditions and to maximize available funding. Coordination will occur among federal agencies, between federal agencies and the States of Idaho and Montana, and between agencies and tribes, private landowners and communities to develop consistent approaches for monitoring and facilitate effective GRSG conservation.

4.3 Vegetation

4.3.1 Methods and Assumptions

Indicators

Indicators of impacts on vegetation are as follows:

Upland, Riparian and Wetland Vegetation

- Acres and condition of vegetation communities
- Extent of sagebrush fragmentation

Noxious Weeds and Invasive Species

- Increase, decrease, or no change in the likelihood for noxious weed or invasive species introduction or spread
- Increase, decrease, or no change in the estimated acres of conifer encroachment

Assumptions

The analysis includes the following assumptions:

- All plant communities would be managed to achieve a mix of species composition, cover, and age classes across the landscape, except in site-specific situations where nonnative plantings are used for livestock grazing to provide rest or deferment to native vegetation.
- The degree of impact attributed to any one disturbance or series of disturbances would be influenced by several factors—location in the watershed; the type, time, and degree of disturbance; existing vegetation; precipitation; and mitigating actions applied to the disturbance.
- Noxious and invasive weeds would continue to be introduced and spread as a result of recreation, wildfire, wildlife and livestock grazing and movements, surface-disturbing activities, and ongoing vehicle traffic in and out of the planning area.
- Activities that would disturb soils could cause wind and water erosion, topsoil loss, and soil compaction, which could affect the ability of vegetation to regenerate. Resulting impacts could include lowered plant vigor and growth rate, altered or disrupted pollination, and increased susceptibility to disease. Impacts

may vary depending on the sensitivity of certain species, functional group, and vegetation community.

- Ecological health and ecosystem functioning depend on vegetative cover, species diversity, nutrient cycling and availability, water infiltration and availability, and percent cover of weeds.
- Climate fluctuation would continue to influence the health and productivity of plant communities annually.

Short-term effects would occur over two years or less, and long-term effects would occur over longer than two years.

4.3.2 Nature and Type of Effects

GRSG rely on sagebrush ecosystems for all aspects of their life cycle. Typically, a range of sagebrush community composition in the landscape, including variations in subspecies composition, co-dominant vegetation, shrub cover, herbaceous cover, and stand age, are needed to meet seasonal and interseasonal requirements for food, cover, nesting, and wintering habitats. The landscape required for GRSG may be up to 40 square miles; thus, conserving and managing GRSG is as much about the ecology, management, and conservation of large, intact sagebrush ecosystems as it is about the dynamics and behaviors of the populations themselves (Manier et al. 2013, p. 7).

Historically, sagebrush-dominated vegetation was one of the most widespread habitats in the country, but its expanse has been fragmented, lost, or altered by invasive plants and human disturbance (NTT 2011, p.4). Protecting GRSG habitat would involve restricting and limiting activities that contribute to the spread of invasive species, fire, and other surface disturbance. It also would involve managing vegetation to promote healthy sagebrush and maintaining understory vegetation to support GRSG.

Vegetation Management and Habitat Protection

In addition to landscapes with large, intact patches of sagebrush, GRSG require high-quality habitat conditions. These conditions are a diversity of herbaceous species, vegetative and reproductive health of native grasses, and an abundance of sagebrush. These requirements make management for high condition in seasonally important habitats essential (Manier et al. 2013, pp. 181-182). Management plans that protect intact sagebrush and restore impacted areas strategically to enhance existing habitats (for example, connectivity of intact sagebrush) have the best chance of increasing the amount and quality of sagebrush cover (Manier et al. 2013, p.183). This is because of the limited distribution of suitable sagebrush habitats and the cost of habitat restoration. Sagebrush-promoting vegetation treatments will enhance native vegetation and overall ecosystem productivity, while reducing the distribution of invasive species and some woody species.

Invasive plants can alter plant community structure and composition, productivity, nutrient cycling, and hydrology. They could competitively exclude native plant populations. In particular, invasive plants can reduce and eliminate vegetation that GRSG use for food and



cover, resulting in habitat loss and, when infestations occur on large scales, may result in fragmentation. They also could increase the risk of wildfire caused by the spread of invasive plants such as cheatgrass (*Bromus tectorum*), which has increased the frequency and intensity of fires (Balch et al. 2012). An assortment of nonnative annuals and perennials and native conifers are invading sagebrush ecosystems.

Expansion of conifer woodlands, especially juniper (*Juniperus* spp.) present a threat to GRSG because they do not provide suitable habitat; mature trees can displace shrubs, grasses, and forbs through direct competition for resources. Juniper expansion is also associated with increased bare ground and increased potential for erosion. Mature trees may offer perch and nest sites for raptors; thus, woodland expansion may also represent expansion of predation threat, similar to perches on power lines and other structures (Manier et al. 2013, pp. 152-154).

To reduce juniper expansion, current vegetation treatments and active vegetation management typically focus on manipulating vegetation composition or structure. These techniques are used to improve fuels management, fire suppression, and habitat management by removing invasive plants or using surface soil stabilization to increase productivity. Conifer removal is more likely to succeed if perennial grasses and forbs are a component of the pretreatment understory (Miller et al. 2007, p. 32). Locally and regionally, the distribution of these treatments can affect the distribution of GRSG and sagebrush habitats (Manier et al. 2013, pp. 179-185). Vegetation treatments would have short-term effects on vegetation from vegetation removal and disturbance, but they would result in long-term improvements in habitat condition by reducing invasive species and fragmentation and increasing diversity and productivity.

Managing vegetation to protect GRSG would alter vegetation communities by promoting diversity, healthy reproductive native grasses, and sagebrush productivity and vigor. Treatments designed to prevent encroachment of nonnative species or conifers would alter the condition of native vegetation communities. They would do this by changing the species richness, composition, and frequency of species in plant communities. Habitat connectivity for GRSG could also be increased through vegetation manipulation designed to restore vegetation, particularly sagebrush overstory cover.

Vegetation manipulation in the riparian zone, such as weed treatments and native plantings, would improve the condition of the riparian vegetation community. It also would improve or maintain plant vigor and hydrologic function.

Protection of sagebrush habitat through restrictions on uses, such as closure to mineral development or OHV use or exclusion of ROWs, would support GRSG. Such use restrictions would reduce damage to native vegetation communities and individual native plant species. Likewise, use restrictions would minimize habitat fragmentation and would be more likely to retain contiguous sagebrush habitat, naturally developed sagebrush growth form, existing age class distribution, and sagebrush recruitment within these areas. Use restrictions could also minimize the spread of invasive species by limiting human activities that disturb soil or introduce seeds. Specific impacts from restricting certain uses, such as

minerals, lands and realty, and grazing, are described in more detail under their respective headers below.

Wildland Fire

Wildfires likely played an important role historically in creating a mosaic of areas dominated by herbaceous species (recently disturbed) and mature sagebrush (less-frequently disturbed). Nevertheless, current and past land use patterns have restricted the system's ability to support natural wildfire regimes. Slow rates of regrowth and recovery of vegetation, particularly sagebrush, after wildfire, as well as high rates of human disturbance, and conversion to invasive annual grasses, are largely responsible for the accumulating displacement and degradation of the sagebrush ecosystem (Manier et al. 2013, pp. 133-144).

Fire can be particularly damaging to sagebrush ecosystems. Big sagebrush does not resprout after a fire but is replenished by wind-dispersed seed from adjacent unburned stands or seeds in the soil. Depending on the species and the size of a burn, sagebrush can reestablish itself within five years of a burn, but a return to a full pre-burn community cover can take 15 to 30 years or longer (Manier et al. 2013, pp. 133-134). ES&R (for BLM-administered lands) and BAER (for National Forest System lands) would reduce the potential effects of invasive species by providing the best opportunities for vegetation to reestablish following wildland fires and compete with the natural strengths invasive species have compared to native species. Re-seeding with native plants and long-term monitoring to ensure the production of GRSG cover and forage plants assists with vegetation recovery (NTT 2011, pp. 25-26).

Fire suppression may be used to maintain habitat for GRSG (NTT 2011, pp. 25-26). When management reduces wildland fire frequency the indirect impact is that vegetation ages across the landscape, and early successional vegetation communities are diminished. Fire suppression may preserve the condition of some vegetation communities, as well as habitat connectivity. This is particularly important in areas where fire frequency has increased as a result of invasive annual grass invasion and where landscapes are highly fragmented. Fire suppression can also lead to increased fuel loads, which can lead to more severe or larger fires in the long term. Fire also increases opportunities for invasive species, such as cheatgrass, to expand (Brooks et al. 2004); fire suppression can indirectly limit this expansion.

Controlled burning may be prescribed to treat fuel buildup, remove invasive annuals, and can assist in the recovery of sagebrush habitat in some vegetation types, such as in juniper woodlands and conifer-encroached mountain sagebrush communities (NTT 2011, pp. 25-26; Manier et al. 2013, p. 71). Prescribed fire may be an important management option in these areas, increasing spatial heterogeneity and reducing tree cover and fuel continuity (Manier et al. 2013, p. 71).

Lands and Realty

Permitted activities, such as construction of utility ROWs or SUAs, involve vegetation removal. This reduces the condition of native vegetation communities and individual native plant species, alters age class distribution, increases fragmentation, and encourages the spread of invasive species. Construction could compact soils, which would inhibit natural



revegetation by hindering root growth in areas without reclamation. It also would reduce plant vigor, making plants more susceptible to disease, drought, and insect attack. In most cases soils in reclaimed areas would be ripped and seeded during interim or final reclamation (NTT 2011, pp. 12-13).

Different types of ROWs or SUAs would impact vegetation in different ways. Aboveground linear and underground ROWs or SUAs, such as transmission lines or pipelines, would temporarily remove vegetation during construction, but areas would be reclaimed or restored after construction. Vegetation would be permanently removed for construction of surface linear ROWs or SUAs, such as roads. Furthermore, since aboveground and surface linear ROWs or SUAs may extend for many miles, vegetation communities could be fragmented and encourage the spread of invasive species. Aboveground ROWs or SUAs and wind energy projects would remove vegetation during the life of the project, often lasting several decades, but areas would be restored after the ROW or SUA is decommissioned.

ROW or SUA exclusion areas would prohibit all development of ROWs or SUAs. Prohibiting ROWs or SUAs in exclusion areas would directly protect vegetation from disturbance and removal. In ROW or SUA avoidance areas, the BLM and Forest Service would consider on a case-by-case basis whether a ROW or SUA should be allowed. This flexibility may be advantageous where federal and private landownership areas are mixed and exclusion areas may result in more widespread development on private lands.

Acquisitions, disposals, or land exchanges to reduce the fragmentation of GRS habitat could improve the BLM and Forest Service's ability to implement management to increase vegetation diversity, ecological health, and land health standards. In addition, retention of federal lands would prevent sagebrush removal associated with land conversion to agricultural or urban uses.

Mineral Resources

While not a large threat in the Idaho and Southwestern Montana Sub-region, mineral development requires construction of roads, well pads, wells and other infrastructure which result in the removal of vegetation (Manier et al. 2013, pp. 90-104). Surface disturbance associated with mineral development often removes vegetation, reduces the condition of native vegetation communities, increases fragmentation, and encourages the spread of invasive species, particularly if pre-disturbance vegetation is composed of deep-rooted perennial bunchgrasses and/or biological soil crusts (NTT 2011, pp. 19-20; Reisner et al. 2013, p. 1047; Deines et al. 2007, p. 31). Vegetation is typically removed for a period during the course of mining. When mining is completed, the areas are reclaimed using seed mixes chosen by the BLM or Forest Service. The remaining vegetation could have reduced vigor or productivity due to mechanical damage, soil compaction, and dust. Impacts would not occur in areas closed to mineral leasing or development.

Recreation

Recreation in GRS habitat can be benign, but casual use at excessive levels may degrade sagebrush vegetation from such activities as camping, hiking, bird watching, bicycling, OHV riding, hunting, and rock climbing site access. Potential impacts from casual recreation

include trampling, soil compaction, erosion, invasive plant spread, and fugitive dust generation (Knick et al. 2011). Recreation can also increase the potential for wildfire caused by invasive plant spread or human error (Knick et al. 2011). Most impacts occur in easily accessible areas and in areas open to cross-country travel, particularly OHV use. Restrictions on recreation in GRSG habitat would limit damage to the vegetation communities that comprise this habitat by directly reducing vegetation disturbance from trampling, OHVs, dust, and spread of invasive species. Such restrictions could involve seasonal area closures or limitations on the number of users or types of uses permitted, particularly OHV use (NTT 2011, p. 12).

There would likely be negligible impacts on vegetation from management associated with recreation under all alternatives.

Travel and Transportation

Road and trail construction divides and fragments vegetation and causes erosion and nutrient leaching. The use of roads creates soil compaction and allows the spread of human disturbance, including wildfire and invasive plant species (USFWS 2010a, pp. 19-21; Manier et al. 2013, pp. 71-90). Invasive species can outcompete sagebrush and other vegetation essential for GRSG survival. Invasives also increase wildfire frequency, further contributing to loss of habitat (Balch et al. 2012).

The more areas that are seasonally or permanently closed to OHV use, the fewer impacts on vegetation from surface disturbance. In areas open to OHV use, vehicle and human trampling of vegetation, soil compaction, and spread of dust and weeds would be expected. Impacts would be reduced, but not eliminated, in areas limited to existing routes.

Livestock Grazing

Livestock grazing is the most widespread land use across the sagebrush landscape (Connelly et al. 2004, pp. 7-29). Livestock grazing can affect soils, vegetation health, species composition, and water and nutrient availability by consuming vegetation, redistributing nutrients and seeds, trampling soils and vegetation, and disrupting microbial systems (Connelly et al. 2004 Ch. 7; NTT 2011, p. 14).

Livestock grazing has been described as a diffuse form of disturbance that exerts repeated pressure over many years on a system; unlike point sources of disturbance (e.g., fires). Thus, effects of grazing are not likely to be detected as disruptions but as differences in the processes and functioning of the sagebrush, riparian, and wetland systems.

Grazing effects are not distributed evenly because historic practices, management plans and agreements, and animal behavior all lead to differential use of the range (Manier et al. 2013, pp. 157-168). Livestock often use riparian and wetland areas for water and shade, which could reduce riparian community condition and hydrologic function.

Water developments, roads, and structural range improvements associated with livestock grazing would remove vegetation over the long term and could introduce weeds to rangelands. Livestock would congregate around water developments, compacting soil and



trampling nearby vegetation, and making reestablishment of native vegetation difficult in the surrounding area. However, water developments would divert livestock use away from riparian and wetland areas and thus reduce such impacts in these areas.

At unsustainable levels, grazing can lead to loss of vegetation cover, reduced water infiltration rates and nutrient recycling, decreased plant litter and water quality, and increased bare ground and soil erosion (Manier et al. 2013, pp. 157-159). Depending on the level of utilization and time frame, livestock grazing can reduce resistance to invasive annual grasses by decreasing bunchgrass abundance, shifting bunchgrass composition, and reducing biological soil crusts (Reisner et al. 2013, p. 1044). Land health evaluations are used to assess rangeland condition and help to identify where changing grazing management would be beneficial. Grazing may also affect the extent and behavior of fires in sagebrush-dominated ecosystems, both on annual and decadal scales. Over annual time frames, grazing can reduce the amount of herbaceous fine fuels, including cheatgrass, forbs, and small twigs of woody plants. Grazing can reduce fire spread and intensity by removing understory vegetation, reducing the amount of fuel, and accelerating the decay of litter through trampling. Over decadal time frames, livestock grazing can change the relative proportions of shrubs, perennial grasses, and annual grasses, altering the fuel composition (Strand et al. 2014, p. 50).

Management of grazing systems that aim to protect sagebrush and riparian ecosystems would enhance vegetation by allowing more plant growth, increase plant vigor, reduce trampling and introduction of exotic and undesirable species. Conversely, livestock grazing concentrated in certain areas would increase surface-disturbing impacts in those areas.

The Forest Service will incorporate grazing guidelines (**Table 2-6**) into term grazing permits that will likely improve vegetation structures in GRSG seasonal habitat on grazing allotments.

Special Designations

Special designations (e.g., ACECs, Wilderness, and WSAs) and other conservation measures may be established to protect vegetation in GRSG habitat as a relevant or important value. While existing ACECs, Wilderness, WSAs and other special designations do not have GRSG habitat as a relevant or important value, some incidental protection may be conferred to vegetation in existing ACECs by restricting resource uses intended to protect other values.

4.3.3 Impacts on Vegetation Common to All Alternatives

The nature and type of impacts described below are common to all alternatives, but the context and intensity may vary by alternative.

Under all alternatives, the Integrated Vegetation Management Handbook policies would be followed and would provide guidance on which treatments and chemicals can be used. Applying these policies would improve vegetation management in sagebrush habitat, thereby likely improving vegetation conditions in these areas.

In general, impacts from recreation are similar among all alternatives, as dispersed casual recreation would continue throughout the planning area.

There would be no impacts common to all alternatives from lands and realty management, habitat restoration and vegetation management, wildland fire management, mineral resource management, livestock grazing management, or ACEC management.

4.3.4 Alternative A

While GRSG may be protected under existing provisions of some LUPs, in general, Alternative A relies on management guidance that does not reflect the most up-to-date science regarding GRSG. Some of the older land use plans lack a landscape-level approach to land planning.

There is no consistently applied vegetation management across all land use plans, though Idaho and Montana Standards for Rangeland Health incorporate objectives for maintaining, improving, or restoring vegetation communities, particularly sagebrush and riparian and wetland habitats. As a result, there is general direction to preserve and improve vegetation communities; however, discrete human disturbances, such as road construction and mineral and ROW development, would continue. This could result in a number of impacts on vegetation, as described under **Section 4.3.2**.

Impacts from Lands and Realty Management

Under Alternative A, lands and realty management would continue, with some areas identified as ROW avoidance and ROW exclusion (**Table 4-60** and **Table 4-61**). Impacts on areas chosen for ROWs are similar to those described under **Section 4.3.2** and would include loss and degradation of upland vegetation communities, and the potential for increased spread of noxious weeds.

Impacts from Habitat Restoration and Vegetation Management

Under Alternative A, the BLM and Forest Service would continue to incorporate habitat restoration and vegetation objectives in management actions as described in the existing LUPs. This may improve vegetation conditions and increase the amount of native vegetation in areas, depending on the application of existing LUPs across the sub-region. In particular, the BLM and Forest Service would manage for the benefit of vegetation that provides wildlife forage, forbs, and sagebrush. Native species would be used when possible, but not required, allowing for some introduced species in areas where they are necessary for site stabilization. This approach would provide for habitat restoration, reduce noxious weeds, and improve the condition of vegetation communities to the extent possible under existing resource allocations.

Impacts from Wildland Fire Management

Under Alternative A, projects would be designed to minimize the size of wildfires and to prevent the further loss of sagebrush. In addition, prescribed burning may be used in support of resource management objectives, such as restoring grassland or shrubland, reducing conifer encroachment, or increasing age-class variety. As a result, vegetation condition and desired species composition would be improved in certain areas. Further, chemical weed treatments applied following prescribed burns would limit the expansion of weeds or invasive species in the burned area and would facilitate revegetation of native species. Impacts from fire on vegetation, described under **Section 4.3.2**, would continue under Alternative A.



Table 4-60
Acres of Sagebrush Vegetation within ROW Avoidance Areas in the Idaho and Southwest Montana Sub-Region

Vegetation Type	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ ¹	IHZ	CHZ ¹	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
Low Sagebrush	72,300	52,000	0	0	52,000	47,900	621,000	13,100	238,600	420,900	52,000	0	0	10,900	184,300	489,600
BLM	64,300	45,400	0	0	45,400	44,100	609,300	8,820	232,200	412,600	45,400	0	0	7,210	179,600	479,700
Forest Service	8,020	6,600	0	0	6,600	3,700	11,700	4,290	6,350	8,310	6,630	0	0	3,660	4,670	9,880
Mixed Sagebrush	487,400	546,300	0	0	546,300	324,000	1,931,700	183,700	743,300	1,115,600	546,300	0	0	113,200	747,200	1,450,200
BLM	210,400	282,600	0	0	282,600	174,600	1,662,700	28,400	607,400	867,500	282,600	0	0	11,200	620,800	1,181,000
Forest Service	277,000	263,800	0	0	263,800	149,400	269,000	155,300	135,900	248,000	263,800	0	0	102,100	126,300	269,200
Tall Sagebrush	605,700	633,200	0	0	633,200	402,200	2,304,500	215,800	874,000	1,644,100	633,200	0	0	201,200	839,400	1,794,700
BLM	327,000	500,300	0	0	500,300	367,700	2,151,600	93,100	784,000	1,559,400	500,300	0	0	73,200	736,700	1,711,200
Forest Service	278,700	133,000	0	0	133,000	34,500	152,900	122,700	89,900	84,700	133,000	0	0	128,000	102,700	83,500
Total	1,165,300	1,231,600	0	0	1,231,600	774,100	4,857,100	412,600	1,855,800	3,180,500	1,231,600	0	0	325,300	1,770,800	3,734,500
BLM	601,600	828,200	0	0	828,300	586,500	4,423,500	130,300	1,623,600	2,839,500	828,200	0	0	91,500	1,537,200	3,371,900
Forest Service	563,700	403,400	0	0	403,400	187,700	433,600	282,300	232,200	341,000	403,400	0	0	233,700	233,700	362,600

Source: BLM GIS 2015

¹Acres in PHMA in Utah and Montana are included with CHZ acres for Idaho. Acres in GHMA in Montana are included in GHZ for Idaho.

Table 4-61
Acres of Sagebrush Vegetation within ROW Exclusion Areas in the Idaho and Southwest Montana Sub-Region

Vegetation Type	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
Low Sagebrush	72,300	9,320	763,300	824,700	9,320	15,800	78,700	25,900	23,300	54,600	9,320	763,300	0	25,000	3,320	75,200
BLM	64,300	9,260	747,800	802,500	9,260	15,800	78,700	25,800	23,300	54,600	9,260	747,800	0	25,000	3,300	75,200
Forest Service	8,020	60	15,500	22,200	60	20	40	60	30	30	60	15,500	0	50	30	30
Mixed Sagebrush	487,400	39,000	2,310,400	2,895,800	39,000	710	54,000	39,600	16,300	37,600	39,000	2,310,400	0	32,200	17,900	37,000
BLM	210,400	900	1,856,300	2,139,800	890	490	18,500	1,350	15,800	2,730	900	1,856,300	0	1,040	17,200	290
Forest Service	277,000	38,100	454,100	756,000	38,100	210	35,500	38,300	530	34,900	38,100	454,100	0	31,100	720	36,700
Tall Sagebrush	605,700	93,000	3,107,400	3,833,600	93,000	98,600	302,100	104,100	112,700	277,000	93,000	3,107,400	0	97,300	89,100	302,800
BLM	327,000	93,000	2,920,000	3,513,200	93,000	98,600	302,100	104,100	112,700	277,000	93,000	2,920,000	0	97,300	89,100	302,800
Forest Service	278,700	0	187,400	320,400	0	0	0	0	0	0	0	187,400	0	0	0	0
Total	1,165,300	141,300	6,181,100	7,554,100	141,300	115,100	434,900	169,600	152,300	369,200	141,300	6,181,100	0	154,500	110,300	415,000
BLM	601,600	103,100	5,524,100	6,455,500	103,100	114,800	399,300	131,200	151,800	334,200	103,100	5,524,100	0	123,300	109,500	378,200
Forest Service	563,700	38,200	657,100	1,098,600	38,200	230	35,600	38,300	550	34,900	38,200	657,100	0	31,200	750	36,700

Source: BLM GIS 2015

Impacts from Nonenergy Leasable Minerals Management

Acres of sagebrush closed to nonenergy leasable mineral leasing in the Idaho and southwest Montana sub-region are shown in **Table 4-62**. Impacts from nonenergy leasable development on vegetation, including loss and degradation of upland vegetation and increased potential for invasive plant spread, as described under **Section 4.3.2**, would continue to occur in areas open to leasing and development.

Impacts from Locatable Minerals Management

Impacts from locatable mineral development on vegetation, as described under **Section 4.3.2**, would continue to occur in areas open to development.

Impacts from Salable Minerals Management

Acres of sagebrush closed to salable mineral material disposal in the Idaho and southwest Montana sub-region are shown in **Table 4-63**. Acres are not available for National Forest System lands. Impacts from salable mineral development on vegetation, as described under **Section 4.3.2**, would continue to occur in areas open to development.

Impacts from Fluid Minerals Management

Acres of sagebrush vegetation closed to fluid mineral materials disposal in the Idaho and southwestern Montana sub-region are shown in **Table 4-64**. Seasonal timing restrictions and lek buffers may be applied in certain areas, as described in the existing LUPs, to reduce impacts from mineral leasing or development, but these stipulations would not be applied consistently across the planning area. Impacts from fluid mineral development on vegetation, as described under **Section 4.3.2**, may occur in areas open to leasing and development.

Impacts from Travel and Transportation Management

Impacts from OHV use would continue under Alternative A in areas that would be open to cross-country use and would be reduced in areas limited to existing roads (**Table 4-65**). Route and trail modifications would be considered on a case-by-case basis. Impacts on vegetation from travel would continue, including damage to upland vegetation, fragmentation, and potential for spread of invasive plants, as described under **Section 4.3.2**.

Impacts from Livestock Grazing Management

Livestock grazing would continue to occur under Alternative A, with no change in acres open or closed to grazing (**Table 4-66**). Rangelands would continue to be managed to conform to the Idaho Standards for Rangeland Health or similar guidelines; thus, vegetation communities would continue to be maintained and improved to some extent across the planning area. Changes and adjustments would be considered on a case-by-case basis and would incorporate grazing standards and guides to evaluate the ability to meet desired conditions. Under current LUPs, riparian and wetland areas would be managed to maintain or attain PFC or forest plan standards and guidelines, and rangelands would be managed to attain Rangeland Health Standards. These standards would benefit vegetation condition and limit fragmentation.

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Table 4-62
Acres of Sagebrush Vegetation Closed to Nonenergy Leasable Mineral Leasing in the Idaho and Southwest Montana Sub-Region¹

Vegetation Type	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
Low Sagebrush	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mixed Sagebrush	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tall Sagebrush	0	0	40	160	130	20	20	0	0	0	0	40	0	0	0	0
BLM	0	0	40	160	130	20	20	0	0	0	0	40	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	40	160	130	20	20	0	0	0	0	40	0	0	0	0
BLM	0	0	40	160	130	20	20	0	0	0	0	40	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: BLM GIS 2015

¹For unleased known phosphate lease areas that are closed to leasing

Table 4-63
Acres of Sagebrush Vegetation Closed to Mineral Materials Disposal in the Idaho and Southwestern Montana Sub-region¹

Vegetation Type	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
Low Sagebrush	103,000	8,040	765,500	826,400	10,100	6,030	303,900	8,370	24,900	69,700	8,040	765,500	0	4,130	7,310	565,800
BLM	88,400	3,410	749,900	804,400	5,500	3,340	295,300	3,370	21,100	63,900	3,410	749,900	0	1,990	4,650	555,900
Forest Service	14,600	4,640	15,500	212,000	4,650	2,690	8,610	5,000	3,820	5,740	4,640	15,500	0	2,150	2,660	9,910
Mixed Sagebrush	608,600	208,800	2,304,400	2,892,000	219,600	112,300	713,300	230,100	104,200	273,500	208,800	2,304,400	0	82,800	121,800	1,485,800
BLM	88,400	7,040	1,849,400	2,137,500	17,400	9,170	490,700	5,890	21,500	61,000	7,040	1,849,400	0	2,110	29,900	1,180,100
Forest Service	520,200	201,800	455,000	754,500	202,200	103,100	222,600	224,200	82,700	212,500	201,800	455,000	0	80,700	91,900	305,700
Tall Sagebrush	444,200	128,900	3,081,200	3,803,700	160,000	95,100	1,264,400	100,100	66,900	277,200	128,900	3,081,200	0	84,600	53,900	2,094,100
BLM	353,700	65,800	2,914,600	3,512,900	92,700	84,500	1,201,700	33,700	43,800	276,300	65,800	2,914,600	0	23,200	28,200	2,010,700
Forest Service	90,500	63,000	166,600	290,800	67,300	10,600	62,7800	66,400	23,200	940	63,000	166,600	0	61,500	25,700	83,400
Total	1,155,800	345,700	6,151,100	7,522,000	389,800	213,400	2,281,600	338,600	196,000	620,400	345,700	6,151,100	0	171,600	183,100	4,145,700
BLM	530,500	76,300	5,513,900	6,454,800	115,600	97,000	1,987,600	43,000	86,400	401,200	76,300	5,513,900	0	27,300	62,800	3,746,700
Forest Service	625,300	269,400	637,100	1,067,300	274,100	116,400	294,000	295,600	109,700	219,200	269,400	637,100	0	144,300	120,300	399,000

Source: BLM GIS 2015

¹Data not available for the Forest Service. Acres in the table represent BLM-administered lands only

Table 4-64
Acres of Sagebrush Vegetation Closed to Fluid Mineral Leasing in the Idaho and Southwestern Montana Sub-region

Vegetation Type	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F		Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	GHMA	IHMA	PHMA
Low Sagebrush	103,700	8,440	765,500	826,400	8,440	50,000	597,600	8,590	27,900	67,200	8,440	765,500	4,000	3,820	80,800
BLM	87,500	3,600	749,900	804,400	3,600	46,500	587,100	3,380	24,100	60,000	3,600	749,900	1,860	3,660	78,000
Forest Service	16,200	4,840	15,500	22,000	4,840	3,450	10,500	5,220	3,800	7,230	4,840	15,500	2,150	160	2,790
Mixed Sagebrush	787,900	261,600	2,304,500	2,892,100	261,600	294,000	1,798,400	284,900	108,800	393,400	261,600	2,304,500	104,800	45,500	193,200
BLM	203,900	30,900	1,849,500	2,137,500	30,900	144,000	1,502,000	29,700	8,520	165,700	30,900	1,849,500	13,800	23,700	140,900
Forest Service	584,000	230,700	455,100	754,600	230,700	150,000	296,400	255,200	100,300	227,700	230,700	455,100	91,000	21,800	52,300
Tall Sagebrush	778,900	148,500	3,081,100	3,803,600	154,400	187,600	1,829,800	187,700	164,100	427,000	148,500	3,081,100	142,300	70,900	383,700
BLM	692,400	90,800	2,914,600	3,512,900	90,800	175,300	1,807,800	126,300	140,000	426,100	90,800	2,914,600	85,000	70,800	383,700
Forest Service	86,500	57,700	166,500	290,700	63,500	12,200	22,100	61,500	24,100	940	57,700	166,500	57,400	0	0
Total	1,670,500	418,500	6,151,100	7,522,000	424,300	531,500	4,225,800	481,200	300,800	887,600	418,500	6,151,100	251,100	120,200	657,700
BLM	983,700	125,300	5,513,900	6,454,800	125,300	365,900	3,896,800	159,300	172,600	651,800	125,300	5,513,900	100,600	98,200	602,600
Forest Service	686,800	293,200	637,100	1,067,300	299,100	165,700	329,000	321,900	128,200	235,800	293,200	637,100	150,500	22,000	55,100

Source: BLM GIS 2015

Table 4-65
Acres of Sagebrush Vegetation Limited to Existing Roads in the Idaho and Southwest Montana Sub-Region

Vegetation Type	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
Low Sagebrush	494,100	46,900	689,600	747,600	57,900	63,100	626,600	52,200	162,500	423,100	57,900	689,600	0	64,200	186,100	491,400
BLM	471,900	40,200	674,100	725,300	51,200	59,300	614,800	44,700	156,100	414,800	51,200	674,100	0	60,500	181,400	481,400
Forest Service	22,200	6,680	15,500	22,200	6,680	3,760	11,800	7,500	6,380	8,340	6,680	15,500	0	3,710	4,700	9,910
Mixed Sagebrush	2,460,500	559,200	2,312,600	2,896,600	584,000	326,500	1,986,200	584,700	638,600	1,514,400	584,000	2,312,600	0	408,200	759,400	1,489,100
BLM	1,703,200	257,300	1,857,300	2,139,400	282,100	175,600	1,681,700	249,600	500,900	1,231,000	282,100	1,857,300	0	275,000	631,100	1,183,200
Forest Service	757,300	301,900	455,400	757,300	301,900	150,900	304,500	335,100	137,700	283,400	301,900	455,400	0	133,200	128,400	305,900
Tall Sagebrush	2,146,700	413,500	2,759,000	3,440,100	681,100	482,900	2,276,100	494,000	550,600	1,590,500	681,100	2,759,000	20	691,000	897,200	1,744,100
BLM	1,826,500	280,600	2,571,800	3,119,900	548,100	448,500	2,123,200	348,300	460,800	1,505,800	548,100	2,571,800	20	563,000	794,700	1,660,600
Forest Service	320,200	132,900	187,200	320,200	132,900	34,400	152,900	145,700	89,800	84,700	132,900	187,200	0	128,000	102,500	83,500
Total	5,101,300	1,019,600	5,761,300	7,084,300	1,323,000	872,400	4,888,900	1,130,900	1,351,600	3,528,000	1,323,000	5,761,300	20	1,163,400	1,842,700	3,724,600
BLM	4,001,600	578,100	5,103,100	5,984,600	881,500	683,500	4,419,700	642,500	1,117,800	3,151,600	881,500	5,103,100	20	898,500	1,607,100	3,325,300
Forest Service	1,099,700	441,500	658,100	1,099,700	441,500	189,000	469,200	488,300	233,800	376,400	441,500	658,100	0	264,900	235,600	399,300

Source: BLM GIS 2015

Table 4-66
Acres of Sagebrush Vegetation Closed to Livestock Grazing in the Idaho and Southwestern Montana Sub-region

Vegetation Type	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
Low Sagebrush	22,500	810	21,700	829,100	810	120	21,600	870	1,070	20,600	810	21,700	0	330	2,430	19,500
BLM	22,200	650	21,500	806,800	650	70	21,500	780	990	20,400	650	21,500	0	310	2,300	19,400
Forest Service	330	170	160	22,200	170	40	129	90	80	160	170	160	0	20	130	140
Mixed Sagebrush	53,900	25,300	28,600	2,919,500	25,300	1,330	27,300	24,400	13,700	15,700	25,300	28,600	0	13,900	17,800	12,100
BLM	17,100	540	16,500	2,162,200	540	220	16,300	80	9,580	7,410	540	16,500	0	160	12,000	4,420
Forest Service	36,800	24,700	12,000	757,300	24,700	1,110	10,900	24,300	4,120	8,320	24,700	12,000	0	13,700	5,780	7,700
Tall Sagebrush	118,400	19,000	99,400	3,865,500	19,000	1,160	98,200	9,210	2,010	107,200	19,000	99,400	0	3,170	2,200	112,600
BLM	114,700	17,000	97,700	3,545,100	17,000	680	97,000	7,020	530	107,200	17,000	97,700	0	1,230	500	112,600
Forest Service	3,670	1,980	1,690	320,400	1,980	480	1,220	2,200	1,470	0	1,980	1,690	0	1,940	1,700	0
Total	194,700	45,100	149,600	7,614,100	45,100	2,610	147,000	34,400	16,800	143,500	45,100	149,600	0	17,400	22,400	144,300
BLM	154,000	18,200	135,700	6,514,200	18,200	970	134,800	7,900	11,100	135,000	18,200	135,700	0	1,700	14,800	136,400
Forest Service	40,800	26,900	13,900	1,099,900	26,900	1,630	12,300	26,600	5,670	8,480	26,900	13,900	0	15,700	7,610	7,840

Source: BLM GIS 2015

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Impacts from Special Designations Management

Under Alternative A, the BLM would continue to manage 59 ACECs within the sub-region (Table 4-67, Acres of Sagebrush Vegetation within BLM ACECs and Forest Service Zoological Areas in the Idaho and Southwestern Montana Sub-region1). The Forest Service would not manage any Zoological Areas under Alternative A. Existing ACECs likely protect vegetation through use restrictions; these impacts are analyzed under each existing RMP within the planning area. As a result, there would be no additional effects from ACEC or Zoological Area management on vegetation under this alternative.

4.3.5 Alternative B

Under Alternative B, the BLM and Forest Service would manage lands to conserve, enhance, and restore sagebrush ecosystems. Direct protection of sagebrush habitat to support GRSG would limit or modify uses in this habitat type, improving the acreage and condition of desired vegetation communities. Restrictions on resource uses such as ROW and mineral development would reduce damage to native vegetation communities and individual native plant species in areas that are important for regional vegetation diversity and quality. Likewise, use restrictions would minimize loss of connectivity and would be more likely to retain existing age class distribution within these areas. Use restrictions could also minimize the spread of invasive species by limiting human activities that disturb soil or introduce seeds.

PHMA and GHMA would be designated. Acres of each vegetation community within GRSG management areas are presented in Table 4-68 through Table 74 and are split out by GRSG analysis area. These tables demonstrate the differences in the size of GRSG management areas by alternative and the relative differences in the acreage of each vegetation community within these areas. The BLM and Forest Service would apply a maximum 3 percent disturbance cap to human activities in PHMA. The 3 percent disturbance cap was recommended in the NTT report and is designed to minimize impacts on GRSG habitat by limiting disturbances in sensitive habitat areas. The agencies would implement numerous conservation measures, as described under the resource headings below, to reduce impacts from human activities in PHMA. Restricting surface-disturbing activities would reduce the likelihood for vegetation removal, degradation, or fragmentation and would maintain the acreage and condition of sagebrush vegetation.

Impacts from Lands and Realty Management

Identifying GHMA as ROW avoidance and PHMA as ROW exclusion areas would reduce impacts on vegetation, as described under Section 4.3.2. In addition, the BLM and Forest Service would restore ROWs that are no longer in use. This would increase the extent and connectivity of sagebrush habitats and reduce the spread of weeds to these areas over the long term. Lands would be retained in federal ownership, with limited exceptions, which would reduce fragmentation, as described under Section 4.3.2.

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Table 4-67
Acres of Sagebrush Vegetation within BLM ACECs and Forest Service Zoological Areas in the Idaho and Southwestern Montana Sub-region¹

	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F1 ¹		Alternative F2 ¹		Proposed Plan		
		GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	GHMA	PHMA	GHMA	IHMA	PHMA
Low Sagebrush	36,300	1,500	34,800	415,200	1,470	760	34,100	770	1,270	34,200	2,550	767,200	2,550	197,000	1,010	4,220	30,900
BLM	36,300	1,500	34,800	415,100	1,470	760	34,100	770	1,270	34,200	2,550	751,700	2,550	192,600	1,010	4,220	30,900
Forest Service	0	0	0	180	0	0	0	0	0	0	0	15,500	0	4,400	0	0	0
Mixed Sagebrush	92,700	10,300	82,300	345,200	10,300	7,500	74,800	5,640	27,500	59,500	12,700	2,326,400	12,700	262,800	13,500	33,100	40,100
BLM	92,700	10,300	82,300	310,600	10,300	7,500	74,800	5,640	27,500	59,500	12,700	1,871,100	12,700	229,000	13,500	33,100	40,100
Forest Service	0	0	0	34,600	0	0	0	0	0	0	0	455,400	0	33,800	0	0	0
Tall Sagebrush	196,500	47,900	148,600	1,507,200	47,900	11,300	137,300	18,100	20,300	158,000	56,100	3,126,300	56,100	1,114,400	13,500	18,600	161,200
BLM	196,500	47,900	148,600	1,506,700	47,900	11,300	137,300	18,100	20,300	158,000	56,100	2,938,900	56,100	1,019,700	13,500	18,600	161,200
Forest Service	0	0	0	510	0	0	0	0	0	0	0	187,400	0	94,700	0	0	0
Total	325,430	59,700	265,700	2,267,600	59,700	19,600	246,200	24,500	49,100	251,800	71,300	6,220,000	71,300	1,574,300	28,000	55,900	232,200
BLM	325,430	59,700	265,700	2,232,400	59,700	19,600	246,200	24,500	49,100	251,800	71,300	5,561,700	71,300	1,441,300	28,000	55,900	232,200
Forest Service	0	0	0	35,200	0	0	0	0	0	0	0	658,300	0	132,900	0	0	0

Source: BLM GIS 2015

¹There are no acres of ACECs or Zoological Areas in RHMA under Alternatives F1 and F2.

Table 4-68
Acres of Annual Grassland within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ ¹	IHZ	CHZ ¹	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
East-Central Idaho	80	30	110	80	30	0	110	0	0	80	30	0	110	0	0
BLM	80	30	110	80	30	0	110	0	0	80	30	0	110	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mountain Valleys	0	0	0	0	0	0	0	0	0						
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southwest Montana	0	0	0	0	0	0	0	0	0						
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Side Snake	7,150	6,860	14,000	7,150	1,150	5,710	8,560	2,960	4,200	7,150	6,860	20,200	13,400	8,750	8,930
BLM	7,070	6,860	13,900	7,070	1,150	5,710	8,480	2,960	4,200	7,070	6,860	20,200	13,300	8,750	8,930
Forest Service	80	0	80	80	0	0	80	0	0	80	0	0	80	0	0
South Side Snake	4,830	24,600	29,400	4,830	15,700	8,920	6,850	15,200	11,900	4,830	24,600	32,200	18,200	36,700	10,900
BLM	4,720	24,300	29,000	4,720	15,600	8,700	6,640	14,900	11,900	4,720	24,300	32,200	18,200	36,300	10,900
Forest Service	110	310	420	110	100	220	210	210	0	110	310	0	0	420	0
Southwest Idaho	6,540	19,200	25,700	6,540	3,070	16,150	7,410	12,900	7,250	6,540	19,200	1,850	2,040	15,200	9,960
BLM	6,540	19,200	25,700	6,540	3,070	16,150	7,410	12,900	7,250	6,540	19,200	1,850	2,040	15,200	9,960
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear Lake	0	0	0	0	0	0	0	0	0						
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weiser	2,720	1,050	3,770	2,720	110	940	3,770	0	0	2,720	1,050	3,250	5,240	0	0
BLM	2,720	1,050	3,770	2,720	110	940	3,770	0	0	2,720	1,050	3,250	5,240	0	0

Table 4-68
Acres of Annual Grassland within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ ¹	IHZ	CHZ ¹	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sawtooth	0	0	0	0	0	0	0	0	0						
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	21,300	51,700	73,000	21,300	20,000	31,700	26,700	31,000	23,300	21,300	51,700	57,500	39,000	60,700	29,700
BLM	21,100	51,400	72,500	21,100	19,900	31,500	26,400	30,800	23,300	21,100	51,400	57,500	38,900	60,300	29,700
Forest Service	190	310	500	190	100	220	290	210	0	190	310	0	80	420	0

Source: BLM GIS 2015

¹Acres in PHMA in Utah and Montana are included with CHZ acres for Idaho. Acres in GHMA in Montana are included in GHZ for Idaho.

Table 4-69
Acres of Conifer Encroachment within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F ¹		Proposed Plan		
	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	GHMA	IHMA	PHMA
East-Central Idaho	270	10	280	270	0	0	280	0	0	270	10	280	0	0
BLM	170	10	180	170	0	0	180	0	0	170	10	180	0	0
Forest Service	100	0	100	100	0	0	100	0	0	100	0	100	0	0
Mountain Valleys	2,380	3,390	5,770	2,378	630	2,760	1,900	1,780	2,050	2,380	3,390	300	1,780	1,710
BLM	840	2,380	3,220	840	220	2,170	490	1,180	1,530	840	2,380	220	1,490	1,160
Forest Service	1,540	1,010	2,550	1,540	410	600	1,410	600	510	1,540	1,010	80	290	540
Southwest Montana	890	440	1,330	890	0	440	890	0	430	890	440	890	0	440
BLM	370	230	600	370	0	230	370	0	230	370	230	370	0	230
Forest Service	520	200	720	520	0	200	520	0	200	520	200	520	0	200
North Side Snake	1,260	2,120	3,380	1,260	340	1,780	1,280	1,290	800	1,260	2,120	1,230	1,110	1,010
BLM	510	1,870	2,370	510	180	1,690	540	1,030	800	510	1,870	480	870	1,010
Forest Service	750	260	1,010	750	160	100	740	260	0	750	260	750	240	0
South Side Snake	28,100	105,400	133,500	28,100	22,500	82,900	41,400	85,400	6,710	28,100	105,400	23,000	101,900	8,340
BLM	16,200	65,700	81,900	16,200	21,100	44,600	35,900	45,300	630	16,200	65,700	18,200	61,100	2,260
Forest Service	11,900	39,700	51,600	11,900	1,400	38,300	5,500	40,100	6,070	11,900	39,700	4,770	40,800	6,080
Southwest Idaho	99,100	108,400	207,400	99,100	5,850	102,500	88,600	68,500	50,400	99,100	108,400	57,100	69,100	81,200
BLM	99,100	108,400	207,400	99,100	5,850	102,500	88,600	68,500	50,400	99,100	108,400	57,100	69,100	81,200
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear Lake	0	10	10	0	0	10	0	10	0	0	10	0	10	0
BLM	0	10	10	0	0	10	0	10	0	0	10	0	10	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weiser	740	110	850	740	110	0	850	0	0	740	110	840	0	0
BLM	740	110	850	740	110	0	850	0	0	740	110	840	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sawtooth	320	0	320	320	0	0	320	0	0	320	0	320	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	320	0	320	320	0	0	320	0	0	320	0	320	0	0

Table 4-69
Acres of Conifer Encroachment within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F ¹		Proposed Plan		
	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	GHMA	IHMA	PHMA
Total	133,000	219,900	352,800	133,000	29,400	190,400	135,500	157,000	60,300	133,000	219,900	84,000	173,900	92,700
BLM	117,800	178,700	296,500	117,800	27,400	151,200	126,900	116,000	53,600	117,800	178,700	77,500	132,600	85,900
Forest Service	15,100	41,200	56,300	15,100	1,980	39,200	8,600	40,900	6,790	15,100	41,200	6,520	41,300	6,830

Source: BLM GIS 2015

¹There are no acres of conifer encroachment in RHMA under Alternative F.

Table 4-70
Acres of Crested Wheatgrass within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F ¹		Proposed Plan		
	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	GHMA	IHMA	PHMA
East-Central Idaho	190	10	200	190	0	0	200	0	0	190	10	130	0	0
BLM	30	10	40	30	0	0	40	0	0	30	10	30	0	0
Forest Service	160	0	160	160	0	0	160	0	0	160	0	100	0	0
Mountain Valleys	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southwest Montana	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Side Snake	42,800	36,900	79,700	42,800	9,310	27,600	69,200	1,330	9,210	42,800	36,900	43,700	21,900	8,490
BLM	40,800	36,900	77,600	40,800	9,240	27,600	67,150	1,250	9,210	40,800	36,900	41,700	21,900	8,490
Forest Service	2,000	90	2,090	2,000	70	10	2,010	80	0	2,000	90	2,010	80	0
South Side Snake	16,000	27,900	43,800	16,000	18,900	9,010	18,400	22,100	3,330	16,000	27,900	9,080	23,300	2,620
BLM	15,500	25,400	40,900	15,500	17,600	7,810	16,800	20,800	3,310	15,500	25,400	9,050	20,500	2,600
Forest Service	410	2,500	2,910	410	1,300	1,200	1,610	1,280	20	410	2,500	30	2,870	20
Southwest Idaho	2,540	950	3,490	2,540	80	870	2,340	580	570	2,540	950	1,710	190	1,450
BLM	2,540	950	3,490	2,540	80	870	2,340	580	570	2,540	950	1,710	190	1,450
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear Lake	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weiser	4,480	2,020	6,500	4,480	1,790	230	6,500	0	0	4,480	2,020	6,500	0	0
BLM	4,480	2,020	6,500	4,480	1,790	230	6,500	0	0	4,480	2,020	6,500	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sawtooth	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	65,900	67,800	133,700	65,900	30,000	37,700	96,600	24,000	13,100	65,900	67,800	61,100	45,500	12,600

Table 4-70
Acres of Crested Wheatgrass within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F ¹		Proposed Plan		
	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	GHMA	IHMA	PHMA
BLM	63,300	65,200	128,500	63,300	28,700	36,500	92,800	22,600	13,100	63,300	65,200	58,900	42,500	12,500
Forest Service	2,580	2,590	5,160	2,580	1,370	1,220	3,780	1,370	20	2,580	2,590	2,150	2,940	20

Source: BLM GIS 2015

¹ There are no acres of crested wheatgrass in RHMA under Alternative F.

Table 4-71
Acres of Low Sagebrush within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F ¹		Proposed Plan		
	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	GHMA	IHMA	PHMA
East-Central Idaho	30	10	40	30	0	0	40	0	0	30	10	40	0	0
BLM	30	10	40	30	0	0	40	0	0	30	10	40	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mountain Valleys	7,910	280,200	288,100	7,910	30,400	249,800	9,780	103,900	174,400	7,910	280,200	4,760	106,100	171,200
BLM	4,730	266,700	271,400	4,730	27,100	239,600	6,050	99,100	166,300	4,730	266,700	4,670	103,200	161,500
Forest Service	3,180	13,500	16,700	3,180	3,340	10,200	3,730	4,810	8,150	3,180	13,500	90	2,940	9,760
Southwest Montana	1,730	4,230	5,970	1,730	0	4,230	1,730	0	4,230	1,730	4,230	1,730	0	4,230
BLM	1,570	4,130	5,710	1,570	0	4,130	1,570	0	4,130	1,570	4,130	1,570	0	4,130
Forest Service	160	100	260	160	0	100	160	0	100	160	100	160	0	100
North Side Snake	3,760	66,000	69,700	3,760	2,570	63,400	4,510	14,800	50,400	3,760	66,000	3,700	6,670	69,700
BLM	740	65,700	66,400	740	2,370	63,300	1,480	14,600	50,400	740	65,700	680	6,410	59,400
Forest Service	3,020	270	3,290	3,020	200	70	3,030	260	0	3,020	270	3,020	260	0
South Side Snake	1,920	45,100	47,000	1,920	6,050	39,100	9,690	4,550	32,800	1,920	45,100	4,610	8,600	33,300
BLM	1,590	43,400	45,000	1,590	5,830	37,600	9,100	3,240	32,700	1,590	43,400	4,180	7,100	33,300
Forest Service	330	1,660	1,990	330	220	1,440	590	1,310	90	330	1,660	440	1,500	50
Southwest Idaho	33,600	354,200	387,900	33,600	10,850	343,400	28,200	140,200	219,400	33,600	354,200	20,900	67,500	299,300
BLM	33,600	354,200	387,900	33,600	10,850	343,400	28,200	140,200	219,400	33,600	354,200	20,900	67,500	299,300
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear Lake	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weiser	12,900	17,500	30,300	12,900	13,700	3,720	30,300	0	0	12,900	17,500	30,300	0	0
BLM	12,900	17,500	30,300	12,900	13,700	3,720	30,300	0	0	12,900	17,500	30,300	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sawtooth	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 4-71
Acres of Low Sagebrush within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F ¹		Proposed Plan		
	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	GHMA	IHMA	PHMA
Total	61,900	767,200	829,100	61,900	63,700	703,500	84,300	263,600	481,200	61,900	767,200	66,100	188,800	567,500
BLM	55,200	751,700	806,800	55,200	59,900	691,800	76,800	257,200	472,800	55,200	751,700	62,400	184,100	557,600
Forest Service	6,690	15,500	22,200	6,690	3,760	11,800	7,500	6,380	8,340	6,690	15,500	3,710	4,700	9,910

Source: BLM GIS 2015

¹There are no acres of low sagebrush in RHMA.

Table 4-72
Acres of Mixed Sagebrush within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F ¹			Proposed Plan		
	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
East-Central Idaho	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mountain Valleys	319,400	1,795,900	2,115,300	319,400	325,700	1,470,100	354,400	748,500	1,011,000	319,400	1,795,900	0	140,500	753,400	988,900
BLM	131,200	1,430,800	1,562,000	131,200	175,200	1,255,600	133,200	611,800	816,400	131,200	1,430,800	0	120,600	625,800	770,800
Forest Service	188,300	365,100	553,300	188,300	150,500	214,600	221,200	136,700	194,600	188,300	365,100	0	19,900	127,600	218,100
Southwest Montana	254,800	489,300	744,100	254,800	100	489,300	254,900	0	488,900	254,800	489,300	0	254,800	0	489,300
BLM	156,000	400,200	556,200	156,000	50	400,200	156,000	0	400,100	156,000	400,200	0	156,000	0	400,200
Forest Service	98,800	89,100	187,900	98,800	50	89,100	98,900	0	88,800	98,800	89,100	0	98,800	0	89,100
North Side Snake	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Side Snake	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southwest Idaho	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear Lake	4,420	41,200	45,700	4,420	870	40,400	6,670	14,900	24,100	4,420	41,200	0	970	15,600	28,100
BLM	4,060	40,000	44,100	4,060	560	39,500	6,130	13,900	24,100	4,060	40,000	0	970	14,800	28,100
Forest Service	360	1,200	1,570	360	310	890	550	1,020	0	360	1,200	0	0	750	0
Weiser	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 4-72
Acres of Mixed Sagebrush within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F ¹			Proposed Plan		
	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sawtooth	14,500	0	14,500	14,500	0	0	14,500	0	0	14,500	0	0	14,500	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	14,500	0	14,500	14,500	0	0	14,500	0	0	14,500	0	0	14,500	0	0
Total	593,100	2,326,400	2,919,500	593,100	326,700	1,999,700	630,500	763,400	1,523,900	593,100	2,326,400	0	410,700	769,000	1,506,400
BLM	291,200	1,871,100	2,162,200	291,200	175,800	1,695,200	295,300	625,700	1,240,600	291,200	1,871,100	0	277,500	640,600	1,199,100
Forest Service	301,900	455,400	757,300	301,900	150,900	304,500	335,100	137,700	283,400	301,900	455,400	0	133,200	128,400	307,300

Source: BLM GIS 2015

¹There are no acres of mixed sagebrush in RHMA.

Table 4-73
Acres of Tall Sagebrush within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
East-Central Idaho	28,200	8,660	36,900	28,200	5,310	3,350	36,900	0	0	28,200	8,660	0	31,300	0	0
BLM	13,500	8,660	22,200	13,500	5,310	3,350	22,200	0	0	13,500	8,660	0	21,600	0	0
Forest Service	14,700	0	14,700	14,700	0	0	14,700	0	0	14,700	0	0	9,730	0	0
Mountain Valleys	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southwest Montana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Side Snake	267,800	1,135,500	1,403,200	267,800	145,600	989,900	378,900	416,000	608,300	267,800	1,135,500	0	254,300	312,400	733,100
BLM	212,300	1,114,100	1,326,400	212,300	133,000	981,200	322,700	395,400	608,300	212,300	1,114,100	0	254,300	312,400	733,100
Forest Service	55,500	21,400	76,900	55,500	12,600	8,740	56,300	20,600	0	55,500	21,400	0	56,600	19,200	0
South Side Snake	226,700	795,000	1,021,600	226,700	275,400	519,600	298,500	358,500	364,600	226,700	795,000	20	196,000	443,800	326,500
BLM	163,900	628,900	792,800	163,900	253,500	375,400	223,700	289,100	279,900	163,900	628,900	20	134,400	360,300	243,000
Forest Service	62,800	166,100	228,800	62,800	21,900	144,100	74,800	69,300	84,700	62,800	166,100	0	61,700	83,500	83,500
Southwest Idaho	159,900	1,146,500	1,306,400	159,900	46,100	1,100,400	128,100	215,500	962,800	159,900	1,146,500	0	70,600	155,700	1,054,100
BLM	159,900	1,146,500	1,306,400	159,900	46,100	1,100,400	128,100	215,500	962,800	159,900	1,146,500	0	70,600	155,700	1,054,100
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear Lake	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weiser	56,600	40,700	97,400	56,600	29,800	11,000	97,400	0	0	56,600	40,700	0	97,300	0	0
BLM	56,600	40,700	97,400	56,600	29,800	11,000	97,400	0	0	56,600	40,700	0	97,300	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 4-73
Acres of Tall Sagebrush within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
Sawtooth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	739,100	3,126,400	3,865,500	739,100	502,200	2,624,200	939,800	990,000	1,935,800	739,100	3,126,400	20	706,200	931,000	2,113,600
BLM	606,200	2,939,000	3,545,100	606,200	467,700	2,471,300	794,100	900,000	1,851,100	606,200	2,939,000	20	578,200	828,300	2,030,100
Forest Service	133,000	187,400	320,400	133,000	34,500	152,900	145,700	89,900	84,700	133,000	187,400	0	128,000	102,700	83,500

Source: BLM GIS 2015

Table 4-74
Acres of Perennial Grassland within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
East-Central Idaho	490	10	500	490	10	0	500	0	0	490	10	0	450	0	0
BLM	430	10	450	430	10	0	450	0	0	430	10	0	440	0	0
Forest Service	50	0	50	50	0	0	50	0	0	50		0	0	0	0
Mountain Valleys	2,390	29,600	32,000	2,390	1,010	28,600	3,260	9,130	19,600	2,390	29,600	0	1,260	8,800	20,300
BLM	1,390	27,300	28,700	1,390	620	26,600	2,260	7,110	19,300	1,390	27,300	0	1,200	7,180	20,000
Forest Service	1,000	2,350	3,350	1,000	390	1,960	1,010	2,010	320	1,000	2,350	0	60	1,620	300
Southwest Montana	3,470	590	4,060	3,470	0	590	3,470	0	590	3,470	590	0	3,470	0	590
BLM	1,750	530	2,280	1,750	0	530	1,750	0	530	1,750	530	0	1,750	0	530
Forest Service	1,720	60	1,780	1,720	0	60	1,720	0	60	1,720	60	0	1,720	0	60
North Side Snake	158,900	346,000	504,900	158,900	58,200	287,700	376,800	22,900	105,100	158,900	346,000	0	171,500	197,400	110,300
BLM	156,900	344,100	500,900	156,900	56,800	287,200	374,800	21,000	105,100	156,900	344,100	0	169,500	195,500	110,300
Forest Service	1,980	1,930	3,910	1,980	1,400	530	2,020	1,890	0	1,980	1,930	0	1,990	1,920	0
South Side Snake	191,400	418,000	609,300	191,400	162,200	255,800	218,400	165,400	225,500	191,400	418,000	10	91,500	194,500	189,700
BLM	178,700	400,200	578,900	178,700	157,600	242,600	200,500	154,000	224,300	178,700	400,200	10	76,900	179,900	188,500
Forest Service	12,700	17,800	30,500	12,700	4,570	13,200	17,900	11,300	1,230	12,700	17,800	0	14,600	14,600	1,230
Southwest Idaho	53,100	78,900	132,100	53,100	5,160	73,800	52,500	37,000	42,500	53,100	78,900	0	11,400	48,300	59,100
BLM	53,100	78,900	132,100	53,100	5,160	73,800	52,500	37,000	42,500	53,100	78,900	0	11,400	48,300	59,100
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear Lake	0	520	520	0	0	520	10	20	500	0	520	0	0	20	500
BLM	0	520	520	0	0	520	10	20	500	0	520	0	0	20	500
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weiser	28,300	4,460	32,800	28,300	2,780	1,670	32,800	0	0	28,300	4,460	0	32,700	0	0
BLM	28,300	4,460	32,800	28,300	2,780	1,670	32,800	0	0	28,300	4,460	0	32,700	0	0
Forest Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 4-74
Acres of Perennial Grassland within GRSG Analysis Areas in the Idaho and Southwestern Montana Sub-region

Analysis Area	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan		
	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	GHZ	IHZ	CHZ	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA
Sawtooth	20	0	20	20	0	0	20	0	0	20	0	0	20	0	0
BLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Service	20	0	20	20	0	0	20	0	0	20	0	0	20	0	0
Total	438,000	878,100	1,316,100	438,000	229,400	648,700	687,800	234,500	393,900	438,000	878,100	10	312,400	454,000	380,500
BLM	420,600	855,900	1,277,000	420,600	223,000	632,900	665,100	219,200	392,300	420,600	855,900	10	294,000	435,900	379,000
Forest Service	17,400	22,100	39,600	17,400	6,360	15,800	22,700	15,200	1,610	17,400	22,100	0	18,400	18,100	1,590

Source: BLM GIS 2015

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Impacts from Habitat Restoration and Vegetation Management

Under Alternative B, habitat restoration and vegetation management actions would improve GRSG habitat. It would do this by restricting activities that degrade sagebrush communities, while promoting and prioritizing those activities that improve sagebrush communities and prioritizing restoration to benefit GRSG habitat. The BLM and Forest Service would require the use of native seeds as a component and would design post-restoration management to ensure the long-term persistence of restoration. In addition, the BLM and Forest Service would consider climate change when determining species for restoration. Together, these management actions would alter vegetative communities by increasing sagebrush height, herbaceous cover, and vegetation productivity.

Treatments designed to prevent encroachment of trees and nonnative species would alter the condition of native vegetation communities by changing the density, composition, and frequency of species within plant communities. Habitat connectivity for GRSG could be increased over the planning time frame through vegetation manipulation designed to restore vegetation, particularly sagebrush overstory cover.

Vegetation manipulations in riparian areas, such as weed treatments, native plantings, and erosion control in the channel, would improve the acreage and condition of the riparian vegetation community, individual riparian species, and hydrologic functionality. The result of this would be to attain PFC or forest plan standards and guidelines.

Impacts from Wildland Fire Management

Fuels treatments under Alternative B would be designed to protect sagebrush ecosystems by maintaining sagebrush cover, applying seasonal restrictions and protections for winter range, and requiring use of native seeds as a component of restoration. Post-fuels treatments, ESR, and BAER management would be designed to ensure long-term persistence of seeded areas and native plant restoration areas. While the risk of wildfire in sagebrush areas would continue, these management actions would help to restore sagebrush vegetation and prevent degradation or destruction of sagebrush from wildfire. Furthermore, emphasizing the use of native seeds and noninvasive species would reduce the likelihood for weed invasion in burned or treated areas.

The BLM and Forest Service would also prioritize suppression in PHMA, which would retain the existing conditions and trends of vegetation in these areas. Impacts from fuels treatments, ESR/BAER, and suppression are similar to those described under **Section 4.3.2**.

Impacts from Nonenergy Leasable Minerals Management

Under Alternative B, PHMA would be closed to future nonenergy leasable mineral leasing (**Table 4-62**) and RDFs would be required on existing leases. This would prevent removal, fragmentation, and other impacts on vegetation associated with nonenergy leasable mineral development in unleased areas and would reduce impacts in leased areas.

Impacts from Locatable Minerals Management

In addition to withdrawing acres from locatable mineral entry, the BLM and Forest Service would apply mitigation measures required to prevent unnecessary or undue degradation as

defined in 43 CFR 3809.415. The BLM and Forest Service make applicable RDFs (see **Appendix B**) required design features on 3809 plans and Plans of Operation in PHMA consistent with applicable law. These actions would reduce the likelihood that vegetation would be removed, degraded, or fragmented in these areas and would reduce the likelihood that weeds could be introduced or spread as a result of locatable mineral development.

Impacts from Salable Minerals Management

In addition to closing PHMA to mineral material sales, the BLM and Forest Service would restore salable mineral pits no longer in use. Over the long term, closures would protect existing vegetation from removal, degradation, fragmentation, and nonnative invasive species introduction or spread. Restoration would increase the extent of vegetation and depending on the location could remove nonnative invasive species and reduce fragmentation.

Impacts from Fluid Minerals Management

In addition to acres closed to fluid mineral leasing (**Table 4-64**), the BLM and Forest Service would require numerous conservation measures in PHMA. Impacts are similar to those described for Locatable Minerals Management, above. Over the long term, closures and NSO stipulations would protect vegetation from removal, degradation, fragmentation, and nonnative invasive species introduction or spread in unleased areas. Conservation measures would help to reduce such impacts in leased areas. Restoration would improve the condition and increase the extent of vegetation and depending on the location could remove nonnative invasive species and reduce fragmentation. Geophysical exploration could disturb vegetation or spread weeds, but it would be unlikely to remove substantial amounts of vegetation.

Impacts from Travel and Transportation Management

Under Alternative B, OHV travel would be limited to existing roads, primitive roads, and trails within PHMA (**Table 4-65**). Management actions would also reduce new route construction and restore roads, primitive roads, and trails not designated under future travel management plans. These actions would reduce the likelihood of impacts caused by roads, as described under **Section 4.3.2**, and would increase the acreage and connectivity of sagebrush vegetation.

Impacts from Livestock Grazing Management

Under Alternative B, the BLM and Forest Service would not change permitted AUMs compared to Alternative A (**Table 4-66**). However, the BLM and Forest Service would implement a number of management actions in PHMA, including prioritizing land health assessments or similar grazing evaluations in GRSG habitat, to incorporate GRSG habitat objectives and management considerations into livestock grazing management and to improve the condition of vegetation in GRSG habitat areas. These actions include completing land health assessments or similar grazing evaluations, taking into consideration grazing methods and systems to reduce impacts on GRSG habitat, improving management of riparian areas and wet meadows, and evaluating existing introduced perennial grass seedings, water developments, and structural range improvements. Such measures would help to improve vegetation condition of rangeland and riparian and wetland areas. They also could reduce the likelihood of nonnative invasive species introduction or spread. Together,



these efforts would improve consistency of management across the sub-region and would reduce impacts from grazing on vegetation, described in **Section 4.3.2**.

Impacts from Special Designations Management

Impacts from ACEC management under Alternative B are the same as those described for Alternative A (**Table 4-61**).

4.3.6 Alternative C

Under Alternative C, the BLM and Forest Service would manage lands to conserve, enhance, and restore sagebrush ecosystems. Management actions would be applied to all occupied GRSG habitats (**Table 4-15**). Management would focus on removing livestock grazing from occupied habitats, with most other management similar that to Alternative A. A 3 percent disturbance cap would be the same as under Alternative B but would be applied to all occupied habitat.

Impacts from Lands and Realty Management

Lands and realty management under Alternative C would be similar to that described for Alternative B, but ROW exclusion areas would be designated in all occupied habitats and ACECs (**Table 4-61**). In addition, all occupied habitat, ACECs, and restoration areas would be retained in federal ownership. These actions would protect vegetation from removal, degradation, and fragmentation in protected areas. Impacts from ROW exclusion areas and retention of federal lands would be as described under **Section 4.3.2**.

Impacts from Habitat Restoration and Vegetation Management

Management under Alternative C would be similar to that described under Alternative A, though with an increased focus on restoration. Impacts are similar to those described for Alternative A, though impacts may be reduced in areas where vegetation is restored to the reference state of the appropriate ecological site description.

Impacts from Wildland Fire Management

Impacts from wildland fire management under Alternative C are similar to those described for Alternative A.

Impacts from Nonenergy Leasable Minerals Management

Impacts from nonenergy leasable minerals management under Alternative C are the same as those described under Alternative B, but would include more acres in PHMA (**Table 4-62**). These management changes would prevent impacts on vegetation associated with nonenergy leasable mineral development in unleased areas, described in **Section 4.3.2**, and reduce impacts in leased areas.

Impacts from Locatable Minerals Management

Impacts from locatable minerals management under Alternative C are the same as those described under Alternative A.

Impacts from Salable Minerals Management

Impacts from salable minerals management under Alternative C are the same as those described under Alternative A (**Table 4-63**).

Impacts from Fluid Minerals Management

Impacts from fluid minerals management under Alternative C are similar to those described for Alternative B, although all occupied habitat would be closed to leasing (**Table 4-64**).

Impacts from Travel and Transportation Management

Impacts from travel and transportation management under Alternative C are the same as those described under Alternative A (**Table 4-65**).

Impacts from Livestock Grazing Management

Under Alternative C, livestock grazing would be removed from all occupied GRSG habitats (**Table 4-66**). The effects of livestock exclusion would depend on climate, soils, fire history, and disturbance and grazing history (Strand and Launchbaugh 2013, p. 10). While studies have examined the effects of reducing or changing livestock grazing, limited literature is available on the effects of completely removing livestock grazing. Grazing is associated with direct and indirect impacts on vegetation, as described under **Section 4.3.2**. Grazing may reduce resistance to invasion from cheatgrass (Reisner et al. 2013, p. 9), reduce water infiltration, increase soil compaction and erosion, and decrease water quality (Braun 1998 and Dobkin et al. 1998 in USFWS 2010, p. 13939).

Ceasing grazing could relieve these impacts and allow for recovery of native understory perennials and an increase in sagebrush and herbaceous vegetation cover (Strand and Launchbaugh 2013, pp. 6-7). This recovery would enhance habitat components important to nest success, including cover and forage by increasing the insect population. Other research suggests that understory herbaceous productivity may not increase in depleted sagebrush ranges when grazing is removed (Beck and Mitchell 2000, p. 995). Furthermore, in some areas, passive restoration may not be sufficient to improve GRSG habitat and active restoration may be necessary (Davies et al. 2011).

Riparian and wetland areas that have been altered by grazing-associated water developments would be restored, potentially increasing the acreage and improving the condition of these vegetation communities. However, impacts from wildlife use and from wild horses, where present, on riparian and wetland areas would continue.

In the short term, this alternative would result in more residual herbaceous biomass, which may result in some smaller fires under less severe conditions. It may also result in more crown die-out of bunchgrasses that burn hotter due to retained crown fuel. Evidence suggests that the potential role of grazing on fire behavior is limited under extreme burning conditions, such as low fuel moisture and relative humidity, high temperature, and wind speed (Strand and Launchbaugh 2013, p. 16). Ultimately, the effect of removing grazing on fire spread, severity, and intensity would depend on weather, fuel characteristics, landscape features, and other factors.



Impacts from Special Designations Management

Under Alternative C, the BLM would designate 39 new ACECs (**Table 4-Table 4-67**). Impacts from management of ACECs are as described under **Section 4.3.2**.

4.3.7 Alternative D

Under Alternative D, the BLM and Forest Service would manage lands to conserve, enhance, and restore sagebrush ecosystems. Management and impacts would be similar to Alternative B, though Alternative D would incorporate more flexibility and adaptive management applied to resource uses to account for sub-regional conditions. PHMA, IHMA, and GHMA would be designated (**Table 4-15**). The BLM and Forest Service would require a no net unmitigated loss of PHMA and IHMA and would implement numerous conservation measures to reduce impacts from human activities in PHMA. This would reduce the likelihood for vegetation removal, degradation, or fragmentation.

However, by including a rule set to release areas from PHMA, IHMA, GHMA protection, some vegetation communities that do not provide habitat for GRSG could receive less protection under this alternative and could be subject to removal, damage, or reduced condition caused by human disturbances. At the implementation level, impacts would be analyzed on a site-specific basis.

Impacts from Lands and Realty Management

Under Alternative D, PHMA would be ROW avoidance, with exclusions for wind and solar development. A number of uses would not be allowed, such as large transmission facilities, fluid mineral development, and paved and graded gravel roads. IHMA and GHMA would be designated as ROW avoidance areas for all infrastructure (**Table 4-60**). Impacts from designating ROW exclusion and avoidance areas are as described under **Section 4.3.2**; impacts from land tenure decisions are similar to those described for Alternative B.

Impacts from Habitat Restoration and Vegetation Management

Management under Alternative D would be similar to that described for Alternative B, though with additional measures to prioritize vegetation rehabilitation. They would incorporate design features that would improve the success of rehabilitation projects and strategically plan for wildfire suppression. Together, these management actions would improve the likelihood for sagebrush rehabilitation and prevention of catastrophic wildfires that would destroy sagebrush vegetation over the long term.

Impacts from Wildland Fire Management

Wildfire management under Alternative D would be similar to that described for Alternative B, with additional management flexibility to respond to sub-regional conditions and management, and guidance incorporated to tailor management to specific vegetation communities. The BLM and Forest Service would prioritize wildfire suppression planning and would consider targeted grazing to reduce fine fuels throughout the decision area. Together, these actions would improve wildfire management, given the limited resources available, and would target those areas that need most protection. As a result, the likelihood for wildfire would be reduced and subsequent impacts on vegetation from wildfire described under **Section 4.3.2** would also be reduced.

Impacts from Nonenergy Leasable Minerals Management

Under Alternative D, PHMA and IHMA would be closed to nonenergy leasable mineral leasing with exceptions for modifications (**Table 4-62**). GHMA are available for leasing subject to applicable timing restrictions and lease stipulations. RDFs and restoration would be required on existing leases in all GRSG habitat. This would reduce impacts on vegetation associated with nonenergy leasable mineral development in unleased and leased areas, as described under **Section 4.3.2**.

Impacts from Locatable Minerals Management

Acres open to locatable mineral development under Alternative D would be the same as those described for Alternative A. However, no net unmitigated loss of habitat would be allowed under this alternative. This measure, along with RDFs consistent with applicable law (see **Appendix B**) and mitigation measures applied to the extent possible (see impacts analysis for Alternative B), would reduce impacts on vegetation and would restore habitat, thereby reducing the impacts described under Alternative A.

Impacts from Salable Minerals Management

Under Alternative D, no new authorizations would be approved within 1.86 miles (3 km) of an occupied lek. RDFs and timing limitations would be applied to newly authorized disposals within GRSG habitat, and reclamation bonding would be required (**Table 4-63****Error! Reference source not found.**). Impacts on vegetation, such as those described under **Section 4.3.2**, could occur from authorizations outside of the 1.86-mile (3 km) buffer from leks, although RDFs would reduce impacts.

Impacts from Fluid Minerals Management

Under Alternative D, low or no potential areas in PHMA and IHMA would be closed to fluid mineral leasing (**Table 4-64****Error! Reference source not found.**). Areas of moderate and high potential would be open to leasing, subject to CSU, timing limitations, and an NSO stipulation within 0.6 miles (1 km) of an occupied lek. Geophysical exploration would be allowed, subject to timing limitations. Impacts on vegetation, such as those described under **Section 4.3.2**, could occur from development on leases outside of the 0.6-mile (1 km) buffer from leks, although RDFs would reduce impacts.

Impacts from Travel and Transportation Management

Impacts from travel and transportation management under Alternative D are similar to those described under Alternative B, though with increased flexibility to provide for high quality and sustainable travel routes and administrative access (**Table 4-65**). As such, there may be increased impacts on the acreage of vegetation in areas where new routes are created. Impacts in these areas are as described under **Section 4.3.2**.

Impacts from Livestock Grazing Management

Under Alternative D, the BLM and Forest Service would maintain the same number of acres open to grazing as under Alternative A (**Table 4-66**). Impacts from livestock grazing management under Alternative D are similar to those described for Alternative B. However, under Alternative D, PHMA would receive the highest priority, subject to legal requirements, for completion of land health assessments. Also, the BLM and Forest Service



would restrict authorizations of new water developments and would evaluate introduced perennial grass seedings. The BLM and Forest Service would incorporate measures to reduce impacts from trailing and would consider using grazing to achieve fuels management objectives throughout the decision area. Together these measures would reduce the impacts from grazing described under **Section 4.3.2**.

Impacts from Special Designations Management

Impacts from ACEC management under Alternative D are the same as those described for Alternative A (**Table 4-67**).

4.3.8 Alternative E

Under Alternative E, the BLM and Forest Service would manage to maintain, conserve, enhance, and restore sagebrush ecosystems. CHZ, IHZ, and GHZ would be designated (**Table 4-15**). In CHZ and IHZ, the BLM and Forest Service would incorporate management flexibility to permit high value infrastructure with appropriate mitigation and best management practices tailored for the sub-region. Management and impacts are similar to Alternative D, though Alternative E would require less stringent use restrictions and would designate the least amount of CHZ, compared to the other alternatives' management area designations.

Impacts from Lands and Realty Management

Under Alternative E, CHZ and IHZ would be designated as ROW avoidance areas, although the BLM and Forest Service would allow for more exceptions for development in IHZ (**Table 4-60**). This could increase the likelihood for impacts on vegetation, such as disturbance, removal, or fragmentation. Impacts from designation of ROW avoidance areas are as described under **Section 4.3.2**. Alternative E does not provide guidance for land tenure decisions in GRSG habitat, so there would be no associated effects on vegetation.

Impacts from Habitat Restoration and Vegetation Management

Development of a restoration strategy for vegetation management at the implementation stage would help focus priorities on the areas and communities identified as most pertinent to restoring sagebrush and GRSG habitat. Native vegetation would be used for restoration to the extent practicable. These measures would increase the acreage and extent of sagebrush vegetation over the long term. Invasive species would be controlled for three years after wildfire treatments, which would reduce the likelihood of invasive weeds to be introduced or spread into recently burned areas.

Impacts from Wildland Fire Management

Alternative E provides guidance to reduce wildfire response time, create fuel breaks, and improve the wildfire suppression baseline. The goal is to maintain habitat to support 73 to 95 percent of breeding male GRSG by implementing fire breaks, re-seeding burned areas, establishing Rangeland Fire Protection Associations within CHZ and IHZ, and offsetting habitat losses to wildfire, according to the Governor's Office of Species Conservation letter dated July 1, 2013 (Governor's Office of Species Conservation 2013). Completion of a response time analysis would help focus suppression resources and activities to help reduce the size and extent of wildfires in CHZ. Targeted grazing would be allowed in IHZ. These

actions would improve the likelihood for fire suppression and would reduce the likelihood for fire, thereby protecting existing vegetation. However, this alternative does not provide much guidance regarding other fuel treatments and ESR, which could limit the success of fire suppression and regrowth of desired vegetation after a fire.

Impacts from Nonenergy Leasable Minerals Management

Alternative E does not provide guidance on nonenergy leasable minerals management, and as such, impacts on vegetation are expected to be similar to those described for Alternative A (Table 4-62).

Impacts from Locatable Minerals Management

Alternative E does not provide guidance on locatable minerals management, and as such, impacts on vegetation are expected to be similar to those described for Alternative A.

Impacts from Salable Minerals Management

Alternative E does not provide guidance on salable minerals management, and as such, impacts on vegetation are expected to be similar to those described for Alternative A (Table 4-63).

Impacts from Fluid Minerals Management

Under Alternative E, the BLM and Forest Service would apply an NSO stipulation on leases in CHZ, which would reduce the likelihood of surface-disturbing activities and vegetation removal in these areas. No additional areas would be closed to leasing (Table 4-64), but a five percent disturbance cap would apply to fluid mineral impacts only. Fluid mineral leasing would be authorized in IHZ under certain conditions, and vegetation could be disturbed, removed, or fragmented in the areas where development would occur.

Impacts from Travel and Transportation Management

Under Alternative E, the completion of travel management planning would be prioritized and would seek to minimize disturbance to GRSG and their habitat. Before completion of travel planning, OHVs would be restricted to existing routes and new roads would be discouraged or re-routed where possible (State of Idaho 2012). No immediate road closures would occur (Table 4-65).

Impacts from Livestock Grazing Management

Impacts from livestock grazing management under Alternative E are similar to those described for Alternative D, though with an increased emphasis on flexibility to respond to sub-regional conditions and adaptive management in grazing management (Table 4-66). These measures could further reduce impacts on vegetation, depending on where and how they were applied.

Impacts from Special Designations Management

Impacts from ACEC management under Alternative E are the same as those described for Alternative A (Table 4-67).



4.3.9 Alternative F

Management under Alternative F would be largely similar to that described for Alternative B, though with more stringent guidance and restrictive management in sagebrush ecosystems. PHMA, GHMA and RHMA would be designated (**Table 4-15**). Unique to Alternative F, an area would be considered successfully restored only if GRSG used the area.

Impacts from implementing the maximum 3 percent disturbance cap are similar to those described for Alternative B; however, under Alternative F, all surface disturbances (including human disturbance and fire) would count toward this cap. This would further reduce the acreage of vegetation that would be removed or fragmented within all occupied habitat over the long term.

Impacts from Lands and Realty Management

Impacts from designation of ROW exclusion areas are similar to those described under Alternative B (**Table 4-61**). Impacts from land tenure decisions are similar to those described under Alternative B, though Alternative F would not allow for exceptions to disposal criteria. This would reduce management flexibility and could have implications for vegetation connectivity.

Impacts from Habitat Restoration and Vegetation Management

Impacts from habitat restoration and vegetation management under Alternative F are similar to those described for Alternative B.

Impacts from Wildland Fire Management

Impacts from wildland fire management under Alternative F are similar to those described for Alternative B. Alternative F would require exclusions of grazing post-fire. This would reduce grazing pressure on and trampling of ESR seedings, thus improving the likelihood of native vegetation restoration post-fire.

Impacts from Nonenergy Leasable Minerals Management

Impacts from nonenergy leasable minerals management under Alternative F are the same as those described for Alternative B (**Table 4-62**).

Impacts from Locatable Minerals Management

Impacts from locatable minerals management under Alternative F are the same as those described for Alternative B.

Impacts from Salable Minerals Management

Impacts from salable minerals management under Alternative F are the same as those described for Alternative B (**Table 4-63**~~Error! Reference source not found.~~).

Impacts from Fluid Minerals Management

Impacts from fluid minerals management under Alternative F are the same as those described for Alternative B (**Table 4-64**).

Impacts from Travel and Transportation Management

Impacts from travel and transportation management under Alternative F are similar to those described for Alternative B, though there would be fewer impacts on vegetation under Alternative F (**Table 4-65**), because no new road construction would be allowed within 4 miles (6.4 km) of leks in PHMA, and mitigation of impacts from route construction would be required.

Impacts from Livestock Grazing Management

Impacts from livestock grazing management under Alternative F are similar to those described for Alternative B, though Alternative F would require a 25 percent reduction in AUMs and would incorporate more stringent guidance and restrictive measures. This reduction could further reduce impacts on vegetation by reducing grazing pressure across the decision area. The total acreage open to grazing would be the same as for Alternative B (**Table 4-Table 4-66**).

Impacts from Special Designations Management

Under Alternative F, the BLM would designate one of two sub-alternatives: F1, which would designate all PPH as an ACEC, and F2, which would designate a subset of PPH as an ACEC (**Table 4-Table 4-67**). Impacts from management of ACECs are as described under **Section 4.3.2** and impacts from Zoological Areas are expected to be similar.

4.3.10 Proposed Plan

Under the Proposed Plan, the BLM and Forest Service would manage lands to conserve, enhance and restore GRSG habitat and the sagebrush ecosystem that GRSG populations depend on. Direct protection of sagebrush habitat to support GRSG would limit or modify uses in this habitat type, improving the acreage and condition of desired vegetation communities. Restrictions on resource uses such as ROW and mineral development would reduce damage to native vegetation communities and individual native plant species in areas that are important for regional vegetation diversity and quality. Likewise, use restrictions would minimize fragmentation and would be more likely to retain existing age class distribution within these areas. Use restrictions could also minimize the spread of invasive species by limiting human activities that disturb soil or introduce seeds.

Management and impacts would be similar to Alternatives D and E, though the Proposed Plan would incorporate robust strategies and approaches to GRSG management, including wildfire management, adaptive management, mitigation, and monitoring (**Appendices D, G, J, and E**). PHMA, IHMA, and GHMA would be designated, and 3.8 million acres of SFA would be managed. Acres of each vegetation community within GRSG habitat management areas are presented in **Tables 4-68** through **4-74**. Limiting anthropogenic disturbances to 3 percent at both the BSU and project levels would reduce the likelihood for vegetation removal, degradation, or fragmentation and would maintain the acreage and condition of sagebrush vegetation on both the local and landscape scales. Human disturbances in PHMA and IHMA would be mitigated to a net conservation gain standard, thereby preserving the potential for these areas to provide GRSG habitat. In addition, the BLM and Forest Service would implement numerous conservation measures such as BMPs, RDFs, and buffers



(**Appendix B** and **DD**) to reduce impacts from human activities in PHMA and IHMA. This would reduce the likelihood for vegetation removal, degradation, or fragmentation and reduce the likelihood for weed introduction or spread.

Impacts from Lands and Realty Management

Under the Proposed Plan, PHMA would be designated as ROW exclusion areas and IHMA would be ROW avoidance areas for solar, wind, nuclear, and hydropower energy development as well as commercial service airports and landfills. ROW avoidance areas would also be designated for major and minor ROWs in PHMA and IHMA. GHMA in Montana would have similar protections. Such restrictions would have impacts on vegetation, as described under **Section 4.3.2 (Tables 4-60 and 4-61)**. Additional requirements would further reduce the likelihood for impacts on vegetation by requiring additional conditions to be met and reducing overall disturbance. These requirements would meet the Anthropogenic Disturbance Screening Criteria (for PHMA in Idaho), Anthropogenic Disturbance Development Criteria (for PHMA and IHMA in Idaho), the project/action screen and mitigation process in Montana, mitigation requirements, and application of the disturbance cap, RDFs, BMPs, and buffers.

Retention and acquisition of GRSG habitat would reduce fragmentation of vegetation communities, as described under **Section 4.3.2**.

Impacts from Habitat Restoration and Vegetation Management

Under the Proposed Plan, habitat restoration and vegetation management actions would aim to achieve certain vegetation objectives to improve GRSG habitat. It would do this by restricting activities that could degrade sagebrush communities, such as prescribed fire, while promoting and prioritizing those activities that improve sagebrush communities and prioritizing restoration and rehabilitation to benefit GRSG habitat. The BLM and Forest Service would require the use of native seeds as a component of most restoration activities and would design post-restoration management to ensure the long-term persistence of restoration. Together, these management actions would alter vegetative communities by increasing herbaceous cover and vegetation productivity. Strategically planning for wildfire suppression would prevent catastrophic wildfires that would destroy sagebrush vegetation over the long term.

Over 10 years, the condition of native vegetation communities would be altered by mechanical treatments on 77,000 acres, prescribed fire on 30,000 acres, and grass restoration on 620,000 acres designed to prevent and reduce encroachment of conifers and nonnative species. This would come about by changing the density, composition, and frequency of species within plant communities. Habitat connectivity for GRSG could be increased over the planning time frame through vegetation manipulation designed to restore vegetation, particularly sagebrush overstory cover.

Impacts from Wildland Fire Management

A comprehensive strategy for wildland fire management would be implemented under the Proposed Plan, including the FIAT (**Appendix D**). The assessment would identify PHMA areas and management strategies to reduce the threats to GRSG from invasive annual

grasses, wildfires, and conifer expansion. It would incorporate recent scientific research on resistance and resilience of Great Basin ecosystems as well as interdisciplinary team knowledge. Potential management strategies include proactive measures, such as fuels management and habitat restoration and recovery, and reactive measures, such as fire operations and post-fire rehabilitation. Together, these actions would improve wildland fire management, given the limited resources available, and would target those areas that need most protection. As a result, the likelihood for wildfire would be reduced and subsequent impacts on vegetation from wildfire, particularly vegetation that meets GRSG habitat requirements, described under **Section 4.3.2** would also be reduced. Further, providing adequate rest from livestock grazing would improve the likelihood that ESR seedlings would stabilize the site, compete effectively against invasive annuals, and successfully establish native vegetation over the long term.

Impacts from Nonenergy Leasable Minerals Management

Acres of sagebrush closed to nonenergy leasable mineral leasing under the Proposed Plan are shown in **Table 4-62**. Application of the disturbance cap, mitigation requirements, and closures in PHMA and restrictions in IHMA and GHMA outside of KPLAs would prevent or reduce the removal, fragmentation, and other impacts as described in **Section 4.3.2** on vegetation associated with nonenergy leasable mineral development. Impacts, including loss and degradation of upland vegetation and an increased potential for invasive plant spread, as described under **Section 4.3.2**, would continue to occur in areas open to nonenergy leasable mineral leasing and development.

Impacts from Locatable Minerals Management

Under the Proposed Plan, SFA would be recommended for withdrawal from the General Mining Act of 1872; if withdrawn, this action would result in the protection of vegetation in these areas from removal and disturbance caused by operations authorized by the mining law. In addition, RDFs would be applied consistent with applicable law, as well as conditions of approval and mitigation measures to the extent possible (see impact analysis for Alternative B). This would reduce impacts on vegetation and would restore habitat, thereby reducing the impacts described under Alternative A.

Impacts from Salable Minerals Management

Acres of sagebrush closed to salable mineral development under the Proposed Plan are shown in **Table 4-63**. Prohibitions on new salable mineral development in PHMA would prevent new impacts on vegetation in these areas. Requirements to meet the anthropogenic disturbance criteria in IHMA, adhere to the disturbance cap, and implement mitigation, RDFs, BMPs, and buffers in IHMA and GHMA would reduce vegetation removal, fragmentation, and other impacts associated with salable mineral development, as described in **Section 4.3.2**. Restoration would increase the extent of vegetation and depending on the location could remove nonnative invasive species and reduce fragmentation.

Impacts from Fluid Minerals Management

Acres of sagebrush closed to fluid mineral leasing under the Proposed Plan are shown in **Table 4-64**. Protections for vegetation would be greatest in SFA, which would be subject to an NSO stipulation without waivers, exceptions, or modifications. Vegetation would also be



highly protected in PHMA and IHMA, which would be subject to an NSO stipulation with one exception. As a result, the primary mechanisms to prevent or reduce the removal, fragmentation, and other impacts on vegetation from fluid mineral development in unleased areas would be as follows: the NSO stipulation, human disturbance criteria, mitigation requirement, disturbance cap, RDFs, BMPs, and buffers. Impacts, including loss and degradation of upland vegetation and an increased potential for invasive plant spread, as described under **Section 4.3.2**, would continue to occur in areas open to fluid mineral leasing and development.

Impacts from Travel and Transportation Management

Under the Proposed Plan, OHV travel would be limited to existing roads, primitive roads, and trails within Idaho BLM field offices (**Table 4-65**). Management actions would also close areas adversely affected by off-highway vehicles and Travel Management Plans would be developed. These actions would reduce the likelihood of impacts caused by roads, as described under **Section 4.3.2**, and would increase the acreage and connectivity of sagebrush vegetation.

Impacts from Livestock Grazing Management

Under the Proposed Plan, the BLM and Forest Service would maintain the same number of acres open to grazing as under Alternative A (**Table 4-66**). However, the BLM and Forest Service would implement a number of management actions to meet vegetation objectives in SFA and PHMA, as follows: prioritizing the review and processing of grazing permits/leases in SFA, particularly in areas not meeting land health standards that also contain riparian areas, including wet meadows. Further, the BLM would prioritize land health assessments in GRSG habitat, incorporate GRSG habitat objectives and management considerations into livestock grazing management, improve the condition of vegetation in GRSG habitat areas, and incorporate grazing into adaptive management considerations.

Such measures would help to improve vegetation condition of rangeland and riparian and wetland areas. They also could reduce the likelihood of nonnative invasive species introduction or spread through improved grazing management and changes resulting from land health assessments. Together, these efforts would improve consistency of management across the sub-region and would reduce impacts from grazing on vegetation, described in **Section 4.3.2**.

The Forest Service would incorporate grazing guidelines (**Table 2-6**) into term grazing permits, which would likely improve vegetation structures in GRSG seasonal habitat on grazing allotments.

Impacts from Special Designations Management

Under the Proposed Plan, the BLM would continue to manage 59 ACECs within the sub-region (**Table 4-67**). The Forest Service would not manage any Zoological Areas under the Proposed Plan. Existing ACECs likely protect vegetation through use restrictions; these impacts are analyzed under each existing RMP within the planning area. As a result, there would be no additional effects from ACEC or Zoological Area management on vegetation under this alternative.

Impacts from Anthropogenic Disturbance Management, Adaptive Management, and Coordination

Implementing a human disturbance cap at both the BSU and project levels would limit vegetation removal in GRSG habitat at the site and landscape scales. The BLM and Forest Service would also require no net loss of Key habitat. This would help to maintain the extent and condition of sagebrush habitat throughout the sub-region, but could displace development into other vegetation types, causing increased impacts on these communities. Collocation requirements in the Anthropogenic Disturbance Exception and Development Criteria would limit fragmentation and may also limit weed spread since development would occur in previously disturbed areas.

4.4 Wild Horse and Burro Management

4.4.1 Methods and Assumptions

Indicators

Indicators of impacts on wild horses are as follows:

- Changes in permitted AMLs
- Changes in AUMs
- Prohibitions or limitations on the construction or maintenance of range improvements
- Modifications to or removal of structural range improvements

Assumptions

The analysis includes the following assumptions:

- Horses and burros depend on the herbaceous component of a shrub/grass plant community. Declines in grasses and forbs are adverse and increases are beneficial. Vegetation treatments, such as prescribed burns or weed control, can enhance the plant community composition and forage availability.
- Water is the primary resource of wild horse distribution and can improve wild horse distribution.
- Fences and other disturbances can restrict wild horse movement and access. Fences are sometimes necessary to restrict horse distribution to areas inside HMAs or to protect sensitive resources within HMAs.
- No forage is allocated to wild horses found on lands outside of HMAs. The BLM has the responsibility to remove wild horses found outside of HMAs.
- The scheduling for wild horse gathers to remove excess animals is influenced by a national priority process. Factors affecting gather priorities are determinations of excess horses and overpopulations, wild horse and range condition, annual appropriations, litigation and court orders, emergency situations, such as disease,



weather, and fire, availability of contractors, the market for adoption, and long-term holding availability for unadoptable excess horses.

- Wild horse distribution is influenced by season, climatic conditions, water and forage availability, and population size.
- There are no HMAs in the southwest Montana portion of the sub-region; therefore, impacts described apply to Idaho only.
- There are no wild burros in Idaho or southwest Montana, so impacts apply only to wild horses.

4.4.2 Nature and Type of Effects

All HMAs are managed for AML. Initially, AML is established in RMPs at the outset of planning and is adjusted based on monitoring data by revising HMA plans and subsequent land use plan amendment. Priorities for gathering excess wild horses to maintain AML are based on population inventories, resource monitoring objectives, gather schedules, and budgets. Gathers are also conducted in emergency situations when the health of the population is at risk due to lack of forage or water and, in some situations, wildland fire.

Development such as mineral extraction, recreation, and construction in ROWs may impact wild horse populations in the following ways:

- Reduce forage availability
- Disturb wild horses
- Prohibit the ability of wild horses to move freely across HMAs
- Limit ability to perform management activities (for example, energy development infrastructure may impact the ability to conduct helicopter gathers)

Implementing management to protect GRSG generally involves reducing or otherwise restricting land uses and activities. Limiting these activities to protect GRSG would also protect forage for wild horses and would limit human and surface disturbance.

Conversely, there could be impacts on wild horses and the ability to support AMLs when management options for HMAs are restricted. Impacts from range improvement restrictions vary, based on the type of range improvement affected. Restrictions on fences would improve wild horse habitat by allowing free range, while limiting projects that could enhance forage, and water availability could limit future options to manage for current AML.

Implementing management for the following resources would have negligible or no impact on wild horse management and are therefore not discussed in detail: air quality, visual resources, cultural resources, wilderness characteristics, socioeconomics, special designation management, and tribal interests.

4.4.3 Impacts Common to All Alternatives

Under all alternatives except Alternative F, management actions for wild horses would not result in direct changes to HMA status, to AMLs in designated HMAs, or to acreage designated as HMAs. Impacts under all alternatives, with the exception of Alternative F, would be limited to any future changes that may result in AML or acreage adjustment, as well as reconsideration of HMA status that is based on achieving GRSG habitat objectives for improving habitat conditions.

Under all alternatives, management actions would not result in direct acreage designated as HMAs. Approximately 269,700 acres of HMAs would fall within GRSG habitat, although the acres within a specific GRSG management area designation (such as a PHMA) with associated management varies by alternative.

The Forest Service does not manage any wild horses or burros within the planning area, so no impacts would occur on National Forest System lands.

Impacts from Energy and Mineral Development

Impacts from Nonenergy Leasable Minerals Management

There are expected to be minimal impacts from nonenergy leasable minerals on wild horses across all alternatives due to a lack of leases in GRSG habitat.

Impacts from Coal Management

No economically viable coal resources are found in Idaho. Under the Dillon RMP, a plan amendment would be required to lease coal. As a result, coal development in the project area and related impacts on wild horses are likely to be limited under all alternatives.

Impacts from Recreation and Visitor Services Management

Under all alternatives, OHVs would be limited to existing roads and trails, thereby limiting the impacts on wild horses from dispersed travel. Site-specific travel management planning could, when completed, reduce the potential for conflicts between wild horses and travel management.

4.4.4 Alternative A

No PHMA or GHMA would be designated for GRSG under this alternative. Wild horse management would be determined by management in current RMPs in the planning area.

Impacts from Vegetation Management

Under Alternative A, restoration would continue in the planning area, with long-term benefits to forage for horses. Vegetation could be managed to improve forage, and impacts on WHB from vegetation management would likely be minimal. Management actions for invasive species would continue under the direction of current management plans, with the focus on areas not meeting land health standards or desired conditions.



Impacts from Wild Horse and Burro Management

Under Alternative A, all HMAs are managed for AML and for healthy populations to achieve a thriving natural ecological balance with respect to wildlife, livestock use, and other multiple uses. All adjustments to HMAs, HMA plans, and priorities of gathers would continue to be based on monitoring data. As a result, impacts on wild horses under Alternative A would depend on the site-specific conditions as reported in monitoring data.

While most HMAs in the sub-region contain GRSG habitat within a sagebrush vegetation community, prioritizing wild horse gathers to maintain AML is not based on GRSG habitat needs. Nevertheless, this is implicit in the congressional directive to maintain a thriving natural ecological balance.

Impacts from Wildland Fire Management

Under Alternative A, mechanical treatments, prescribed fires, and other treatments would be used to prevent conifer encroachment and remove undesirable annual grass and weed species. These actions could improve forage for wild horses in the long term. Although most of the LUPs do not provide specific direction for fire suppression in GRSG habitat, protection of GRSG habitat during suppression has taken center stage in planning and operational discussions due to large fire in PPH and PGH in 2007 and 2012. Therefore, the risk of forage loss in these areas may be lower than in non-GRSG habitats.

Impacts from Livestock Grazing/Range Management

Under Alternative A, grazing permits, including grazing systems, permitted AUMs, and allotment boundaries, would be modified as necessary to conform to Standards and Guidelines for Livestock Grazing Management. Range improvements, including fences, vegetation treatments, and water developments, would be allowed in the decision area when needed to support grazing or to improve livestock distribution.

Levels of conflict with wild horses would vary throughout the planning area based on individual RMP management and levels of grazing. Water developments for livestock would likely be maintained and may provide a source of water for horses.

Impacts from Recreation Management

Under this alternative, there would be no new restrictions to SRPs in the decision area; therefore, horses could be disturbed by recreation in the planning area. Some limited potential for disturbance from general recreation is possible, as described under nature and type of impacts, above.

Impacts from Travel Management

Under Alternative A, as under all alternatives, OHV travel would be limited to designated routes, and site-specific travel management planning on BLM-administered lands would be developed, limiting disturbance to horses.

Impacts from Lands and Realty Management

Under Alternative A, the impacts on wild horse management continue to be the same as those identified in the individual RMP documents. Under Alternative A, there would be

approximately 1 million acres of ROW exclusion and 1.9 million acres of avoidance areas in the decision area; no new ROW exclusion or avoidance areas would be created. Wild horses could be disturbed from development of ROWs. For these reasons, this alternative would have the highest potential for impacts from lands and realty on WHB management; however, access to HMAs for gathers would be the least restricted.

Impacts from Mineral Materials (Salables) Management

In general, Alternative A is the least restrictive on energy and mineral development of all alternatives. As a result, the indirect impacts of development on wild horses, including spread of noxious weeds and disturbance of horses, are the greatest under this alternative.

4.4.5 Alternative B

Impacts from Vegetation Management

Under Alternative B, restoration projects in PH would be designed to benefit GRSG and based on the likelihood of success, with reestablishment of sagebrush cover as the highest priority. Projects to remove nonnative species and improve habitat would likely improve forage conditions and water quality for wild horses in the long term. However, should management require increased fences to protect vegetation for GRSG, this could limit wild horse movement and access to riparian areas and reduce water availability. This could result in potential need for reduction of wild horse numbers within an HMA in order to meet vegetation objectives for GRSG.

Impacts from Wild Horse and Burro Management

Under Alternative B, management actions would require examination of herd management plans, AML levels, and range improvements or other NEPA and management activities for wild horses in light of GRSG habitat objectives and potential impacts on GRSG habitat, particularly in PHMA. This could potentially result in changes to wild horse management and AMLs should objectives for GRSG habitat not align with management objectives for wild horse management. In many cases, however, management actions to improve GRSG habitat would also improve wild horse rangeland conditions (for example, conifer removal and noxious weed control would improve forage conditions for wild horses).

If water developments required modification to meet GRSG objectives or new developments were not permitted, water availability could be reduced. This could result in the potential need to reduce wild horse numbers or develop alternative water sources within the HMA, particularly during periods of drought.

Impacts from Wildland Fire Management

Fuels projects and fire suppression to protect sagebrush ecosystems and associated PHMA would benefit wild horses where HMAs overlap this habitat. This would be due to a reduction in the likelihood of high intensity wildfire. However, temporary or long-term management changes to wild horses, such as reduction in AML, or fencing blocking access to forage may be necessary to achieve and maintain the desired project objectives post-fire.



Impacts from Livestock Grazing/Range Management

Management to conserve, enhance, or restore GRSG habitat that benefit livestock forage would generally also benefit wild horses within GRSG in the long term. Modifying or eliminating livestock watering sites could reduce water availability for wild horses. This could result in the need to reduce wild horse numbers or develop alternative water sources within specific HMAs, especially during periods of drought.

Impacts from Recreation and Visitor Services Management

In PHMA, OHV travel would be limited to existing roads and trails on BLM-administered and National Forest System lands. Travel plans (to be completed) would analyze PHMA for the need for road closures, and limitations would be implemented during development of new roads. Some reduction in routes, and limitations on new routes would occur compared to Alternative A in PHMA. This could impact the ability to conduct gathers of wild horses for population control. These limits also could increase the time and costs of gathers if they are not covered by administrative exceptions. However, limits to travel would also decrease any disturbance of horses from OHV use.

Under Alternative B, limits on SRPs in PHMA would reduce any conflicts between recreation and wild horse management.

Impacts from Lands and Realty Management

Under Alternative B, no new ROW authorizations would be permitted in PHMA unless the development would occur within the existing developed footprint. This action would likely reduce development in HMAs overlapping PHMA as compared to Alternative A, indirectly reducing related disturbance to wild horses.

Impacts from Energy and Mineral Management

Under Alternative B, additional restrictions would be put on mineral development, as compared to Alternative A. Lands in PHMA would be recommended for withdrawal from mineral entry for locatable minerals, closed to mineral materials removal, and closed to new leasing for fluid minerals and nonenergy leasable minerals. For currently leased parcels, NSO stipulations would be applied in PHMA and around leks. As a result, disturbance of wild horses from mineral development would be minimized in PHMA.

4.4.6 Alternative C

Impacts from Vegetation Management

Habitat restoration actions and related impacts in PHMA would be similar to that described in Alternative B. In addition, restoration proposed under Alternative C includes removing water developments. This could reduce available water in HMAs and result in the need to reduce wild horse AML within an HMA in occupied habitat in order to meet vegetation objectives for GRSG.

Impacts from Wild Horse and Burro Management

Impacts are as discussed under Alternative A.

Impacts from Wildland Fire Management

Impacts are similar to those discussed under Alternative B.

Impacts from Livestock Grazing/Range Management

Elimination of livestock grazing in occupied habitat would provide additional forage for wild horses where HMAs overlap these habitats. This would occur by reducing competition for forage in these areas.

Elimination of livestock watering sites or failure to maintain water developments could reduce water availability. As a result, developments would be limited, and ability to manage for AML could be impacted for HMAs in occupied habitat, particularly in drought conditions.

Impacts from Recreation and Visitor Services Management

Impacts from recreation management are similar to those discussed under Alternative A. Travel management impacts would be as discussed under Alternatives B.

Impacts from Lands and Realty Management

Under Alternative C, new ROWs for corridors would be sited in nonhabitat and bundled with existing corridors to the maximum extent possible. As a result, disturbance from development and related impacts on wild horse management would be reduced compared to Alternative A.

Impacts from Energy and Mineral Management

Impacts from mineral materials would be similar to those described under Alternative B for existing fluid mineral leases and locatable, salable, and nonenergy leasable minerals. No new fluid-mineral leases would be issued in PHMA. As a result, the chance of disturbance of wild horses from development of these resources would be reduced as compared to Alternative A.

4.4.7 Alternative D

Impacts from Vegetation Management

Under Alternative D, vegetation rehabilitation would emphasize projects to achieve the greatest improvement in GRSG abundance and distribution. This includes sites with greater likelihood of success. Reconnecting and expanding native plant communities would be an objective across all GRSG habitat types; restoring seasonal habitats would be emphasized in both PHMA and IHMA. As discussed in Alternative B, these management actions could improve wild horse forage in the long term. For example, measures to replace annual grasses with perennial grasses would also reduce inter-annual variability in forage quantity.

Impacts would likely occur if wild horses are found to be factors in GRSG habitat not achieving or moving toward achieving objectives, in which case the adjustment of wild horse populations would be considered and could result in the reduction of AMLs in some HMAs in the long term. Post-restoration management requirements could impact horse movement



if fences were installed. In addition, should access to water sources be restricted, ability to manage for AML could be affected.

Impacts from Wild Horse and Burro Management

Under Alternative D, as in Alternative B, HMPAs would be amended to incorporate GRSG habitat objectives; therefore changes may be required to AMLs or wild horse management in the long term in PHMA, IHMA and GHMA should these objectives not be met by current AMLs or management.

In addition, under Alternative D, no HMA expansion would be permitted in PHMA. Under IHMA habitat expansion may be permitted if impacts on GRSG as well as alternative areas of expansion are examined first. These actions would limit the ability to sustainably manage for increasing population of horses and potentially necessitate additional gathers to reduce herd sizes, at increased cost for management of the program.

Impacts from Wildland Fire Management

Under Alternative D, post-fire and restoration management would be undertaken to ensure long-term persistence of seeded or pre-burn native plants. It may also require short- or long-term change to wild horse management. Fencing to exclude livestock from post-burn areas could impact the ability of horses to roam freely. If exclusion reduces horses' ability to access water sources, ability to manage for AML could be affected. The degree of impacts would be determined by the location, size, and intensity of fires in GRSG habitat but would be increased over those in Alternative B. because all GRSG habitat types would be included.

Impacts from Livestock Grazing/Range Management

Grazing management actions and impacts on wild horses would be similar to those described in Alternative B. Under Alternative D, however, allotments containing PHMA would be prioritized for permit renewal, followed by IHMA and finally GHMA; impacts on wild horses would occur in HMAs overlapping these habitat areas in this sequence.

Water developments under Alternative D would be limited as compared to Alternative A, as only projects that would maintain, benefit or have neutral effect on PHMA would be allowed and modification or removal of existing developments may be required. As described for Alternative B, this could result in impacts on the ability to manage for AML, particularly under drought conditions.

Impacts from Recreation Management and Visitor Services

Under Alternative D, OHV travel would be limited to designated roads, primitive roads, and trails, at a minimum. However, any play area designated for OHV use would remain open, with the potential to disturb or disrupt wild horse movement in these areas. Seasonal restrictions for authorized activities could impact the ability of to access herds for gathers.

Impacts from Lands and Realty Management

Under Alternative D, new ROW and land use authorizations would be avoided whenever possible, with a goal of no net loss of GRSG habitat. ROW avoidance areas in PHMA, IHMA, and GHMA, as well as the exclusion of larger facilities in PHMA, would somewhat

limit the indirect impacts of development on wild horses in the avoidance and exclusion areas. Impacts would still occur in nonhabitat HMAs.

Similarly, management actions prohibiting solar and wind development in PHMA and imposing restrictions on development in IHMA and avoidance areas in GHMA would limit any impacts of disturbance from development of these resources. However, this may shift impacts on nonhabitat HMAs.

Impacts from Mineral Materials (Salables) Management

Under Alternative D, some degree of mineral development would be allowed, with measures to avoid or mitigate impacts on GRSG. Specifically, new fluid minerals and undeveloped nonenergy mineral leases would be allowed in all GRSG habitat types, with BMPs applied. Similarly, mineral materials would be allowed to be leased in all habitat types, with stipulations. As a result of the flexibility in management for PHMA, unlike that in Alternative B, there is some potential for mineral development in PHMA and related impacts on disturbance of wild horses; however, the impacts would likely be minimal and lower than those under Alternative A. Within IHMA and GHMA, the degree of disturbance from or conflicts with wild horses from energy and mineral development would also be lower than that under Alternative A.

4.4.8 Alternative E

Impacts from Vegetation Management

Impacts from habitat restoration are as described under Alternative A. Similarly, management actions of invasive species would likely be similar to Alternative A, with a focus on actions in CHZ and IHZ. Short-term impacts on wild horses would be minimal, with a chance for long-term improvement of forage.

Impacts from Wild Horse and Burro Management

Under Alternative E, management actions for wild horses and related impacts would be as discussed under Alternative A.

Impacts from Wildland Fire Management

Under Alternative E, management actions for wildfire include an emphasis on fire suppression and reduction in fire risk in CHZ, IHZ, and GHZ. As a result, the risk of ignition and spread of fire in occupied GRSG habitat would be reduced, thereby reducing the impacts of fire on HMAs in GRSG habitat. The risk of fire spread in HMAs in other habitat could increase, should limited resources be allocated for GRSG habitat.

Impacts from Livestock Grazing/Range Management

Under Alternative E, management actions for livestock grazing would be based on GRSG population trends and focused on CHZ and IHZ. Adjustments would be applied at a site-specific level and specifically tailored to achieve objectives. As a result, changes to management and associated impacts would be limited. Impacts on wild horse management would therefore be most likely to occur in CHZ and IHZ but would be limited in nature.



Avoiding construction of new fences within 1.2 miles (2 km) of leks could reduce barriers to wild horse movement as compared to Alternative A. Considering GRSG habitat needs and risks when designing and locating new water developments may limit water developments which could result in a need to reduce AMLs in HMAs where alternative water sources are not available, especially in drought situations.

Impacts from Recreation Management and Visitor Services

Impacts would be similar to those described under Alternative B. Seasonal and site-specific limits on OHV travel in GRSG habitat could impact management options for gathers; however, administrative access allowances may limit impacts. These restrictions also could limit disturbances on wild horses from other recreational users.

Impacts from Lands and Realty Management

Under Alternative E, ROW avoidance areas in CHZ and IHZ, as well as the exclusion of new infrastructure in CHZ, would somewhat limit the indirect impacts of development and associated disturbance on wild horses.

Impacts from Energy and Minerals Mineral Management

Impacts from mineral and energy development are generally the same as those described under Alternative A. Fluid mineral development would have some additional restrictions applied to limit disturbance; therefore, the likelihood of development and associated disturbance would be reduced in areas with potential for these resources.

4.4.9 Alternative F

Impacts from Vegetation Management

Management actions under this alternative are similar to those described under Alternative B. For invasive species management, activities that spread invasives would be restricted. As described under the range management section, restrictions on water developments may apply, with potential impacts on wild horses. However, there is the potential that less water would be necessary under Alternative F, due to the reduction in AMLs in the planning area.

Impacts from Wild Horse and Burro Management

Under Alternative F, AMLs would be directly reduced by 25 percent for all HMAs within PHMA and GHMA. This would reduce the established AMLs for all HMAs that are entirely or partially in mapped, occupied GRSG habitat. As a result of AML reduction under Alternative F, costs of wild horse management would increase, due to a need for additional horse gathers for removal or population growth suppression treatments. Location specific population reductions and impacts on particular HMAs would be determined at implementation and likely related to land health and current population size.

Other management actions for wild horses and related impacts are similar in nature to those described under Alternative B.

Impacts from Wildland Fire Management

Impacts from Wildland Fire Management are similar to those described under Alternative B and all action alternatives; actions to suppress and control the spread of wildfire under Alternative F could decrease the risk of disturbance from wildfire for HMAs in GRSG habitat. HMAs outside of GRSG habitat would be at a lower priority level for fire suppression efforts, and may have higher risk of loss of forage from fire.

Closures in place for livestock grazing post-fire until woody and herbaceous cover achieve GRSG habitat objectives could result in long-term (10 to 50 years or longer) exclusion from burned sites and barrier to movement for wild horses, as it would generally take more than a decade to reestablish adequate Wyoming sage cover in low precipitation areas. The level of impacts would depend on locations, size, and intensity of wildfire in GRSG habitat in relation to location of HMAs.

Impacts from Livestock Grazing/Range Management

Under Alternative F, 25 percent of the area in PHMA/GHMA open to livestock grazing would be rested each year and utilization would be limited to 25 percent of current levels; therefore AUMs for livestock would correspondingly be reduced. As described in Alternative C, a reduction in areas available for livestock grazing could result in additional forage available for wild horses. In addition, a prohibition on new water developments and requirements to make modifications, including potential dismantling of developments would be in place. As a result, there would likely be impacts on the availability of water sources for wild horses. This could result in impacts on the ability to manage for AML, particularly for those HMAs with no alternate water source. Alternative F also calls for avoiding all new structural range developments in occupied GRSG habitat, unless independent peer-reviewed studies show that the range improvement structure benefits GRSG. In practice, this would result in few range developments being approved. The lack of new fences would benefit wild horses by reducing barriers to movement across the range.

Impacts from Recreation and Visitor Services Management

Impacts are similar to those described under Alternative B.

Impacts from Energy and Minerals Management

Under Alternative F, no new mining claims would be allowed, and salable minerals sales would be prohibited in PHMA. Therefore, there would be limited potential from development-related disturbance of these resources on wild horses. Impacts from leased fluid minerals are the same as those described under Alternative A. New leasing in PHMA and GHMA would be limited, so there is some limited opportunity for disturbance from development of these resources.

4.4.10 Proposed Plan

Impacts from Lands and Realty Management

Under the Proposed Plan, restrictions on disturbance would be prioritized based on GRSG habitat. The greatest restrictions on ROW development would occur in the HMAs in SFA,



followed by PHMA and IHMA. While these restrictions would provide for the greatest protection of wild horse forage and water sources and would limit disturbance in SFA, it would still allow development in areas outside of occupied GRSG habitat.

Under the Proposed Plan, PHMA and IHMA would be managed as ROW avoidance areas, but would be subject to RDFs, BMPs buffers, and a seasonal timing limitation, resulting in limited new development in GRSG habitat. As a result, disturbance of wild horses and forage from development activities, as discussed under *Nature and Type of Effects*, would be limited in GRSG habitat.

Implementing the GRSG mitigation strategy and monitoring framework under the Proposed Plan would ensure that this increased level of protection of forage and water resources and reduction of wild horse harassment would be maintained for HMAs within GRSG habitat.

Impacts from Habitat Restoration and Vegetation Management

Under the Proposed Plan, vegetation rehabilitation would emphasize projects in areas with potential to improve GRSG habitat. Conifer removal and noxious weed control, as identified in **Tables 2-5** and **2-7**, or the prioritization for treatment and restoration projects, as identified in the Wildfire, Invasive Annual Grasses and Conifer Expansion Assessment approach, would improve forage conditions for wild horse in the long term. In the short term, prescribed burns or other treatments may temporarily reduce available forage or disturb horses, but due to the restrictions on these activities, impacts are likely to be limited.

Implementing the GRSG mitigation strategy and monitoring framework responses under the Proposed Plan would ensure that this increased level of protection of forage and water resources and reduction of wild horse harassment would be maintained.

Management changes in restoration or rehabilitation area could be required to maintain or improve GRSG habitat. This could result in potential need for reduction of wild horse numbers within an HMA in order to meet vegetation objectives for GRSG.

Impacts from Wildland Fire Management

Fuels projects and fire suppression to protect sagebrush ecosystems and associated GRSG habitat would benefit wild horses where HMAs overlap this habitat due to a reduction in the likelihood of high intensity wildfire.

Under the Proposed Plan, management actions for wildfire include an emphasis on fire suppression and reduction in fire risk in PHMA and IHMA with potential for reduction in fire risk and related disturbance of wild horses and forage in these areas. Wildland fire, invasive annual grasses, and conifer expansion assessments would identify priority areas and treatment opportunities for fuels management, fire management, and restoration. The assessments would further define areas for fire management activities. These actions may result in site-specific temporary exclusions of wild horses or reduced forage; however, they would help to reduce the likelihood of catastrophic wildfire and subsequent disturbance of wild horses and reduction of forage in the long term.

Should HMAs contain high fire risk areas that are outside of the identified priority treatment areas, then these non-priority areas could be at an increased risk for wildfire, as treatment and suppression activities would be focused elsewhere. Impacts on forage or herd dispersal could occur in these areas if fires occur. Temporary or long-term management changes to wild horse management, such as emergency gathers, reduction in AML, or fencing blocking access to forage or water, may be necessary to achieve and maintain the desired GRSG objectives post-fire. The degree of impacts would be determined by the location, size, and intensity of fires in GRSG habitat. Fencing to exclude livestock from post-burn areas could impact the ability of horses to roam freely. If exclusion reduces horses' ability to access water sources, the ability to manage for AML could be affected, and animals may be removed from the range temporarily if adequate forage and alternate water sources could not be supplied.

Impacts from Energy and Minerals Development

Under the Proposed Plan energy and mineral development would have additional restrictions applied to limit disturbance on GRSG habitat as compared to Alternative A. Restrictions on development would be prioritized with the greatest restrictions in SFA, followed by PHMA, IHMA, and GHMA. As a result, the likelihood of development and associated disturbance of wild horses would be reduced in areas with potential for these resources (with the most reduction in SFA followed by PHMA, IHMA, and GHMA), as compared to Alternative A. Due to the limited conflicts between wild horse management and energy development under existing conditions, impacts would be negligible.

Impacts from Travel and Transportation Management

Under the Proposed Plan, OHV travel would be limited to existing roads, primitive roads, and trails in PHMA and IHMA, unless already designated as limited or closed. As a result, disturbance of wild horses and their forage and water sources from OHVs would be reduced, as compared to Alternative A. Under the Proposed Plan, temporary closures would also be permitted as necessary for resource protection, which would further reduce disturbance to wild horses and forage.

Specific implementation-level criteria to protect GRSG would also be applied, further limiting the location of new roads and volume of traffic on new and existing roads. Site-specific travel management planning could, when completed, reduce the potential for conflicts between wild horses and recreation.

Impacts from Livestock Grazing Management

Management to conserve, enhance, or restore GRSG habitat that benefits livestock forage would generally also benefit wild horses within GRSG habitat in the long term.

Livestock grazing permits and leases would be processed and land health would be assessed in allotments most in need of habitat improvement. Allotments in GRSG habitat would be emphasized, with SFA prioritized over PHMA and then IHMA. As a result, range conditions for both livestock and wild horses overlapping these allotments should be improved concurrent with this priority order.



Modifying or eliminating livestock watering sites could reduce water availability for wild horses. This could result in the need to reduce wild horse numbers or develop alternative water sources within specific HMAs, especially during periods of drought.

Impacts from Wild Horse and Burro Management

Under the Proposed Alternative, HMAPs would be amended to incorporate GRSG habitat objectives; therefore changes may be required to AMLs or wild horse management in the long term in SFA, PHMA and IHMA should these objectives not be met by current AMLs or management. The level of such changes or the specific HMA(s) in which changes may occur would be determined at implementation and would be influenced by site specific habitat conditions and land health.

Acres of SFA, PHMA, IHMA and GHMA in each HMA are displayed in **Table 4-75**, Proposed Plan GRSG Management Areas by HMA, below.

**Table 4-75
Proposed Plan GRSG Management Areas by HMA**

HMA	Associated Conservation Area	SFA (Acres)	PHMA (Acres)	IHMA (Acres)	GHMA (Acres)
Black Mountain	West Owyhee	0	0	46,300	0
Challis	Mountain Valleys	109,400	104,800	51,400	250
Fourmile	Mountain Valleys	0	0	0	16,000
Hardtrigger	West Owyhee	0	0	60,200	0
Sands Basin	West Owyhee	0	0	9,500	0
Saylor Creek	West Owyhee	0	0	0	0

Source: BLM GIS 2015

Prioritization of gathers in HMAs would directly and indirectly impact wild horses. SFA would take priority for gathers, followed by PHMA and IHMA. Challis is the only HMA that falls within an SFA and would have the highest standing priority for gathers each year to maintain animals within the established AML. This focused management strategy would ensure that AML is maintained, along with the necessary forage for the horses in this HMA; however, it may increase the number of gathers needed and other intensive management to maintain AML, thereby potentially increasing the disturbance to the populations and possibly disrupting herd dynamics. This prioritized management strategy could also reduce the ability to gather animals from lower prioritized HMAs and puts HMAs that fall within the lowest priority at risk for overpopulation; however, under this LUPA, provisions would allow for exceptions as needed for herd health-limiting impacts.

Authorizing new or modifying existing livestock watering sites that benefit or conserve PHMA, IHMA, and GHMA in conservation areas would provide alternate sources of water for wild horses. Eliminating fencing or existing water sources that may be impacting PHMA and IHMA could reduce or eliminate water availability. This could change horse distribution and potential need for reducing wild horse numbers in an HMA. In addition, without adequate water sources, wild horses would stray outside HMAs in search of water, increasing

the cost of gathers for removing nuisance animals outside HMAs or that occupy private land.

Finally, the BLM would continue to coordinate with professionals from other federal and state agencies and university researchers to use and evaluate new management tools (e.g. population growth suppression, inventory techniques, and telemetry) for implementing the wild horse and burro program. This would be to ensure practical and efficient management of wild horses in AML, while protecting GRSG habitat.

Impacts from Human Disturbance Management, Adaptive Management, and Coordination

Placing a 3 percent cap on human disturbance at the BSU and project levels would generally reduce development in GRSG habitat and disturbance of wild horses. Human disturbances in PHMA and IHMA would additionally be mitigated to ensure a net conservation gain to GRSG habitat, which indirectly protects wild horse forage.

In a conservation area, if adaptive management soft triggers were met and wild horses were found to be factors in GRSG habitat not achieving or moving toward achieving objectives, the adjustment of wild horse populations would be considered. This could reduce AMLs in some HMAs in the long term.

Increased coordination between entities would directly impact the conservation of GRSG habitat, which would indirectly conserve forage for wild horses. The entities involved would be the BLM and Forest Service and adjacent landowners, federal and state agencies, local governments, tribes, communities, other agencies, Resource Advisory Councils, public land permit holders, and nongovernmental organizations.

4.5 Wildland Fire Management

4.5.1 Methods and Assumptions

Indicators

Indicators of impacts on wildland fire management are as follows:

- Alteration of vegetation cover that is likely to result in a substantial shift in fire regime condition class (FRCC) across the planning area
- A substantial change in the likelihood or severity of wildfire, based on the level of restrictions on uses that may introduce sources of ignition
- Management actions that substantially inhibit a response to wildfire or appropriate treatments to prevent wildfire

Assumptions

The analysis includes the following assumptions:



- The spread of invasive annuals (e.g., cheatgrass) has lengthened the fire season in many parts of the planning area. These species often cure sooner than native perennial species and are more prone to ignition. Therefore, actions that reduce the spread or footprint of invasive annuals or restore perennial vegetation communities would reduce the frequency and intensity of wildfires, while reducing wildfire management costs.
- Fuels treatments using chemical methods to control invasive annuals are likely to be the most effective in reducing fine fuels and fire intensity and severity.
- Fire is an important functional natural disturbance in many of the ecological systems found in the planning area.
- In many cases, a direct relationship exists between fuel loading and potential fire intensity and severity.

4.5.2 Nature and Type of Effects

Impacts on wildfire management result from changes in fire frequency and intensity and the ability to employ fire-suppression methods, both of which would affect management of fire and related costs within the planning area. As discussed in **Section 3.7**, most of the lands in the decision area have moderate to high levels of departure from historic conditions and related fire risk. Actions that change condition class from highly altered ecosystems to one closer to historical conditions could reduce the risk of key ecosystem loss, as well as decrease fire risk and management costs in the long term.

Many different resource uses may introduce additional ignition sources into the planning area. This increases the probability of wildfire occurrence and the need for fire suppression. Fire intensity can be affected by activities that decrease fuel loading, such as vegetation treatments and timber product harvesting, and activities that alter the composition and structure of vegetation communities. High-intensity fires generally result in a greater loss of vegetation cover, changes to soil chemistry, damage to root structures, and a greater ability for nonnative species to become established (Verma and Jayakumar 2012).

Transportation and travel management can impact fire frequency by changing the level of risk of human-caused ignitions. The risk of ignition is increased where travel is less restrictive, particularly where motorized vehicles travel cross-country. All forms of travel encourage the spread of invasive weeds, particularly cheatgrass, which can shift fire regimes and increase fire behavior potential. Conversely, if management were to restrict access, wildfire risk may decrease. In addition, transportation management may impact fire suppression; when routes are closed and rehabilitated, they become unavailable for response to wildfires, limiting access opportunities.

Similarly, the level and type of recreation permitted can impact fire risk. Increased recreation may increase the probability of unintentional fires from human-caused ignitions and the need for fire suppression. Recreation management may reduce this risk by providing targeted activities and outcomes.

Surface disturbance caused by development would generally contribute to the modification of the composition and structure of vegetation communities (including increases in noxious weed proliferation) around developed areas. This would then be more likely to fuel high-intensity fires, which could increase program costs because of the increased potential for fire.

Lands and realty actions may indirectly result in development and associated fire risk. For example, issuing ROWs can result in indirect impacts by increasing the risk of human-caused ignition should transmission lines, renewable energy projects, or other development be constructed.

Likewise, the development of energy and minerals may increase the risk of wildfires by introducing new ignition sources (Shlisky et al. 2007). Associated facilities, infrastructure, and transmission lines can increase fire and fuels program costs, while decreasing fire management flexibility to respond to sub-regional conditions with regard to suppression options. Energy development also poses hazards to firefighters, including unknown toxins, facility protection, evacuation of industry personnel, and dangerous overhead power lines. Fire programs could incur additional costs to train firefighting personnel for emergency situations associated with energy development.

Additional limitations on mineral development would have an indirect effect of decreased fire. This would be due to less development, fewer vehicles, and less construction equipment, all of which would decrease the chance of human ignition. Development of federal minerals underlying nonfederal lands may impact fire management on BLM-administered and National Forest System lands. This is particularly the case when ownership is in a patchwork pattern, as fires ignited on nonfederal lands may quickly spread onto and impact BLM-administered and National Forest System lands.

Invasive species establishment or increase may follow construction and could impact fire management actions through increased risk of fire and need for fire management. If treatments in annual infested areas use an approved herbicide, those treatments would generally experience greater levels of success.

Prioritizing fuels treatments in areas dominated by invasive species would reduce the frequency and intensity of wildfire. The spread of invasive species, which cure earlier in the spring or summer, has lengthened the fire season in many parts of the planning area. If these areas revert to a perennial-dominated community, the fire season would generally be shortened by two to four months, depending on moisture, weather, and other factors.

Biological treatments can impact the ability to manage fire as a natural process through changes in fine fuels availability (e.g., grasses). For example, livestock grazing temporarily reduces fuel loads, so retiring allotments may increase fuels in specific sites. Conversely, increasing AUMs could reduce fuel loads. However, grazing could spread invasive species. Mowing or herbicide applications may be better suited for long-term fuels management goals.



Vegetation and weed treatments that decrease standing vegetation could decrease the intensity of wildfires and allow fires to be more easily controlled. For example, reducing the incursion of nonnative annual grasses (primarily cheatgrass) and the proliferation of other noxious and invasive weeds would promote healthy plant communities and an associated lower risk of high-intensity wildfire (USGS 2006). Used appropriately, prescribed fire would be compatible with noxious weed control. However, the presence of noxious weeds and the potential of weeds to spread after a prescribed fire would need to be monitored on a site-specific basis; herbicide applications may be warranted to assist in successful treatments. Conversely, management actions that retain shrub and cover may increase fuel loading and the likelihood and intensity of wildfire.

Management actions that are intended to improve, create, or reestablish healthy ecological conditions in various vegetation types benefit the fire and fuels program in the long term. They do this by promoting the most efficient use of fire and fuels management program resources. Conversely, prioritizing fire suppression can limit management options and increase costs for fire management programs.

Special designations, such as ACECs and sensitive resource management, can restrict fuels treatments on a site-specific basis. For example, in areas where preservation of particular species or habitats is emphasized, management options and fuels treatments may be limited. Conversely, restricting resource uses, such as travel and mineral extraction, in special designation areas could reduce fire risk in these locations.

Implementing management for the following resources would have negligible or no impact on wildfire management; therefore, they are not discussed in detail: air quality, soil resources, water resources, cultural resources, paleontological resources, visual resources, wilderness characteristics, cave and karst resources, forestry, socioeconomics, and environmental justice.

4.5.3 Impacts on Wildland Fire Management Common to All Alternatives

The nature and type of impacts described below are common to all alternatives, but the context and intensity may vary by alternative.

Impacts on wildland fire management common to all alternatives include changes in fire frequency and intensity, and the ability to use fire suppression methods, all of which would affect management of fire within the planning area. Many different resource uses may introduce additional ignition sources into the planning area, which increases the probability of wildfire occurrence and the need for fire suppression.

Fire intensity can be affected by activities that decrease fuel loading, such as vegetation treatments and timber product harvesting, and activities that alter the composition and structure of vegetation communities. High-intensity fires generally result in a greater loss of vegetation cover, changes to soil chemistry, damage to root structures, and a greater ability for nonnative species to become established. Resource and special designation restrictions may limit fire suppression tactics and fuels treatment methods.

Impacts from Lands and Realty Management

Under all alternatives, issuance of power line ROWs would increase access and program costs because of the increased potential for fire in the ROW. There may also be slightly higher risk of human-caused ignitions from construction, maintenance, and use of power line ROWs. As new ROWs are developed, additional fuels treatments are necessary to address potential impacts from wildland fires.

Critical infrastructure ROW corridors would need maintenance throughout their life to keep vegetation at a level that would moderate fire behavior and allow for some protection from an unplanned wildfire. Vegetation maintenance would ensure that critical infrastructure would not fail at a time of need, such as during a wildfire.

Impacts from Habitat Restoration and Vegetation Management

Under all alternatives, the BLM and Forest Service would manipulate vegetation, use prescribed fire or manage unplanned wildfire for LUP objectives. This would affect the wildfire management program by reducing costs and potential for large, damaging wildland fires.

Vegetation treatments could also reduce fuel loading, which would affect fire intensity and allow fires to be more easily controlled.

Impacts from Invasive Species Management

Under all alternatives, invasive species treatments could reduce fuel loading, which would affect fire intensity and allow fires to be more easily controlled.

Impacts from Wildland Fire Management

Under all alternatives, management actions that are intended to improve, create, or reestablish healthy ecological conditions in various vegetation types would benefit the fire and fuels program. They would do this by promoting the most efficient use of fire and fuels fire management program resources. In addition, allowing a range of fuel treatment options and the possibility of unplanned wildfire for resource benefit provides needed management flexibility to reduce large fire costs and achieve fire and fuels goals and objectives.

Impacts from Minerals Management

The development of minerals resources may increase the risk of wildfires by introducing new ignition sources, although initial mine development also removes fuel sources by stripping the immediate area of vegetation. Facilities, infrastructure, and transmission lines can increase fire and fuels program costs, while decreasing fire management flexibility with regard to suppression options. Energy development also poses hazards to firefighters, including unknown toxins, facility protection, evacuation of industry personnel, and dangerous overhead power lines. Fire programs could incur additional costs to train firefighting personnel for emergencies associated with energy development.

The road infrastructure supporting energy and minerals development would provide increased accessibility to remote areas for fire suppression. Roads also provide fuel breaks in the event of wildfire.



Impacts from Recreation and Visitor Services Management

Under all alternatives, restrictions on recreation use would decrease the potential for human-caused ignition.

Transportation and recreation access also increase the risk of human-caused ignitions. All forms of travel encourage the spread of invasive weeds, particularly cheatgrass, which can shift fire regimes and increase fire behavior potential. When routes are closed and rehabilitated, they become unavailable for response to wildfires, limiting access opportunities and potentially delaying fire management actions.

Impacts from Livestock Grazing Management

Under all alternatives, livestock grazing may reduce fuels loading in certain areas. The impact would be greatest where grass fuel types are the main carrier of the fire.

4.5.4 Alternative A

Impacts from Lands and Realty Management

Current impacts would continue as would the increased risk of human-caused ignitions where power line ROWs are developed and operated.

Impacts from Habitat Restoration and Vegetation Management

Vegetation management and weed treatments would continue to decrease both standing and downed vegetation (i.e., fuel load) across the planning area. This would decrease the intensity of wildfires and allow them to be more easily controlled. These activities would also modify the composition and structure of vegetation communities by creating mosaic vegetation patterns and natural fuel breaks and by promoting healthy, diverse vegetation communities that generally fuel low-intensity fires. Specifically, efforts to reduce the incursion of nonnative annual grasses (primarily cheatgrass), the encroachment of shrubby vegetation, the buildup of biomass in forested areas, and the proliferation of noxious and invasive weeds would help to achieve this effect. Similarly, treatments for habitat improvement and forage would reduce fuels and reduce the likelihood for stand-replacing fire.

Impacts from Invasive Species Management

On average, the planning area would continue to experience a five- to seven-month fire season due to invasive annuals curing earlier than the perennial vegetation and being prone to ignition. Without targeted management actions in GRSG habitat to convert vegetation communities back to a perennial dominated community, there would continue to be an increased risk of wildfire over a longer period each year.

Impacts from Wildland Fire Management

The wildland fire management program would continue to be impacted by the spread of invasive annuals, which results in a longer fire season and the need for more resources to respond. There would also be a continued decrease in the hazardous fuels reduction program's ability to maintain reactive suppression and rehabilitation efforts in the wildland-urban interface (WUI).

Impacts from Nonenergy Leasable Minerals Management

Current impacts would continue and nonenergy mineral development would continue to pose a potential ignition risk.

Impacts from Locatable Minerals Management

Current impacts would continue and locatable mineral extraction would continue to pose a potential ignition risk.

Impacts from Salable Minerals Management

Current impacts would continue and mineral material disposal activities would continue to pose a potential ignition risk.

Impacts from Unleased Fluid Minerals Management

Unleased fluid minerals management would continue to have no detrimental impact on fire risk or management because there would be no surface-disturbing activities from fluid mineral leasing or development.

Impacts from Leased Fluid Minerals Management

Current impacts would continue and fluid mineral development would continue to pose a potential ignition risk.

Impacts from Recreation and Visitor Services Management

Recreation use would continue to increase the risk of human-caused ignitions, especially in areas with high visitation.

Impacts from Livestock Grazing Management

Grazing would continue to reduce fuels loading in certain areas. Impacts on the wildland fire management program would continue to be greatest where grass fuel types are the main carrier of the fire.

Impacts from Special Designations Management

Current impacts would continue, and there would be less management flexibility for fuels treatments and wildfire response in existing ACECs.

4.5.5 Alternative B

Management under Alternative B would focus on restrictions on resource uses and protection for and enhancement of sagebrush habitat. In general, this would reduce the risk of human-caused ignitions and would encourage a return to historic FRCC in sagebrush habitat. Use restrictions could also minimize the spread of invasive species by limiting human activities that disturb the soil disturbance or introduce seeds. This would likely reduce the frequency and intensity of wildfire. However, restrictions on response to wildfire could limit management options and increase costs for fire management programs.



Impacts from Lands and Realty Management

Limiting new development in PHMA to existing footprints would reduce opportunities for human-caused ignitions. The rest of the decision area would continue to experience current levels of risk for human-caused ignitions and the resultant shift in FRCC.

Impacts from Habitat Restoration and Vegetation Management

Prioritizing the reestablishment of sagebrush cover would promote a shift towards historic FRCC in sagebrush ecosystems. Vegetation treatments could reduce fuel loading, which would affect fire intensity and allow fires to be more easily controlled. Vegetation treatments also create early seral stage vegetation communities, which generally fuel low-intensity fires.

Active restoration of cheatgrass infestation areas in PHMA would result in less frequent or intense wildfires as native perennial species are reestablished.

Impacts from Invasive Species Management

An increased potential for invasive species treatments in grazing allotments in PHMA would decrease the intensity of wildfires and allow fires to be more easily controlled.

Impacts from Wildland Fire Management

Designing and implementing fuel breaks to protect existing sagebrush would discourage further shifts away from historic FRCC in these areas.

Using livestock in certain cases to reduce fine fuels would reduce the likelihood and severity of wildfire.

In PHMA, prioritizing suppression in GRSG habitat immediately after fire, and then property, could limit management options and increase costs for the fire management program by requiring more resources (e.g., staff). However, the focus on suppression could also limit expansion of cheatgrass because fire increases opportunities for invasive species, such as cheatgrass, to expand (Brooks et al. 2004).

As a last resort in PHMA, the use of prescribed fire for fuel breaks that would disrupt the fuel continuity across the landscape could be considered in stands where cheatgrass is a minor component in the understory. Although this action would only be undertaken if all other treatment options have been explored, it would reduce the likelihood and severity of wildfire.

If livestock grazing, travel management, and other activities were to affect the success of restoration projects, management could be changed to encourage a higher success rate. This would help stabilize shifts in FRCC and reduce the likelihood and severity of wildfire by implementing more successful restoration projects across the planning area.

Impacts from Nonenergy Leasable Minerals Management

Prohibiting new leases in PHMA would reduce opportunities for human-caused ignitions. The rest of the decision area would continue to experience current levels of risk for human-caused ignitions and the resultant shift in FRCC.

Impacts from Locatable Minerals Management

If PHMA is withdrawn from mineral entry, there would be fewer opportunities for human-caused ignitions.

Impacts from Salable Minerals Management

Restoring salable mineral pits in PHMA would result in a temporary increase in the potential for human-caused ignitions. However, prohibiting mineral material sales in PHMA would reduce opportunities for human-caused ignitions over the long term.

Indirect impacts would reduce invasive species when salable mineral pits are restored. This would reduce the frequency and intensity of wildfire and promote the establishment of native perennial species that are less combustible.

Impacts from Unleased Fluid Minerals Management

Closing PHMA to leasing and letting existing leases expire would reduce future opportunities for human-caused ignitions. Geophysical exploration, especially when using overland travel, could temporarily increase the potential human-caused ignitions.

Over the long term, closures would protect against nonnative invasive species introduction, which would reduce the frequency and intensity of wildfire.

Impacts from Leased Fluid Minerals Management

Conservation measures in PHMA, including prohibiting new surface occupancy, would limit increased risk for human-caused ignitions.

Impacts from Recreation and Visitor Services Management

Limiting special uses in PHMA to those that are neutral or beneficial to GRSG could result in use restrictions that may reduce the risk of human-caused ignitions.

Impacts from Livestock Grazing Management

Potential restrictions on grazing, including retiring allotments, in PHMA could increase fine fuels and thus the severity of wildfires.

Evaluating, and potentially introducing, exotic grass seedings could increase the risk of wildfire, depending on the attributes of and range where the grass species is introduced.

Limiting the types of range improvements allowed in PHMA would decrease opportunities for human-caused ignitions during construction or maintenance.

Impacts from Special Designations Management

Impacts are the same as under Alternative A.

4.5.6 Alternative C

The complete removal of livestock grazing would reduce weed spread via livestock vector and could increase fire intensity due to increases in fine fuel from lack of fuel removal. In the short term, fuel buildup might lead to bigger fires, while in the long term, if weed spread



were reduced, smaller fires may result. Ultimately, the effect of no grazing on wildfires would be dependent on weather and fuel conditions at the time of ignition.

Impacts from Lands and Realty Management

Limiting development in occupied habitat to existing footprints would reduce opportunities for human-caused ignitions. The rest of the decision area would continue to experience current levels of risk for human-caused ignitions and would continue to increase the departure from historic reference conditions due to invasive annual grasses and an abundance of early successional vegetation.

Impacts from Habitat Restoration and Vegetation Management

Impacts are similar to those under Alternative B.

Impacts from Invasive Species Management

There are no management actions for invasive species management, and impacts are the same as under Alternative A.

Impacts from Wildland Fire Management

Impacts are similar to those under Alternative B, except that occupied habitat would be managed in good or better ecological condition to reduce the unnatural frequency and intensity of wildfire. In addition, removing grazing from GRSG habitat would limit the effectiveness of RFPAs because there would be fewer ranchers to serve as first responders and to implement comprehensive fuel break strategies. This reduced effectiveness would result in increased fire size and federal fire management costs.

Impacts from Nonenergy Leasable Minerals Management

Impacts are the same as under Alternative B.

Impacts from Locatable Minerals Management

Impacts are the same as under Alternative B.

Impacts from Salable Minerals Management

Impacts are similar to those under Alternative B.

Impacts from Unleased Fluid Minerals Management

Impacts are similar to those under Alternative B.

Impacts from Leased Fluid Minerals Management

Impacts are similar to those under Alternative B.

Impacts from Recreation and Visitor Services Management

Impacts are similar to those under Alternative A.

Impacts from Livestock Grazing Management

Eliminating grazing from the decision area would increase some pressures on the wildland fire management program, while lessening others. In either case, the impact would be greatest where grass fuel types are the main carrier of the fire. For example, in areas

dominated by grass fuel types, there would be no reduction in fine fuels, and the frequency and intensity of wildfires would increase. However, because the prohibition on grazing would reduce weed spread, some areas, in conjunction with efforts to reintroduce perennial vegetation, may experience a shorter fire season and less frequent or intense wildfires.

Impacts from Special Designations Management

Restrictions associated with the management of 39 new ACECs (covering 3.1 million acres of GRSG habitat) may limit fire suppression tactics and fuels treatment methods. ACEC designations may also result in fewer human ignitions due to restrictive management actions.

4.5.7 Alternative D

With an emphasis on balancing resources and resource use among competing human interests, land uses, and the conservation of natural resources, this alternative would reduce departure from historic reference conditions and FRCC shift toward condition class 3 and would result in a more natural (i.e., historic) frequency and intensity of wildfire.

Impacts from Lands and Realty Management

Certain uses would be excluded in PHMA, reducing the type of development allowed in those areas. This restriction would limit opportunities for human-caused ignitions. There would be no similar restrictions in IHMA or GHMA, meaning the reduction in ignitions would be confined to a smaller area than under other alternatives.

Impacts from Habitat Restoration and Vegetation Management

Alternative D proposes a more defined set of tools for wildfire management than other alternatives. In most instances, Alternative D allows for management flexibility to respond to sub-regional conditions in designing fuels treatments and response to wildfire. For example, in PHMA the use of chemical, mechanical, and seeding treatments with appropriate plant materials is emphasized to prevent the dominance of invasive weeds. This would allow a greater success of those treatments. Using mechanical and chemical treatments to prepare areas in FRCC2 and FRCC3 for prescribed fire would have a similar impact.

Strategic wildland fire planning would help return PHMA to historic FRCC and natural fire intensities and intervals. Key actions driving this impact are as follows:

- Strategically placed fire-resistant vegetation or green-strip seedings
- Strategically placed pretreated areas that reduce fine fuels by such practices as mowing vegetation along roadsides, implementing grazing strategies, and applying herbicides
- Planned wildfire suppression tactics in important GRSG habitat

Prioritizing wildfire suppression in PHMA and conducting burn-out/backfiring operations in a manner that minimizes the loss of sagebrush may have limited ability to restore historic FRCC in PHMA.



Impacts from Invasive Species Management

Education, inventory, prevention, control, rehabilitation, and monitoring would be emphasized. By limiting the spread of invasive species, more GRSG-occupied habitat would be retained as a perennial-dominated community, which has a shorter fire season than those communities characterized by invasive annuals (which cure earlier in the year and are more prone to ignition).

Impacts from Wildland Fire Management

Wildland fire management under Alternative D is similar to Alternative B, with additional management flexibility and guidance incorporated to tailor management to specific vegetation communities. The BLM and Forest Service would prioritize wildfire suppression planning and would consider targeted grazing to reduce fine fuels in PHMA. As a result, FRCC shift would be reduced and the frequency and intensity of wildland fire would be more natural. This is because post-fuel, restoration, and ESR management would be designed to ensure long term persistence of seeded or pre-burn native plants.

Likewise, several actions would improve the success of fuels treatments in PHMA. Specifically, ensuring chemical applications are used in fuels treatments and pretreating areas to reduce fine fuels through mechanical treatments, grazing strategies, chemical or biological application would dramatically improve the fuel program's ability to improve GRSG habitat conditions.

When reseeding following fire, using species varieties that are adapted to a warmer climate may, in combination with potential climate change, reduce potential for unnatural levels of fire frequency and intensity.

Stationing first response firefighting resources to higher fire occurrence areas would reduce response time.

Impacts from Nonenergy Leasable Minerals Management

Seasonal limitations and restrictions on development near leks would reduce the potential for human-caused ignitions.

Impacts from Locatable Minerals Management

Operations on mining claims would require additional mitigation within GRSG habitat, likely resulting in site-specific improvements to FRCC and wildfire intensity and frequency. Impacts may be lessened if the withdrawals decrease the amount of disturbance caused by operations authorized by the mining laws.

Impacts from Salable Minerals Management

The types of impacts are similar to those under Alternative B, except that prohibitions on mineral material disposal would extend only to areas around occupied leks. This would reduce the area where there would be lower risk of human-caused ignitions.

Impacts from Unleased Fluid Minerals Management

There would be several measures (e.g., TL and NSO stipulations and RDFs) restricting surface disturbance that would reduce the potential for human-caused ignitions.

Impacts from Leased Fluid Minerals Management

Allowing exploration and drilling on leased areas in IHMA from July through November would increase the risk of human-caused ignitions. Off-site mitigation requirements for new developments in PHMA could encourage a return to historic FRCC in areas where mitigation is implemented.

Impacts from Recreation and Visitor Services Management

Restricting SRPs in sensitive seasons or in PHMA could result in temporary and site-specific reductions in human-caused ignitions.

Minimizing adverse recreation effects on GRSG within recreation management areas that overlap PHMA could result in use restrictions that may reduce the risk of human-caused ignitions.

Impacts from Livestock Grazing Management

Impacts are similar to those under Alternative B.

Impacts from Special Designations Management

Impacts are the same as under Alternative A.

4.5.8 Alternative E

Alternative E focuses primarily on management for the threats of wildfire, invasive species, and large infrastructure projects. Secondarily it focuses on the threats of livestock grazing management and infrastructure, West Nile virus, and recreation. It recommends use of an adaptive management approach and implementation of triggers or thresholds that adjust zone criteria. Guidance to reduce wildfire response time, create fuel breaks, and improve the wildfire suppression baseline would increase demand on the wildland fire management program; however, it would result in long-term improvements in FRCC and lowered risk of wildfire.

Impacts from Lands and Realty Management

Impacts are similar to those under Alternative B.

Impacts from Habitat Restoration and Vegetation Management

Development of a restoration strategy for vegetation management would help focus priorities on the areas and communities identified as most pertinent to restoring sagebrush and GRSG habitat. This would constrain or reverse the current trend toward areas becoming dominated by invasive annuals that are more prone to ignition.

Native vegetation would be used for restoration to the extent practicable. In addition, invasive species would be controlled for three years after wildfire treatments. Together, these



actions would reduce the likelihood for weed invasion in burned or treated areas, thus reducing the frequency and intensity of wildland fires.

In Utah, reducing or eliminating the spread of invasive species, particularly cheatgrass, after a wildfire, is a high priority. If the spread of cheatgrass is slowed or stopped, these areas would be at lower risk for intense large-scale fires.

Impacts from Invasive Species Management

This alternative promotes active and aggressive control of invasive species, which would likely reduce the likelihood of large-scale wildfires.

Eradicating or controlling invasive weeds in GHMA may help some areas revert to perennial vegetation types, which would shorten the fire season and reduce the risk of large-scale wildfires.

Weed treatments in IHMA and GHMA would decrease fuel loads and vegetation density across these areas. Management flexibility would decrease the intensity of wildfires and allow them to be more easily controlled. Likewise, in IHMA, the use of chemical and mechanical methods to eradicate or control invasive species would result in more successful treatments and long-term reduction in fire frequency and intensity.

Impacts from Wildland Fire Management

Reducing the number and size of wildfires in PHMA (in accordance with updated IM 2013-128) would allow for more efficient management of wildfire program resources and would reduce risks to firefighters and public safety. The adaptive construct of Governor's Alternative provides a mechanism to protect GRSG from habitat loss due to wildfire. The short-term use of triggers and zones will provide the time to develop more proactive measures that demonstrate long-term success on the landscape. Fuel breaks will be implemented in priority areas to minimize the size of wildfires and reduce need for firefighting resources.

Close coordination with federal, state, and private firefighting personnel, local fire departments and local expertise, such as RFPAs, will improve strategies for initial attack and developing comprehensive fuel break strategies to minimize and reduce the size of wildfires threatening the PHMA and IHMA following ignition. The employment of specific, more aggressive wildlife and invasive species management practices to prevent further encroachment into the PHMA and IHMA should be driven by local planning efforts at the field office and ranger district level. The creation of RFPAs will ensure better and faster initial attack on wildfires threatening the PHMA and IHMA through the employment of additional trained firefighters and resources in rural parts of the GRSG Management Area. This management action is more likely to be used on areas with high fuel loads that are at a high risk of fire threatening PHMA and IHMA.

Impacts from Nonenergy Leasable Minerals Management

There would be over 2 million acres of GRSG habitat closed to leasing and nonenergy minerals development. This would prevent any human-caused ignitions in this area. In areas

open to leasing there would be multiple restrictions (e.g., timing, locational, and a five percent disturbance cap within nesting, winter, or other habitat in PHMA) on development that would reduce the potential for human-caused ignitions.

Impacts from Locatable Minerals Management

Impacts are the same as under Alternative A.

Impacts from Salable Minerals Management

Impacts in Idaho are the same as under Alternative A. In Utah, restrictions near leks and during certain times of the year would reduce the potential for human-caused ignitions.

Impacts from Unleased Fluid Minerals Management

Impacts in Idaho are the same as under Alternative A. In Utah, restrictions near leks and during certain times of the year would reduce the potential for human-caused ignitions.

Impacts from Leased Fluid Minerals Management

Impacts in Utah are similar to those under Alternative A. In PHMA and IHMA in Idaho, restrictions on development would result in the same type of impacts as described under Alternatives B and D.

Impacts from Recreation and Visitor Services Management

There would be numerous site-specific and seasonal restrictions on recreation facilities and activities near leks and during nesting, winter, and other PHMA. These restrictions would limit human activity and the associated ignition risks.

Impacts from Livestock Grazing Management

Targeted grazing would be allowed to reduce fine fuels, resulting in less need for mechanical or chemical fuels treatments. However, efforts to reduce grazing in PHMA and IHMA may increase fuels loading if they overlap with areas where grass fuel types are the main carrier of fire.

In Idaho PHMA, improving management of livestock in existing disturbed sites (e.g., seedings or cheatgrass sites) would complement hazardous fuels reduction program efforts, especially if the targeted grazing were to occur in the WUI.

Impacts from Special Designations Management

Impacts are the same as under Alternative A.

4.5.9 Alternative F

Alternative F closely mirrors management direction proposed in Alternative B but prescribes additional and more restrictive conservation measures. These measures would generally reduce the risk of human-caused ignitions but may reduce management flexibility for fuels treatments and other actions to reduce the long-term risk of wildfire.



Impacts from Lands and Realty Management

Impacts are similar to those described under Alternative B; however, Alternative F would not allow for exceptions to disposal criteria, which would reduce management flexibility and could have implications for fuels treatment effectiveness. Managing priority areas as exclusion areas for new ROW permits would reduce the amount of ROW development and associated risk for human-caused ignitions.

Impacts from Habitat Restoration and Vegetation Management

Impacts are the same as those described under Alternative C.

Impacts from Invasive Species Management

There would be little emphasis on treatments or other methods of invasive species control and consequently a greater risk for increased fuel load and vegetation density across the decision area. Areas dominated by invasive annuals would experience a longer fire season, increasing wildfire management costs.

Impacts from Wildland Fire Management

Wildland fire management under Alternative F would be similar to Alternative B, though Alternative F would require post-fire exclusion of grazing. Constructing livestock enclosures to monitor fire restoration progress would lead to more efficient fire restoration methods and associated improvements in wildland fire program resource allocations. Mowing grass in any fuel break may be less effective than other mechanical methods. This could result in less of a reduction in large fire costs than under other alternatives where there is greater management flexibility.

Impacts from RFPAs would be similar to those described under Alternative E, but their effectiveness may be limited due to a 25 percent reduction in grazing, which would result in fewer ranchers to serve as first responders.

Impacts from Nonenergy Leasable Minerals Management

Impacts are the same as under Alternative B.

Impacts from Locatable Minerals Management

Impacts are the same as under Alternative B.

Impacts from Salable Minerals Management

Impacts are the same as under Alternative B.

Impacts from Unleased Fluid Minerals Management

Allowing existing leases to expire would reduce the long-term potential for human-caused ignitions. Geophysical exploration, especially when using overland travel, could temporarily increase the potential human-caused ignitions.

Impacts from Leased Fluid Minerals Management

Impacts are the same as under Alternative B.

Impacts from Recreation and Visitor Services Management

Impacts are the same as under Alternative B.

Impacts from Livestock Grazing Management

Impacts are the same as Alternative B except that AUMs would be reduced, meaning impacts from livestock grazing may decrease in intensity. The exact location of reduction in AUMs and related impacts from livestock grazing would be determined at project implementation.

Impacts from Special Designations Management

Designating 17 or 18 new ACECs and 12 new Zoological Areas encompassing up to over 1 million acres of GRSG habitat would result in impacts similar to those under Alternative C, but they would occur over a larger area.

4.5.10 Proposed Plan

With an emphasis on balancing resources and resource use among competing human interests, land uses, and the conservation of natural resources, the Proposed Plan would reduce FRCC shift and would result in a more natural (i.e., historic) frequency and intensity of wildfire.

Impacts from Lands and Realty Management

Certain uses would be excluded in PHMA and avoided in IHMA, reducing the type of development allowed in those areas. These restrictions would limit opportunities for human-caused ignitions. There would be no similar restrictions in GHMA, meaning the reduction in ignitions would be confined to a smaller area than under some other alternatives.

Impacts from Habitat Restoration and Vegetation Management

The Proposed Plan uses a more defined set of tools for wildfire management than other alternatives. In most instances, the Proposed Plan allows for management flexibility to respond to sub-regional conditions in designing fuels treatments and response to wildfire. For example, in PHMA the use of chemical, mechanical, prescribed fire and seeding treatments with appropriate plant materials is emphasized to prevent the dominance of invasive weeds. This would allow a greater success of those treatments.

Strategic wildland fire planning would help return PHMA to natural fire return intervals. Key actions driving this impact are as follows:

- Strategically placed fuel breaks instead of fire-resistant vegetation or green-strip seedings
- Strategically placed pretreated areas that reduce fine fuels by such practices as mowing vegetation along roadsides, implementing biological treatments, seeding perennial species, and applying herbicides
- Planned wildfire suppression tactics in important GRSG habitat



Prioritizing wildfire suppression in PHMA and conducting burn-out/backfiring operations in a manner that minimizes the loss of sagebrush may have limited ability to restore historic reference conditions in PHMA.

Education, inventory, prevention, control, rehabilitation, and monitoring would be emphasized. By limiting the spread of invasive species, more GRSG-occupied habitat would be retained as a perennial-dominated community, which has a shorter fire season than those communities characterized by invasive annuals (which cure earlier in the year and are more prone to ignition).

Impacts from Wildland Fire Management

Wildland fire management under the Proposed Plan is similar to Alternatives B and D, with additional management flexibility and guidance incorporated to tailor management to specific vegetation communities. The BLM and Forest Service would prioritize wildfire suppression planning and would consider fuels management treatments to reduce invasive species in GRSG habitat. As a result, this alternative would reduce departure from historic reference conditions and FRCC shift toward condition class 3. Additionally, the frequency and intensity of wildfires would be more natural. This is because post-fuel, restoration, and ESR management would be designed to ensure long term persistence of seeded or pre-burn native plants.

The Proposed Plan would include GRSG wildfire, invasive annual grasses, and conifer expansion assessment (**Appendix D**). This assessment sets the stage for identifying important GRSG-occupied habitats and baseline data layers important in defining and prioritizing GRSG habitats. It would determine potential landscape scale management strategies by considering resilience to disturbance, resistance to invasive annual grasses, and GRSG land cover requirements. The management strategies considered in the assessment to increase GRSG habitat at landscape scales included conservation, prevention, restoration, and monitoring and adaptive management. The strategies are adapted for fire operations (preparedness, suppression, and prevention activities), fuels management, post-fire rehabilitation, and habitat restoration.

The Proposed Plan would create and maintain effective fuel treatments in strategic locations, and would prioritize fire suppression in accordance with the GRSG wildfire, invasive annual grasses, and conifer expansion assessment (**Appendix D**) for conservation and protection during fire operations and fuels management decision-making. Compared to Alternative D, this would reduce the size and intensity of wildland fires but would increase both fuels management and fire suppression costs.

Likewise, several actions would improve the success of fuels treatments in PHMA. Specifically, ensuring chemical applications are used in fuels treatments and pretreating areas to reduce invasive species through biological and mechanical treatments and chemical or biological application would dramatically improve the fuel program's ability to improve GRSG habitat conditions.

When reseeding following fire, using species varieties that are adapted to a warmer climate may, in combination with potential climate change, reduce potential for unnatural levels of fire frequency and intensity.

Stationing first response firefighting resources closer to higher fire occurrence areas would reduce response time.

Rural fire protection coordination would be stronger under the Proposed Plan than under any other alternative. Developing and implementing Rangeland Fire Protection Associations in coordination with the state would result in a more consistent inter-agency approach to wildland fire management. As a result, each agency's fire management team would deploy resources in a consistent manner, helping the BLM's fire and fuels program operate more efficiently.

Management under the Proposed Plan would prescribe added measures for analyzing prescribed fire and alternate uses of prescribed fire through site-specific NEPA analysis. The Proposed Plan includes added measures for fuels treatment effectiveness and post-fire rehabilitation and monitoring. These added measures would increase both fuels management planning and post-fire rehabilitation costs, but they would increase the awareness and encourage partnerships with other agencies and resource programs.

Impacts from Nonenergy Leasable Minerals Management

Seasonal limitations and restrictions on development in PHMA, IHMA, and GHMA outside of known phosphate leasing areas would reduce the potential for human-caused ignitions.

Impacts from Locatable Minerals Management

Impacts may be lessened in SFA if the lands that are recommended for withdrawal were to be withdrawn by the Secretary, thereby decreasing the amount of disturbance caused by operations authorized by the mining laws.

Impacts from Salable Minerals Management

Restoring salable mineral pits in GRSG habitat would result in a temporary increase in the potential for human-caused ignitions. Restoration would reduce invasive species, though. Over the long term, this would reduce the frequency and intensity of wildfire and promote the establishment of native perennial species that are less combustible.

Prohibiting mineral material sales in PHMA would also reduce opportunities for human-caused ignitions over the long term.

Impacts from Fluid Minerals Management

There would be several measures (e.g., TL and NSO stipulations and RDFs—restricting surface disturbance that would reduce the potential for human-caused ignitions. These restrictions would be most effective in SFA where waivers, exceptions, and modifications would not be allowed for the NSO stipulation. Not allowing modifications or waivers to NSO stipulations in PHMA would also likely reduce the potential for human-caused ignitions in those areas. COAs on post-leasing activity would have a similar impact on the



fire and fuels program. Applying CSU stipulations and timing limitations in GHMA would be less effective at reducing the potential for ignitions because development would be restricted but not prohibited.

Impacts from Livestock Grazing Management

Evaluating, and potentially introducing, exotic grass seedings could increase the risk of wildfire, depending on the attributes of and range where the grass species is introduced.

Limiting the types of range improvements allowed in PHMA would decrease opportunities for human-caused ignitions during construction or maintenance.

Impacts from Special Designations Management

Current impacts would continue, and there would be less management flexibility for fuels treatments and wildfire response in existing ACECs.

Impacts from Human Disturbance Management, Adaptive Management, and Coordination

Human disturbance excludes habitat disturbance from wildfire and fuels management therefore, the wildland fire and fuels program would retain management flexibility and a greater chance to meet goals and objectives over the life of the plan. The 3 percent human disturbance cap should limit human-caused ignitions in GRSG habitat over the long term and would decrease the probability of wildfire occurrence and the need for fire suppression. Coordinating with other land management agencies and landowners may promote improved habitat conditions across land management boundaries, thus improving the efficiency and effectiveness of fire and fuels treatments across the landscape. Additionally, implementing the Wildfire, Invasive Annual Grasses and Conifer Expansion Assessment would improve wildland fire management across the landscape via improved coordination across agencies.

4.6 Livestock Grazing/Range Management

4.6.1 Methods and Assumptions

Indicators

Indicators of impacts livestock grazing/range management are as follows:

- Changes in permitted AUMs in areas open to livestock grazing
- Changes in the kind of livestock permitted on allotments
- Prohibitions or limitations on the construction or maintenance of structural and nonstructural range improvements
- Modifications to or removal of structural range improvements
- Closures of areas to livestock grazing for the life of the plan
- Changes to the timing, duration, intensity, or frequency of permitted use, including temporary closures

- Changes in livestock management requirements
- Changes in quality or availability of forage and water for livestock

Assumptions

The analysis includes the following assumptions:

- All new and renewed leases and permits would be subject to terms and conditions determined to be necessary by the authorizing officer to achieve the applicable management and GRSG habitat objectives for BLM-administered and National Forest System lands and to meet land health standards for BLM-administered lands and desired conditions on National Forest System lands (see **Tables 2-3** and **2-6**).
- The construction and maintenance of range improvements would continue in the decision area and would vary according to the constraints imposed by each alternative. New range improvements would be subject to limitations and may require additional maintenance, as defined in the plan. Range improvements are generally intended to improve livestock distribution and management, which would maintain or improve rangeland health and could benefit the forage base and wildlife and GRSG habitat.
- By definition in this plan, livestock grazing and construction and maintenance of associated range improvements are not considered to be surface-disturbing activities and are not included in the calculations for the disturbance threshold under Alternatives B, C, F, and the Proposed Plan. However, they could affect the surface in areas where livestock concentrate, such as near water sources. Construction and maintenance of range improvements may result in limited temporary vegetation disturbance.
- If the ability to construct range improvements is limited, livestock grazing management options would be reduced.
- Livestock grazing directly affects specific GRSG habitat objective attributes and does not affect, or only indirectly affects, other GRSG habitat objectives. Modification of livestock grazing to benefit GRSG would be designed and implemented based on meeting or making progress toward habitat objectives that are affected by livestock grazing. Modifying or stopping livestock grazing alone may not be adequate to meet habitat objectives, depending on site history, current conditions, and the habitat objectives not being met.

4.6.2 Nature and Type of Effects

Impacts on livestock grazing are generally the result of activities that affect forage production, areas open to grazing, the class of livestock, the season of use and timing, the ability to construct and maintain range improvements, and impacts from human disturbance, including disruption of livestock movement or unwanted dispersal. Key types of impacts are detailed below.



Protecting GRSG habitat may directly affect livestock grazing if management requires limiting the areas open to grazing or available AUMs, modifying grazing strategies, or changing season of use. This could increase the time and costs to permittees and lessees. For example, management actions to enhance habitat for GRSG could affect livestock grazing by restricting grazing intensity or season of use, closing areas to grazing, or changing livestock rotation patterns in order to maintain residual herbaceous cover in sagebrush habitat (NTT 2011). The listed restrictions could also decrease opportunities for grazing, or even overall grazing operation viability (e.g., if no spring grazing areas were available).

However, managing vegetation to benefit GRSG may indirectly benefit livestock grazing by increasing herbaceous vegetation productivity and improving forage in the long term. This would be the case especially where current conditions are not meeting land health standards. For example, in allotments with a history of intensive grazing, transitions in the composition of sagebrush communities may have occurred that have reduced cover or forage for GRSG (Cagney et al. 2010) and forage for livestock. When grazing management is modified to promote health and vigor of the herbaceous community and meet sage-grouse habitat objectives, this may also increase amounts of palatable livestock forage. In general, when forage is abundant and easily available, livestock performance is higher; diverse or heterogeneous rangeland vegetation is also associated with improved livestock performance (Bailey 2005).

Some areas would not meet sage-grouse habitat objectives by modifying or even stopping livestock management due to the dominance of nonnative vegetation, recurring wildfire, and inadequate seed banks of desirable species. These areas would require additional restoration, such as reseeding native grasses and forbs or controlling invasive species or fire suppression. The effects of restoration and fire suppression on livestock grazing are addressed in the corresponding sections of this EIS.

Managing livestock grazing so that riparian and wetland systems maintain PFC is required for BLM-administered lands. Unregulated livestock grazing can have adverse impacts on riparian and wetland ecosystems (Armour et al. 1991); therefore, managing these ecosystems can directly impact livestock grazing by excluding livestock at specific sites, increasing herding, adding range improvements (such as cross fences and water gaps), and adjusting season of use and livestock numbers. Improvements in riparian and wetland conditions benefit grazing livestock by indirectly providing cleaner and more reliable water sources and more dependable forage availability. The BLM has been implementing grazing management to make progress toward PFC in riparian and wetland areas since at least 1997; however, additional impacts on livestock grazing could occur as additional riparian/wetland management needs are identified and implemented.

Protecting water quality and watershed health is a requirement of standards and guidelines, as well as state and federal water quality standards. If additional management needs are identified and implemented, changes could be required in livestock management, such as deferring or shortening grazing periods, adding range improvements, excluding grazing from riparian areas, establishing riparian pastures, and increasing livestock herding. In areas requiring exclusion of livestock or other restrictions on livestock management, these

limitations could have economic impacts on permittees and lessees. This would be a result of reduced AUMs or livestock numbers, changes in season that impact overall ranch operations, or increased livestock management costs, such as increased herding.

Recreation can affect livestock grazing directly through human disturbance and indirectly through rangeland degradation. Direct disturbance can include undesired animal dispersing or trespassing due to recreationists leaving gates open, as well as animal displacement, harassment, or injury from collisions or shooting. Direct disturbance can also include damage to range improvements, particularly from the use of recreational vehicles or from sport shooting. Disturbance could occur during the hunting season due to increased presence of people, vehicles, and noise. Limitations on recreation in GRSG habitat could indirectly benefit livestock by reducing direct disturbances, but it could also concentrate use in grazing allotments outside GRSG habitat, leading to more conflicts in those areas.

Other direct long-term recreation impacts include disturbance caused by increased levels of human activities. The degree of impacts would vary with the intensity of recreation (for example, large numbers of people attending an event under a special recreation permit [SRP] use would likely have a higher level of disturbance than frequent use by a small number of visitors), the timing of recreation (for example, livestock could be more susceptible to disturbance during calving or lambing periods), and location of recreation in the allotment (for example, disturbance could be more problematic if it were to occur near areas frequented by livestock, such as water sources or salt licks). As stated above, limitations on recreation in GRSG habitat could indirectly benefit livestock by reducing direct disturbances.

Limits on construction or use of transportation routes may affect livestock grazing practices. Road construction may cause loss of forage, harassment, and displacement; thus, reduction of these activities may benefit livestock by reducing disturbances. Closing roads or trails not used for livestock management would also increase forage availability when the area is rehabilitated or when natural rehabilitation occurs. Limitations on cross-country travel may impact permittees' and lessees' ability to effectively manage livestock if administrative access is not granted for allotment management purposes. Travel management actions for GRSG protection generally involve increased limitations or restrictions on vehicular travel.

Wildfire alters sagebrush habitat because sagebrush takes a long time to regenerate, and invasive annual grasses, such as cheatgrass, are adapted to frequent wildfire. In the absence of a robust perennial grass component, invasive annual grasses are likely to dominate these systems following wildfire (NTT 2011). Wildland or prescribed fire would remove vegetation and forage over the short term; however, they can increase forage a few years post-fire as herbaceous vegetation increases and woody vegetation is removed or reduced. Impacts on livestock operations could also occur when agency policies require a rest period following post-fire rehabilitation and before grazing is reintroduced.

Changes in wildfire suppression and fuels management to protect GRSG habitat would have varying effects on livestock grazing. Measures to protect sagebrush habitat might reduce the spread of wildfire and the associated disruption to grazing during suppression and post-fire



rehabilitation activities. Use of livestock to manage fuel loads may increase the opportunities for grazing at a site-specific scale and on a temporary basis.

The management of habitat for GRSG using natural disturbance regimes, such as fire, and using vegetative treatments to achieve biodiversity objectives and improve plant community resilience could also benefit livestock grazing. It would do this by maintaining a balance of seral stages that provide a heterogeneous forage base. In general, removing encroaching junipers benefits livestock grazing by maintaining the herbaceous components of the treated area.

Restricting ROWs or land transfers may indirectly impact grazing by reducing construction impacts from developing these ROWs (such as dust, displacement, and introduction of noxious weeds). Lands and realty actions taken to protect GRSG habitat would involve avoiding or excluding ROWs (e.g., for power lines, pipelines, and other structures) or land transfers in GRSG habitat. These measures could slightly decrease disturbance in these areas. However, the areas outside of GRSG habitat to which ROWs development may be relocated could see an increase in construction-related effects and associated disturbance or displacement of livestock.

Energy and mineral development could impact grazing. During the exploration and testing phase of mineral development, the footprint of disturbance is usually small and localized; therefore, minimal acres available for grazing would be directly impacted. However, during the exploration phase, impacts on livestock dispersal and trespass could occur, increasing time and cost to permittees and lessees. Outside of the exploration and testing phase, surface-disturbing mineral development directly affects areas of grazing in the short term, during construction of well pads, roads, pipelines, and other facilities.

A potential impact is the introduction and proliferation of noxious weeds that lack the nutritional value needed for productive grazing practices. Mining can also introduce heavy metals into the environment, where they can concentrate in forage plants or contaminate waters, possibly impacting livestock health (Fessler 2003). Other potential impacts are changes in available forage, limits on livestock movement, harassment, and temporary displacement of livestock. In the long term, a smaller amount of grazing acreage is permanently lost from mining following rehabilitation. Improving roads associated with mineral development could facilitate livestock management operations by maintaining or improving access to remote locations within allotments. Properly implemented BMPs and reclamation mitigation measures would likely maintain rangeland health and forage levels for livestock. Reducing mineral development in GRSG habitat could reduce potential impacts on grazing, described above.

Changes in livestock grazing management could impact grazing opportunities in a variety of ways. For example, implementing particular livestock grazing management requirements to benefit GRSG could affect livestock grazing by increasing operators' costs or changing required management actions. Some management requirements may result in short-term and long-term increased costs or decreased AUMs for some permittees and lessees due to the following:

- Implementation of modification of a grazing strategy
- Change in season-of-use or livestock class
- Construction or modification of range improvements, when ability to disperse livestock is impacted
- Viability of existing operations could be compromised if seasons or areas of use are eliminated or severely restricted from grazing

These management requirements could result in economic impacts on individuals and the community at large, both direct and indirect. For example, if a ranch were dependent seasonally on forage on BLM and National Forest System lands, a reduction or elimination of AUMs on BLM and National Forest System lands may affect the entire ranching operation by reducing the total amount of available forage (Torell et al. 2002). Socioeconomic effects of changes in livestock grazing are discussed in more detail in the socioeconomics section of this EIS.

Some management changes may require a short-term output of cost for permittees and lessees or agencies but would result in long-term benefits. For example, construction of range improvements to improve livestock distribution and allow for uniform use of the rangeland would generally enhance rangeland health in the long term; however, it would have short-term costs. Constructing off-site water sources and fencing riparian and spring sources could keep livestock away from sensitive riparian areas and provide a cleaner more reliable source of water for livestock; however, it would represent an increased cost for permittees and lessees. Other requirements could increase annual operating costs, such as increased time feeding animals on private land, transporting animals to alternate grazing lands, more complex pasture rotations or herding requiring increased labor and fuels costs for moving animals, or annually maintaining let-down fences. In instances where an allotment is closed to grazing or AUMs reduced to meet GRSG objectives, the permittee or lessee may be eligible for compensation for the value of range improvement projects constructed under a range improvement permit or cooperative agreement, in accordance with 43 CFR, Part 4120.3-6(c), and 36 CFR, Part 222.6 (a).

ACECs may be designated to protect sensitive habitat for the benefit of GRSG. Grazing availability would depend on the designated ACEC management objectives. Restrictions could include reducing grazing in the ACEC and limiting the class of livestock animal or the season of use, duration, or location that livestock are allowed to graze.

4.6.3 Impacts on Livestock Grazing Common to All Alternatives

The nature and type of impacts described below are common to all alternatives, but the context and intensity may vary by alternative. Impacts on livestock grazing as described below are the same regardless of the alternative selected.



Impacts from Energy and Mineral Development

Impacts from Nonenergy Leasable Minerals Management

There are expected to be minimal impacts from nonenergy leasable minerals on livestock grazing across all alternatives due to a lack of leases in GRSG habitat.

Impacts from Coal Management

No economically viable coal resources are found in Idaho. Under the Dillon RMP, a plan amendment would be required to lease coal. As a result, coal development in the project area and related impacts on range management are likely to be limited under all alternatives.

Impacts from Recreation and Visitor Services Management

Under all alternatives, OHVs would be limited to existing roads and trails, thereby limiting the impacts on livestock grazing from dispersed travel as discussed under **Section 4.5.2**. Access to authorized agency uses, such as grazing allotments, would not be impacted under any alternative. Site-specific travel management planning could, when completed, reduce the potential for conflicts between range management and travel management.

4.6.4 Alternative A

No management areas would be designated for GRSG under this alternative. In general Alternative A would be the least restrictive alternative on resource uses, including livestock grazing. This alternative would also be the least restrictive for other resource uses and associated development. Therefore, there is an increased chance of disturbance from mineral development, recreation, and other uses, as compared to action alternatives.

Impacts from Lands and Realty Management

Under Alternative A, there would be approximately 1 million acres of ROW exclusion and 1.9 million acres of avoidance areas in the decision area; no new ROW exclusion or avoidance areas would be created. Livestock could be disturbed from development of ROWs, as discussed under **Section 4.5.2**. For these reasons, this alternative would have the highest potential for impacts from lands and realty on range management; however, access to range improvements for maintenance would be the least restricted.

Impacts from Habitat Restoration and Vegetation Management, Including Invasive Species Management

Under Alternative A, restoration would continue in the planning area, with long-term benefits to livestock forage. Vegetation could be managed to improve forage, and impacts on range management from vegetation management would be minimal; however, these actions could require adjustment to livestock grazing management. Management actions for invasive species would continue under the direction of current management plans, with the focus on areas not meeting land health standards or desired conditions.

Impacts from Wildland Fire Management

Under Alternative A, mechanical treatments, prescribed fires, and other treatments would be used to prevent conifer encroachment and remove undesirable annual grass and weed species. These actions could improve forage in the long term. Although most of the LUPs

do not provide specific direction for fire suppression in GRSG habitat, protection of GRSG habitat during suppression has become a priority in planning and operational discussions due to large fires in GRSG habitat in 2007 and 2012. Therefore, the risk of forage loss in these areas may be lower than in non-GRSG habitats.

A minimum rest period from livestock grazing of two growing seasons would typically be required after any major vegetative disturbance, including wildfire, for BLM-administered and National Forest System lands. Specific timing and the type of rest would be determined at the site-specific environmental assessment phase for all lands in the planning area. As a result, livestock grazing would typically be excluded from areas following a fire to some extent. Impacts on and costs and time for permittees and lessees would depend on the location of the fire in relation to grazing allotments, as well as the size and severity of the fire. Overall, impacts of required rest are likely to be minimal, compared to the action alternatives.

Impacts from Energy and Mineral Development

In general, Alternative A is the least restrictive on energy and mineral development of all alternatives. As a result, the indirect impacts of development on livestock grazing, including spread of noxious weeds and disturbance of livestock, are the greatest under this alternative.

Impacts from Locatable Minerals Management

Under Alternative A, 1.7 million acres of the decision area would be withdrawn from mineral entry. Impacts on range management would not occur in this area.

Impacts from Salable Minerals Management

Under Alternative A, 1.8 million acres of the decision area would be closed to mineral materials disposal. Impacts on range management would not occur in this area.

Impacts from Unleased Fluid Minerals Management

Under Alternative A, 2.7 million acres in the decision area would be closed to leasing. Alternative A would have the highest number of BLM-administered and National Forest System lands open to fluid mineral leasing with standard terms and conditions; therefore, conflicts between grazing and mineral development would be more likely to occur in this area.

Impacts from Leased Fluid Minerals Management

The Idaho BLM has four federal oil and gas leases. No drilling or exploration has occurred on any of the leases, nor has any activity been proposed; therefore, minimal impacts on livestock grazing are anticipated.

Impacts from Nonenergy Leasable Minerals Management

Under Alternative A, 2.2 million acres of the decision area would be closed to nonenergy mineral leasing. Impacts on range management would not occur in this area.



Impacts from Recreation and Visitor Services Management

Under this alternative, there would be no new restrictions to SRPs in the decision area; therefore, livestock could be disturbed by recreation in the planning area. Some limited potential for disturbance from general recreation is possible, as described under **Section 4.5.2**.

Under Alternative A, as under all alternatives, OHVs would be limited to designated routes, and site-specific travel management planning on BLM-administered lands would be developed, limiting disturbance to livestock. In addition, OHV use on National Forest Lands within the planning area is limited to roads, trails, and areas that have been designated through a transportation planning process; therefore, impacts on disturbance of livestock or access to allotments from travel management are the same across all alternatives for National Forest System lands.

Impacts from Livestock Grazing Management

Under Alternative A, livestock grazing would be allowed on approximately 11,730,785 acres in the planning area. This includes approximately 8,898,400 acres and 1,080,200 AUMs on BLM-administered lands within GRSG Habitat and 1,915,900 acres of National Forest System lands in GRSG habitat (see **Table 4-76**, Overview Comparison of Impacts on Range Management by Alternative within GRSG Habitat). AUM calculations are not available for National Forest System lands. While livestock grazing is currently permitted throughout the planning area, the population areas with the most acres open to grazing are mountain valleys, North Side Snake, and Southwest Idaho. Each has close to 2 million acres of BLM-administered lands open to grazing within occupied GRSG habitat in the planning area.

Note that outside of GRSG habitat in the planning area there are an additional approximately 2,832,339 acres and 374,202 permitted AUMs on BLM-administered lands and 7,700,600 acres on National Forest System lands. Livestock management decisions on these lands are not made in this document.

All leases and permits under Alternative A would continue to be required to meet or make progress toward meeting standards defined in the Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management and the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management for Montana and the Dakotas for BLM-administered lands. Achievement or significant progress toward achievement would continue to be evaluated. Grazing permits, including grazing systems, permitted AUMs, and allotment boundaries, would be modified as necessary at this point to conform to Standards and Guidelines for Livestock Grazing Management. This would be the case if grazing were determined to be the causal factor for a standard not being achieved, as required by regulation on BLM-administered lands. As a result, any changes to grazing management would occur on a rolling basis following the determination.

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Table 4-76
Overview Comparison of Impacts on Range Management by Alternative within GRSG Habitat

	BLM-Administered Lands by GRSG Population Area																
	Alternative A	Alternative B		Alternative C	Alternative D			Alternative E			Alternative F			Proposed Plan			
	All GRSG Habitat	GHMA	PHMA	PHMA	GHMA	IHMA	PHMA	PHMA	GHMA	IHMA	GHMA	PHMA	RHMA	GHMA	IHMA	PHMA	SFA
BLM																	
Acres open to grazing	8,898,400	1,831,200	7,024,000	0	1,874,400	1,109,700	5,914,200	2,444,600	2,314,300	4,124,600	1,831,200	7,024,000	482,600	2,111,900	2,669,000	1,000,400	3,397,000
Permitted AUMs	1,080,200	253,700	821,600	0	258,600	146,800	674,800	338,900	259,700	480,600	253,700	821,600	57,200	258,500	314,500	138,800	372,000
Forest Service																	
Open to grazing ¹	1,915,900	824,800	924,900	0	991,500	254,900	667,000	446,300	880,500	356,400	825,800	925,200	140	See text discussion below.			

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¹AUMs are not available for National Forest System lands

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On National Forest System lands, allotments with grazing permits would be required to meet or be moving toward desired conditions, as defined in the LRMP, or as described in an agency NEPA decision for the allotment. Permits would be reviewed and amended as needed and rangeland conditions would be assessed during site-specific NEPA analysis based on the Forest Allotment NEPA schedule.

Lands would be maintained and restored to maintain healthy native plant and animal species. Changes to rangeland management would be directed first to allotments not meeting one or more of the land health standards or desired conditions. On approximately 61 of the 2,220 allotments assessed on BLM-administered lands, on 660,900 acres, standards are not being achieved due to livestock management. Management actions have not yet been taken to make progress toward meeting standards. See **Section 3.8**, Livestock Grazing. Similarly, the focus in riparian areas and wetlands would be to improve functioning-at-risk and nonfunctioning riparian areas and wetlands toward PFC. As described under **Section 4.5.2**, managing riparian habitat can directly impact livestock grazing by excluding livestock at specific sites, increasing herding, adding range improvements (such as cross fences and water gaps), and adjusting season and duration of use and livestock numbers. Such changes in grazing management options may increase time or costs for lessees and permittees.

Measures for GRSG and other sensitive species habitat under Alternative A are limited to requirements for “habitat suitable to maintain suitable viable populations” (under the Idaho standard), or “habitat as necessary to maintain a viable and diverse population of native plant and animal species, including special status species,” (under the Montana standards). This alternative would not direct the BLM or Forest Service to manage certain areas more intensively for GRSG habitat objectives; therefore, impacts on grazing in GRSG habitat are similar to those throughout the planning area.

Range improvements, including fences, vegetation treatments, and water developments, would be allowed in the decision area when needed to support grazing or to improve livestock distribution, allowing for management options for lessees and permittees. Fences would be constructed to protect and benefit livestock and wildlife, but no specific provisions are included for GRSG, so additional costs could be limited.

Under drought conditions under Alternative A, grazing use could be adjusted, as necessary, in accordance with BLM IM 2013-094. There would be potential impacts on authorized AUMs and management options, with increased time and costs for permittees and lessees if any changes were implemented on BLM-administered lands.

Impacts from Special Designations Management

Under Alternative A, 59 existing ACECs containing over 460,000 acres of occupied GRSG habitat would be maintained. Impacts on range management would be as described under **Section 4.5.2**.

4.6.5 Alternative B

Occupied GRSG habitat would be classified into PHMA and GHMA under this alternative, and impacts would primarily occur on range management in PHMA due to restrictions on resource uses.

Impacts from Lands and Realty Management

Under Alternative B, no new ROW authorizations would be permitted in PHMA unless the development would occur within the existing developed footprint. As a result, indirect impacts on livestock grazing from disturbance would be limited in this area and would decrease, compared to Alternative A.

Impacts from Habitat Restoration and Vegetation Management, Including Invasive Species Management

Under Alternative B, restoration projects in PHMA would be designed to benefit GRSG and based on the likelihood of success, with reestablishment of sagebrush cover as the highest priority. Projects to remove nonnative species and improve habitat would likely be in line with current grazing management practices and could improve livestock forage in the long term. Impacts could occur on range management when objectives for range management did not match those for GRSG habitat. Post-restoration management requirements could also result in changes to grazing systems or range management, with a resulting potential for an increase in costs and time for permittees and lessees.

Actions for invasive species management are similar to that described under Alternative A, with a greater focus on restoration and potential for impacts on grazing management in PHMA.

Impacts from Wildland Fire Management

Under Alternative B, fire suppression would be prioritized when PHMA is threatened. As a result, there is potential for fewer disturbances to grazing due to fewer wildfires. Fires burning outside of PHMA or GHMA may increase in size when they are prioritized for suppression after fires burning in PHMA and GHMA. This could slightly increase the disturbance to grazing outside of GRSG habitat.

Post-fire management actions to restore habitat could result in impacts on range management. Under this alternative, management activities may be adjusted to support successful restoration, which could temporarily or permanently reduce grazing in areas reseeded post-fire. The level of impacts would depend on size, location, and intensity of fire and on the related level of restoration needed.

Fuels management projects to reduce fine fuels include the use of targeted livestock grazing. This could result in site-specific temporary increases in available forage in PHMA, but impacts are likely to be minimal overall.



Impacts from Energy and Mineral Development

Under Alternative B, additional restrictions would be put on mineral development, as compared to Alternative A. Lands in PHMA would be recommended for withdrawal from mineral entry for locatable minerals, closed to mineral materials removal, and closed to new leasing for fluid minerals. For currently leased parcels, NSO stipulations would be applied in PHMA and around leks. As a result, disturbance of range management from mineral development would be minimized in PHMA.

Impacts from Recreation and Visitor Services Management

In PHMA, OHVs would be limited to existing roads and trails on BLM-administered and National Forest System lands. Travel plans (to be completed) would analyze PHMA for the need for road closures, and limitations would be implemented during development of new roads. Some reduction in routes, limitations on new routes, and upgrades to existing routes would be added, compared to Alternative A. This could indirectly reduce livestock disturbance in PHMA. If restrictions on cross-county travel were to apply to permittees and lessees, access to allotments and the ability to effectively manage livestock may be impacted.

SRPs in PHMA would be limited when they were found to have negative impacts on GRSG; therefore, overall SRPs may be reduced with potential benefits to livestock grazing due to decreased disturbance.

Impacts from Livestock Grazing Management

Under Alternative B, no management actions would result in direct changes to acres open to grazing and permitted AUMs (**Table 4-76**, Overview Comparison of Impacts on Range Management by Alternative within GRSG Habitat). In the long term, livestock grazing in PHMA may be reduced under Alternative B, compared to Alternative A, in order to conform to GRSG habitat objectives. However, the impacts would be site-specific and likely occur gradually.

This alternative provides GRSG habitat objectives, which will be incorporated into permit and lease renewals; therefore, impacts would occur at a site-specific level during the renewal process. Completion of land health assessments would be prioritized within PHMA on BLM-administered allotments. As a result, impacts on range management would be most likely to occur in these areas. Retirement of allotments would be an option in PHMA, resulting in potential reductions in AUMs in the planning area. Compensation for authorized range improvements would be provided, as appropriate.

Vegetation treatments that benefit livestock forage could only be completed if these treatments would also conserve, enhance, or improve GRSG habitat; therefore, the management options in PHMA could be reduced and the ability to fully use permitted AUMs could be impacted. On BLM-administered lands, land health assessments using ecological site descriptions (where available) would be required to determine if standards of rangeland health and GRSG habitat objectives were being met.

Under drought conditions, as under Alternative A, grazing management changes may be implemented; however, under Alternative B the focus would be on adjusting management in PHMA; therefore, impacts would be more likely to occur in this area.

Under Alternative B, riparian areas would be managed for PFC or similar standards at a minimum within PHMA. There could be limitations on grazing within these areas, increased use of fencing and herding, seasonal limitations on grazing, creation of water developments, or other measures to manage distribution of livestock so that pressure on these systems is limited. This could increase costs or time for permittees and lessees.

In the long term, livestock grazing in PHMA is likely to be reduced under Alternative B in order to conform to GRSG habitat objectives and other resource concerns. The timing and degree of reduction would depend on permit renewal timing and site-specific conditions.

Structural range improvements, such as fences and enclosures, in PHMA under Alternative B would be allowed but would have to be designed to conserve or enhance GRSG habitat. In addition, some fences would require marking, alternative siting, or other design features to lessen risk for GRSG impacts, so the cost of building or maintaining these structures may be increased, compared to Alternative A.

Similarly, new water developments from diverting spring or seep sources would be permitted only when GRSG habitat would also benefit and so would be limited. Permittees and lessees may not be able to fully use permitted AUMs if water were limited on a given allotment. Overall, water improvements and fences are likely to be removed or modified to some extent under this alternative, resulting in decreased grazing or shifts in grazing use patterns in the long term.

Impacts from Special Designations Management

No new ACECs or Zoological Areas would be designated under Alternative B, so impacts would be as described under Alternative A.

4.6.6 Alternative C

Alternative C would be the most restrictive on grazing management; no grazing would be authorized in occupied GRSG habitat following a two-year notice to cancel existing permits and leases, or portions thereof. Impacts from all other resources and resource uses on livestock grazing under Alternative C would be limited due to the limited permitted grazing outside of occupied habitat.

Impacts from Lands and Realty Management

Impacts are as described under Alternative B but would apply to all occupied habitat. Impacts on livestock grazing are minimal due to lack of grazing in all occupied GRSG habitat.



Impacts from Habitat Restoration and Vegetation Management, Including Invasive Species Management

Management actions and impacts are similar to that described in Alternative B, with some additional restrictions on removing sagebrush cover to improve forage production. Impacts, however, are limited due to the lack of authorized grazing in occupied habitat.

Impacts from Wildland Fire Management

Impacts from wildland fire management are minimal under Alternative C due to the lack of permitted grazing in occupied habitat.

Impacts from Energy and Mineral Development

Management would be similar to that described under Alternative B. Impacts from all energy and mineral development would be minimal due to lack of grazing in occupied habitat.

Impacts from Recreation and Visitor Services Management

Management would be the same as Alternative B but would apply to all occupied habitat. Impacts are minimal due to lack of grazing in occupied habitat.

Impacts from Livestock Grazing Management

Alternative C would remove livestock grazing from all allotments in occupied habitat, a 100 percent reduction from Alternative A (see **Table 4-76**, Overview Comparison of Impacts on Range Management by Alternative within GRSG Habitat). Grazing would be permitted outside of GRSG habitat on a total of approximately 2,875,600 acres, with 379,100 permitted AUMs on BLM-administered lands. Acres and AUMs are not available for National Forest System lands.

Removing grazing from all occupied habitat would result in economic impacts on permittees and lessees. As discussed under **Section 4.5.2**, permittees and lessees would be faced with reducing AUMs for their operations or locating replacement forage. This could have higher costs or limited availability with related impacts on individual leases and permits as well as the local community. Closures to grazing would also disrupt the viability of current seasonal rotations or other management strategies that use combinations of federal, state, and private lands and potentially reduce the value of private lands used for grazing. If ranches are not maintained or profitable, they could be sold and may be developed (Wilkins et al. 2003).

Existing structures under Alternative C could be required to be modified or removed if they are determined to have a high risk of GRSG strike. In addition, management actions would allow no new water developments, and existing water developments could be removed. It is unclear if there would be a concerted effort to remove any or all livestock management infrastructure under this alternative. However, permittees and lessees who have investments on federal lands in occupied habitat that would be impacted could be compensated. Compensation for BLM permittees and lessees with authorized range improvements would be provided as appropriate, based on requirements specified in 43 CFR 4120.3-6(c). Under certain limited circumstances, Forest Service permittees would be compensated in accordance with 36 CFR 222.6(a). BLM and Forest Service investments in range infrastructure could also be impacted under this alternative, as structures no longer are

maintained and go into disrepair. Furthermore, fencing may be required to prevent livestock from trespassing onto lands where grazing is excluded.

Removing range improvements and water developments on occupied habitat would also further restrict management options. Permittees and lessees who rotate pastures between private and federal lands may need to construct additional water developments and realign fences to keep livestock on private pastures, thereby increasing time and costs. Fencing density could increase in areas where federal, state, and private lands are interspersed and are grazed in common.

As a result of removing grazing from occupied habitat, there is also the potential for increased conflicts between grazing and other resources and resource uses on lands of other surface ownership, should livestock grazing increase in this area.

Impacts from Special Designations Management

Under Alternative C, 39 new ACECs encompassing approximately 3.1 million acres of occupied GRSG habitat would be designated in the planning area, a tenfold increase over Alternative A. Impacts would, however, be limited since grazing would be prohibited from occupied habitat on BLM-administered and National Forest System lands.

4.6.7 Alternative D

Occupied habitat is categorized into three categories, PHMA, IHMA and GHMA medial, and general, with associated management. Impacts for livestock grazing would be focused in PHMA and IHMA.

Impacts from Lands and Realty Management

Under Alternative D, new ROW and land use authorizations would be avoided whenever possible, with a goal of no net loss in GRSG habitat. ROW avoidance areas in PHMA, IHMA, and GHMA, as well as the exclusion of larger facilities in PHMA, would somewhat limit the indirect impacts of development on grazing in the avoidance and exclusion areas. Impacts would still occur in nonhabitat allotments.

Similarly, management actions prohibiting solar and wind development in PHMA and imposing restrictions on development in IHMA and avoidance areas in GHMA would limit any impacts of disturbance from development of these resources. However, this may shift impacts on nonhabitat allotments.

Impacts from Habitat Restoration and Vegetation Management, Including Invasive Species Management

Under Alternative D, vegetation rehabilitation would emphasize projects to achieve the greatest improvement in GRSG abundance and distribution. This includes sites with greater likelihood of success, as discussed under Alternative B. Reconnecting and expanding native plant communities would be an objective across all GRSG habitat types; restoring seasonal habitats would be emphasized in both PHMA and IHMA.



As discussed in Alternative B, these management actions would likely be in line with current grazing management practices and could improve livestock forage in the long term. Impacts could occur on range management when objectives for range management do not match those for GRSG habitat. Post-restoration management requirements could also change grazing or other range management systems. This could increase costs and time for permittees and lessees. Most management actions and related impacts on grazing would be applied across all three habitat types, so they would be similar to those discussed in Alternative B but increased in intensity.

Cooperative planning would be used to develop and implement habitat restoration projects, so local permittees and lessees would have the opportunity to provide input into the implementation process. This would allow for results that could limit impacts on grazing management or improve habitat for both GRSG and livestock.

Impacts from Wildland Fire Management

Under Alternative D, post-fire and restoration management would be undertaken to ensure long-term persistence of seeded or pre-burn native plants. It may also require short- or long-term change to grazing management. Management actions for post-fire restoration may reduce livestock grazing, with related impacts on permittees' and lessees' ability to fully use permitted AUMs. The degree of impacts would be determined by the location, size, and intensity of fires in GRSG habitat but would be increased over those in Alternative B. This is because all GRSG habitat types (priority, medial, and general) would be included.

Using grazing to manage fine fuels would also be considered in PHMA, IHMA, and GHMA, following certain conditions. Grazing management would be implemented strategically on the landscape. It would directly involve the minimum footprint and grazing intensity required to meet fuels management objectives and to conform to grazing standards and guidelines. As a result, additional site-specific opportunities for targeted grazing may be available, but these are likely to be limited and short term; thus, the overall impact in the planning area would be minimal.

Impacts from Energy and Mineral Development

Under Alternative D, some degree of mineral development would be allowed, with measures to avoid or mitigate impacts on GRSG. Specifically, new fluid minerals and undeveloped nonenergy mineral leases would be allowed in all GRSG habitat types, with BMPs applied. Similarly, mineral materials would be allowed to be leased in all habitat types, with stipulations. As a result of the flexibility in management for PHMA, unlike that in Alternative B, there is some potential for mineral development in PHMA and related impacts on disturbance of livestock; however, the impacts would likely be minimal and lower than that under Alternative A. Within IHMA and GHMA, the degree of disturbance from or conflicts with grazing from energy and mineral development would also be lower than that under Alternative A.

Impacts from Recreation and Visitor Services Management

Under Alternative D, OHV travel would be limited to existing roads, primitive roads, and trails, at a minimum. All open play areas designated for OHV use are outside GRSG habitat;

these would remain open, with the potential to disturb livestock or disrupt livestock movement in these areas. This would be due to gates left closed or open inappropriately. Seasonal restrictions for authorized activities could impact the ability of permittees and lessees to access and manage allotments.

Impacts from Livestock Grazing Management

Grazing would be allowed on all lands identified as available, as under Alternative A (see **Table 4-76**, Overview Comparison of Impacts on Range Management by Alternative within GRSG Habitat).

Grazing management action and impacts are similar to those described in Alternative B. There would be prioritized implementation of grazing systems or permit modifications to meet habitat objectives in areas that are not meeting these objectives. This would result in a moderate decline in permitted grazing over time as permits are modified to incorporate GRSG objectives at renewal. Under Alternative D, however, allotments containing PHMA would be prioritized for permit renewal, followed by IHMA and finally GHMA; impacts on range management would occur in this sequence. In addition, all allotments with federally threatened and endangered species may also be prioritized for permit renewal ahead of GRSG habitat; therefore, impacts on range management could also occur in these areas.

Under Alternative D, additional measures would be applied to limit impacts of trailing livestock on leks and structural range improvements on GRSG. This would result in some additional potential for increased time and costs for management.

Retiring grazing permits, as described under Alternative B, would be considered where grazing privileges are relinquished or the allotment is vacant in all GRSG habitat types. As a result, total areas open to grazing may be reduced in the long term.

During droughts, under Alternative D, grazing management would be adjusted, as under Alternatives A and B, with the emphasis on providing sufficient food and cover for GRSG. Impacts would depend on site-specific resource conditions.

Impacts from Special Designations Management

No new ACECs or Zoological Areas would be designated under Alternative D, so impacts are as described under Alternative A.

4.6.8 Alternative E

Under Alternative E, GRSG habitat would be separated into CHZ, IHZ, and GHZ, with the priority on allotment renewal in CHZ and IHZ where populations are declining. Management changes, if required, would be tailored to specifically address habitat objectives that need improvement, and the impacts on other resources or resource uses, such as wildland fire management, would be examined. As a result, impacts on livestock management may be limited, compared to other action alternatives, due to the increased flexibility to address site-specific needs.



Impacts from Lands and Realty Management

Under Alternative E, ROW avoidance areas in CHZ and IHZ, as well as the exclusion of new infrastructure in CHZ, would somewhat limit the indirect impacts of development on grazing.

Impacts from Habitat Restoration and Vegetation Management, Including Invasive Species Management

Impacts from habitat restoration are as described under Alternative A. Similarly, management actions of invasive species would likely be similar to Alternative A, with a focus on actions in CHZ and IHZ. Short-term impacts on grazing are minimal, with a change for long-term improvement of forage.

Impacts from Wildland Fire Management

Under Alternative E, management actions for wildfire include an emphasis on fire suppression and reduction in fire risk in CHZ, IHZ, and GHZ, with potential for reduction in fire risk and related disturbance in these areas. As under Alternatives B and D, actions include targeted livestock grazing to reduce fine fuels and invasive species and to maintain fuel breaks, particularly in areas with high fuel loads with high risk of wildfire threatening the CHZ and IHZ. This action could result in some site-specific temporary increases in available forage, but location and levels would be unpredictable; thus, impacts are minimal overall.

Impacts from Energy and Mineral Development

Impacts from mineral and energy development are generally the same as those described under Alternative A. Fluid mineral development would have some additional restrictions applied to limit disturbance; therefore, the likelihood of development and associated disturbance would be reduced in areas with potential for these resources.

Impacts from Recreation and Visitor Services Management

Impacts are similar to those described under Alternative B. On BLM-administered and National Forest System lands, restrictions on OHV use on existing routes before travel planning and seasonal restrictions on activities that could disturb nesting GRSG could impact the ability of permittees and lessees to access and manage allotments.

Impacts from Livestock Grazing Management

Under Alternative E, grazing would be allowed on all lands identified as available, as under Alternative A (see **Table 4-76**, Overview Comparison of Impacts on Range Management by Alternative within GRSG Habitat). Management actions and impacts would be based on GRSG population trends and focused on CHZ and IHZ. Allotments would be prioritized for permit renewal where populations of GRSG are. Changes to grazing management and associated impacts are most likely to occur in these areas.

Existing grazing management would be maintained unless the current grazing system does not meet GRSG habitat objectives and there is compelling information that changing the system would enhance habitat. Specifically, management actions in this alternative state that where population and habitat triggers are being maintained within a Conservation Area, this shows that the current grazing system is adequate to maintain viable GRSG populations and

therefore absent compelling information, no further changes to BLM grazing systems would be required pursuant to Standard 8 (Threatened And Endangered Plants And Animals) of the Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management, with respect to GRSG. Modifications to grazing management would continue to be implemented, however, where Standards 2 (Riparian Areas and Wetlands) and 4 (Native Plant Communities) are not being met, or where Standard 8 is not being met for other species.

Adjustments would be applied at a site-specific level and specifically tailored to achieve objectives. As a result, changes to management and associated impacts would be limited. In addition, altering grazing systems within allotments may be possible under this alternative. This includes enhanced grazing opportunities in some areas with introduced seedings or areas with lower value to GRSG, such as GHZ. This limits overall impacts.

Under Alternative E, some additional limitations would apply to structural range improvements, as compared to Alternative A. This could increase the time or costs for construction and maintenance of improvements or could impact the ability to distribute livestock. These restrictions are more flexible than those under other action alternatives. They include avoiding construction of new fences within 1.2 miles (2 km) of leks and considering GRSG habitat needs and risks when designing and locating new water developments.

The location and level of adjustment needed to management cannot be determined and may change over time, lending some instability to the range management program. This is because of the unpredictable nature of areas that may be targeted for grazing management revision under this alternative (based on local GRSG population levels).

Impacts from Special Designations Management

No new ACECs or Zoological Areas would be designated under Alternative E, so impacts are as described under Alternative A.

4.6.9 Alternative F

As in Alternative B, all occupied habitat would be categorized into PHMA and GHMA, with potentially other restoration areas, each with associated management. Although grazing would be permitted under this alternative, the level of authorized grazing would be reduced by removing 25 percent of average billed AUMs in occupied GRSG habitat, following a two-year notice to cancel existing permits and leases, or portions thereof. In addition, the ability to construct improvements and other management options would be limited, with impacts on permittees and lessees.

Impacts from Lands and Realty Management

The type of impacts are as described under Alternative A, although the level of impacts would be reduced due to the reduction in authorized grazing.



Impacts from Habitat Restoration and Vegetation Management, Including Invasive Species Management

Management actions under this alternative are similar to those described under Alternative B but include additional restrictions on removing sagebrush cover to improve forage. As such, management options may be further limited. However, there is the potential that less forage improvement would be necessary under Alternative F for livestock grazing purposes, due to the reduction in authorized grazing in the planning area.

For invasive species management, activities that spread invasives would be restricted. As described under the range management section for this alternative, restrictions on range improvements may apply, with potential impacts on permittees and lessees.

Impacts from Wildland Fire Management

As for all action alternatives, actions to suppress and control the spread of wildfire under Alternative F could decrease the risk of disturbance from wildfire in GRSG habitat. Fires outside of GRSG habitat would be at risk of decreased suppression efforts.

Under Alternative F, measures to protect GRSG habitat post-fire could impact range management. Livestock grazing would be excluded from burned areas until woody and herbaceous vegetation meet GRSG objectives, which could result in long-term (10 to 50 years or longer) exclusion from burned sites. It would generally take more than a decade to reestablish adequate Wyoming sage cover in low precipitation areas. The level of impacts would depend on locations, size, and intensity of wildfire in GRSG habitat in relation to the location and level of authorized grazing. Requirements to include livestock exclosures to monitor fire restoration progress are anticipated to have negligible impacts, due to the limited size of exclosures.

Impacts from Energy and Mineral Development

Under Alternative F, no new mining claims would be allowed, and salable minerals sales would be prohibited in PHMA. Therefore, there would be limited potential from development-related disturbance of these resources.

Impacts from leased fluid minerals are the same as those described under Alternative A. New leasing in PHMA and GHMA would be limited, so there is some limited opportunity for disturbance from development of these resources.

Impacts from Recreation and Visitor Services Management

Impacts are similar to that described under Alternative B. In addition, seasonal camping closures within 4 miles (6.4 km) of active leks could impede implementation of required livestock movement and trailing activities.

Impacts from Livestock Grazing Management

Under Alternative F, management actions and impacts would occur in all occupied habitat. The reduction in authorized grazing in GRSG occupied habitat, while not as complete as under Alternative C, would include a 25 percent reduction below AUMs levels typically billed by permittees. While allotment-specific impacts would be determined at the

implementation level, overall, livestock grazing levels would be reduced in the decision area. Estimated AUMs under Alternative F are 689,962.

In some cases, this may involve loss of permitted grazing for individual allotments and, in other cases, may involve reduction of permitted grazing levels for allotments. These management actions would potentially require permittees to reduce grazing or locate alternative sources of forage, with potential for economic impacts on as discussed in Alternative C.

Where grazing is permitted, management would be similar to that described in Alternative B, with the addition of other protective measures for GRSG habitat (such as increased prohibitions on grazing after fire and restriction on all vegetation treatments). As a result, management options would be limited and time and costs for permittees would be increased as compared to Alternative A.

In addition, management actions would allow no new water developments or other structural range improvements. Prohibitions on new improvements could also limit the ability to effectively distribute livestock, resulting in indirect increases in time and costs for permittees. These actions are likely to further limit the abilities of permittees and lessees to fully use permitted AUMs and would increase time and cost for management.

Impacts from Special Designations Management

Under Alternative F, 17 or 18 new ACECs and 12 new Zoological Areas encompassing up to over 1 million acres of occupied GRSG habitat, would be designated in the planning area. This would be a 22-fold increase over Alternative A. Impacts would, however, be reduced in areas where grazing is reduced.

4.6.10 Proposed Plan

Under the Proposed Plan, GRSG habitat would be separated into SFA, PHMA, IHMA, and GHMA. Priority for review and processing of grazing permits/leases would be in SFA, followed by PHMA outside of SFA. Precedence would be given to existing permits/leases in these areas not meeting land health standards, with focus on those containing riparian areas, including wet meadows. Management changes, if required, would be tailored to meet GRSG habitat objectives.

Impacts from Lands and Realty Management

Under the Proposed Plan, PHMA and IHMA would be managed as ROW avoidance areas but would be subject to RDFs, BMPs, and a seasonal timing limitation, resulting in limited new development in GRSG habitat. Similarly, management actions would prohibit solar and wind development in PHMA, would impose restrictions on development in IHMA, and would classify GHMA as avoidance areas.

The Proposed Plan would include a cap on human disturbance; the -percent disturbance cap on discrete anthropogenic disturbances would be applied in PHMA at both the BSU and project levels. Human disturbances in PHMA and GHMA also would be mitigated to ensure



a net conservation gain to GRSG. In addition, conservation measures would be implemented in PHMA and GHMA, such as adaptive management and defined monitoring protocols (**Appendices G and E**), RDFs, and lek buffers (**Appendix DD**).

As a result, disturbance of livestock from development activities, as discussed in **Section 4.6.2**, including disturbance of forage or unwanted dispersal of livestock, would be limited in GRSG habitat.

Under the Proposed Plan on National Forest System lands, special use authorizations, land ownership adjustments, and land withdrawals would limit the direct and indirect impacts of development and surface disturbance on rangelands where livestock grazing is permitted, thereby maintaining forage availability.

Impacts from Habitat Restoration and Vegetation Management

Impacts under the Proposed Plan habitat from vegetation management would be similar to those discussed under Alternative D. The Proposed Plan would also include additional measures, such as conifer removal, improved wet meadows management, and RDF implementation. In addition, specific vegetation objectives in PHMA have been identified in the Proposed Plan based on vegetation modeling: approximately 77,000 acres identified for mechanical treatments, 30,000 acres of prescribed fire, and 620,000 acres for annual grass treatment to meet GRSG objectives on BLM Lands (see **Table 2-5**). As vegetation treatments are implemented, livestock grazing may be modified temporarily or permanently to help ensure treatment success and progress toward meeting GRSG habitat objectives. However, in most cases, treatments such as conifer removal, would maintain or improve forage conditions in the long term. Conversion of cheatgrass to sagebrush-steppe may reduce overall amounts of forage available but would increase perennial bunchgrasses, which provide higher nutritional quality and produce more consistent amounts of forage from year to year.

Impacts from Wildland Fire Management

Under the Proposed Plan, impacts from wildland fire management would be similar to those described for Alternative D. Management actions would include an emphasis on fire suppression and reduction of fire risk in PHMA and IHMA, with potential for reduction in long-term fire risk and related loss of livestock forage in these areas. Specific requirements include burn plans before use of prescribed fire in GRSG habitat and assessment of management needs based on local conditions, as detailed in **Appendix D**. Wildfire, Invasive annual grasses, and conifer expansion assessments would also identify priority areas and treatment opportunities for fuels management, fire management, and restoration.

As discussed under Alternative D, targeted grazing could result in some site-specific temporary increases in available forage, but location and levels would be unpredictable and temporary; thus, overall impacts on available forage would be minimal.

Under the Proposed Plan, GRSG habitat objectives would be incorporated into emergency stabilization and burned area emergency rehabilitation plans, in accordance with the restoration/rehabilitation strategy developed as a result of the wildfire, invasive annual

grasses, and conifer expansion assessments. Management activities may be altered to meet objectives. As a result, grazing could be modified or excluded from restoration sites until GRSG objectives were met. However, incorporating objectives would be based on site capability and potential and therefore would vary on a site-specific basis; site-specific changes to grazing management required would be determined at implementation.

In addition, grazing management may be adjusted on sites next to burned areas to mitigate the impact of a wildfire on GRGS populations. As a result, some permittees may be impacted by both exclusion of livestock from a burned area and reduction of grazing or changes to management in adjacent allotments. Specific management changes and intensity of impacts would vary based on site-specific conditions and wildfire occurrences.

As discussed in **Section 4.6.2**, fuels projects and fire suppression to protect sagebrush ecosystems and associated GRSG habitat would benefit livestock grazing where areas available to grazing overlap this habitat, due to a long-term reduction in the likelihood of high intensity wildfire. Short-term fuels reduction projects may result in temporary reduction in available forage on a site-specific basis. Under the Proposed Plan on National Forest System lands, measures to protect GRSG habitat from fire and associated fire operations would be beneficial to livestock grazing, especially in the 12-inch or less precipitation zone, because it would help prevent the expansion of nonnative invasive species, such as cheatgrass. Although management to suppress and control the spread of wildfire under the Proposed Plan would decrease the risk of disturbance from wildfire in GRSG habitat, fires outside of GRSG habitat could be at risk of decreased suppression. Management direction to protect GRSG habitat from fire in higher elevation sagebrush habitats (i.e., mountain big sagebrush) could indirectly negatively impact livestock grazing in the long term as sagebrush potentially increases and forage production decreases.

Impacts from Energy and Mineral Development

Similar to Alternative D, under the Proposed Plan, fluid mineral development would be permitted in GRSG habitat, with measures limiting surface disturbance. Specifically, SFA, PHMA, and IHMA would be available for leasing with NSO stipulations. GHMA would be available with CSU stipulations, SFA would be recommended for withdrawal from locatable mineral entry, and PHMA would be closed to mineral material leasing.

In addition, the Proposed Plan would include a 3 percent cap on human disturbance applied in PHMA at both the BSU and project levels. These measures, combined with the RDFs, buffers, and mitigation, would help to reduce potential disturbance of livestock forage and livestock, as compared to Alternative A. Due to the limited conflicts between livestock grazing management and energy development under existing conditions, impacts would be minimal.

On National Forest System lands, management direction prohibiting solar and wind development in PHMA and restricting development in IHMA would limit any impacts associated with ground disturbances from developing these resources. This management



direction would limit the direct impacts of development and surface disturbances on existing rangelands, which would be beneficial to livestock grazing.

Under the Proposed Plan on National Forest System lands, new fluid mineral leases would require a no surface occupancy stipulation in PHMA and controlled surface use and timing restrictions in GHMA. New leases would be prioritized in nonhabitat areas first and then in the least suitable habitat for GRSG.

For existing leases under the Proposed Plan on National Forest System lands, leaseholders would be required to avoid and minimize surface disturbance and disruption in PHMA for leases that are not yet developed. In addition, reclamation plans would be designed to restore habitat to the desired conditions described in **Table 2-6**. Fluid mineral operations would be mitigated in PHMA to reduce soil compaction to improve vegetation reestablishment and keep GRSG habitat disturbance to a minimum.

Surface disturbances would also be prohibited for unleased coal mines in PHMA as well as other mitigation measures to reduce disturbances for leased coal mines and associated facilities. Locatable mineral, nonenergy leasable, and mineral material operations in PHMA would be mitigated to protect GRSG habitat.

Minerals management direction under the Proposed Plan on National Forest System lands would not impact livestock grazing in priority and general GRSG habitats because development and surface disturbance would be limited and the potential from development related disturbance of rangeland and forage resources would be reduced.

Impacts from Travel and Transportation Management

Under the Proposed Plan, OHV travel would be limited to existing (and designated, where travel management is complete) roads, primitive roads, and trails. The ability of permittees to access range improvements for maintenance or to use motorized vehicles to gather livestock could be impacted, as exceptions for administrative access would generally be granted only at permit renewal if not provided for in existing grazing permits or leases. This could increase the time and costs of these management activities. Seasonal restrictions on motorized use could further impact the ability of permittees to access allotments for management. Limitations on OHV travel could also reduce any conflicts between livestock and recreation, as discussed in **Section 4.6.2**.

Under the Proposed Plan, temporary closures would also be permitted, as determined necessary for resource protection. Closures would further reduce livestock disturbance but could impact the ability of permittees to access allotments and livestock using motorized vehicles. Under the Proposed Plan, on National Forest System lands new road or trail and construction would be prohibited in GRSG habitat, and road construction within riparian and mesic meadows would be restricted. This direction would be beneficial to livestock grazing, indirectly improving forage production and improving overall rangeland conditions. However, impacts from roads and transportation would still occur in areas outside of PHMA and GHMA GRSG habitats, which could indirectly impact grazing conditions through increased development.

Impacts from Livestock Grazing Management

Grazing would be allowed on all lands identified as available, as under Alternative A (see **Table 4-76**, Overview Comparison of Impacts on Range Management by Alternative within GRSG Habitat), although limited areas may be closed through site-specific decisions to meet habitat objectives.

Grazing management actions and impacts are similar to those described in Alternatives B and D. As described in Alternative D, the effect of grazing management practices on attainment of GRSG habitat objectives would be determined through the range health evaluation process. Management designed to meet applicable habitat objectives would be incorporated into BLM grazing permits and leases through allotment management plans and permit renewals and into Forest Service permits through the Forest Service NEPA processes, with consideration for local objectives and site potential.

Similar to Alternatives B and D, a moderate decline in permitted grazing is anticipated over time as permits are modified to meet objectives. In addition, the Proposed Plan would require an analysis of management thresholds based on habitat objectives within SFA and PHMA. This could trigger modifications to annual grazing authorizations or grazing permits or leases within the term of the renewed grazing permit if monitoring data were to indicate that grazing management implementation is not progressing toward meeting habitat objectives. When alternatives with thresholds and triggers are selected for grazing permits, implementing the modifications within 10-year grazing permit would reduce operational certainty for permittees; it could impact their ability to plan and implement an economically feasible ranch or business plan. Because of this, the magnitude of impacts on livestock grazing would be relatively higher for allotments within SFA and PHMA.

Under the Proposed Plan, SFA would be prioritized first for land health assessment and permit renewal, followed by PHMA outside the SFA. Precedence would be given to existing permits and leases in these areas not meeting Land Health Standards, with a focus on those containing riparian areas, including wet meadows. Changes in management would follow this priority order.

Existing grazing management would be maintained, unless the current grazing system does not promote applicable GRSG habitat objectives (**Table 2-6**, desired Seasonal Habitat Conditions), or if changes are needed to meet standards and guidelines or other resource objectives. Adjustments to grazing management or authorized grazing use level would be applied on a site-specific basis and tailored to achieve objectives for GRSG, based on habitat type in the areas assessed, for example breeding, nesting, and wintering, as detailed in **Table 2-6**.

Site-specific review of seasonal habitat types would be required as part of the land assessment process. (A quantitative analysis of current GRSG seasonal habitat conditions of allotments is not available and is likely to change over time, based on precipitation patterns, wildfire occurrence, and other factors.) Acres in nesting habitat may be likely to require changes to grazing management, due to the desired conditions for this habitat type, including



perennial grass height of at least 7 inches; acres in brood-rearing habitat may require adjustments to meet PFC and promote diversity and abundance of GRSG preferred forbs.

The level and intensity of impacts would vary on a site-specific basis; changes in management would be commensurate with the scale and magnitude of deficiencies in meeting habitat objectives as caused or contributed to by ongoing livestock management. The scale and extent of modifications to grazing would also vary, based on the relationships of allotments and pastures to seasonal habitat patches and the scale of grazed areas not meeting habitat objectives. Modifications in use of grazing areas outside of the target habitat may also occur in order to develop logical and feasible grazing systems (e.g., if the season of use is modified in one pasture containing nesting habitat, this may necessitate changes in season of use in all pastures in the allotment to coordinate grazing use and livestock movements).

Under the Proposed Plan, as under other alternatives, the BLM's grazing preference may be voluntarily relinquished, and grazing on Forest Service allotments may be waived without preference. Under the Proposed Plan, the BLM or Forest Service may determine whether AUMs associated with relinquished grazing preference or waived allotments should be retired, should remain available for livestock grazing, or should be used for other resource management objectives, in accordance with WO IM 2013-184. This may result in a long-term reduction of overall available AUMs, with the potential for economic impacts on local communities that depend on livestock grazing. Economic impacts are further discussed in **Section 4.22**, Socioeconomic Impacts. If AUMs associated with relinquished grazing preference are maintained as a forage reserve for use by permittees who are displaced by wildfire or restoration, disruption of livestock operations could be decreased over the long term.

Under the Proposed Plan some additional limitations would apply to structural range improvements, as compared to Alternative A, including limitations on fence construction and tall structures near occupied leks, as detailed in project RDFs and BMPs (**Appendix B**). New and existing structural range improvements would be required to have a neutral effect or to conserve, enhance, or restore GRSG. These restrictions could increase the time or costs for construction and maintenance of improvements but should allow sufficient flexibility so permittees could use range improvements to effectively manage livestock.

Under the Proposed Plan on National Forest System lands, livestock grazing would be managed to achieve or maintain desired conditions in GRSG seasonal habitats, as described in **Table 2-6**. Livestock grazing would also be managed in order to maintain residual perennial grass height to provide for adequate GRSG nesting cover, according to the guidelines described in **Table 2-6**.

Current direction for livestock grazing under Alternative A is generally less restrictive than direction described under the Proposed Plan; therefore, grazing use guidelines under the Proposed Plan would directly impact livestock grazing management on National Forest System lands. Impacts could include modifying grazing strategies or rotation schedules, changing the season of use or kind and class of livestock, closing a portion of an allotment,

or reducing livestock numbers. Implementing this management direction could reduce AUMs on some allotments and possibly overall operation viability.

The level and intensity of impacts could vary on a site-specific basis, with permitted grazing likely decreasing moderately over time as permits are modified to achieve desired conditions and meet annual grazing use guidelines.

Implementing Forest Service grazing guidelines could also directly impact permittees by increasing the amount of time permittees spend to manage livestock on National Forest System lands and the total costs to a livestock operation. Impacts would occur at the allotment scale as management direction is incorporated into permits, allotment management plans, and annual operating instructions.

Grazing use guidelines under the Proposed Plan on National Forest System lands would impact about 264 allotments, 1,409,546 acres, and 454,376 AUMs in nesting and brood-rearing seasonal habitats in active grazing allotments.

Under the Proposed Plan, on National Forest System lands, sheep camps would not be located within 1.2 miles of the perimeter of a lek during lekking season, and trailing livestock would be minimized during breeding and nesting seasons. This management direction would result in the need to modify grazing practices with increased costs for permittees in these areas.

Additional constraints under the Proposed Plan on National Forest System lands would also apply to structural range improvements in priority GRSG habitat, compared to Alternative A. These are as follows:

- Prohibiting fence construction or reconstruction within 1.2 miles of the perimeter of occupied leks, unless the collision risk could be mitigated through design features or markings
- Not constructing new permanent livestock facilities (e.g., windmills, water tanks, and corrals) within 1.2 miles of the perimeter of occupied leks
- Not constructing water developments in PHMA unless they are beneficial to GRSG

Prohibitions on new structural improvements could limit the ability of permittees to effectively distribute livestock, resulting in increases in time and costs to permittees and potentially the full use permitted AUMs. Although these constraints could increase the amount of time permittees spend to manage livestock on National Forest System lands, it should allow sufficient flexibility that permittees could continue to use structural range improvements to effectively distribute livestock.

Under the Proposed Plan, the Forest Service would consider closing grazing allotments, pastures, or portions of pastures or managing the allotment as a forage reserve as opportunities arise where removing livestock would enhance desired habitat conditions, as



described in **Table 2-6**. These actions would occur according to applicable regulations and, if implemented, would reduce the overall available AUMs.

Managing livestock grazing to achieve the desired conditions in **Table 2-6** and livestock use guidelines in **Table 2-8** may indirectly benefit rangeland conditions by increasing vegetation productivity and increasing forage in the long term. This in turn would provide managers and permittees with better management options, especially on those allotments where livestock numbers are approaching a sustainability threshold or during drought and other disturbances such as wildfire.

Impacts from Special Designations Management

No new special designation areas are proposed under the Proposed Action, so no impacts would occur on livestock grazing management.

Impacts from Anthropogenic Disturbance Management, Adaptive Management, and Coordination

Livestock grazing and related range improvements are not included as anthropogenic disturbances in calculation of the anthropogenic disturbance cap, therefore, no direct impacts would occur to livestock grazing management as a result of the cap. Limitations of Anthropogenic disturbance would generally result in a reduction in development in GRSG habitat and a related reduction in disturbance of livestock and would maintain livestock forage.

If adaptive management triggers are met and livestock management is identified as a contributing factor, then short-term adjustment of management would be required, as identified in the Adaptive Grazing Management Response, **Appendix G**. Accelerated assessment of suspected habitat deficiencies would be used to identify management actions to ensure that livestock grazing is not contributing to further long-term declines in the affected conservation area. While management changes may be implemented in the short term on allotments where habitat is meeting GRSG habitat objectives, as discussed under livestock grazing management impacts, impacts would be limited in scale to that determined necessary to mitigate impacts in the short-term, while site-specific assessments and management actions are identified and implemented. Conservation areas that have tripped adaptive management triggers would be prioritized for HAF, rangeland health assessments, and grazing permit review.

4.7 Travel Management

This section discusses impacts on travel and transportation management from proposed BLM and Forest Service management actions. Existing conditions concerning travel and transportation management are described in **Section 3.10**.

Travel and transportation management supports and helps achieve the objectives of other resource programs, particularly such resource uses as recreation, mineral development, and lands and realty. At the resource management planning level, impacts on travel and transportation management occur when management restricts travel access, such as by closing an area to OHV travel.

Since travel management decisions impact other resource areas—for example, closing or limiting travel to protect sensitive soil resources—impacts of travel management actions on other resources and uses are discussed in the respective resource sections of this chapter. Accordingly, while impacts on travel and transportation management from other program areas do occur and are considered as part of transportation management planning, this section does not address the impacts on travel and transportation management from other resources and resource uses.

4.7.1 Methods and Assumptions

Indicators

Indicators of impacts on travel and transportation management from BLM and Forest Service management to protect GRSG are changes in the following:

- The acreages designated as open, limited, or closed to OHVs
- The types and timing of transportation activities occurring on routes that could impact GRSG or its habitat

Assumptions

In addition to the assumptions in **Section 4.1.1**, this analysis includes the following assumptions:

- The BLM recognizes roads, primitive roads, and trails as the three types of linear features that comprise the existing transportation system. These features are formally recognized based on an inventory of the planning area. Some routes may be designated for specific uses in a travel management plan. Other linear features used for transportation but not formally designated or recognized are considered linear disturbances. These features are not part of the BLM transportation system (BLM 2006b).
- Some primitive roads and trails in the northern portion of the planning area and higher elevations may not be used during GRSG lekking and wintering seasons because they are not passable, while those in the southern part of planning area and in lower elevation areas may receive higher use.
- The demand for general access to travel routes on BLM-administered and National Forest System lands would remain steady or increase over the life of the LUPs.
- The BLM and Forest Service acknowledge that over-snow vehicles and mechanized access in the snow is expanding but generally occurs in higher elevations, where there is consistent snow pack and less GRSG habitat.
- Administration of updated agency travel management policy, rules, and planning and design guidelines is improving public land travel systems, making them more sustainable, while decreasing potential impacts on resources.



- OHV use will continue to increase, with the potential for resource and user conflict to increase.
- The designation of individual routes is an implementation-level process and typically follows the planning process.
- Travel systems are dynamic and will be changed through subsequent implementation-level planning.
- Implementation of a travel management plan would increase public education, signing, enforcement, and resource monitoring.

4.7.2 Nature and Type of Effects

Impacts on travel and transportation management are those that restrict or enhance travel, such as managing areas as closed or limited to OHV travel or restricting where new routes can be created and existing ones expanded.

Table 4-77 summarizes OHV designations by alternative in GRSG management areas.

Table 4-77
OHV Area Designations by Alternative in GRSG Habitat Management Areas¹

		Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt. F	Proposed Plan
BLM	Open	2,880,300	254,800	50	50	1,783,000	254,800	3,360
	Limited to existing routes	5,725,000	8,798,000	8,563,300	8,605,300	6,815,800	8,798,000	8,856,100
	Closed	711,400	716,800	706,200	711,400	707,900	716,800	710,600
Forest Service	Limited to designated routes	2,040,700	1,861,800	1,861,900	2,040,700	1,867,000	1,861,800	1,560,700

Source: BLM GIS 2015

¹Table shows OHV area designations overlaid with GRSG Habitat Management Areas (e.g., PHMA, IHMA, GHMA, CHZ, IHZ, GHZ) for each alternative. Alternative A acres reflect designations overlaid with PPH and PGH.

Management actions that prohibit OHV travel would minimize the creation of new transportation linear disturbances, enabling the BLM and Forest Service to manage and improve access on linear features in the transportation system.

Restricting new route construction or routes expansion would direct users elsewhere in the transportation network, potentially impacting those areas from the added activity. Additionally, management actions that restrict future route construction, including adaptive management strategies that prohibit future disturbance on reaching a disturbance cap, would arbitrarily limit the ability of the transportation system manager to accommodate increased travel demands over time or to address minimization techniques (i.e., effects on wildlife, in

accordance with Criterion B, 8340.1). Conflicts among route users could increase if the existing network were to become congested.

Implementing management for all other resources and uses would have negligible or no impact on comprehensive travel and transportation management; therefore, they are not discussed in detail.

4.7.3 Impacts on Travel Management Common to All Alternatives

The nature and type of impacts described below are common to all alternatives, but the context and intensity may vary by alternative.

Under all alternatives the BLM would defer travel management route designations to a separate process following the current LUPA process. As such, for each alternative, the BLM would maintain current management of areas closed to OHV travel and would manage varying acreages as limited to existing routes. The Forest Service has already undertaken a route designation process. As a result, OHV travel is limited to designated routes on National Forest System lands under all alternatives. Areas of disturbance associated with these designated routes vary slightly by alternative. **Table 4-77**, OHV Area Designations by Alternative, summarizes the total areas open, limited, and closed to OHV travel by alternative.

4.7.4 Alternative A

In accordance with 43 CFR 8342.1, current BLM management limits OHV travel to existing roads and trails within portions of the planning area, while allowing OHV travel in other areas. Under Alternative A, the BLM and Forest Service would maintain current levels of travel management, as identified in the existing planning documents. For example, BLM-administered lands currently designated as open to cross-country OHV use (over 2.8 million acres) would continue to be managed as such. OHV travel on National Forest System lands would continue to be limited to designated routes. There would be no new restrictions on GRSG habitat management and no change in impacts on travel management.

4.7.5 Alternative B

Under Alternative B, the BLM would limit OHV travel to existing roads and trails in PHMA. OHV travel on National Forest System lands would continue to be limited to designated routes with a total disturbance area of over 2 million acres. The area designation change on BLM-administered lands from open to limited would reduce cross-country access in those portions of PHMA that were previously managed as open. Applications for upgrading or realigning routes would be required to meet certain design, location, and mitigation criteria intended to protect GRSG habitat. These requirements may preclude the construction of some new routes but would be unlikely to reduce access across the decision area.

Alternative B would also require increased signs and education alerting OHV users of limitations on cross-country travel. It would add processing requirements for transportation-related projects in GRSG habitat. Signs and education would likely improve travel



management by reducing user and resource conflicts; added processing requirements could increase the time needed to approve new projects and result in site-specific increases in congestion if portions of the current route system become overcrowded. Alternative B's restrictions on OHV travel would make active livestock management more difficult because of the difficulty of access to the allotments.

4.7.6 Alternative C

Alternative C would result in the greatest reduction in access, when compared to Alternative A. For example, under Alternative C, OHV travel would be prohibited in all GRSG habitats. Additionally, in PHMA, new road construction within 4 miles (6.4 km) of active leks would be prohibited. Upgrading existing routes where it would damage occupied GRSG habitat would also be precluded. Together, these actions would result in site-specific losses of opportunity for OHV travel, future route construction, and improved access. Similar to Alternative B, Alternative C's restrictions on OHV travel would make active livestock management more difficult because of the difficulty of access to the allotments.

4.7.7 Alternative D

Under Alternative D, OHV travel in PHMA would be limited to existing routes on BLM-administered lands and designated routes on National Forest System lands. Undesignated routes would be designated as part of a future travel management planning process. There would be no areas within GRSG habitat managed as open to cross-country OHV travel under Alternative D, which would reduce cross-country access in areas previously managed as open. In those areas managed as limited to existing routes, impacts on travel and transportation management under Alternative D are the same as Alternative B and are consistent with **Section 4.6.2**. Similar to Alternative B, Alternative D's restrictions on OHV travel would make active livestock management more difficult because of the difficulty of access to the allotments.

4.7.8 Alternative E

Impacts under Alternative E are the same as described for Alternative A.

4.7.9 Alternative F

Impacts under Alternative F are the same as described for Alternative B.

4.7.10 Proposed Plan

Impacts from Travel and Transportation Management

Impacts from limiting OHV travel to existing routes on 99 percent (10,416,800 acres) of the planning area would be consistent with those described in the ***Nature and Types of Effects***.

During subsequent travel management planning, the designation of individual routes would allow BLM to manage the types of travel on individual routes to avoid impacts on GRSG and its habitat. Restricting OHV travel on roads and primitive roads in lower elevations of

the planning area would result in greater effects on travel opportunities because these routes are passable year-round and have higher traffic volumes.

Seasonal restrictions to minimize impacts on GRSG and its habitat would prevent road maintenance and could make certain roads impassable until the required maintenance could be performed.

RDFs for roads and travel management would likely limit the number of routes in GRSG habitat but would enhance the long-term condition of routes available for public or permitted use by requiring design features to ensure that routes accommodate their anticipated uses. Best practices for decommissioning routes would likewise direct traffic to higher-quality routes that remain open for use and will adequately facilitate access over the long term.

Impacts from Anthropogenic Disturbance Management, Adaptive Management, and Coordination

If there is a future decline in GRSG or its habitat and the decline is attributable to travel management, the BLM would evaluate management alternatives that could result in more restrictions on travel and decrease travel opportunities.

Where re-routing new roads is required to avoid GRSG impacts (habitat and/or disturbance), those actions could result in longer roads with overall greater surface disturbance.

If the 3 percent disturbance cap within a BSU is reached, new surface disturbance within the BSU would be prohibited, thus preventing new road development. In these areas, the BLM and Forest Service would be unable to accommodate additional travel demand until the disturbance falls below the disturbance cap.

4.8 Lands and Realty

BLM-administered and National Forest System lands are used for a variety of purposes. Major focus areas for the lands and realty program include land use authorizations, land tenure adjustments, and land withdrawals. The Forest Service completes landownership adjustments (purchase, exchange, donation, and ROW acquisition), while the BLM conducts land tenure adjustments (exchanges, disposals, and acquisitions).

This section discusses impacts on lands and realty from proposed management actions of other resources and resource uses. Existing conditions concerning lands and realty are described in **Section 3.11**.

4.8.1 Methods and Assumptions

Indicators

Indicators of impacts on lands and realty are as follows:



- Acres of BLM-administered and National Forest System surface ownership, which include federal surface with private minerals, in the planning area
- Acres of BLM-administered and National Forest System surface ownership affected by ROW and SUA allocations (i.e., exclusion, avoidance, and open)
- Acres of BLM-administered and National Forest System surface ownership affected by ROW and SUA restrictions (e.g., BMPs, RDFs, seasonal restrictions, and buffers)
- Acres and miles of designated ROW corridors open to ROW and SUA development in the planning area
- Number, acres, type, and density of surface-disturbing ROWs, SUAs, and leases in the planning area
- Acres of potential land tenure adjustments (i.e., lands identified as suitable for disposal, acquisition, or exchange) in the planning area

Assumptions

This analysis includes the following assumptions:

- Authorized ROWs, SUAs, permits, and leases would continue to be managed subject to valid existing rights.
- Mitigation would bury, collocate, or include power lines in design features (e.g., perch deterrents) to reduce impacts on GRSG.
- The demand for both energy and nonenergy ROWs/SUAs is anticipated to remain steady or to gradually increase over time.
- No utility-scale (20 MW) solar energy ROWs/SUAs are anticipated due to low solar energy potential.
- Activities proposed or approved for mineral exploration or development have potential implications for lands and realty decisions for associated ROWs/SUAs.
- Collocation does not eliminate the potential for new temporary or permanent surface disturbance.
- The BLM and Forest Service would continue to manage all previously withdrawn lands as withdrawn from entry, appropriation, or disposal under the public land laws. Withdrawals would be reviewed as needed and recommended for extensions, modifications, revocations, or terminations. All existing withdrawals initiated by other agencies would be continued unless the initiating agency, the BLM, or the Forest Service requests that the withdrawal be extended, modified, revoked, or terminated.
- Any lands that become unencumbered by withdrawals or classifications would be managed according to the decisions made in this LUPA. If the LUPA has not

identified management prescriptions for these lands, they would be managed the same as adjacent or comparable public lands in the decision area.

- Designated utility corridors have a higher probability for development because of their designation in existing land use plans.
- Power lines would be upgraded in existing designated corridors, unless an alternate route would benefit GRSG.

4.8.2 Nature and Type of Effects

The BLM and Forest Service management of resources and uses affects the lands and realty program by increasing or decreasing the BLM and Forest Service lands and realty programs' ability to carry out land use authorization or land tenure/landownership adjustment actions. The effects on the lands and realty program are typically the result of management that excludes or avoids ROWs or SUA in certain areas, requires stipulations on land use activities, or applies criteria for land tenure actions.

Forest Service land use plan prescriptions are similar to BLM exclusion and avoidance areas. Prescriptions can restrict or prohibit certain uses in a planning area. The Forest Service grants SUAs, while the BLM grants ROWs on their respective agency lands. In addition, each agency issues permits, easements, and leases. The Forest Service completes landownership adjustments (purchase, exchange, donation, and ROW acquisition), while the BLM conducts land tenure adjustments (withdrawals, disposals through sale or exchange, and acquisitions through purchase or exchange).

Within a BLM ROW exclusion area, the authorization of new ROWs is not allowed under any conditions; SUA authorizations would be prohibited on National Forest System lands. A ROW avoidance area may be available for ROW location but requires special stipulations such as resource surveys and reports, construction and reclamation engineering, long-term monitoring, special design features, special siting requirements, timing limitations, regional mitigation, and rerouting. Such stipulations could restrict project location or delay the availability of an energy supply by delaying or restricting construction of pipelines, transmission lines, or renewable energy projects. Additionally, such stipulations could limit future access, delay or increase the cost of energy supplies, or delay or restrict communications service availability. As a result of such stipulations, alternative routes may need to be identified and selected to protect GRSG habitat, and there may be increased processing time and costs due to the potential need to relocate facilities or due to greater design, mitigation, and siting requirements.

Management that restricts ROW development in a certain area will eventually increase the concentration of ROW development in adjacent areas where restrictions are not present. Increased ROW density can limit new siting options in non-restricted areas, decrease service reliability to rural areas, increase conflict among facilities, and intensify impacts on other resources and uses.



Collocating infrastructure in existing ROWs, corridors, or disturbed areas reduces land use conflicts, limits disturbance to the smallest footprint, and limits impacts on GRSG and their habitats. Collocation policies also clarify the preferred locations for utilities and potentially simplify processing on BLM-administered and National Forest System lands. However, collocating can limit options for infrastructure development and could reduce network redundancy and potentially affect service reliability in some areas.

Land tenure and landownership adjustments are intended, among other things, to maintain or improve the landownership pattern for the protection and management of resources, including management of GRSG habitat. Land disposal, exchange, purchase, or sale can result in a more contiguous decision area, thus increasing the efficiency of BLM and Forest Service management. However, while consolidation may be beneficial for certain resources and uses, it may not necessarily reduce the effects on GRSG habitat.

Implementing management for the following resources would have negligible or no impact on lands and realty management and are not discussed in detail: travel and transportation management, recreation, range management, locatable minerals, nonenergy leasables, mineral split-estate, fire and fuels management, habitat restoration and vegetation management, and ACECs.

4.8.3 Impacts on Lands and Realty Common to All Alternatives

The nature and type of impacts described below are common to all alternatives, but the context and intensity may vary by alternative.

Impacts from Recreation and Visitor Services

BLM and Forest Service management goals and objectives are to preserve a desired setting and recreation experience for users within SRMAs and developed recreation sites. Land uses in the SRMAs and developed recreation sites should not conflict with recreation uses. Under all alternatives, the BLM and Forest Service would continue to evaluate land use authorizations on a case-by-case basis in the special recreation areas and near recreation sites so as to avoid conflicting uses.

Impacts from Special Designations Management

Under all alternatives, the BLM and Forest Service would continue to manage existing special designation areas according to the existing LUP designations. Limiting ROW development in special designation areas impacts the ability of the BLM and Forest Service to accommodate ROW authorization demands within the planning area. This is particularly the case in locations where special designation areas separate energy sources (e.g., wind or geothermal) from likely demand centers. Routing transmission lines around exclusion areas could result in longer ROWs with greater surface disturbance and extended processing times.

4.8.4 Alternative A

Sage-Grouse Management

GRSG management actions have been incorporated in the Dillon Field Office and for the Beaverhead/Deerlodge and Caribou National Forests. Within these areas, impacts on the lands and realty program are as follows:

- Additional siting criteria for ROWs proposed next to leks or within breeding or nesting habitat
- Required design features for certain types of infrastructure
- Extended processing times to review ROW applications for compliance with GRSG habitat management objectives

In the portions of the planning where land use plans do not contain GRSG management actions, there would be no impacts on lands and realty under Alternative A.

Impacts from Travel and Transportation Management

Under Alternative A, existing transportation routes would continue to provide motorized access to ROW infrastructure and communication sites for construction and maintenance. Refer to **Section 4.6** for further analysis.

Impacts from Lands and Realty

Land Use Authorizations

Under Alternative A, 1,956,200 acres on both BLM-administered and National Forest System would continue to be managed as ROW avoidance areas, and 1,028,500 acres would continue to be managed as ROW exclusion. Within exclusion areas, new ROW development would be prohibited, which would prevent the lands and realty program from approving new applications within these areas. All other lands within the decision area would continue to be open for ROW development. Alternative A would not prevent the BLM or Forest Service from accommodating future demand for ROW development within the planning area.

BLM-administered and National Forest System lands would continue to be available for multiple-use and single-use communication sites and road access ROW authorizations on a case-by-case basis, in accordance with Title V of FLPMA, 43 CFR Part 2800 regulations, and Section 704(c) of the Telecommunications Act of 1996 (47 USC 332). All ROW applications would be reviewed using the criteria of collocating new ROWs within or next to existing ROWs wherever practical to avoid the proliferation of separate ROWs.

Wind and Solar ROWs

Wind and solar energy projects would be permitted through the ROW permitting process. For wind and solar energy development under Alternative A, the BLM would manage 1,715,800 acres as ROW exclusion and 320,200 acres as ROW avoidance. The Forest Service



would continue to manage 227,700 acres as closed to new wind and solar use authorizations, while new wind and solar development would be avoided on 1,018,900 acres on National Forest System lands.

ROW exclusion and avoidance designations decrease the amount of BLM-administered and National Forest System land available for new development. Under Alternative A, the BLM and Forest Service management would provide sufficient opportunities to accommodate future wind and solar energy development within the planning area. Therefore, there would be little to no impacts on wind or solar energy development under Alternative A. (Refer to **Section 4.8.2** for impact analysis regarding geothermal resources)

Withdrawals

There would continue to be 4,032,400 acres of land withdrawals in the planning area, including 2,224,100 acres in GRSG habitats.

Impacts from Special Designations Management

Under Alternative A, nine ACECs would continue to be managed primarily as ROW exclusion. This would affect ROW permit application processing times, available development locations, and design standards for proposed ROWs on approximately 426,700 acres within the planning area. Refer to **Section 4.12**, Special Designations, for further analysis.

4.8.5 Alternative B

Sage-Grouse Management

Management actions under Alternative B to protect GRSG habitat would impact lands and realty by closing areas to ROW authorizations, additional criteria for land exchanges, and limitations on new mineral development and road construction. Primary impacts under Alternative B are from the designation of an additional 7.3 million acres as ROW exclusion and an additional 582,800 acres as ROW avoidance, compared to Alternative A.

In exclusion areas, the BLM and Forest Service would be prohibited from approving new ROW development. In avoidance areas, development would be allowed only if certain siting and design requirements could be met. ROW restrictions under Alternative B would substantially reduce the ability of the BLM and Forest Service to accommodate demand for interstate and intrastate gas pipelines and electric transmission lines, wind and solar energy development, fiber optic lines, and communication sites.

Impacts from Travel and Transportation Management

Impacts from travel and transportation management under Alternative B are the same as under Alternative A. Proposed action under Alternative B to prioritize travel management planning in PHMA, which would design and designate a travel system that minimizes adverse effects on GRSG habitat, is an activity-level process and would be accompanied by separate environmental review and documentation. Refer to **Section 4.6** for further analysis.

Impacts from Lands and Realty

Land Use Authorizations

Under Alternative B, 8.3 million acres would be designated as ROW exclusion. Neither the BLM nor the Forest Service would authorize new ROWs in these areas unless the infrastructure could be located entirely within an existing ROW footprint. Additionally, 2.5 million acres would be designated ROW avoidance. As noted above in **Section 4.7.2**, managing GRSG habitat as ROW exclusion or avoidance would prevent the BLM and Forest Service from accommodating new ROW development in those areas.

With a continuing demand for new ROWs in the planning area, including major interstate and intrastate electrical transmission lines, gas pipelines, and communication ROWs, developments would be diverted to adjacent private or state lands or would be prevented altogether. Development on adjacent lands could result in direct and indirect impacts on GRSG populations and habitat (e.g., vehicle traffic on roads crossing BLM-administered and National Forest System lands). This would be the case especially if the development is close to GRSG habitat on BLM-administered or National Forest System lands.

If new ROW development, particularly interstate electrical transmission, fiber optic, and gas pipelines, could not be feasibly developed due to ROW exclusions on BLM-administered and National Forest System lands in the planning area, then energy and communication development opportunities needed to meet a growing demand would be reduced until alternative routes or technology could be developed.

Within avoidance areas, the BLM and Forest Service would continue to process ROW applications but would require additional requirements before authorizing the ROW. Supplemental design criteria and siting limitations would decrease the level of future ROW development in avoidance areas.

Additionally, under Alternative B, the BLM and Forest Service would take advantage of opportunities to remove, bury, or modify existing power lines. Limitations on new ROWs and aboveground lines, such as transmission lines and pipelines, could restrict the availability of energy or service availability and reliability for communication systems.

Wind and Solar ROWs

Under Alternative B, utility-scale wind and solar energy would be excluded on 8.5 million acres and would be avoided on 2.3 million acres. ROW exclusion and avoidance decreases the BLM's and Forest Service's ability to accommodate new wind and solar energy development in GRSG habitats. However, impacts would occur only in areas statewide that are considered developable, such as locations where wind speeds are greater than 23 feet [7 meters] per second). Therefore, excluding or avoiding wind and solar energy development in GRSG habitat would reduce but not eliminate renewable energy development potential within the sub-region.



Land Tenure and Landownership

The BLM and Forest Service would retain administration of public land in PHMA. Exceptions would be where land tenure adjustments would result in more contiguous federal ownership patterns or where disposal accompanied by a habitat mitigation agreement or conservation easement would result in more effective management of GRSG habitat. Impacts would be consistent with those described in **Section 4.7.2**.

Withdrawals

Under Alternative B, land withdrawals in PHMA and GHMA would total 2,223,100 acres. Additionally, the BLM or Forest Service would recommend all PHMA for mineral withdrawal. However, withdrawal would be subject to Congress's approval. The BLM or Forest Service would not recommend approval of withdrawals for reasons other than mineral activity. In withdrawn areas, BLM-administered or National Forest System lands would not be available for mineral extraction for a defined period. Impacts on mineral development are described in **Sections 4.8** through **4.11**.

Impacts from Special Area Designations

Under Alternative B there would be no impacts from ACECs or Zoological Areas on lands and realty.

4.8.6 Alternative C

Sage-Grouse Management

Management actions under Alternative C to protect GRSG habitat would impact lands and realty through by designating over 10 million additional acres as ROW exclusion, compared to Alternative A. A ten-fold increase in ROW exclusion area would result in the most ROW restrictions of any alternative. It would prevent the BLM and Forest Service from accommodating demand for new transmission lines, gas pipelines, communication sites, wind energy facilities, and other types of ROWs. Additional management prescriptions for land tenure and road construction would further constrain BLM-administered and National Forest System lands and realty program functions in GRSG habitat.

Impacts from Travel and Transportation Management

Impacts from travel and transportation management under Alternative C would prohibit new road construction within four miles (6.4 km) of active leks. The proposed management under Alternative C would limit new road construction on BLM-administered and National Forest System lands throughout occupied habitat. Limitations on road construction would reduce the number of new road ROW applications submitted to the BLM. The limitations would make certain areas impractical for new ROW authorizations, particularly in areas where there are few or no ROWs or roadways. Refer to **Section 4.6** for further analysis.

Impacts from Lands and Realty

Land Use Authorizations

Under Alternative C, all occupied habitat (11.1 million acres) would be designated as ROW exclusion. The BLM and Forest Service would not authorize new ROWs in exclusion areas

unless the infrastructure could be located in an existing ROW. Impacts under Alternative C are similar to Alternative B except that under Alternative C exclusion areas would apply to a larger land area. Therefore, Alternative C would further reduce opportunities for communication facilities, gas pipelines, fiber optic cables, electrical transmission lines, and similar ROW development. There is a continuing demand for these ROWs in the planning area to meet energy and communication needs outside the planning area; Alternative C would reduce the ability of the BLM and Forest Service lands and realty programs from meeting those needs.

Wind and Solar ROWs

Management of 11.1 million acres as exclusion for utility-scale wind and solar energy development would eliminate the BLM and Forest Service's ability to accommodate any new wind or solar energy demand on that portion of GRSG habitat. ROW exclusions would also inhibit development on adjacent private and state land where transmission infrastructure would be needed across BLM-administered or National Forest System lands.

Land Tenure and Landownership

Under Alternative C, the BLM and Forest Service would retain public ownership in PHMA, with no exceptions. Impacts would be consistent with those described in **Section 4.7.2**.

Withdrawals

Under Alternative C, the total acres of land withdrawals are the same as under Alternative A. However, GRSG-occupied habitat, would be withdrawn from mineral entry. Impacts under Alternative C from withdrawals are the same as under Alternative B, except that mineral withdrawal would apply to all GRSG habitat. Refer to **Sections 4.8** through **4.11** for further analysis related to mineral development.

Impacts from Special Designations Management

Under Alternative C, the BLM would designate 39 new ACECs, equivalent to approximately 3.1 million acres. No Forest Service Zoological Areas would be designated. Management for the ACECs would be tailored to protect the relevant and important values (i.e., GRSG habitat) for which the ACECs would be designated. All lands within the ACECs would be managed as ROW exclusion, which would prohibit new ROW development in those areas. Under Alternative C, infrastructure development and other ROWs would be directed to adjacent BLM-administered or National Forest System lands or to private lands. Alternative F would result in an overall reduction in new land use authorizations. New land use authorizations would be further reduced if ROW applicants could not find suitable alternative development locations outside ACECs. Refer to **Section 4.12**, Special Designations, for further analysis.

4.8.7 Alternative D

Sage-Grouse Management

Management proposed under Alternative D would enable the BLM and Forest Service to accommodate certain types of ROW development, because there would be no exclusion



areas. However, it would exclude ROWs for large infrastructure development, such as electrical transmission lines greater than 50kV, and renewable energy testing and generation, on over 6.2 million acres. In addition, there would also be 2 million more acres of ROW avoidance areas, compared to Alternative A. Under Alternative D, the BLM-administered and National Forest System lands and realty programs would be prevented from accommodating any new demand for electrical transmission or renewable energy development in exclusion areas. A large increase in avoidance areas, even if Alternative D would require no absolute exclusion areas, would affect the ability of the BLM and Forest Service to grant new ROWs in GRSG habitat.

Impacts from Travel and Transportation Management

Impacts from travel and transportation management under Alternative D are the same as under Alternative B. Refer to **Section 4.6** for further analysis.

Impacts from Lands and Realty

Land Use Authorizations

Alternative D would designate over 1 million acres as ROW exclusion for all ROW types, similar to Alternative A. However, it would also exclude large transmission lines, renewable energy ROWs, and new roadways on 6.2 million acres. An additional 3.9 million acres would be managed as ROW avoidance for all ROW types.

Alternative D would impact the BLM-administered and National Forest System lands and realty programs by reducing their ability to authorize ROWs, such as electrical transmission lines greater than 50kV, within PHMA. Within avoidance areas, additional stipulations for the development of electrical transmission lines could result in the denial of projects that cannot meet ROW grant requirements to protect GRSG habitat. Limitations on electrical transmission line development, renewable energy development, and new roadways under Alternative D would be similar to Alternative C and are consistent with **Section 4.7.2**. Impacts on other types of ROWs and land use permits, such as electrical distribution lines, communication sites, fiber optic lines, pipelines, and water infrastructure, would result when an applicant could not find a suitable location outside avoidance or exclusion areas or could not meet the design and placement criteria for an ROW or other land use permit within an avoidance area. For communication facilities in particular, stipulations in avoidance areas could diminish the effectiveness of the communication infrastructure to the point where the development would not be practical, resulting in an impact on that type of infrastructure development and the communication network.

Wind and Solar ROWs

Alternative D would exclude wind and solar energy testing and generation facilities on 6.7 million acres in GRSG habitat. These types of ROWs would be avoided on an additional 4.3 million acres in GRSG habitat. Impacts on wind energy ROWs would be consistent with **Section 4.7.2**. While excluding or avoiding wind and solar energy development in GRSG habitat would reduce development potential, impacts are concentrated primarily in areas south of Twin Falls and near Pocatello, where average wind speeds are greater than 23 feet (7 meters) per second (NREL 2009). This is the typical threshold for utility-scale wind

energy to occur (NREL 2012). Therefore, Alternative D would reduce but not eliminate wind energy development potential within the sub-region. Impacts on solar energy development would be negligible due to a lack of solar potential in the planning area.

Land Tenure and Landownership

Under Alternative D, the BLM and Forest Service would retain public ownership in all GRSG habitats, except where there is mixed ownership and land tenure adjustment would promote a more contiguous land pattern in GRSG habitat. Management actions to retain public ownership would increase land management efficiency, as described in **Section 4.7.2**.

Withdrawals

There are no impacts from withdrawals under Alternative D.

Impacts from Special Designations Management

Under Alternative D, there are no impacts from ACECs or Zoological Areas on lands and realty.

4.8.8 Alternative E

Sage-Grouse Management

Management actions under Alternative E to protect GRSG habitat would impact lands and realty through a 5.3 million-acre increase in ROW avoidance areas, compared to Alternative A. ROW avoidance criteria would impact the lands and realty program by limiting the areas where new ROW authorizations could be approved without supplemental siting and design criteria to protect GRSG habitat. Avoidance criteria would reduce the number of ROW applications, increase processing times for applications submitted for projects in avoidance areas, and direct new development to adjacent lands, where fewer restrictions would be present.

Impacts from Travel and Transportation Management

Impacts from travel and transportation management under Alternative E are the same as Alternative A. Refer to **Section 4.6** for further analysis.

Impacts from Lands and Realty

Land Use Authorizations

Under Alternative E, 7.3 million acres in CHZ and IHZ would be designated as ROW avoidance, while 979,100 acres would continue to be managed as ROW exclusion. New infrastructure would be prohibited in PHMA, unless the infrastructure could be collocated in an existing ROW footprint and the infrastructure is critical for meeting increasing demands. Limitations on new infrastructure outside existing ROWs and ROW stipulations for avoidance areas would prevent the BLM and Forest Service from accommodating additional demand for ROW development within CHZ and in IHZ. This could result in ROW applications being denied. With the expected demand for new ROWs in the planning area, particularly interstate and intrastate electrical transmission and gas pipeline ROW



developments, new ROW development could be diverted to adjacent private or state lands. If new ROW development could not be feasibly developed there would be a reduction in energy and communication development opportunities to meet growing demand.

Wind and Solar ROWs

Alternative E would continue to exclude wind and solar energy testing and generation facilities on 1.8 million acres, while avoiding these types of ROWs on 2.6 million acres. Alternative E would further restrict wind and solar ROWs through the use of triggers, stipulations, and BMPs. Avoiding or excluding wind and solar energy development would reduce or eliminate development potential, especially in areas considered to have developable (i.e., average wind speeds greater than 23 feet [7 meters] per second) wind resources. Impacts on solar energy development are negligible due to a lack of solar potential in the planning area.

Land Tenure and Landownership

There are no impacts on lands and realty from land tenure requirements under Alternative E.

Withdrawals

There are no impacts from withdrawals under Alternative E.

Impacts from Special Designations Management

Under Alternative E, there are no impacts from ACECs or Zoological Areas on lands and realty.

4.8.9 Alternative F

Sage-Grouse Management

Management actions under Alternative F to protect GRSG habitat would impact lands and realty by designating over 7 million additional acres as ROW exclusion, compared to Alternative A. Similar to Alternative B and consistent with **Section 4.7.2**, ROW exclusion areas under Alternative F would restrict the BLM and Forest Service from accommodating demand for new transmission lines, gas pipelines, communication sites, wind energy facilities, and other types of ROWs.

Impacts from Travel and Transportation Management

Impacts from travel and transportation management under Alternative F are the same as under Alternative A. Refer to **Section 4.6** for further analysis.

Impacts from Lands and Realty

Alternative F would designate 8.4 million acres as ROW exclusion and 2.5 million acres as avoidance. By not authorizing new ROWs in exclusion areas, the ability of the BLM and Forest Service to accommodate the demand for land use authorizations would be diminished. Impacts are consistent with **Section 4.7.2** and would result in an overall decline in energy or service availability and reliability, when compared to Alternative A.

Wind and Solar ROWs

Alternative F would exclude wind and solar energy testing and generation facilities on 2.3 million acres in GRSG habitat. These types of ROWs would be avoided on 486,100 acres. Impacts on wind energy ROWs under Alternative F are similar to Alternative B and are consistent with **Section 4.7.2**. While excluding or avoiding wind and solar energy development in GRSG habitat would reduce development potential, impacts would be concentrated in areas with average wind speeds greater than 23 feet (7 meters) per second since this is the typical threshold needed for utility-scale wind energy to occur (NREL 2012). Therefore, Alternative F would reduce but not eliminate wind energy development potential within the sub-region. Impacts on solar energy development are negligible due to a lack of solar potential in the planning area.

Land Tenure and Landownership

There are no impact on lands and realty from land tenure requirements under Alternative F.

Withdrawals

There are no impacts from withdrawals under Alternative F.

Impacts from Special Designations Management

Under Alternative F, the BLM would designate 17 or 18 new ACECs and Forest Service would designate 12 new Zoological Areas, encompassing up to 1 million acres. Management for the ACECs and Zoological Areas would be tailored to protect the relevant and important values (i.e., GRSG habitat) for which the ACECs and Zoological Areas would be designated. All lands within the ACECs and Zoological Areas would be managed as ROW exclusion, which would prohibit new ROW development in those areas. Under Alternative F, infrastructure development and other ROWs would be directed to adjacent BLM-administered or National Forest System lands or to private lands. Alternative F would result in an overall reduction in new land use authorizations. These would be further reduced if ROW applicants could not find suitable alternative development locations outside ACECs or Zoological Areas. Refer to **Section 4.12**, Special Designations, for further analysis.

4.8.10 Proposed Plan

The Proposed Plan would enable the BLM and Forest Service to accommodate a portion of the anticipated future demand for ROW development, while conserving and enhancing GRSG habitat. The most notable impacts on the lands and realty program under the Proposed Plan would occur in PHMA. In addition to managing PHMA as avoidance areas for future land use authorizations, including ROWs, leases, and permits, the Proposed Plan would require land use authorizations for the following outcomes:

- Achieve a net conservation gain to GRSG
- Incorporate RDFs
- Avoid tall structures within key GRSG habitat areas
- Meet noise requirements

- Abide by lek buffer requirements
- Avoid disturbing more than 3 percent of any BSU in PHMA (and IHMA in Idaho)

Collectively, these GRSG conservation management actions would increase mitigation requirements for land use authorizations, which could result in more complex project designs, potentially exclude infrastructure placement in the most cost-effective locations, and potentially result in overall greater development costs. A corresponding effect could be a reduction in the number of authorization applications received for activities in PHMA (and IHMA in Idaho) and longer, more complicated review periods for those that are proposed in PHMA. Implementing the GRSG habitat conservation management actions listed above would also place NSO stipulations on fluid mineral development in PHMA and IHMA, which would further reduce the demand for new ROW development in those areas.

Less restrictive management for new land use authorizations in GHMA and in GRSG habitat outside BLM-administered and National Forest System lands would allow for more ROW/SUA development, leases, and permits in those areas, compared to PHMA. However, because the Proposed Plan would still require discretionary surface-disturbing land use actions to achieve a net conservation gain, incorporate RDFs, and abide by lek buffers, project proponents in GHMA could seek less restrictive locations outside GRSG habitat or, if located in GHMA, could incur added costs and longer project review periods.

Impacts from Lands and Realty Management

Land Use Authorizations

Unless a new ROW/SUA is proposed within an existing designated corridor (**Figure 2-7**), which the BLM and Forest Service would manage as open but still subject to the disturbance cap, new major and minor ROW/SUA development would be avoided in PHMA and IHMA (8,365,000 acres). Within PHMA and IHMA, there are a total of 59,900 acres of designated corridors. New development proposed within and outside corridors would be subject to RDFs, and disturbance mitigation requirements.

Management of PHMA and IHMA as avoidance, combined with RDFs, have the potential to increase project costs and could result in a greater proportion of new development occurring outside PHMA and IHMA. Concentrating new development in corridors, GHMA, and nonhabitat areas could lead to higher density of ROW/SUA development in those areas, with impacts consistent with the **Nature and Types of Effects**.

The Boardman to Hemingway and Gateway West projects are exempt from the Proposed Plan decision to designate PHMA/GHMA as an avoidance area (Proposed Plan decisions LR-1, LR-5 and LR-13). The projects are also exempt from the proposed GRSG screening criteria, RDFs, buffers, tall structure requirements, and disturbance cap requirements identified in Chapter 2.

The Obama Administration identified these transmission projects as priority projects, as part of the President's commitment to job creation and modernizing America's Infrastructure.

These transmission projects were two of seven projects identified for expedited permit review and federal agency coordination among an interagency Rapid Response Team for Transmission (RRTT) established to foster coordination, expedite simultaneous permitting processes and resolve permitting challenges, while ensuring appropriate environmental reviews.

The BLM is currently processing the application for the Boardman to Hemingway and Gateway West projects, both high-voltage transmission lines, which include alternatives through this avoidance area/GRSG habitat. The BLM is analyzing conservation measures for GRSG as part of the review process for Boardman to Hemingway and Gateway West.

Boardman to Hemingway and Gateway West are analyzed in detail in the cumulative impacts section of this plan (**Chapter 5**).

Although existing designated corridors would be considered first for new ROW development in GRSG habitat areas, because corridors are typically located adjacent to existing infrastructure, power companies are reluctant to locate new infrastructure in those areas given redundancy concerns. New ROW development would be likely in corridors where those corridors provide a cost effective, direct route to demand centers that also avoid conflicts with populated areas. If an area outside PHMA and IHMA provide this option, then a developer would likely pursue that route instead of placing within a corridor.

In GHMA, 1,764,500 acres on BLM-administered lands would be open for proposals for new major and minor ROW/SUA development, while only major ROWs in Montana (828,100 acres) would be avoided. RDFs for new ROW/SUAs in GHMA could further deter development in those areas resulting in a greater likelihood for development in nonhabitat areas. Any decline in new ROW and SUA development applications in GHMA would be less than in PHMA and IHMA.

The overall proposed increase in ROW restrictions under the Proposed Plan could affect the BLM and Forest Service's ability to accommodate the demand for new linear energy-related ROW development. Compared to Alternative A, energy suppliers under the Proposed Plan could have fewer options to place new transmission lines without costly route adjustments or design modifications.

Wind and Solar

BLM and Forest Service management of PHMA as ROW/SUA exclusion areas for wind and solar would prevent the development of new utility-scale wind and solar energy generation facilities on 6,352,300 acres of GRSG habitat. Due to low solar energy potential in the planning area, there would be negligible to no impacts on solar energy development. Because wind resources in the planning area are sufficient to support utility-scale wind energy development, excluding wind energy ROW/SUAs in PHMA would restrict the BLM and Forest Service ability to accommodate future demand. Projects currently proposed would not be authorized. Excluding wind energy development in PHMA and avoiding it in IHMA would distribute new development to GHMA and nonhabitat areas where fewer restrictions would apply. Demand for new transmission lines, access roads, and related



ancillary features to serve new wind generation projects on nonhabitat or private lands could result in new ROW/SUA applications in GRSG habitat. Where transmission lines, access roads, and related ancillary features would cross PHMA and IHMA, management of those areas as ROW/SUA avoidance areas could deter or prevent wind energy development on nonhabitat or private lands.

Although GHMA would be open for proposals for new wind development on BLM-administered lands, RDFs and requirements to achieve a net conservation gain to GRSG (e.g. buffers, disturbance mitigation, and tall structure restrictions) could affect wind development by limiting the number of turbines per project and the ability to access generation sites. Where wind development on private land or nonhabitat requires new access roads, RDFs for roadways, including requirements to use existing roads, could limit access and subsequent energy development opportunities on private land or nonhabitat areas.

Other Land Use Authorizations

Excluding landfills and commercial service airports in PHMA and avoiding them in IHMA would shift any new development and associated disturbance to GHMA or nonhabitat areas. However, because there is little to no demand for these uses within GRSG habitat, managing PHMA as exclusion for these uses is not anticipated to affect the BLM lands and realty program or hinder future refuse disposal or air services opportunities in the planning area. Landfill areas, even if transferred to non-federal ownership, would be considered a disturbance.

In all GRSG habitat areas, restrictions on temporary (less than 3 years on BLM-administered lands and limited to 1 year on National Forest System lands) authorizations (e.g., apiaries and filming) would be subject to seasonal or timing restrictions and mitigation requirements regarding habitat loss. Seasonal or timing restrictions on temporary uses could prevent those uses during certain times of year (e.g., lekking season) and could prevent the BLM and the Forest Service from accommodating demand for those uses.

Impacts from management of water development ROW/SUAs would be minimal. Seasonal timing restrictions may temporarily limit the use of some water developments with minimal to no long-term impacts.

Land Tenure

Land tenure actions would be allowed in PHMA and IHMA if they can demonstrate a net conservation gain to GRSG. Allowing certain land tenure actions could create a more contiguous decision area and increase short- and long-term land management efficiency, as described in the **Nature and Types of Effects**. Land exchanges or disposal to remove low-quality habitat from BLM-administered land and National Forest System land would also increase efficiency where those lands are isolated and difficult to manage.

Recommending SFA for mineral withdrawal would decrease the overall long-term demand for ROWs/SUAs to support mineral development. The recommended withdrawal would be for locatable minerals only and would not result in a land withdrawal. The BLM and Forest

Service would retain their respective administration and primary management responsibilities.

Impacts from Salable Minerals Management

Closing PHMA to new salable mineral authorizations would decrease the need for new ROWs/SUAs to serve those uses. It also would require source material for maintenance of existing gravel road ROWS to be obtained from existing sites in PHMA and IHMA, or existing or expanded sites in GHMA or nonhabitat. If the amount of source material is insufficient to properly maintain the road, access via those roadways to valid existing ROW/SUAs (e.g., transmission lines) and leases (e.g., communication sites) could be impacted. Requiring existing sites to be subject to RDFs and GRSG conservation measures (e.g., buffers, disturbance mitigation, and seasonal timing restrictions) could impact the ability of the sites to remain open and the availability of source material.

Impacts from Leased Fluid Minerals Management

Restrictions on surface occupancy for new fluid mineral development in PHMA and IHMA could decrease the potential for new fluid mineral development in those areas and subsequently the demand for associated ROWs/SUAs to serve those uses. Surface-disturbing activities could be shifted, additional protective measures could be required, and extraction delays could occur.

Impacts from Anthropogenic Disturbance Management, Adaptive Management, and Mitigation

Limits on anthropogenic disturbance in biologically significant unit (BSU) within PHMA and IHMA where a disturbance threshold objective has been met or exceeded or an adaptive management trigger has been tripped would decrease the potential for new ROW/SUAs in those areas. Requiring and ensuring mitigation that provides a net conservation gain could prevent new development where infrastructure could not be co-located or relocated outside PHMA or IHMA. If infrastructure authorized by land use authorizations is determined as a causal factor in the decline of GRSG populations in a BSU, incorporation of adaptive management could result in additional restrictions on ROW/SUA authorizations in that BSU, including exclusion of future ROWs/SUAs until a positive GRSG trend is observed over a 3-year period.

4.9 Leasable Minerals (Leased and Unleased), Including Fluid Minerals and Nonenergy Solid Leasable Minerals

4.9.1 Fluid Minerals

This section discusses impacts on fluid minerals from proposed management actions for other resources and resource uses. Existing conditions concerning fluid minerals are described in **Section 3.12**.

Methods and Assumptions

The analysis of impacts on fluid minerals from this LUPA focuses on the impacts of proposed management actions to protect GRSG. These impacts may be direct or indirect.



For example, a direct impact on oil and gas development would result from closing an area to fluid mineral leasing, particularly an area that has moderate to high potential for the discovery of an oil or gas resource. An indirect impact would result from managing an area as a ROW exclusion, which could prohibit construction of necessary off-lease facilities and access, thereby changing the economic feasibility of developing the leased resource. Additional actions or conditions that could cause direct or indirect impacts on oil and gas leasing and development are described under below.

Indicators

Indicators of impacts on fluid minerals are as follows:

- Acres of unleased land with medium oil and gas potential identified as closed to fluid mineral exploration and development
- Acres of unleased land with medium oil and gas potential subject to NSO stipulations
- Acres of unleased land with medium oil and gas potential subject to controlled surface use (CSU) or timing limitation (TL) stipulations
- Number of leases and acres over which COAs would be applied to oil and gas development on leased parcels for the protection of GRSG
- Acres subject to restrictions on geophysical exploration in GRSG habitat
- Acres managed as ROW avoidance areas
- Acres managed as ROW exclusion areas

Assumptions

The analysis includes the following assumptions:

- Under all alternatives, reclamation bonds would be required, in accordance with 43 CFR, Part 3104, and 36 CFR, Part 228.109(a), in an amount sufficient to ensure full restoration of lands to the condition in which they were found. In addition, BLM approval of applications for permit to drill would continue to be required before drilling under all alternatives, in accordance with 43 CFR, Part 3162.
- The lands in the Curlew Grassland area, as described in the Pocatello RMP, that are administratively unavailable for leasing are included in the total number of acres closed to leasing under Alternative A.
- Management actions proposed in this LUPA would apply to oil and gas activity where the BLM and Forest Service manage the surface over federal fluid mineral estate and where federal fluid mineral estate lies beneath private or state surface (split-estate).
- For planning purposes, development would occur as described in **Appendix O**, Reasonably Foreseeable Development Scenario, and **Section 3.12**, Mineral

Resources. Interest in oil and gas in Idaho is expected to remain sporadic. As the demand for energy increases, so would demand for extracting energy resources in areas with potential.

Nature and Type of Effects

In order to describe the effects of imposing GRSG management actions on oil and gas leasing and development, the above indicators were calculated within GRSG habitat for each alternative. All of these factors are considered to be impediments to oil and gas leasing and development, to varying degrees. In general, an alternative with greater acreages of such restrictions is considered to have a greater impact on oil and gas leasing and development potential than an alternative with fewer acres of such restrictions, especially in areas with medium oil and gas potential.

Closing public lands to fluid mineral leasing, especially those with moderate to high oil and gas potential, within GRSG habitat would directly impact the oil and gas program by removing the opportunity afforded US citizens by the Mineral Leasing Act to explore and develop mineral resources in those areas. Oil and gas operators would be limited to exploring and developing non-federal lands, but only if favorable geologic conditions exist. The opportunity for discovery may be lost altogether if such conditions are unique to the federal lands. Closing lands to leasing in areas of moderate to high potential may also result in a loss of royalties to the federal, state, and county governments from oil and gas development.

Management actions that prohibit or restrict surface occupancy or disturbance (such as TL stipulations, NSO stipulations, CSU stipulations, and limitations on the total amount of surface disturbance in areas) overlying federal oil and gas resources could also directly impact the development of those resources.

In areas where NSO stipulations are applied, federal fluid minerals could be leased, but the leaseholder/operator's access to the mineral resource is limited to those areas that are not covered by the NSO stipulation. Proposed drill sites may need to be relocated to an area with lower potential for discovery of a valuable mineral resource, resulting in development delays, increased expenses, lower resource recovery and lower royalties collected. While off-site methods, such as directional drilling, may be employed to access the mineral resource, the area where directional drilling can be effectively used is limited. Where an NSO stipulation covers a large area or where no leasing is allowed on surrounding lands, the mineral resource may be inaccessible. Additionally, because it is not economically practical to use directional drilling for wildcat wells, an NSO stipulation may preclude drilling of those wells because the operator does not want to put forth the financial resources to do so. Applying an NSO stipulation can be nearly as restrictive to oil and gas leasing and development as closing an area to leasing, however, the operator is aware of the stipulations when the lease was purchased.

Application of CSU stipulations allows some use and occupancy of the surface, while limiting development under certain conditions. While less restrictive than an NSO, a CSU stipulation allows the BLM to require special operational constraints, to shift the surface-



disturbing activity associated with fluid mineral leasing more than the standard 656 feet, or to require additional protective measures (e.g., restrictions on noise levels) to protect GRSG. For example, a CSU stipulation might create a buffer around leks, wherein surface disturbance is not allowed. While not prohibiting surface-disturbing activities, a CSU stipulation can influence the location and level of operations within the subject area.

TL stipulations may be necessary to protect GRSG from impacts of development during critical seasons or times of day. These stipulations are necessary if impacts cannot be mitigated by prohibiting proposed activities for up to 60 days in any lease year, as deemed reasonable and within lease rights granted (see 43 CFR, Part 3101.1-2). Leases with TL stipulations would be temporarily off limits to fluid mineral exploration and development, surface-disturbing activities, and intensive human activity during identified time frames, based on seasons or GRSG breeding times. While some routine activities would be allowed at all times (e.g., vehicle travel and maintenance), construction, well drilling and completions, and other operations considered to be intensive would not be allowed during the restricted time frame. However, most activities could be initiated and completed outside of the restricted dates specified in the TL stipulation.

Applying appropriate RDFs (see **Appendix B**) and management actions outlined in **Chapter 2** to post-lease activities as COAs could directly impact oil and gas operations. These RDFs and management actions include such standards as noise restrictions, height limitations on structures, design requirements, water development standards, remote monitoring requirements, and reclamation standards. Additional site-specific planning, such as master development plans and unitization, and reclamation bonding requirements may also be required. Applying these requirements may impact oil and gas operations by increasing costs and causing delays to develop the resource.

Placing limits on geophysical exploration could reduce the ability to collect geologic data concerning oil and gas resources on federal mineral estate. TLs on geophysical exploration could lead to equipment scheduling delays.

Management actions creating off-lease ROW exclusion or avoidance areas could indirectly increase the cost of oil and gas extraction by limiting the available means for transporting oil and gas from the lease to processing facilities and markets. For example, a new natural gas pipeline could not be built in a ROW exclusion area. The pipeline may need to take a less direct route to its destination to avoid the exclusion area, or another mode of conveyance of the resource may be required. Oil and gas operations may move to nearby private lands where transport is easier, thereby reducing the number of operations on federal lands. Impacts would be mitigated where exceptions were allowed for collocating new ROWs within existing ROWs to recognize valid existing rights.

Implementing management for the following resources would have negligible or no impact on oil and gas; therefore, they are not discussed in detail: travel and transportation management, recreation, range management, solid minerals, fire and fuels management, habitat restoration and vegetation management, and special designations.

Alternative A

Impacts from Lands and Realty Management

Under Alternative A, 1,028,500 acres (4 percent of BLM-administered and National Forest System surface in the decision area) would continue to be managed as ROW exclusion areas. Another 1,956,200 acres (8 percent of BLM-administered and National Forest System surface in the decision area) would continue to be managed as ROW avoidance areas. This management would continue to impact the fluid minerals program, as described under **Nature and Type of Effects**.

Impacts from Fluid Minerals Management

Under Alternative A, new leases in most areas within the decision area (6,327,500 acres) would continue to be open subject to standard terms and conditions. NSO stipulations would continue to be applied to 931,000 acres of federal oil and gas estate. Approximately 2,714,700 acres of the decision area would remain closed to leasing. These management actions would continue to have the types of impacts described under **Nature and Type of Effects**.

Error! Reference source not found. Error! Reference source not found. **Table 4-78** breaks down the unleased medium potential acres within the decision area as to whether they would be open or closed to leasing and what stipulations would be applied.

Table 4-78
Oil and Gas Leasing Categories in Unleased Medium Potential Areas by Alternative

Constraint	Alternative A	Alternatives B and F	Alternative C	Alternative D	Alternative E	Proposed Plan
Closed to leasing	289,500	496,300	601,000	289,500	289,500	257,400
Open subject to NSO Stipulations	170,400	100,000	51,400	176,900	186,200	348,100
Open subject to CSU/TL Stipulations	201,100	112,200	65,900	252,800	201,100	121,900
Open subject to standard terms and conditions ¹	117,000	76,200	66,400	65,600	107,900	57,300

Source: BLM GIS 2015

¹May have stipulations protecting resources other than GRSG.

Under Alternative A, 289,500 unleased acres with medium development potential (37 percent of the unleased federal oil and gas estate with medium development potential) would remain closed to oil and gas leasing. Acres closed in this category would have the greatest impact on the fluid minerals program by prohibiting oil and gas development on unleased portions of federal mineral estate with medium potential for such development. Impacts of closing these areas to leasing are the same type as those described under Nature and Type of Effects.



Approximately 170,400 unleased acres of federal oil and gas estate with medium development potential (22 percent of the unleased federal oil and gas estate with medium development potential) would remain open to leasing subject to NSO stipulations. Acres subject to NSO stipulations in areas with medium development potential for oil and gas would have a greater impact on the fluid minerals program, compared to acres subject to NSO stipulations in areas with low development potential. This is because the likelihood of developing acres in areas with medium development potential is greater. Impacts of applying NSO stipulations to these areas are the same type as those described under **Nature and Type of Effects**.

Approximately 117,000 unleased acres of federal mineral estate in medium potential areas would be available for fluid mineral leasing and development with standard lease stipulations. These lands would not be subject to additional NSO, CSU, or TL stipulations, thereby providing the most flexibility for oil and gas exploration and development.

Geophysical exploration would continue to be allowed in areas open to fluid mineral leasing. In areas closed to leasing where geophysical exploration would not be allowed, impacts would continue to be the type described under **Nature and Type of Effects**.

Under this alternative, 25 new oil and gas exploratory wells are projected to be developed on federal mineral estate in the decision area in the next 20 years. This rate of development would allow oil and gas exploration to continue.

Under Alternative A, reclamation bonds would continue to be required, in accordance with 43 CFR 3104. In addition, applications for permits to drill, including drilling plans and surface use plans of operations, would continue to be required, in accordance with 43 CFR 3162. Unitization would continue to occur on a case-by-case basis at the discretion of operators.

Under Alternative A, restrictive measures to mitigate impacts from oil and gas development on GRSG would continue to be considered on a case-by-case basis during implementation-level planning. Wherever these measures are applied to the 63 leases on 69,200 acres within GRSG habitat in the decision area, they would have impacts similar to those described for conservation measures under **Nature and Type of Effects**.

Alternative B

Impacts from Lands and Realty Management

Under Alternative B, over 8 million acres (32 percent) of BLM-administered and National Forest System surface in the decision area (including all PHMA) would be managed as ROW exclusion areas. However, because all PHMA would be closed to fluid mineral leasing under Alternative B, managing areas as ROW exclusion in PHMA would have no impact on fluid minerals.

Like Alternative A, over 2.5 million acres (10 percent) of BLM-administered and National Forest System surface in the decision area (including all GHMA) would be managed as

ROW avoidance under Alternative B. This management would have significant impact on oil and gas leasing as compared to Alternative A.

Impacts from Fluid Minerals Management

Under Alternative B, 19,632,700 acres, or 70 percent of the decision area, including all federal oil and gas estate in PHMA, would be closed to oil and gas leasing. These closures would include 496,300 unleased acres with medium potential (63 percent of the unleased medium potential acres in the decision area). Closure of these acres would directly impact the fluid minerals program, as described under **Nature and Type of Effects**. Existing leases would remain valid through their term but could not be renewed.

Under this alternative, 71 percent more unleased acres with medium development potential would be closed to leasing than under Alternative A (**Table 4-78**). Approximately 10 percent (76,200 acres) of unleased areas with medium development potential would be open subject to standard terms and conditions, while another 13 percent (100,000 acres) would be open subject to NSO stipulations. Closures of unleased areas with medium potential would have the greatest impacts on oil and gas development in the decision area because these areas would be the most likely to be developed if no constraints existed. Impacts would be the same type as those described under **Nature and Type of Effects**.

The 18,585,200 acres of federal oil and gas estate within GHMA and outside occupied habitat (66 percent of the federal oil and gas decision area) would be subject to the same stipulations and management as under Alternative A.

Geophysical exploration would be allowed on the over 8 million acres of federal mineral estate within PHMA but would be subject to TLs and other restrictions. Most notably, geophysical exploration would be allowed only for gathering information about fluid mineral resources outside PHMA. Because of these limitations and the fact that PHMA would be closed to fluid mineral leasing, geophysical exploration in PHMA would decrease under this alternative. Decreases in geophysical exploration in PHMA could impact the fluid minerals program, as described under **Nature and Type of Effects**.

Under Alternative B, 15 new oil and gas exploratory wells are projected to be developed on federal mineral estate in the decision area in the next 20 years. This represents a 40 percent decrease in projected wells on federal mineral estate, compared to Alternative A.

Under Alternative B, conservation measures and RDFs would be applied as COAs to 48 existing leases on 55,000 acres of PHMA overlying federal mineral estate. These RDFs and conservation measures would include such requirements as surface disturbance limitations, TLs, noise restrictions, structure height limitations, design requirements, water development standards, remote monitoring requirements, and reclamation standards. The types of impacts from these COAs are the same as those described under **Nature and Type of Effects**.

In addition to the requirements described above, the COAs would require unitization when necessary to minimize harm to GRSG and would call for completion of master development plans for developing fluid mineral resources instead of processing individual applications for



permit to drill. Requiring these plans would result in the impacts described under **Nature and Type of Effects**.

The BLM and Forest Service could not apply COAs that would eliminate reasonable opportunities to develop the lease. Therefore, although restrictions on development would increase where COAs were applied, oil and gas development would still be allowed.

Alternative C

Impacts from Lands and Realty Management

Under Alternative C, over 11 million acres (43 percent) of BLM-administered and National Forest System surface in the decision area (including all BLM-administered and National Forest System surface in GRSG habitat) would be managed as ROW exclusion areas. However, because all GRSG habitat would be closed to fluid mineral leasing under Alternative C, managing areas as ROW exclusion would have no impact on fluid minerals.

Impacts from Fluid Minerals Management

Under Alternative C, over 22 million acres, or 85 percent of the decision area (including all federal oil and gas estate in occupied habitat) would be closed to oil and gas leasing (**Table 4-78**). Closure of the area to leasing would directly impact the fluid minerals program, as described under **Nature and Type of Effects**; however, because nearly two times more acres in the decision area would be closed under Alternative C than under Alternative A, the magnitude of those impacts would increase. This alternative would prohibit any new oil and gas leasing in occupied habitat.

Geophysical exploration would be subject to the same restrictions as those under Alternative B; however, these restrictions would apply to more acres under Alternative C (20,168,900 acres). Therefore, the types of impacts described under **Nature and Type of Effects** would increase under this alternative.

Under this alternative, over two times as many more unleased acres with medium development potential would be closed to leasing compared with Alternative A (**Table 4-78**). Approximately 8 percent (66,400 acres) of unleased areas with medium development potential would be open subject to standard terms and conditions, while another nearly 7 percent (51,400 acres) would be open subject to NSO stipulations. Closures of unleased areas with medium potential would have the greatest impacts on oil and gas development in the decision area because these areas would be the most likely to be developed if no constraints existed. Impacts would be the same type as those described under **Nature and Type of Effects**.

Under this alternative, 13 new oil and gas exploratory wells are projected to be developed on federal oil and gas estate in the decision area in the next 20 years. This represents a 48 percent decrease in projected wells on federal oil and gas estate, compared to Alternative A.

Management actions applicable to existing leases under Alternative C would be similar to those under Alternative B, but they would apply to 48 existing leases on 55,000 acres of

federal mineral estate. In addition to applying the restrictive management under Alternative B to more acres, Alternative C would call for COAs implementing seasonal restrictions on vehicle traffic and human presence associated with exploratory drilling. This alternative also would limit new surface disturbance on existing leases to 3 percent per section, with some exceptions. Impacts of these operating and siting restrictions are the same type as those described under **Nature and Type of Effects**.

Alternative D

Impacts from Lands and Realty Management

Like Alternative A, under Alternative D, over 1 million acres (4 percent) of BLM-administered and National Forest System surface in the decision area would be managed as ROW exclusion areas. Nearly 4 million acres (6 percent), including all IHMA and GHMA, would be managed as ROW avoidance areas. Where these exclusion or avoidance areas overlap with areas open to fluid mineral leasing, impacts on the fluid minerals program would occur, as described under **Nature and Type of Effects**. Because three times more acres would be managed as ROW avoidance under Alternative D than under Alternative A, the magnitude of impacts would increase.

Impacts from Fluid Minerals Management

Under Alternative D, fluid mineral allocations in PHMA and IHMA would vary depending on oil and gas development potential. Federal mineral estate with no or low oil and gas potential would be closed to leasing, while federal mineral estate with medium oil and gas development potential would be subject to CSU and TL stipulations, and an NSO stipulation would apply within 0.6 mile (1 km) of leks. A total of 19,415,000 acres (75 percent of the decision area) would be closed under this alternative. Approximately 1,379,700 acres (5 percent) would be subject to NSO stipulations, 1,595,000 acres (6 percent) would be subject to CSU stipulations, and 2,170,000 acres (8 percent) would be subject to TL stipulations. Approximately 3,668,800 acres (14 percent of the decision area) would be open to leasing subject to standard terms and conditions. Impacts of these stipulations would be the types described in **Nature and Type of Effects**. Closures would cause the most impacts out of all these management actions due to a 50 percent increase compared with Alternative A. However, 98 percent of the acres that would be closed under Alternative D (19,117,900 acres) have low or very low development potential and are less likely to be developed even without management constraints.

New leases in GHMA (regardless of oil and gas potential) would be subject to TLs, and the 0.6-mile NSO buffer would also apply.

Under Alternative D, 289,500 unleased acres with medium development potential (37 percent of total unleased acres with medium development potential in the oil and gas decision area) would be closed to leasing, the same amount as Alternative A (**Table 4-78**). Approximately 176,900 acres (22 percent) of unleased areas with medium development potential would be subject to NSO stipulations. This represents a 4 percent increase compared with Alternative A. Approximately 252,800 acres (32 percent) of unleased federal oil and gas estate with medium development potential would be subject to CSU and/or TL



stipulations. Because unleased moderate-potential acres subject to CSU and/or TL stipulations would increase 26 percent compared with Alternative A, the impacts of these stipulations would increase under Alternative D. Impacts would be the same type as those described under **Nature and Type of Effects**. Overall, because more acres with medium development potential would be closed or subject to NSO or CSU/TL stipulations under Alternative D compared with Alternative A, impacts on unleased oil and gas from fluid mineral allocations would increase under Alternative D.

New leases within PHMA and IHMA would be subject to density limitations and a 3 percent disturbance cap for each section. These limitations on surface disturbance would have the cost impacts described under **Nature and Type of Effects**.

Geophysical exploration in GRSG habitat would be subject to TL stipulations. Impacts of these stipulations are the same types as those described under **Nature and Type of Effects**. Because these types of stipulations would not be applied under Alternative A, impacts on the fluid minerals program would increase under Alternative D.

Under this alternative, 23 new oil and gas exploratory wells are projected to be developed on federal mineral estate in the decision area in the next 20 years. This represents an eight percent decrease in projected wells on federal mineral estate compared with Alternative A.

Management of existing fluid mineral leases under Alternative D would be the same as that under Alternative B, except that all management actions other than RDFs would apply to 63 existing leases on 69,200 acres within GRSG habitat. For this reason, impacts on the fluid minerals program from these actions are more similar to Alternative C. Existing leases in GHMA could be subject to discretionary mandatory RDFs.

Alternative E

Impacts from Lands and Realty Management

Like Alternative A, under Alternative E, nearly 1 million acres (4 percent) of BLM-administered and National Forest System surface in the decision area would be managed as ROW exclusion areas. Over 7 million acres (28 percent), including all CHZ and IHZ not already managed as ROW exclusion areas, would be managed as ROW avoidance areas. Where these exclusion or avoidance areas overlapped with areas open to fluid mineral leasing, impacts on the fluid minerals program are as described under **Nature and Type of Effects**. Because more acres would be managed as ROW avoidance under Alternative E than under Alternative A, the magnitude of impacts would increase. Impacts would be mitigated where exemptions were allowed for ROW development subject to certain conditions.

Impacts from Fluid Minerals Management

Under Alternative E, fluid mineral management would differ between portions of the decision area in Idaho and Montana and portions in Utah.

Within Idaho and Montana, new leases on federal oil and gas estate within CHZ and IHZ would be subject to NSO stipulations. Application of NSO stipulations would have the type of impacts described under Nature and Type of Effects; however, the impacts on fluid minerals would be mitigated by waivers where certain criteria were met.

Within Utah, new leases on federal oil and gas estate within PHMA would be subject to CSU and TL stipulations. Impacts of these stipulations are the same type as those described under **Nature and Type of Impacts**.

Under Alternative E, 289,500 unleased acres with medium development potential (37 percent of total unleased acres with medium development potential in the oil and gas decision area) would be closed to leasing, the same amount as Alternative A (**Table 4-78**). Approximately 186,200 acres (24 percent) of unleased areas with medium development potential would be subject to NSO stipulations. This represents a 9 percent increase compared with Alternative A. No CSU stipulations would be applied, the same as under Alternative A. Impacts would be the same type as those described under **Nature and Type of Effects**. Overall, because more unleased acres with medium development potential would be closed or subject to NSO stipulations under Alternative E compared with Alternative A, impacts on unleased oil and gas from fluid mineral allocations would increase under Alternative E.

Within Idaho and southwestern Montana, management of geophysical exploration would be the same as that under Alternative A, with the same impacts. Within Utah, geophysical exploration in PHMA would be subject to the same CSU and TL stipulations applied to new leases in PHMA. Impacts are the same type as those described under **Nature and Type of Effects**. Because geophysical exploration in Utah would be restricted under this alternative and would not be restricted under Alternative A, impacts would increase, compared with Alternative A.

Under this alternative, 13 new oil and gas exploratory wells are projected to be developed on federal mineral estate in the decision area in the next 20 years. This represents an 18 percent decrease in projected wells on federal mineral estate, compared to Alternative A.

Management of existing leases in the decision area would be similar to that under Alternative A, except that BMPs would be applied. Because these BMPs would not be mandatory, their application would not necessarily result in additional impacts on fluid minerals.

Alternative F

Impacts from Lands and Realty Management

Like Alternative C, under Alternative F, over 8.5 million acres (33 percent) of BLM-administered and National Forest System surface in the decision area (including all BLM-administered and National Forest System surface within GRSG habitat) would be managed as ROW exclusion areas. However, because all occupied habitat would be closed to fluid mineral leasing under Alternative F, managing areas as ROW exclusion in the decision area would have no impact on fluid minerals.



Impacts from Fluid Minerals Management

Unleased fluid minerals management would be the same under Alternative F as that under Alternative B (**Table 4-78**). All PHMA (70 percent of the decision area) would be closed to leasing.

Under Alternative F, the 52 existing leases in PHMA would be subject to management, similar to that under Alternative B. However, under Alternative F, TLs would prohibit human presence and surface-disturbing activities during the nesting and brood-rearing season. This management would be the most restrictive of all the alternatives.

Proposed Plan

Impacts from Lands and Realty Management

Under the Proposed Plan, 8,365,000 acres (33 percent) of BLM-administered and National Forest System surface in the decision area (including all PHMA and IHMA) would be managed as ROW avoidance areas. However, because all acres in PHMA and IHMA would be either closed to leasing or open subject to NSO stipulations, no oil and gas activities on future leases within these areas would require new rights-of-way. Therefore, oil and gas activity in PHMA and IHMA would not be impacted by management of ROW avoidance areas under the Proposed Plan.

All BLM-administered surface in GHMA would be managed as ROW avoidance for high voltage transmission lines and major pipelines but open to other fluid mineral-related ROW location under the Proposed Plan. Fluid minerals beneath those acres would be impacted by the ROW avoidance area, as described under **Nature and Type of Effects**. Overall, more acres in GHMA would be managed as ROW avoidance under the Proposed Plan than under Alternative A; therefore, impacts on the fluid minerals program from these ROW avoidance areas would increase under the Proposed Plan.

Application of RDFs, BMPs, buffers, and seasonal timing restrictions to ROW construction in all GRSG habitat would also limit construction of new ROWs for oil and gas development. If these limitations made it uneconomic to develop a ROW for oil and gas development, development of federal oil and gas resources in the planning area could decrease.

Impacts from Fluid Minerals Management

Under the Proposed Plan, approximately 257,400 unleased acres with medium development potential (33 percent of the federal oil and gas estate with medium development potential) would remain closed to oil and gas leasing (**Table 4-78**). Closing unleased lands to leasing, especially those with medium potential, would have the greatest impact on the fluid minerals program by prohibiting oil and gas development. Impacts of closing these areas to leasing are the same type as those described under **Nature and Type of Effects**.

Approximately 348,100 acres, or 44 percent of unleased federal oil and gas estate with medium development potential (including all areas in PHMA and IHMA not already closed) would be open to oil and gas leasing subject to NSO stipulations. The Proposed Plan would apply NSO stipulations to twice as many unleased acres with medium oil and gas

development potential compared with Alternative A. Impacts would be increased because of the acreage increase and the fact that there would be no waivers or modifications to the NSO stipulation. Only one exception would exist. A total of 77 percent of unleased federal oil and gas estate with medium oil and gas potential in the decision area would be inaccessible, either due to closure or NSO, under the Proposed Plan.

Under the Proposed Plan, approximately 121,900 unleased acres, or 17 percent of the unleased federal oil and gas estate with medium development potential would be open to oil and gas leasing, subject to lek buffers and TL stipulations. This would include all areas in GHMA not already closed. These stipulations would restrict the timing and location of oil and gas exploration and development activities, as described under **Nature and Type of Effects**.

Under the Proposed Plan, it is reasonably foreseeable for planning purposes that 15 new oil and gas exploratory wells would be developed on federal fluid mineral estate in the decision area in the next 20 years. This represents a 40 percent decrease in projected wells on federal mineral estate compared to Alternative A.

Management of geophysical exploration activities under the Proposed Plan would be the same as that under Alternative B, with the same impacts.

Under the Proposed Plan, the same RDFs would be applied to a larger acreage than under Alternative B (including GHMA and to existing leases). However, only management actions related to master development plans and unitization would apply. Impacts of these restrictions would be the same type as those described under **Nature and Type of Effects**.

Application of the 3 percent disturbance cap in PHMA and IHMA and lek buffers in GHMA could impact both new and existing fluid mineral activities by preventing or restricting new surface development. New fluid mineral activities and new surface development on existing leases could be affected or temporarily delayed if the cap were exceeded. Applying lek buffer distances when approving actions could also restrict development of infrastructure related to fluid mineral development.

Under the Proposed Plan, the same RDFs described under Alternative B would be applied as COAs to 41 existing leases on 64,000 acres of occupied habitat overlying federal mineral estate (2 in Idaho over 4,000 acres; 39 in Montana over 60,000 acres). The types of impacts from these COAs are the same as those described under **Nature and Type of Effects**. The BLM and Forest Service could not apply COAs that would eliminate reasonable opportunities to develop the lease. Therefore, although restrictions on development would increase where COAs were applied, oil and gas development would still be allowed. There are no post-lease activities pending the BLM's approval.



4.9.2 Geothermal

Methods and Assumptions

The analysis of impacts on geothermal resources from this LUPA focuses on the impacts of conservation measures to protect GRSG. These impacts may be direct or indirect. For example, a direct impact on geothermal resources would result from closing an area, to fluid mineral leasing, particularly a moderate to high geothermal potential area. An indirect impact would result from managing an area as ROW exclusion, which would restrict off-lease infrastructure, such as access roads and transmission lines, and could change the economic feasibility of developing a site. Additional actions or conditions that might cause direct or indirect impacts on geothermal leasing and development are described under below.

Indicators

Indicators of impacts on geothermal leasing and development are as follows:

- Acres of unleased land with moderate to high geothermal potential identified as closed to fluid mineral leasing and geophysical exploration
- Acres of unleased land with no or low geothermal potential identified as closed to fluid mineral leasing and geophysical exploration
- Acres of unleased land with moderate to high geothermal potential subject to NSO stipulation.
- Acres of unleased land with low geothermal potential subject to NSO stipulations
- Acres of unleased land with moderate to high geothermal potential subject to CSU and TLs
- Acres of unleased land with no or low geothermal potential subject to CSU and TLs
- Number of leases and acres over which COAs would be applied on geothermal development activities on leased parcels to protect GRSG
- Acres managed as ROW avoidance areas
- Acres managed as ROW exclusion areas

Assumptions

The analysis includes the following assumptions:

- Existing fluid mineral leases would not be affected by the closures proposed under this LUPA.
- Fluid mineral operations on existing federal leases, regardless of surface ownership, would be subject to project-specific COAs by the authorizing officer. The BLM can deny surface occupancy on portions of leases with COAs to avoid

or minimize resource conflicts if this action does not eliminate reasonable opportunities to develop the lease or affect lease rights.

- Existing leases would be managed under the stipulations in effect when the leases were issued; new stipulations proposed under this LUPA would apply only on new leases. See the glossary for definitions of stipulations versus COAs.
- Under all alternatives, reclamation bonds would be required, in accordance with 43 CFR, Parts 3261.18 and 3214.10, in an amount sufficient to ensure full restoration of lands to the condition in which they were found. In addition, BLM approval of geothermal drilling permits would continue to be required before drilling begins under all alternatives, in accordance with 43 CFR, Part 3260.
- The lands in the Curlew Grassland area, as described in the Pocatello RMP, that are administratively unavailable for leasing would be included in the total number of acres closed to leasing under Alternative A.
- As the demand for alternative energy increases, so would the demand for extracting geothermal resources in areas with potential. Technological advancements could lead to changes in levels of geothermal development potential throughout the planning area as developers find ways to produce power from lower temperature resources and from hot dry rock.
- As discussed in **Section 3.12**, Mineral Resources, interest in geothermal leasing in Idaho is expected to remain sporadic. For planning purposes, the assumption is that development would occur as described in **Appendix O**, Reasonably Foreseeable Development Scenario.

Stipulations would also apply to geothermal leasing on lands overlying federal mineral estate, which includes federal mineral estate underlying BLM-administered and National Forest System lands, as well as private lands underlain by federal mineral estate.

Nature and Type of Effects

For geothermal energy, the above criteria were evaluated in addition to areas closed to leasing, areas with NSO, CSU, and TL stipulations, and areas managed as ROW avoidance or exclusion within GRSG habitat. All of these factors are considered to be impediments to geothermal energy development, to varying degrees. Alternatives with greater acreages of such restrictions are considered to have a greater impact on geothermal energy development potential than alternatives with fewer acres of such restrictions, especially in areas with moderate to high geothermal potential.

Geothermal resource leasing and development would be precluded in areas closed to fluid mineral leasing. Such closures would directly impact the fluid minerals program by removing the opportunity afforded US citizens by the Mineral Leasing Act and the Geothermal Steam Act. These acts allow citizens to explore for and develop geothermal resources in those areas, especially if they have moderate to high geothermal potential.



Geothermal developers would be limited in their choice of project locations and could be forced to develop in areas that are challenging to access or have fewer economic resources because other more ideal areas are closed to leasing. This could raise the cost of geothermal development in the decision area and could result in operators moving to nearby nonfederal minerals if similar geologic conditions exist, or the opportunity for discovery may be lost altogether if such conditions are unique to the federal lands.

In areas with NSO stipulations, geothermal resources can be accessed only by directional drilling from a point on the surface that is not covered by NSO. If much of the lease is covered by an NSO stipulation, directional drilling may not be feasible. NSO stipulations can be nearly as restrictive to geothermal energy development as closing an area to leasing. Any geothermal projects on leases with CSU or TL stipulations could have added costs and scheduling challenges.

Applying COAs, which include RDFs (see **Appendix B**) and conservation measures outlined in **Chapter 2**, to post-lease activities could directly impact fluid mineral operations. These RDFs and conservation measures include such standards as noise restrictions, height limitations on structures, design requirements, water development standards, remote monitoring requirements, and reclamation standards. Additional site-specific planning, such as master development plans and unitization and reclamation bonding requirements may also be included. Applying these requirements through COAs may impact fluid mineral operations by increasing costs, causing delays, and frustrating attempts to develop the resource.

Placing limits on geophysical exploration could reduce the ability to collect geologic data concerning geothermal resources on federal mineral estate. TLs on geophysical exploration could lead to equipment scheduling delays.

Lands and realty management actions, such as requiring off-lease utilities to be collocated within designated corridors, could impact geothermal resource development by limiting options for ROW and facility design, and increasing development costs. While ROW grants are not needed for roads or transmission lines within a leased area, such grants are required for roads and transmission lines that are outside the leased areas. The identification of an area of land as a ROW exclusion area is likely to hinder any geothermal development in the area due to restrictions of access and transmission. ROW avoidance areas can result in reroutes and limited options for access and transmission and could either stop a project from being developed or increase development costs.

Impacts Common to All Alternatives

There are no impacts common to all alternatives. **Table 4-79**, Management Actions Affecting Geothermal Development, provides an overview of impacts across the alternatives on geothermal development potential. It shows the various restrictions placed on leasing, exploration, and development for both unleased and already leased lands. **Table 4-80**, Management Actions by Geothermal Potential, provides an overview of impacts across the alternatives in areas of high and low geothermal potential.

Alternative A

Impacts from Fluid Minerals Management

Much of the acreage in the decision area has at least moderate geothermal potential. Under Alternative A, the federal mineral estate currently open to geothermal leasing would remain open.

**Table 4-79
Management Actions Affecting Geothermal Development**

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Proposed Plan
ROW Exclusion	1,028,500	8,484,100	11,023,100	1,028,500	979,100	8,523,400	1,013,800
ROW Avoidance	1,956,300	2,539,000	0	10,224,300	7,343,400	2,556,300	8,365,000
Closed to Leasing (Acres)	12,513,900	19,598,800	21,901,100	17,526,500	12,513,900	19,598,800	11,296,800
Open Subject to NSO Stipulations (Acres)	1,910,500	1,262,100	959,600	1,461,700	7,441,600	1,262,100	9,630,000
Open Subject to CSU/TL Stipulations (Acres)	2,841,600	1,940,900	1,542,700	5,450,000	2,237,300	1,940,900	3,834,400
Open Subject to Standard Terms and Conditions (Acres)	10,525,200	5,061,000	3,387,700	3,353,100	5,598,300	5,061,000	3,071,500

Source: BLM GIS 2015

**Table 4-80
Management Actions by Geothermal Potential**

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Proposed Plan
Moderate to High Potential							
Closed to Leasing (Acres)	2,939,400	5,287,800	6,137,200	3,215,600	2,939,400	6,137,200	2,832,800
Open Subject to NSO Stipulations (Acres)	2,516,800	566,100	454,500	752,500	2,199,400	566,100	2,906,800
Open Subject to CSU/TL Stipulations (Acres)	756,800	496,600	382,700	3,027,900	527,400	496,600	1,278,100
Open Subject to Standard Terms and Conditions (Acres)	4,323,400	2,497,100	1,801,600	1,780,000	2,650,500	2,497,100	1,764,385



**Table 4-80
Management Actions by Geothermal Potential**

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Proposed Plan
Low to No Potential							
Closed to Leasing (Acres)	9,574,600	14,311,000	15,763,900	14,311,000	9,574,600	14,311,000	8,464,000
Open Subject to NSO Stipulations (Acres)	1,154,000	696,000	505,100	709,100	4,782,800	696,000	6,723,200
Open Subject to CSU/TL Stipulations	2,084,800	1,444,300	1,160,000	2,422,000	1,710,000	1,444,300	2,556,300
Open Subject to Standard Terms and Conditions (Acres)	6,201,800	2,564,000	1,586,100	1,573,100	2,947,800	2,564,000	1,307,100

Source: BLM GIS 2015

There are 18,200 acres of federal geothermal leases in GRSG habitat in the decision area. Development of these leases would continue to be subject to the stipulations placed on them. Leases in occupied habitat would continue to be developed in accordance with their lease terms, which may include lek buffers and TLs in GRSG habitat. RDFs and BMPs can be applied as COAs to mitigate or prevent impacts on GRSG on public lands, so long as they are consistent with existing lease terms and stipulations. Many BLM-administered and National Forest Service land use plans require GRSG habitat to be mitigated by applying such stipulations as lek buffers and seasonal timing restrictions, as discussed in **Chapter 3**. The existing geothermal leases were issued with stipulations in place, thus no additional stipulations can be added to those leases. Geothermal development in the population areas would be subject to COAs placed on the project at the time of NEPA analysis. Development would be subject to any restrictions resulting from ESA Section 7 Consultation with the USFWS regarding any listed species in the project area. Applying stipulations from existing land use plans in some of the planning area but not all of it could degrade important habitat, if post-lease activities are proposed. Under Alternative A, 756,800 acres of high geothermal potential areas and 2,084,800 acres of low potential areas would be subject to TLs and CSUs.

Continuing to apply disturbance buffers and seasonal TLs on surface-disturbing and disruptive activities in portions of GRSG breeding, nesting, and winter habitat would directly impact development of geothermal resources. It would do this by limiting the siting, design, and operations of geothermal development projects. This, in turn, could force operators to use more costly development methods (such as horizontal drilling) than they otherwise might have used. Equipment shortages could result from applying TLs because a bottleneck could be created during the period in which activity would be allowed.

Alternative A would manage 12,513,900 acres (49 percent of the planning area) as closed to geothermal leasing. Of this, 2,939,400 acres (33 percent of high potential) would be in areas with moderate to high geothermal potential, and 9,574,600 acres (37 percent of low potential) would be in areas with low to no geothermal potential. Geophysical exploration would continue to be allowed in the decision area wherever acres are open to geothermal leasing. However, geophysical exploration in GRSG habitat would continue to be subject to any applicable disturbance buffers or TLs required in current LUPs. In areas closed to leasing, where geophysical exploration would not be allowed, impacts would continue to be the type described under **Nature and Type of Effects**.

Impacts from Lands and Realty Management

Under Alternative A, 1,028,500 acres (4 percent of BLM-administered and National Forest System land in the decision area) would continue to be managed as ROW exclusion areas. Another 1,956,300 acres (8 percent of BLM-administered and National Forest System land in the decision area) would continue to be managed as ROW avoidance areas. This management would continue to impact the fluid minerals program, as described under **Nature and Type of Effects**.

Alternative B

Impacts from Fluid Minerals Management

Table 4-79, Management Actions Affecting Geothermal Development, compares the acres of geothermal potential within the decision area as to whether they would be open or closed to leasing and what stipulations would be applied.

Under Alternative B, all PHMA (8,235,900 acres) would be closed to geothermal leasing; 19,598,800 total acres would be closed to geothermal leasing. Of these, 5,207,800 are in high geothermal potential areas, and 14,311,000 are in low geothermal potential areas. Alternative B would manage an additional 7,084,900 acres more than Alternative A as closed to fluid mineral leasing. As such, Alternative B would be more restrictive of geothermal exploration and development than Alternative A. An additional 1,940,900 acres would be managed as CSU/TL (496,600 within high potential areas and 1,444,300 within low potential areas), and 1,262,100 acres would be managed as NSO (566,100 in high potential areas and 696,000 in low potential areas).

Continuing to apply disturbance buffers and seasonal TLs on surface-disturbing and disruptive activities in portions of GRSG breeding, nesting, and winter habitat would have the same impacts as described under Alternative A.

Under Alternative B, conservation measures in addition to RDFs would be applied as COAs to existing leases within PHMA overlying federal mineral estate. These RDFs and conservation measures would include such requirements as surface-disturbance limitations, seasonal restrictions on activities in certain areas, noise restrictions, structure height limitations, design requirements, water development standards, remote monitoring requirements, and reclamation standards. Application of these requirements through COAs would impact geothermal operations by increasing costs if they resulted in the application of



additional requirements or use of more expensive technology (such as remote monitoring systems). To avoid costs, operators could move to nearby nonfederal minerals.

Existing geothermal leases were issued with stipulations in place, and no additional stipulations could be added to these leases. The potential for the development of geothermal resources within the geothermal reasonable foreseeable development scenario (RFDS) area under Alternative B is the same as under Alternative A.

Geophysical exploration would be allowed on the 8,735,300 acres of federal mineral estate within PHMA, but it would be subject to TLs and other restrictions. Most notably, geophysical exploration would be allowed only for gathering information about fluid mineral resources outside PHMA. Because of these limitations and the fact that PHMA would be closed to fluid mineral leasing, geophysical exploration in PHMA would decrease under this alternative. Decreases in geophysical exploration in PHMA could impact the fluid minerals program, as described under **Nature and Type of Effects**.

Impacts from Lands and Realty Management

Under Alternative B, 8,484,000 acres (32 percent) of BLM- and National Forest System-administered surface in the decision area (including all PHMA) would be managed as ROW exclusion areas. However, because all PHMA would be closed to fluid mineral leasing under Alternative B, managing areas as ROW exclusion in PHMA would have no additional impact on fluid minerals.

Alternative C

Impacts from Fluid Minerals Management

Table 4-79, Management Actions Affecting Geothermal Development, compares the acres of geothermal potential within the decision area as to whether they would be open or closed to leasing and what stipulations would be applied.

Under Alternative C, 21,901,100 acres would be closed to geothermal leasing. Alternative C would close to leasing an additional 9,387,200 acres over Alternative A. Of the 21,901,100 acres, 6,137,200 are within high potential geothermal areas, and 15,763,900 acres are in low potential geothermal areas. An additional 1,542,700 acres would be managed as CSU/TL (382,700 within high potential areas and 1,160,000 within low potential areas), and 959,600 acres would be managed as NSO (454,500 in high potential areas and 505,100 in low potential areas).

Management applicable to existing leases under Alternative C would be similar to those under Alternative B, but they would apply to 24,400 acres of existing leases on federal mineral estate within PHMA. In addition to applying the restrictive management under Alternative B to more acres, Alternative C would also call for COAs implementing seasonal restrictions on vehicle traffic and human presence associated with exploratory drilling. This alternative also would limit new surface disturbance on existing leases to 3 percent per year across the entire planning area, with some exceptions. Impacts of these operating and siting restrictions are the same type as those described under Alternative B.

Geophysical exploration would be subject to the same restrictions as those under Alternative B; however, these restrictions would apply to more acres under Alternative C (12,039,500 acres). Therefore, the types of impacts described under **Nature and Type of Effects** would increase under this alternative.

Impacts on the geothermal RFDS area from fluid minerals management are the same as those described under Alternative B.

Impacts from Lands and Realty Management

Under Alternative C, 11,048,000 acres (43 percent) of BLM-administered and National Forest System surface in the decision area (including surface in GRSG habitat) would be managed as ROW exclusion areas. However, because all GRSG habitat would be closed to fluid mineral leasing under Alternative C, managing areas as ROW exclusion would have no additional impact on fluid minerals.

Alternative D

Impacts from Fluid Minerals Management

Table 4-79, Management Actions Affecting Geothermal Development, compares the acres of geothermal potential within the decision area by whether they would be open or closed to

Under Alternative D, 17,526,500 acres would be closed to geothermal leasing. Alternative D would close to leasing an additional 5,012,600 acres over Alternative A. Of the 17,526,500 acres, 3,215,600 are within high potential geothermal areas, and 14,311,000 acres are in low potential geothermal areas. An additional 5,545,000 acres would be managed as CSU/TL (3,027,000 within high potential areas and 2,422,000 within low potential areas), and 1,461,700 acres would be managed as NSO (752,500 in high potential areas and 709,100 in low potential areas).

The CSU stipulations would include noise and tall structure limitations and, at times, a site-specific plan of development to limit habitat fragmentation. Application of these surface disturbance restrictions, TLs, and other operating standards would limit the siting, design, and operations of geothermal development projects in the manner described under Alternative A. However, these impacts would be mitigated in GHMA, where off-site mitigation would allow operators to waive the applicable stipulations.

For existing leases, the BLM and Forest Service would apply the same RDFs from Alternative B to all three GRSG management areas. However, exceptions to application of RDFs could mitigate impacts. Exceptions would occur where a design feature was not applicable (e.g., a resource is not present on a given site) or where the design feature would not actually provide additional protection for GRSG or its habitat.

Alternative D's RDFs would be the same under Alternative B, except that surface occupancy buffers and TLs would not apply to surface disturbance; rather, the BLM and Forest Service would aim to minimize habitat loss, fragmentation, and direct and indirect effects on GRSG and habitat. The impacts of applying these RDFs and conservation measures are the same



type as those described under Alternative B. On- or off-site mitigation would be used to minimize impacts on GRSG. Where operators use such mitigation to protect GRSG, geothermal development costs would increase compared with Alternative A due to the additional expense of mitigation activities.

Geophysical exploration in GRSG habitat would be subject to TL stipulations. Impacts of these stipulations are the same types as those described under **Nature and Type of Effects**. Because these types of stipulations would not be applied under Alternative A, impacts on the fluid minerals program would increase under Alternative D.

Impacts on the geothermal RFD area from fluid minerals management are the same as those described under Alternative A.

Impacts from Lands and Realty Management

Like Alternative A, under Alternative D, 1,028,500 acres (4 percent) of BLM-administered and National Forest System surface in the decision area would be managed as ROW exclusion areas. A total of 10,244,300 acres (40 percent), including all IHMA and GHMA, would be managed as ROW avoidance areas. Where these exclusion or avoidance areas overlap areas open to fluid mineral leasing, impacts on the fluid minerals program would occur, as described under **Nature and Type of Effects**. Because three times more acres would be managed as ROW avoidance under Alternative D than under Alternative A, the magnitude of impacts would increase.

Alternative E

Impacts from Fluid Minerals Management

Table 4-79, Management Actions Affecting Geothermal Development, compares the acres of geothermal potential within the decision area as to whether they would be open or closed to leasing and what stipulations would be applied.

Under Alternative E, no additional acres of geothermal development would be closed to geothermal leasing when compared with Alternative A. NSO stipulations would be applied to 7,441,600 acres including 2,199,400 with high geothermal potential and 4,782,800 with low geothermal potential. An additional 2,237,000 acres would be managed as CSU/TL (527,000 within high potential areas and 1,710,000 within low potential areas). Existing leases would remain valid through their term but could not be renewed.

However, under Alternative E, fluid mineral management would differ between portions of the decision area in Idaho and Montana and portions in Utah. Within Idaho and Montana, new leases on federal mineral estate within CHZ and IHZ would be subject to NSO stipulations. Application of NSO stipulations would have the type of impacts described under Nature and Type of Effects; however, the impacts on fluid minerals would be mitigated by waivers where certain criteria were met. Within Utah, new leases on federal mineral estate within PHMA would be subject to CSU and TL stipulations. Impacts of these stipulations are the same type as those described under **Nature and Type of Impacts**.

Overall, because more unleased acres with medium development potential would be closed or subject to NSO stipulations under Alternative E compared with Alternative A, impacts on geothermal development from fluid mineral allocations would increase under Alternative E.

In Idaho and southwestern Montana, management of geophysical exploration would be the same as that under Alternative A, with the same impacts. In Utah, geophysical exploration in PHMA would be subject to the same CSU and TL stipulations applied to new leases in PHMA. Impacts are the same type as those described under **Nature and Type of Effects**. Because geophysical exploration in Utah would be restricted under this alternative and would not be restricted under Alternative A, impacts would increase, compared with Alternative A.

Management of existing leases in the decision area would be similar to that under Alternative A, except that BMPs would be applied. Because these BMPs would not be mandatory, their application would not necessarily result in additional impacts on fluid minerals.

Impacts from Lands and Realty Management

Similar to Alternative A, under Alternative E, 979,100 acres (4 percent) of BLM-administered and National Forest System land in the decision area would be managed as ROW exclusion areas. However, under Alternative E more acres (7,343,400 or 20 percent), including all CHZ and IHZ not already managed as ROW exclusion areas, would be managed as ROW avoidance areas. Where these exclusion or avoidance areas overlap areas open to fluid mineral leasing, impacts on the fluid minerals program would be as described under **Nature and Type of Effects**.

Because more acres would be managed as ROW avoidance under Alternative E than under Alternative A, the magnitude of impacts would increase. Impacts would be mitigated where exemptions were allowed for ROW development subject to certain conditions.

Alternative F

Impacts from Fluid Minerals Management

Table 4-79, Management Actions Affecting Geothermal Development, compares the acres of geothermal potential within the decision area as to whether they would be open or closed to leasing and what stipulations would be applied.

Under Alternative F, 19,598,800 acres would be closed to geothermal leasing. Alternative C would close to leasing an additional 7,084,900 acres more than Alternative A. Of the 19,598,800 acres, 6,137,200 are within high potential geothermal areas, and 14,311,000 acres are in low potential geothermal areas. An additional 1,940,900 acres would be managed as CSU/TL (496,600 within high potential areas and 1,444,300 within low potential areas), and 1,262,100 acres would be managed as NSO (566,100 in high potential areas and 696,000 in low potential areas). Management applicable to existing leases under Alternative F would be similar to that under Alternative B, but it would apply to 4,360 acres of existing leases on federal mineral estate within GHMA. In addition to applying the restrictive management under Alternative B to more acres, Alternative F would also call for COAs implementing



seasonal restrictions on vehicle traffic and human presence associated with exploratory drilling. This alternative also would limit new surface disturbance on existing leases to 3 percent per section, with some exceptions. Impacts of these operating and siting restrictions are the same type as those described under Alternative B.

Under Alternative F, geophysical exploration would be prohibited on 19,400 acres of federal mineral estate within PHMA. The closure of this area would reduce the lands available for geothermal exploration, compared with Alternative A.

Impacts on the geothermal RFDS area from fluid minerals management are the same as those described under Alternative B.

Impacts from Lands and Realty Management

Like Alternative B, under Alternative F, 8,523,400 acres (33 percent) of BLM-administered and National Forest System land in the decision area (including all that in GRSG habitat) would be managed as ROW exclusion areas. However, because all occupied habitat would be closed to fluid mineral leasing under Alternative F, managing areas as ROW exclusion in the decision area would have no additional impact on fluid minerals.

Proposed Plan

Impacts from Fluid Minerals Management

Under the Proposed Plan, 11,296,800 acres, or 44 percent of planning areas, would remain closed to geothermal leasing. This includes 2,832,200 acres with moderate to high geothermal potential (32 percent of the moderate to high geothermal potential acres in the decision area). An additional 8,464,000 acres (34 percent) with no or low geothermal potential would remain closed to geothermal leasing.

The Proposed Plan would manage the fewest acres with geothermal potential to geothermal leasing. Closures in no and low geothermal potential areas would have less of an impact on geothermal resource development than closures in moderate to high geothermal potential areas, due to a lower likelihood of discovery of a valuable geothermal resource.

In addition to fluid mineral closures, 3,834,400 acres would be subject to TL and CSU (including 1,278,100 acres in moderate to high geothermal potential areas and 2,556,300 acres in low geothermal potential areas) and 9,630,000 acres would be subject to NSO stipulations (including 2,906,800 acres in moderate to high geothermal potential areas, and 6,723,200 acres in low geothermal potential areas).

Under the Proposed Plan, RDFs and BMPs would be applied as COAs when a geothermal drilling permit or other post-lease activity is approved. In addition to affecting new leases, the COAs would be applied to the 25,571 acres of existing leases within GRSG habitat, consistent with existing lease terms and special stipulations. These RDFs and proposed management actions would include such requirements as noise restrictions, structure height limitations, design requirements, water development standards, remote monitoring requirements, and reclamation standards as described in **Appendix B**.

The BLM and Forest Service could not apply COAs that would eliminate reasonable opportunities to develop an existing lease. Therefore, although restrictions on development would increase where COAs were applied, geothermal development would still be allowed.

Impacts from Lands and Realty Management

Under the Proposed Plan, 8,365,000 acres (33 percent) of BLM-administered and National Forest System surface in the decision area (including all PHMA) would be managed as ROW avoidance areas where development of new ROWs for land uses could not occur unless the Anthropogenic Disturbance Development and Screening Criteria (AD-3 and AD-4) were satisfied (including the requirement that the project would not exceed the 3 percent disturbance threshold and would be collocated within existing the footprint of existing infrastructure). These restrictions would only allow new ROWs to be developed pursuant to a valid existing authorization.

Another 1,013,800 acres (4 percent) of BLM-administered and National Forest System surface in the decision area (including all IHMA) would be managed as ROW exclusion areas where development of new ROWs for land uses could not occur unless the Anthropogenic Disturbance Development Criteria (AD-4) were satisfied (including the requirement that the project would not exceed the 3 percent disturbance threshold). Lessees would be unable to site off-lease features, such as transmission lines, roads, and pipelines that may be necessary to transport the product to market, on public lands. These actions could result in the stranding of a geothermal lease and its resources, if surrounded by federal lands subject to these constraints.

Application of RDFs, BMPs, buffers, and seasonal timing restrictions to ROW construction in GRSG habitat would also limit the construction of new ROWs for geothermal development to certain times of the year or in certain locations. If these limitations made it uneconomic to develop a ROW for geothermal development, development of federal geothermal resources in the planning area could decrease.

Impacts from Anthropogenic Disturbance Management, Adaptive Management, and Coordination

Under the Proposed Plan, anthropogenic disturbance, including leasable mineral development, would be limited to 3 percent of nesting and wintering habitat within PHMA and IHMA within a Conservation Area (i.e., BSUs). In BSUs where the 3 percent cap is already exceeded, new development of federal leasable mineral resources would be prohibited until enough habitat was restored to maintain the area under the threshold. Development of federal leasable mineral resources that would result in exceedance of the 3 percent cap in a BSU would also be prohibited. Impacts would be greatest where these caps limited development in unleased portions of high geothermal potential because these areas have the highest potential for leasable mineral development. The uncertainty wrought by this limitation would decrease the value of the lease, disincentivize renewable energy development in the western United States, and could affect valid existing rights on any lease offered in the future.



4.10 Locatable Minerals

This section discusses impacts on locatable minerals from proposed management actions of other resources and resource uses. Existing conditions concerning locatable minerals are described in **Section 3.12**.

4.10.1 Methods and Assumptions

The analysis of impacts on locatable minerals from this LUPA focuses on the impacts of proposed management actions to protect GRSG. These impacts may be direct or indirect. For example, a direct impact on locatable minerals would result from withdrawing an area from locatable mineral entry. An indirect impact would result by removing a road, which would change the economic feasibility of developing a site. Additional actions or conditions that might cause direct or indirect impacts on locatable minerals are described below.

Indicators

Indicators of impacts on locatable minerals are as follows:

- Acres withdrawn from locatable mineral entry
- Acres recommended for withdrawal from locatable mineral entry
- Acres over which restrictions, such as RDFs and management actions, are placed on locatable mineral development activities to prevent unnecessary or undue degradation of GRSG habitat as the law allows

Where information is available, consideration is given to the potential for locatable minerals on lands recommended for withdrawal from locatable mineral entry. For example, an indicator of an impact on locatable minerals is if there were substantial withdrawals from locatable mineral entry recommended in high potential areas.

Assumptions

The analysis includes the following assumptions:

- Management actions proposed in this LUPA would apply to locatable mineral activity where the BLM and Forest Service manage the surface over federal locatable mineral estate as well as where federal locatable mineral estate lies beneath private or state surface (split-estate).
- Areas recommended for withdrawal would be withdrawn. Current mining claims have valid existing rights, provided they meet the requirements of the General Mining Law of 1872. One of these requirements is that the claim be supported by the discovery of a valuable mineral.
- Locatable mineral development trends, described in **Section 3.12**, Mineral Resources, are assumed to continue for the life of the analysis.
- Because many different and unrelated mineral commodities are considered locatable, mineral potential was determined by looking at current mining claim

densities in the planning area, as well as the number of mining plans and notices. Areas with a high mining claim density and more mining plans and notices are considered to have higher potential for locatable minerals than areas with lower claim densities and fewer plans and notices.

4.10.2 Nature and Type of Effects

In order to describe the effects of imposing GRSG management actions on locatable mineral discovery and development, the above indicators were evaluated for each alternative. Each of these factors is considered to be an impediment to locatable mineral discovery and development, to varying degrees. In general, an alternative with greater acreages of such restrictions is considered to have a greater impact on locatable mineral discovery and development potential than an alternative with fewer acres of such restrictions, especially in areas with moderate to high locatable mineral potential.

Withdrawing lands from locatable mineral entry reduces the amount of land available to US citizens by the General Mining Law of 1872, as amended, to access and locate mining claims. Withdrawing lands removes the potential for future mineral development on public domain lands. Withdrawing more than 5,000 acres requires approval by Congress.

A valid mining claim in areas withdrawn from mineral entry would be considered a valid existing right. A valid mining claim is one where there has been a discovery of an economically valuable mineral deposit on or before the date of withdrawal. An examination could be required to determine claim validity.

For each area proposed for withdrawal, a detailed mineral potential analysis must be prepared by a geologist or mining engineer that includes an evaluation of the area's present and potential market demands. Mining claims with a discovery of a valuable deposit on the date of the withdrawal are valid and would be exempt from withdrawal for as long as the claimant maintains the claim; all other claims would become void.

The need to perform mineral potential reports in areas proposed to be withdrawn from locatable mineral entry would greatly increase the burden on the BLM and Forest Service.

Applying mitigation measures required to prevent unnecessary or undue degradation as defined in 43 CFR 3809.415, as well as reasonable and appropriate RDFs consistent with applicable law (see **Appendix B**), and management actions outlined in **Chapter 2** to plans of operations could directly impact locatable mineral operations by increasing costs, causing delays, and frustrating attempts to develop the resource. These RDFs include such standards as noise restrictions, height limitations on structures, design requirements, water development standards, remote monitoring requirements, and reclamation standards. Applying these requirements may impact locatable mineral operations by increasing costs, causing delays, and frustrating attempts to develop the resource.

Implementing management for the following resources would have negligible or no impact on locatable minerals; therefore, they are not discussed in detail: GRSG, habitat restoration



and vegetation, invasive species, wildland fire, nonenergy solid leasable minerals, salable minerals, fluid minerals, recreation and visitor services, livestock grazing, and special designations.

4.10.3 Impacts on Locatable Minerals Common to All Alternatives

The nature and type of impacts described below are common to all alternatives, but the context and intensity may vary by alternative.

Impacts from Locatable Minerals Management

Under all alternatives, approximately 5,380,200 acres, 18 percent of the total federal mineral estate open to mineral entry, would remain withdrawn from the location of mining claims, precluding new exploration and mining. **Table 4-81**, Quantitative Impacts on Locatable Minerals, illustrates the change in acres open to locatable mineral entry and to be petitioned for withdrawal from locatable mineral entry in the decision area across the alternatives.

Table 4-81
Quantitative Impacts on Locatable Minerals

Locatable Minerals	Alternatives A, D, and E	Alternatives B and F	Alternative C	Proposed Plan
Total federal mineral estate for locatable minerals	29,754,300	29,754,300	29,754,300	29,754,300
Total acres withdrawn from locatable mineral entry	5,380,200	5,380,200	5,380,200	5,380,200
<i>High likelihood of interest</i>	38,700	38,700	38,700	38,700
<i>Moderate likelihood of interest</i>	100,400	100,400	100,400	100,400
<i>Low likelihood of interest</i>	5,241,200	5,241,200	5,241,200	5,241,200
Total acres recommended for withdrawal from locatable mineral entry	0	7,928,700	11,555,000	2,968,200
<i>High likelihood of interest</i>	0	150,600	415,700	55,900
<i>Moderate likelihood of interest</i>	0	224,700	382,100	42,600
<i>Low likelihood of interest</i>	0	7,553,400	10,757,200	2,869,600
Total acres open to locatable mineral exploration or development	24,374,100	16,373,400	13,904,300	21,405,600
<i>High likelihood of interest</i>	817,500	609,700	428,200	761,500
<i>Moderate likelihood of interest</i>	875,900	651,200	511,100	833,300
<i>Low likelihood of interest</i>	22,680,600	15,112,500	12,965,100	19,810,900

Source: BLM GIS 2015

The management actions being considered in this LUPA could affect both existing and future mining claims. Exploration on mining claims would require that a notice be submitted to the BLM with a cumulative surface disturbance of five or fewer acres and a plan of operations for exploration greater than five acres, as outlined in 43 CFR Part 3809. Development of any size requires a plan of operations. On National Forest System lands, a

Notice of Intent is required for minor minerals activities on mining claims, or a Plan of Operations if the proposed operations “will likely cause a significant disturbance of surface resources(36 CFR 228A).

4.10.4 Alternative A

Impacts from Locatable Minerals Management

Under Alternative A, 5,380,200 acres, 18 percent, of locatable mineral estate in the decision area would remain withdrawn from location under the General Mining Act of 1872. This includes 38,700 acres where there is a high likelihood of future interest in locatable mineral development (5 percent of total acres with a high likelihood of interest in the decision area). Withdrawal of areas with a high likelihood of future interest in locatable mineral development has greater impacts than withdrawal of areas with moderate or low likelihood of interest because high likelihood areas are more likely to be sought after for development. Under current management, exploration and development would continue in PHMA and GHMA for new claims and for prior existing, valid mining claims. Impacts on existing and future mining claims are similar to those described under **Effects Common to All Alternatives**.

There are 41 plans of operations and notices in the locatable mineral decision area for Alternative A. Development of these operations would continue unrestricted under Alternative A.

No additional BMPs to protect GRSG are identified under this alternative.

4.10.5 Alternative B

Impacts from Locatable Minerals Management

Under Alternative B, 7,928,700 acres of federal locatable mineral estate in PHMA would be recommended for withdrawal from location under the General Mining Act of 1872. Combined with the additional 5,380,200 acres previously withdrawn under Alternative A, the availability of locatable minerals would be limited on over 13 million acres, or 45 percent of the federal locatable mineral estate (over two times the acreage under Alternative A). Approximately 189,300 acres with a high likelihood for locatable mineral interest would be withdrawn or recommended for withdrawal under this alternative (22 percent of total acres with high likelihood of locatable mineral interest in the decision area). This represents nearly 5 times more high likelihood acres withdrawn under Alternative B compared with Alternative A. The types of impacts are the same as those described under **Section 4.9.2** and **Section 4.9.3**. However, because more acres with a high likelihood of locatable mineral interest would be withdrawn or recommended for withdrawal under Alternative B, the magnitude of the impacts would increase compared with Alternative A.

Of the 41 plans of operations and notices within the locatable mineral decision area for Alternative B, 28 (65 percent) would be in PHMA under this alternative and therefore within



the area to be petitioned for withdrawal. The types of impacts are the same as those described under **Nature and Type of Effects**.

Accessing and extracting locatable minerals of federal mineral estate would not be impacted by applying the RDFs listed in **Appendix B**; however, mining operations and practices could be affected if any of the RDFs were applied, consistent with applicable law, on a project-specific basis.

4.10.6 Alternative C

Impacts from Locatable Minerals Management

Impacts under Alternative C are the same as those described under Alternative B, except that more acres would be recommended for withdrawal (11,555,000 acres of federal locatable mineral estate in the decision area). Combined with the 5,380,200 acres withdrawn, a total of over 16 million acres (54 percent) of the locatable mineral decision area would be impacted. This includes 454,400 acres (53 percent) of federal locatable mineral estate with a high likelihood of future interest in locatable mineral development. Management under Alternative B would impact nearly 12 times the acres with a high likelihood of interest compared with Alternative A. The types of impacts are the same as those described under **Section 4.9.2** and **Section 4.9.3**; however, the magnitude of impacts under this alternative would increase since more acreage would be affected.

Of the 41 plans of operations and notices within the locatable mineral decision area for Alternative C, all would be in PHMA under this alternative and therefore within the area to be petitioned for withdrawal. The types of impacts are the same as those described under **Section 4.9.2**.

Impacts from applying the RDFs in **Appendix B** are the same as those described under Alternative B.

4.10.7 Alternative D

Impacts from Locatable Minerals Management

Impacts under Alternative D are the same as those described under Alternative A, except that additional measures to avoid or minimize adverse effects on GRSG and their habitat would be required for notices and plans of operations in all habitat types. Impacts from these additional measures would be highly variable, depending on their extent. If these measures resulted in the potential for these mineral resources not to be accessed or extracted, an impact on the potential discovery, development, and use of those resources would occur because the availability of mineral resource would decrease.

Impacts from applying the RDFs in **Appendix B** are the same as those described under Alternative B.

4.10.8 Alternative E

Impacts from Locatable Minerals Management

Impacts under Alternative E are the same as those described under Alternative A.

4.10.9 Alternative F

Impacts from Locatable Minerals Management

Impacts under Alternative F are the same as those described under Alternative B.

4.10.10 Proposed Plan

Impacts from Locatable Minerals Management

Under the Proposed Plan, 2,968,200 acres of federal locatable mineral estate (including all acres in the SFA) would be recommended for withdrawal from location under the General Mining Act of 1872. Combined with the additional 5,380,200 acres already withdrawn under Alternative A, locatable minerals would be unavailable on 8,348,400 acres, or 28 percent of the federal locatable mineral estate (twice the acreage as under Alternative A). Impacts on locatable minerals would increase compared with Alternative A in the manner described under **Nature and Type of Effects**.

Of the 56 plans of operations and notices within the locatable mineral decision area for the Proposed Plan, 7 (13 percent) would be within the SFA under this alternative and therefore within the area to be recommended for withdrawal. A valid existing rights determination would be required to determine whether a valuable discovery has been made. The types of impacts are the same as those described under **Nature and Type of Effects**.

4.11 Mineral Materials (Salables)

This section discusses impacts on mineral materials from proposed management actions of other resources and resource uses. Existing conditions concerning mineral materials are described in **Section 3.12**.

4.11.1 Methods and Assumptions

Analysis of impacts on mineral materials from this LUPA focuses on the impacts of proposed management actions to protect GRSG. These impacts may be direct or indirect. For example, a direct impact on mineral materials would result from closing an area to mineral material disposal. An indirect impact would result from removing a road, which would change the economic feasibility of developing a site. Additional actions or conditions that might cause direct or indirect impacts on mineral materials are described under *Indicators*, below.

Indicators

Indicators of impacts on mineral materials are as follows:



- Acres closed to mineral material disposal
- Acres subject to timing limitations
- Acres managed as ROW avoidance areas
- Acres managed as ROW exclusion areas
- Acres over which RDFs would be applied to mineral material disposals.
- Application of restoration requirements

Where information is available, consideration is given to the potential for mineral materials on lands closed to mineral material disposal. For example, an indicator of an impact on mineral materials is if there were substantial closures to mineral material disposal in areas with high occurrence of mineral materials.

Assumptions

The analysis includes the following assumptions:

- Management actions proposed in this LUPA would apply to mineral material disposal activity where the BLM or Forest Service manages the surface over federal mineral material estate as well as where federal mineral material estate lies beneath private or state surface (split-estate).
- Mineral material development trends described in **Section 3.12**, Mineral Resources, are assumed to continue for the life of the analysis.
- Historical patterns of mineral material development in the planning area are used to assess the level of mineral material potential throughout the planning area. Areas with a high level of historical development are considered to have high potential for mineral materials. There is higher demand in more populated areas.

4.11.2 Nature and Type of Effects

In order to describe the effects of imposing GRSG management actions on mineral materials disposal, the above indicators were evaluated for each alternative. Each of these factors is considered to be an impediment to disposal of mineral materials, to varying degrees. In general, an alternative with greater acreages of such restrictions is considered to have a greater impact on disposals of mineral materials than an alternative with fewer acres of such restrictions, especially in populated areas where material sources are scarce. Mineral material disposal by the BLM and Forest Service is discretionary.

Closing areas to mineral material disposal and closing community pits would directly impact the public, commercial operators, and county highway districts by removing the mineral material source from availability. This can be a serious problem in some Idaho counties that are covered by vast expanses of volcanic rock, with few sand and gravel occurrences. Highway districts may need to seek out sites on private lands, which may not offer materials free of charge, as the BLM and Forest Service do. This could result in higher haul costs,

higher road maintenance costs, and poorer road conditions. In addition, closing areas could increase trespassing.

Applying TLs could delay extraction of mineral material resources. County road districts would be required to schedule their projects around the TL, which could result in the need to stockpile materials off-site and handle materials twice, thereby increasing costs.

Implementing management for the following resources would have negligible or no impact on mineral materials, therefore they are not discussed in detail: travel and transportation management, recreation, range management, solid minerals, fire and fuels management, habitat restoration and vegetation management, and special designations.

Table 4-82, Mineral Materials by Alternative, shows the number of acres open or closed to mineral materials disposal in the decision area under each alternative.

Table 4-82
Mineral Materials by Alternative

Occurrence	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Proposed Plan
Closed to disposal (acres)	10,707,600	18,589,300	21,174,000	13,211,100	10,707,600	18,589,300	15,529,000
Open to disposal (acres)	17,137,300	9,255,600	6,670,900	14,633,800	17,137,300	9,255,600	12,315,900

Source: BLM GIS 2015

A discussion of the impacts on mineral materials from management actions applicable to federal mineral material estate in the decision area under each alternative is below.

4.11.3 Alternative A

Impacts from Mineral Materials Management

Approximately 17,137,300 acres (62 percent) of federal mineral material estate within the decision area would remain open to mineral material disposal under Alternative A. Approximately 10,707,600 acres (38 percent) of federal mineral material estate within the decision area would remain closed to mineral material disposal. Impacts of these closures would be the same type as those described under **Section 4.10.2**.

Management under Alternative A would continue to require reclamation of mineral material pits in accordance with developers' pit development plans.



4.11.4 Alternative B

Impacts from Mineral Materials Management

Under Alternative B, approximately 18,589,300 acres (67 percent) of federal mineral material estate in the decision area (including all PHMA) would be closed to mineral material disposal. The types of impacts from these closures are the same as those discussed under **Section 4.10.2**. Because 74 percent more acres of federal mineral material estate would be closed under Alternative B compared with Alternative A, the magnitude of these impacts would increase.

Management of mineral materials on federal mineral estate outside of PHMA would be the same as that under Alternative A.

4.11.5 Alternative C

Impacts from Mineral Materials Management

Under Alternative C, approximately 21,174,000 acres (76 percent) of federal mineral material estate in the decision area, including all GRSG habitat, would be closed to mineral material disposal. The types of impacts from these closures are the same as those discussed under **Section 4.10.2**. Because twice as many acres of federal mineral material estate with mineral material occurrence would be closed under Alternative C compared with Alternative A, the magnitude of these impacts would increase.

4.11.6 Alternative D

Impacts from Mineral Materials Management

Under Alternative D, areas within 1.86 miles (3 km) of occupied leks would be closed to mineral materials disposal. These closures, in addition to existing closures, would result in approximately 13,211,100 acres (47 percent) of federal mineral material estate in the decision area, being closed to mineral material disposal. The types of impacts from these closures are the same as those discussed under **Section 4.10.2**. Because 23 percent more acres of federal mineral material estate with mineral material occurrence would be closed under Alternative C than under Alternative A, the magnitude of these impacts would increase.

All other federal mineral material estate in GRSG habitat would be subject to TLs, TLs would also apply to the 144 existing community pits within PHMA and IHMA (70 percent) of existing community pits in GRSG habitat. All of these TLs would impact mineral materials as described under **Section 4.10.2**. Because TLs would not be applied under Alternative A, impacts on mineral materials would increase under Alternative D.

4.11.7 Alternative E

Impacts from Mineral Materials Management

Under Alternative E, mineral materials management would differ between portions of the decision area in Idaho and Montana and portions in Utah.

Management of mineral materials within Idaho and Southwestern Montana would be the same as that under Alternative A with the same impacts.

Within Utah, mineral material operations within PHMA would be subject to TLs and other restrictions, which would limit mineral material development, as described under **Section 4.10.2**.

Allocations in the mineral material decision area would be the same as those under Alternative A. Impacts on mineral materials would increase compared to Alternative A in Utah due to the restrictions that would be placed on mineral material activities there.

4.11.8 Alternative F

Impacts from Mineral Materials Management

Mineral materials management under Alternative F would be the same as that under Alternative B with the same impacts.

4.11.9 Proposed Plan

Impacts from Mineral Materials Management

Under the Proposed Plan, 15,529,000 acres (56 percent) of federal mineral material estate in the decision area (including all PHMA) would be closed to mineral material disposal. The types of impacts from these closures are the same as those discussed under Nature and Types of Effects, **Section 4.10.2**. Impacts would be mitigated in the Montana portion of the decision area because new free use permits would still be allowed and existing pits would be able to expand. Because 45 percent more acres of federal mineral material estate would be closed under the Proposed Plan compared with Alternative A, the magnitude of these impacts would increase.

Approximately 3,079,100 acres (11 percent) of federal mineral material estate in the decision area (including all IHMA) would be open to mineral material disposal but only if the Anthropogenic Disturbance Development and Criteria (AD-4) were satisfied (including the requirement that the project would not exceed the 3 percent disturbance threshold). Mineral material activities in IHMA and GHMA would also be subject to RDFs, buffers, and seasonal timing restrictions. The types of impacts from these limitations are the same as those discussed under **Section 4.10.2**. Because these types of restrictions would not be applied under Alternative A, impacts on mineral material development from the restrictions would increase under the Proposed Plan.

Mineral material sales from the 47 existing community pits in GRSG habitat would be subject to timing restrictions. As described in **Section 4.10.2**, these timing restrictions could impact some operations and therefore reduce overall sales of federal materials in the planning area.



Impacts from Anthropogenic Disturbance Management, Adaptive Management, and Coordination

Under the Proposed Plan, anthropogenic disturbance, including mineral material development, would be limited to 3 percent of nesting and wintering habitat within PHMA and IHMA within a Conservation Area (i.e., BSUs). In BSUs where the 3 percent cap is already exceeded, new development of federal mineral material resources would be prohibited until enough habitat was restored to maintain the area under the threshold. Development of federal mineral material resources that would result in exceedance of the 3 percent cap in a BSU would also be prohibited. This cap could potentially impact activities on 3,079,100 acres of federal mineral material estate in IHMA. The 15,529,000 acres that would be closed to mineral material disposal under Alternative G would not be impacted by the disturbance cap because no new mineral material development could occur in the closed areas.

4.12 Nonenergy Leasable Minerals

This section discusses impacts on nonenergy solid leasable minerals from proposed management actions for resources and resource uses. Specifically, this section describes impacts on phosphate, the notable nonenergy leasable mineral within the planning area. Existing conditions concerning phosphate are described in **Section 3.12**.

4.12.1 Methods and Assumptions

Analysis of impacts on nonenergy solid leasable minerals from this LUPA focuses on the impacts of proposed management actions to protect GRSG. These impacts may be direct or indirect. For example, a direct impact on nonenergy solid leasable minerals would result from closing an area to leasing. An indirect impact would result from removing a road, which would change the economic feasibility of developing a site. Additional actions or conditions that might cause direct or indirect impacts on nonenergy solid leasable minerals are described under *Indicators*, below.

Indicators

Indicators of impacts on nonenergy solid leasable minerals are as follows:

- Acres of unleased KPLAs proposed to be closed to nonenergy solid mineral leasing
- Acres over which RDFs would be applied when activities are proposed on existing unmined phosphate leases

Where information is available, consideration is given to the potential for nonenergy solid leasable minerals on lands closed to leasing. In the planning area, the only nonenergy solid leasable mineral commodity of any significance is phosphate. The USGS spent many years sampling and testing the phosphate resource to determine the mineral potential of federal lands in southeast Idaho. KPLAs were designated in high potential areas and were offered for lease competitively. Therefore, unmined phosphate leases have the highest potential for development, while unleased KPLAs have the next highest potential. Areas of southeast Idaho outside of KPLAs have the lowest potential. Unmined phosphate leases have valid

existing rights and cannot be closed to development. An indicator of an impact on nonenergy solid leasable minerals is if there were substantial closures to nonenergy solid mineral leasing in areas with high potential for nonenergy solid mineral development, such as unleased KPLAs.

Assumptions

The analysis includes the following assumptions:

- Management actions proposed in this LUPA would apply to nonenergy leasable mineral activity, where the BLM and Forest Service manage the surface over federal nonenergy leasable mineral estate as well as where federal nonenergy leasable mineral estate lies beneath private or state surface (split-estate).
- Unmined phosphate leases have the highest potential for nonenergy leasable mineral development in the decision area. Unleased KPLAs have a moderate potential for development, and lands outside KPLAs have a low potential for development. Most of the planning area has no potential for development because the rock formation that has high amounts of phosphate resource, designated the Phosphoria Formation, does not exist in those areas.
- Demand for phosphate resources in the Pocatello Field Office is expected to remain high, as it has for the past 60 to 100 years. As discussed in **Section 3.12**, Mineral Resources, significant phosphate resources exist in the Pocatello Field Office, within the planning area, with 86 active phosphate leases. There are no phosphate leases in PHMA and GHMA; there is one phosphate lease (65 acres) in IHMA. There are 10 leases surrounded by GHMA. No development is planned on these leases for the next 5 to 10 years.

4.12.2 Nature and Type of Effects

Closing an area to nonenergy solid mineral leasing would directly impact the nonenergy solid leasable mineral program by removing the opportunity afforded US citizens by the Mineral Leasing Act to lease and develop mineral resources in those areas. Mining companies seeking leases may be required to exploit private lands if those lands are available and if similar geologic resources exist, or the opportunity for discovery may be lost altogether if such conditions are unique to the federal lands. Closures would have the greatest impact on unleased areas in KPLAs because these areas have the greatest potential to be nominated for lease during the life of this LUPA. Closing lands to leasing in KPLAs may also result in a loss of royalties to the federal, state, and county governments from phosphate development. Closures of areas outside KPLAs would likely have less impact, as these areas have lower potential for discovery and development.

Application of RDFs, including such standards as noise restrictions, height limitations on structures, design requirements, water development standards, remote monitoring requirements, and reclamation standards, would place additional requirements on phosphate exploration and initial mine development. These requirements are not practical once mining begins; at that time, compensatory mitigation would be necessary. These restrictions may



increase the cost of phosphate mining in the decision area. However, the BLM would not apply restrictions so onerous that they would eliminate a reasonable opportunity to develop an existing lease.

Implementing management for the following resources would have negligible or no impact on nonenergy solid leasable minerals; therefore, they are not discussed in detail: GRSG, lands and realty, habitat restoration and vegetation, invasive species, wildland fire, locatable minerals, salable minerals, fluid minerals, recreation and visitor services, livestock grazing, and special designations.

Table 4-83 shows the number of acres open or closed to nonenergy leasable mineral prospecting and leasing as well as restrictions on unmined phosphate leases in the decision area under each alternative.

Table 4-83
Nonenergy Leasable Minerals by Alternative

Management	Alternative						Proposed Plan
	A	B	C	D	E	F	
Open to prospecting and leasing (acres)	15,925,600	8,557,600	6,095,300	8,556,500	15,925,600	8,557,600	11,454,500
<i>Unleased KPLAs open</i>	<i>14,500</i>	<i>14,000</i>	<i>13,500</i>	<i>14,000</i>	<i>14,500</i>	<i>14,000</i>	<i>14,500</i>
Closed to prospecting and leasing (acres)	11,799,500	19,167,400	21,629,700	19,168,500	11,799,500	19,167,400	16,270,500
<i>Unleased KPLAs closed</i>	<i>4,870</i>	<i>5,350</i>	<i>5,870</i>	<i>4,870</i>	<i>4,870</i>	<i>5,350</i>	<i>4,870</i>
Acres of unmined leases subject to GRSG RDFs (acres)	0	1,340	5,730	6,510	0	1,340	70

Source: BLM GIS 2015

Below, by alternative, is a discussion of the impacts on nonenergy leasable minerals from management actions applicable to federal nonenergy leasable mineral estate in the decision area.

4.12.3 Alternative A

Impacts from Nonenergy Solid Leasable Minerals Management

Under Alternative A, 15,925,600 acres or 57 percent of federal nonenergy solid leasable mineral estate in the nonenergy solid leasable mineral decision area, would remain open to leasing consideration, and 11,799,500 acres or 43 percent, would remain closed to prospecting and leasing. These closures would have the same types of impacts as described under **Section 4.11.2**.

Less than one percent of the acres closed to leasing would be unleased KPLAs (**Table 4-83**, Nonenergy Leasable Minerals by Alternative).

Under Alternative A, 4,870 acres (25 percent) of unleased federal mineral estate within KPLAs in the nonenergy solid leasable mineral decision area would remain closed to nonenergy leasable mineral prospecting and leasing. The impacts of these closures would be the same type as those described under **Section 4.11.2**. The remaining 15,320 acres (80 percent) of federal mineral estate within KPLAs in the nonenergy solid leasable mineral decision area would remain open to nonenergy leasable mineral prospecting and leasing. Impacts of these stipulations would be the same type as those described under **Section 4.11.2**.

Existing federal nonenergy leasable mineral leases in the decision area would continue to be subject to any stipulations or BMPs contained in those leases. Application of BMPs could alter how mineral resources are accessed and extracted and result in the use of different technology than would otherwise have been used.

4.12.4 Alternative B

Impacts from Nonenergy Solid Leasable Minerals Management

Under Alternative B, 19,167,400 acres, or 69 percent of the federal nonenergy solid leasable mineral estate decision area (including all federal nonenergy solid leasable mineral estate in PHMA), would be closed to prospecting and leasing. Management under this alternative would close 20 percent more federal nonenergy solid leasable mineral estate to nonenergy leasable mineral prospecting and leasing than management under Alternative A. New leases to expand existing mines for phosphate would not be permitted in areas managed as closed. Closing areas to nonenergy mineral prospecting would result in the same type of impacts as described under **Section 4.11.2**. Approximately 8,557,600 acres (31 percent) of federal nonenergy leasable mineral estate in the decision area would remain open subject to standard terms and conditions.

Less than one percent of the acres closed to leasing would be within KPLAs (**Table 4-83**, Nonenergy Leasable Minerals by Alternative).

Under Alternative B, 5,350 acres (28 percent) of unleased federal mineral estate within KPLAs in the nonenergy solid leasable mineral decision area would be closed to nonenergy leasable mineral prospecting and leasing—a 10-percent increase compared with Alternative A. The impacts of these closures would be the same type as those described under **Section 4.11.2**. The remaining 14,000 acres (72 percent) of unleased federal mineral estate within KPLAs in the nonenergy solid leasable mineral decision area would be open to nonenergy leasable mineral prospecting and leasing. Because the number of unleased acres within KPLAs that are closed would increase compared with Alternative A, impacts on nonenergy solid leasable minerals would increase.

Under Alternative B, a disturbance cap of 3 percent of PHMA would be applied to all human disturbances, including oil and gas development. In PHMA where the 3 percent cap is already exceeded, no new oil and gas leases would be issued until habitat were restored to a point that acreage of human disturbance were below the 3 percent cap. However, because



all federal mineral estate in PHMA would be closed to new fluid mineral leasing, new fluid mineral leases would not be impacted by the disturbance cap. Valid existing lease rights would be honored, but mitigation measures may be required for development in the areas that exceed the 3 percent disturbance cap.

Approximately 1,340 acres of existing unmined federal nonenergy leasable mineral leases in PHMA would be subject to RDFs. This would limit surface disturbance, vehicle use, siting, and design of mineral development operations, in addition to imposing reclamation requirements. Application of RDFs would have the types of impacts described under **Section 4.11.2**. Because these RDFs would not be applied under Alternative A, impacts would increase under Alternative B.

4.12.5 Alternative C

Impacts from Nonenergy Solid Leasable Minerals Management

Impacts under Alternative C are the same as those described under Alternative B, except that more acres would be affected by closures (21,629,700 acres, or 78 percent of the nonenergy leasables decision area). As a result, the magnitude of impacts under this alternative would increase.

Less than one percent of the acres closed to leasing would be within KPLAs (**Table 4-83**, Nonenergy Leasable Minerals by Alternative).

Under Alternative C, 5,870 acres (30 percent) of unleased federal mineral estate within KPLAs in the nonenergy solid leasable mineral decision area would be closed to nonenergy leasable mineral prospecting and leasing — a 20-percent increase compared with Alternative A. The impacts of these closures would be the same type as those described under **Section 4.11.2**. Because the number of unleased acres within KPLAs that are closed would increase compared with Alternative A, impacts on nonenergy solid leasable minerals would increase.

Approximately 5,730 acres of existing unmined federal nonenergy leasable mineral leases in PHMA and GHMA would be subject to RDFs. This would limit surface disturbance, vehicle use, siting, and design of mineral development operations, in addition to imposing reclamation requirements. Application of RDFs would have the types of impacts described under **Section 4.11.2**. Because these RDFs would not be applied under Alternative A, impacts would increase under Alternative C.

4.12.6 Alternative D

Impacts from Nonenergy Solid Leasable Minerals Management

Under Alternative D, 11,799,500 acres, or 42 percent of the federal nonenergy leasable mineral estate decision area (including all federal nonenergy leasable mineral estate in PHMA and IHMA), would be closed to prospecting and leasing — the same amount of acres closed as Alternative A. An additional 7,369,000 acres (26 percent) would be closed except fringe leases and modifications. Impacts of this limited closure would be similar to those described under **Section 4.11.2** except that impacts would increase compared with Alternative A.

Closing areas to nonenergy mineral prospecting and leasing would result in the same type of impacts as described under **Section 4.11.2**; however, because more acres would be closed under Alternative D, impacts would increase compared with Alternative A. Impacts would be mitigated because fringe acreage leases and lease modifications would be allowed. Approximately 8,556,600 acres (31 percent) of federal nonenergy leasable mineral estate in the decision area would remain open subject to standard terms and conditions.

Less than one percent of the acres closed to leasing would be within KPLAs (**Table 4-83**, Nonenergy Leasable Minerals by Alternative).

Under Alternative D, 4,870 acres (25 percent) of unleased federal mineral estate within KPLAs in the nonenergy solid leasable mineral decision area would be closed to nonenergy leasable mineral prospecting and leasing under Alternative D. An additional 490 acres (3 percent) would be closed except for fringe leases and modifications. The impacts of these closures would be the same type as those described under **Section 4.11.2**. The remaining 14,000 acres (72 percent) of unleased federal mineral estate within KPLAs in the nonenergy solid leasable mineral decision area would be open to nonenergy leasable mineral prospecting and leasing. Because the number of unleased acres within KPLAs that are closed would slightly increase compared with Alternative A, impacts on nonenergy solid leasable minerals would increase.

Approximately 6,510 acres of existing unmined federal nonenergy leasable mineral leases in PHMA and GHMA would be subject to RDFs. Applying BMPs as COAs on any new mine plan and requiring restoration of habitat or off-site mitigation in areas where on-site restoration is not feasible could alter how mineral resources are accessed and extracted. It also could result in the use of different technology than would otherwise have been used. Because these RDFs would not be applied under Alternative A, impacts would increase under Alternative D.

4.12.7 Alternative E

Impacts from Nonenergy Solid Leasable Minerals Management

Impacts from nonenergy solid mineral leasing allocations under Alternative E would be the same as those impacts described under Alternative A (Error! Reference source not found. **Table 4-83**). Closing areas to nonenergy mineral prospecting and leasing would result in the same type of impacts as described under **Section 4.11.2**. Lands open to leasing would be subject to several stipulations, which include prohibiting permanent structures within occupied leks, prohibiting tall structures within one mile (1.6 km) of leks, and restrictions on noise disturbances. Stipulations would restrict the ability of mineral resources to be developed or extracted and would increase impacts on nonenergy solid leasable minerals compared with Alternative A .



4.12.8 Alternative F

Impacts from Nonenergy Solid Leasable Minerals Management

Management under Alternative F would be similar to that under Alternative B except that the BLM would close an additional 30,200 acres in PHMA under Alternative F. However, because none of these additional acres would be within KPLAs, impacts of closures under Alternative F would be the same as those described under Alternative B.

As under Alternative B, a disturbance cap of 3 percent of PHMA would be applied under Alternative F to all human disturbances, including oil and gas development. Impacts would be similar to those under Alternative B except that, because fire would be included in the disturbance cap, the cap (and subsequent restrictions on existing leases) is more likely to be exceeded. Therefore, overall impacts on nonenergy solid leasable minerals would increase under Alternative F.

4.12.9 Proposed Plan

Impacts from Nonenergy Solid Leasable Minerals Management

Under the Proposed Plan, 16,270,500 acres, or 59 percent of the federal nonenergy leasable mineral estate decision area (including all federal nonenergy leasable mineral estate in PHMA outside KPLAs) would be closed to prospecting and leasing—38 percent more acres closed compared with Alternative A. Fringe leases and modifications to existing leases would be allowed in PHMA to satisfy valid existing rights. Impacts of this closure would be similar to those described under **Section 4.11.2** except that impacts would increase compared with Alternative A. Approximately 2,899,800 acres, or 10 percent of federal nonenergy solid leasable mineral estate in the decision area (including all federal nonenergy leasable mineral estate in IHMA outside KPLAs), would be open to leasing consideration but only if the Anthropogenic Disturbance Development and Criteria (AD-4) were satisfied (including the requirement that the project would not exceed the 3 percent disturbance threshold). Development on these acres would also be subject to RDFs, BMPs, and buffers for exploration and initial mine development, and compensatory mitigation once mining commences. Because development of nonenergy leasable minerals in these areas would be more restricted than under Alternative A, impacts described under **Section 4.11.2** would increase under the Proposed Plan.

Development on 2,729,500 acres of federal nonenergy leasable minerals within GHMA would also be subject to RDFs, BMPs, and buffers on exploration and initial mine development. These limitations could increase costs of federal nonenergy leasable mineral development in the planning area as described under **Section 4.11.2**.

Because KPLAs would remain open to nonenergy solid mineral leasing, impacts on federal nonenergy solid leasable mineral development would be mitigated. The areas considered to have moderate potential in the decision area would not be constrained.

RDFs would be applied to the 1 federal phosphate lease on 70 acres in IHMA with impacts similar to those described under Alternative D. These restrictions may increase the cost of phosphate mining in the decision area. However, the BLM would not apply restrictions so onerous that they would eliminate reasonable opportunity to develop an existing lease.

Impacts from Anthropogenic Disturbance Management, Adaptive Management, and Coordination

Under the Proposed Plan, anthropogenic disturbance, including nonenergy leasable mineral development, would be limited to 3 percent of nesting and wintering habitat on new leases and prospecting permits within IHMA within a Conservation Area (i.e., BSUs). In BSUs where the 3 percent cap is already exceeded, new parcels would not be offered for lease until enough habitat was restored to maintain the area under the threshold. New leases of federal nonenergy leasable mineral resources that would result in exceedance of the 3 percent cap in a BSU would also be prohibited. Valid existing rights would be honored, but compensatory mitigation requirements could be applied. This cap could potentially impact activities on 2,900,100 acres of unleased federal nonenergy leasable mineral estate in IHMA, including 400 unleased acres within KPLAs. Impacts would be greatest where these caps limited development in unleased portions of KPLAs because these areas have the highest potential for nonenergy leasable mineral development. The 16,270,500 acres that would be closed to nonenergy solid mineral leasing under the Proposed Plan would not be impacted by the disturbance cap because no new nonenergy leasable mineral development could occur in the closed areas.

4.13 Special Designations

4.13.1 ACECs and Zoological Areas

This section discusses impacts on ACECs and Zoological Areas from proposed management actions of other resources and resource uses. Existing conditions concerning ACECs are described in **Section 3.13**, Special Designations. See **Appendix S**, BLM Areas of Critical Environmental Concern Evaluation and Forest Service Zoological Areas, for the evaluation of relevant and important values for proposed ACECs. There are no existing Forest Service Zoological Areas in the sub-region. As stated previously, it is anticipated that GRSG management would have beneficial or negligible effects on other special designations areas (e.g., National Historic Trails, Wild and Scenic Rivers, Wilderness Areas, Wilderness Study Areas, National Monuments, and National Conservation Areas). The BLM manual for each NLCS unit type will be adhered to during any site-specific analysis, and the BLM would manage them to safeguard the reasons for which they were designated. Due to this, the analysis of impacts on special designations focuses on ACECs and Zoological Areas.

4.13.2 Methods and Assumptions

Direct impacts on ACECs are considered to be those that either impair or enhance the relevant and important values for which the ACEC was proposed for designation. As such, this analysis focuses on relevance and importance criteria for each potential ACEC. There are no relevance and importance criteria for Forest Service Zoological Areas. It also focuses



on impacts on these values from either the special management derived from ACEC or Zoological Areas designation or, under alternatives where an ACEC or Zoological Areas is not proposed for designation, the management actions for other resources. All impacts discussed are direct, though some may not occur immediately after implementation of management actions.

Indicators

Impacts on ACECs would occur from management actions that protect or impair relevant and important ACEC values, including “important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes” (BLM Manual 1613 – Areas of Critical Environmental Concern). As such, indicators of impacts are allocations for surface-disturbing activities within existing or potential ACECs that could affect the relevant and important values for which the ACEC was designated.

Assumptions

The analysis includes the following assumptions:

- Management of existing ACECs was determined in the applicable LUPs to be adequate to support the relevant and important values at the time of their designation. Impacts on these ACECs are not further discussed because the BLM would continue to manage these ACECs to protect their relevant and important values. Management to protect GRSG under the various alternatives could provide additional protections for existing ACECs and, at a minimum, would provide complementary management.
- Although management actions for most resources and resource uses have application throughout the decision area, ACEC and Zoological Areas management prescriptions apply only to those lands within each specific ACEC or Zoological Areas.
- Permitted activities would not be allowed to impair the relevant and important values for which the ACECs are designated. The exception is locatable minerals; until withdrawn from mineral entry, a mining claim can be filed, and subsequent mining activities could have an impact. However, measures would have to be identified in a mine plan to mitigate unnecessary or undue degradation.
- ACEC designation provides protection and focused management of relevant values beyond that provided through general management of the relevant and important values elsewhere in the decision area.
- Any designated ACEC that falls within a WSA would be managed according to BLM Manual 6330, Management of Wilderness Study Areas, unless the ACEC management is more restrictive. Because activities within WSAs must meet the nonimpairment criterion, which generally restricts new surface disturbance, a WSA would generally protect relevant and important values. Also, it would have a beneficial effect on overlapping designated and undesignated ACECs. If Congress were to release a WSA from further consideration, the special

management in designated ACECs would be designed to protect and enhance the relevant and important values.

4.13.3 Nature and Type of Effects

In general, management actions that protect resources—such as surface-disturbance restrictions, management for desired habitats, travel restrictions and closures, and recreation restrictions—would help maintain and improve the important and relevant values within ACECs. Management actions that create the potential for resource degradation—such as mineral development, livestock grazing, and infrastructure development—could impact the relevant and important values for which an ACEC is designated. Recreation and travel within ACECs could also impact their values. Limiting OHV travel to existing routes and trails would reduce surface disturbance and potentially reduce disturbing the values for which the ACECs were designated.

Implementing management for mineral split-estate would have negligible or no impact on GRSG, so it is not discussed in detail.

Wildland Fire

Depending on their extent, location, and severity, wildfires could cause short- and long-term damage to ACEC values. Emergency stabilization and restoration would be applied to minimize impacts where special values are at risk. If these techniques are successful, wildfires could also cause long-term improvement in ACEC values by maintaining natural vegetation ecosystem cycles.

Lands and Realty

Managing ACECs as ROW exclusion or avoidance areas would protect relevant and important values by reducing (for avoidance areas) or eliminating (for exclusion areas) impacts from development. These impacts would require a ROW permit, including utilities, access roads, and renewable energy projects. Impacts from ROW development on ACECs are compaction and erosion.

Mineral Resources

Energy and mineral development could impact ACEC values by increasing soil erosion potential and removing or disrupting unique vegetation. Where GRSG habitat exists, energy and mineral development could degrade and fragment habitat. Construction, operation, and maintenance could disturb GRSG populations. Closing ACECs to fluid minerals leasing would help protect relevant and important values by eliminating the surface disturbance associated with such development.

Livestock Grazing

Livestock grazing could impact ACEC values by increasing soil erosion potential and reducing understory plant species, such as forbs and grasses. Closing ACECs to livestock grazing would help protect relevant and important values by eliminating soil and vegetation disturbance associated with grazing, but it could also increase the risk of fire due to increased fuel loads.



Special Designations

Special status species management would prevent degradation of, and could improve, relevant and important values where an ACEC is designated to protect such values. New ACECs designated under Alternatives C and F would protect GRSG. Refer to **Section 4.2, Special Status Species—Greater Sage-Grouse**, for a discussion of impacts from these ACECs on GRSG habitat. None of the existing ACECs in the planning area are designated to protect GRSG but would experience indirect protections from management actions in other resource programs aimed at GRSG conservation.

Impacts Common to All Alternatives

Impacts on the relevant and important values of ACECs would mainly be from surface-disturbing activities that cause direct damage to the values, introduce modifications to the landscape that affect the area's scenic quality or historical or cultural context, or that result in erosion, sedimentation, or increased runoff. All of the action alternatives would generally result in greater restrictions, compared to the continuation of existing management under Alternative A. Adopting more restrictive management of surface-disturbing activities under the action alternatives would be complementary to the protection of the relevant and important values of the existing ACECs. Therefore, in general, the action alternatives would enhance the relevant and important values of the existing ACECs to a greater extent than Alternative A.

Table 4-84, Comparison of ACEC-Affecting Management Actions by Alternative provides a quantitative overview of how the ACEC-affecting management actions under an applicable resource program would vary across alternatives.

Table 4-85 displays the acres of the proposed ACECs within each habitat type under the different alternatives. Different management would apply to the different areas, as described in **Chapter 2**, impacts of which are discussed in **Section 4.2, Special Status Species—Greater Sage-Grouse**, and **Section 4.3, Vegetation (Including Noxious Weeds; Riparian and Wetlands)**.

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Table 4-84
Comparison of ACEC-Affecting Management Actions by Alternative

Management Action	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F1	Alternative F2	Proposed Plan
<i>ACEC Acres Overlain with Management Actions</i>								
ROW Exclusion	294,300	417,800	3,145,400	294,300	295,600	8,270,200	2,009,400	304,500
BLM	294,300	417,800	3,106,700	294,300	295,600	7,308,200	1,785,700	304,500
Forest Service	N/A	N/A	38,700	N/A	N/A	962,100	223,700	N/A
ROW Avoidance	67,300	45,800	0	174,800	133,500	45,900	45,900	141,200
BLM	67,300	45,800	0	174,800	133,500	45,900	45,900	141,200
Forest Service	N/A	N/A	0	N/A	N/A	0	N/A	N/A
Open to Livestock ing	394,700	389,200	0	394,700	395,700	8,154,900	1,949,800	394,100
BLM	394,700	389,200	0	394,700	395,700	7,226,500	1,735,400	394,100
Forest Service	N/A	N/A	N/A	N/A	N/A	928,400	214,400	N/A
Closed to Livestock Grazing	74,500	74,500	3,157,500	74,500	74,500	203,800	120,100	75,100
BLM	74,500	74,500	3,118,700	74,500	74,500	170,300	110,800	75,100
Forest Service	N/A	N/A	38,700	N/A	N/A	33,500	9,300	N/A
Closed to Oil and Gas Leasing	253,900	401,900	3,301,900	403,100	253,200	9,167,700	2,076,000	257,400
BLM	253,900	401,900	3,301,900	403,100	253,200	9,167,700	2,076,000	257,400
Forest Service	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NSO	116,200	25,900	0	27,700	183,700	26,100	70,100	174,400
BLM	116,200	25,900	0	27,700	183,700	26,100	70,100	174,400
Forest Service	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CSU	1,940	1,580	0	1,680	1,940	1,580	1,580	26,600
BLM	1,940	1,580	0	1,680	1,940	1,580	1,580	26,600
Forest Service	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TL	52,600	13,600	0	26,200	10,200	13,600	13,600	0
BLM	52,600	13,600	0	26,200	10,200	13,600	13,600	0
Forest Service	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-84
Comparison of ACEC-Affecting Management Actions by Alternative

Management Action	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F1	Alternative F2	Proposed Plan
Recommended for Withdrawal from Locatable/Leasable Mineral Entry	0	141,800	2,198,800	0	0	6,787,000	1,313,300	78,100
BLM	0	141,800	2,198,800	0	0	5,918,800	1,313,300	78,100
Forest Service	N/A	N/A	N/A	N/A	N/A	868,200	N/A	N/A

Source: BLM GIS 2015

Table 4-85
Acres of Proposed ACECs within the Planning Area by Habitat Type
and Alternative

Habitat	Alternative C	Alternative F1	Alternative F2
PHMA (acres)	2,655,000	6,929,600	1,379,100
GHMA (acres) ¹	N/A	0	0
RHMA (acres) ¹	N/A	0	0

Source: BLM GIS 2015

¹There is no GHMA or RHMA that would be designated under Alternative C.

4.13.4 Alternative A

Under Alternative A, the BLM would continue managing the 59 existing Idaho and Montana ACECs containing 469,200 acres of occupied GRSG habitat to protect the identified relevant and important values. Current management would continue protecting those values. Sagebrush habitat is not identified as a relevant and important value in any of the existing ACECs.

4.13.5 Alternative B

No new ACECs would be designated. However, management protecting the 469,200 acres of occupied GRSG habitat within existing ACECs may provide indirect protection to the relevant and important values for which these ACECs were designated. Management actions that could impact ACECs include the management of areas as ROW avoidance and ROW exclusion, fire management, mineral development, travel management, and the management of areas as open or closed to livestock grazing. The ways in which these management actions could impact ACECs is described in **Nature and Types of Effects**.

4.13.6 Alternative C

Under Alternative C, 39 new BLM ACECs encompassing approximately 2.7 million acres of occupied GRSG habitat would be designated as sagebrush reserves for the relevant and important value of GRSG. Refer to **Section 4.2**, Special Status Species – Greater Sage-Grouse, for a discussion of impacts on GRSG habitat.

4.13.7 Alternative D

No new ACECs would be designated. Impacts are the same as those described under Alternative B.

4.13.8 Alternative E

No new ACECs would be designated. Impacts are the same as those described under Alternative B.

4.13.9 Alternative F

Under Alternative F, 17 or 18 new BLM ACECs and 12 new Forest Service GRSG Zoological Areas encompassing up to 6.9 million acres of occupied GRSG habitat would be designated as sagebrush reserves for the relevant and important value of GRSG. Refer to **Section 4.2**, Special Status Species – Greater Sage-Grouse, for a discussion of impacts on GRSG habitat.

4.13.10 Proposed Plan

Impacts on the relevant and important values of ACECs would mainly be from surface-disturbing activities that cause direct damage to the values, introduce modifications to the landscape that affect the area's scenic quality or historical or cultural context, or that result in erosion, sedimentation, or increased runoff. The Proposed Plan would generally result in greater restrictions compared to the continuation of existing management under Alternative A. Adopting more restrictive management of surface-disturbing activities under the Proposed Plan would be complementary to the protection of the relevant and important values of the existing ACECs. Therefore, in general, the Proposed Plan would enhance the relevant and important values of the existing ACECs to a greater extent than would Alternative A.

Impacts from Lands and Realty Management

Under the Proposed Plan, management actions that could impact ACECs include management of areas as ROW avoidance and ROW exclusion. As discussed in **Nature and Types of Effects**, managing areas as ROW avoidance and ROW exclusion would provide complementary management to adjacent and near-by ACECs. **Table 4-84** displays the difference in the amount of acres managed as ROW avoidance and exclusion by alternative. Under the Proposed Plan, 10,200 more acres are managed as ROW exclusion and 73,900 more acres are managed as ROW avoidance than under Alternative A. A greater number of acres managed as ROW avoidance and exclusion would likely result in a greater amount of incidental protection to ACECs.

Impacts from Habitat Restoration and Vegetation Management

Vegetation management to protect, enhance, and restore GRSG habitat would be prioritized under the Proposed Plan, and ACECs encompassing or adjacent to GRSG habitat could receive additional protection through this management. Vegetation management could create temporary disturbance to ACECs through surface-disturbing activities, but the BLM would manage all ACECs and special designations to safeguard the reasons for which they were designated. Therefore, vegetation management and habitat restoration could result in temporary disturbance to special designations but would not cause long-term damage,

Refer to **Section 4.2**, Special Status Species- Greater Sage-Grouse, for a discussion of impacts from special designation management on GRSG habitat.

Impacts from Wildland Fire Management

Wildland fire management could result in impacts on ACECs as described in **Nature and Types of Effects**. ACECs that encompass GRSG habitat could experience additional



protections under the Proposed Plan through fuels management and fire suppression management actions that prioritize the protection of GRSG and GRSG habitat.

Impacts from Leasable Fluid Minerals Management

More restrictions would be placed on mineral development under the Proposed Plan than would be under Alternative A. **Table 4-84** displays the differences in the amount of acres and types of restrictions on mineral development that would occur by alternative. Under the Proposed Plan, NSOs and CSUs are applied to more acres (174,400 and 26,600, respectively) than under Alternative A. Additionally, 3,500 more acres are closed to oil and gas leasing than under Alternative A. Under the Proposed Plan TLs are not applied to any acres, unlike under Alternative A where TLs are applied to 52,600 acres. The greater the number of acres experiencing restrictions on mineral development would likely result in a greater amount of incidental protection to ACECs.

Impacts from Travel and Transportation Management

Under the Proposed Plan OHV travel would be limited to existing roads, primitive roads, and trails. Additionally, areas adversely affected by OHVs would be closed to use until adverse effects are eliminated. These actions could result in indirect protections to ACECs that would not be present under Alternative A. Restrictions on travel would result in impacts described in **Nature and Types of Effects** and could result in additional protect to ACECs, particularly to ACECs that encompass or are adjacent to GRSG habitat.

Impacts from Livestock Grazing Management

More restrictions would be placed on livestock grazing under the Proposed Plan than would be under Alternative A. **Table 4-84** displays the number of acres that would be open and closed to livestock grazing by alternative. Under the Proposed Plan, 400 fewer acres would be closed to livestock grazing than would be under Alternative A. Closing acres of land to livestock grazing could result in the types of impacts described in *Nature and Type of Effects*. The Proposed Plan is likely to result in more indirect protections to ACECs than Alternative A, even though the Proposed Plan would have the same amount of active AUMs as Alternative A. This is because under the Proposed Plan additional provisions would be made to ensure livestock grazing is compatible with GRSG. Some of these provisions could result in additional protections to ACECs where ACECs overlap with or are adjacent to GRSG habitat.

Impacts from Special Designations Management

There are no decisions regarding special designations under the Proposed Plan. Current management of special designations under Alternative A would continue to protect the values for which existing ACECs were designated. Under the Proposed Plan, ACECs could receive additional protection through restrictions on resource uses, activities, and surface-disturbance put in place to protect GRSG and GRSG habitat. The ways in which these management actions could provide incidental protection to ACECs is described in **Nature and Types of Effects**.

Impacts from Anthropogenic Disturbance Management, Adaptive Management, and Coordination

Under the Proposed Plan, adaptive management would use hard and soft population and habitat triggers to determine when to apply additional restrictions to various habitat areas. In the event a trigger is reached in a habitat area that is either in or adjacent to an ACEC, the ACEC could receive additional indirect protections from the increased restrictions on uses in the GRSG habitat.

Similarly, anthropogenic disturbance management would involve a strict increase in restrictions in the event the 3 percent human disturbance cap is reached within PHMA or IHMA. In the event a disturbance cap is reached for a habitat area in or adjacent to an ACEC, the ACEC could experience indirect protections from the restrictions on uses and surface-disturbing activities enacted by the anthropogenic disturbance management.

4.14 Lands with Wilderness Characteristics and Roadless Areas

This section discusses impacts on lands with wilderness characteristics from proposed management actions of other resources and resource uses. Existing conditions are described in **Section 3.20**, Lands with Wilderness Characteristics. Wilderness characteristics considered in this analysis are Roadless Areas of sufficient size, naturalness, and outstanding opportunities for solitude or a primitive and unconfined type of recreation and supplemental values. In the planning area, 390,800 acres on BLM-administered lands have been found to have wilderness characteristics. None of the 390,800 acres with wilderness characteristics specifically managed to protect those characteristics; however, management addressing other programs such as visual and cultural resources or recreation management may limit impacts on those characteristics. There are approximately 1,152,400 acres of Roadless Areas on National Forest System lands. All Roadless Areas experience some level of protection. Restrictions on activities such as road construction, tree cutting, and mineral development are applied to Roadless Areas in various degrees based on the management classification of the Roadless Area (36 CFR 294).

4.14.1 Methods and Assumptions

Indicators

Indicators of impacts on lands with wilderness characteristics are the management actions and allowable uses that would either protect or degrade the inventoried characteristics to a level at which the value of one or more wilderness characteristic would no longer be present within the specific area. The inventoried wilderness characteristics are Roadless Areas of sufficient size, naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values, as described in **Section 3.20**, Wilderness Characteristics. Roadless Areas already experience some protections from Forest Service management, however, management actions that restrict uses in order to protect the GRSG would provide additional protections to Roadless Areas.

Assumptions

The analysis includes the following assumption:

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- Some inventoried lands with wilderness characteristics have not yet been assessed in a LUP revision; therefore, no decisions have been made about whether to protect their wilderness characteristics. In this analysis, these lands with wilderness characteristics are treated like their wilderness characteristics are not protected to the same degree that congressionally designated wilderness areas would be protected and are discussed in this analysis. Lands with wilderness characteristics that are not managed only to exclusively protect those characteristics will simply be referred to as lands with wilderness characteristics throughout the remainder of the analysis in this section.

4.14.2 Nature and Type of Effects

Wilderness characteristics are primarily influenced by actions that impact the undeveloped nature of the area or activities that increase the sights and sounds of other visitors. Generally, actions that create surface disturbance degrade the natural characteristics of lands with wilderness characteristics, as well as the setting for experiences of solitude and primitive recreation. In addition, restrictions on dispersed recreation (e.g., prohibited campfires and camping permitted only in designated sites) diminish the opportunities for unconfined recreation.

Management actions that could impact an area's natural appearance are the presence or absence of roads and trails, use of OHVs along those roads and trails, fences and other improvements, nature and extent of landscape modifications, or other actions that result in or preclude surface-disturbing activities. All of these activities affect the presence or absence of human activity and, therefore, could affect an area's natural appearance. Prohibiting surface-disturbing activities and new developments within lands with wilderness characteristics would protect naturalness.

There could be indirect impacts from management of other resources that would enhance wilderness characteristics. Stipulations associated with special status species could indirectly improve the naturalness of lands with wilderness characteristics and help protect those characteristics. Management actions that protect resources would impact lands with wilderness characteristics by preserving or enhancing naturalness, as well as opportunities for solitude and primitive recreation. Roadless areas would also be impacted by surface-disturbing activities and allowable uses that decrease wilderness attributes on them. The nature and types of impacts on Roadless Areas would be similar to those on lands with wilderness characteristics; however, Roadless Areas would be less susceptible to such impacts due to the protections placed on them, based on their management classification. In particular, Roadless Areas would be less prone to impacts from road construction and reconstruction, timber removal, and mineral development. This is because they are protected specifically from these activities (36 CFR, Part 294).

Implementing management for mineral split-estate would have negligible or no impact on wilderness characteristics and Roadless Areas; therefore, it is not discussed in detail.

Vegetation Management and Habitat Protection

While vegetation treatments are implemented, both naturalness and solitude experienced by

recreationists could be reduced in the short term. After the treatment is over, solitude would be restored. Over the long term, naturalness would likely be enhanced by restoring natural vegetation structures and patterns.

Wildland Fire

Managing for wildfire could impact lands with wilderness characteristics. In areas where suppression is a priority, there is the potential for vegetation modification to prevent the spread of fires, potentially reducing the naturalness of appearance. Fire suppression, prescribed burns, and firebreaks could all have short-term impacts on wilderness characteristics by disturbing naturalness.

Lands and Realty

Permitted activities, such as constructing utility ROWs, involve the presence of equipment and personnel that could impact wilderness characteristics. Construction would reduce opportunities for solitude in the short term and could result in long-term impacts as well. ROW exclusions would prohibit all development of ROWs, which would likely protect wilderness characteristics.

Mineral Resources

Allowing any type of energy or mineral development, such as that for fluid, coal, nonenergy solid, locatable, and salable minerals, as well as renewable energy, would result in surface disturbance that would diminish the area's natural characteristic. Any new roads authorized for access to the development area could eliminate wilderness characteristics of the entire unit if the road were to bisect the unit so that it would no longer be considered a Roadless Area of adequate size. In addition, regular access to the lease area or mine site by developers would reduce the opportunities for solitude.

Recreation

Two other wilderness characteristics—outstanding opportunities for solitude and primitive unconfined types of recreation—are related to the human experience in an area. Visitors can have outstanding opportunities for solitude or for primitive unconfined recreation when the sights, sounds, and evidence of other people are rare or infrequent; where visitors can be isolated, alone, or secluded from others; where the area is accessed by nonmotorized nonmechanized means; and where there are no or only minimally developed recreation facilities. High concentrations of recreation users (large group sizes or frequent group encounters) would decrease outstanding opportunities for solitude. Limiting visitor use only as necessary to prevent substantial degradation to wilderness characteristics (i.e., naturalness and opportunities for solitude) would protect opportunities for unconfined recreation.

Travel and Transportation

A significant increase in motorized and mechanized travel on designated routes would impact wilderness characteristics. By increasing sights and sounds of other people, opportunities for solitude would be reduced. Motorized and mechanized access would also reduce opportunities for primitive recreation. The existence of motorized and mechanized trails could reduce the natural appearance in the vicinity of the trails. Effects would be localized and might not be experienced in the unit as a whole.



Prohibiting motorized and mechanized use on lands with wilderness characteristics would protect wilderness characteristics by restricting activities that could impact natural appearance and opportunities for solitude and primitive and unconfined recreation. Exceptions to exclusions on motorized and mechanized vehicles could result in a short-term detractor from the natural character of the areas. These impacts would be uncommon and of short duration if they were to occur. On a more regular basis, motorized and mechanized use by established livestock grazing permittees would impact opportunities for solitude and naturalness of appearance.

Livestock Grazing

Impacts on lands with wilderness characteristics are possible from livestock grazing, particularly from new developments in these areas (e.g., water developments and fences), which could lessen the naturalness of appearance or limit unconfined recreation. Existing range improvements used for grazing, such as fences, stock trails, springs, and stock ponds, would continue to be maintained. Structures could diminish the naturalness characteristic of lands with wilderness characteristics. Maintenance of range improvements could result in short-term impacts on solitude and naturalness.

Special Designations

Where lands with wilderness characteristics overlap or are next to eligible or suitable Wild and Scenic River segments or ACECs, management of these other areas could also indirectly protect wilderness characteristics due to the measures proposed for the other areas. These protective measures would include complementary management objectives and could offer some indirect protection of wilderness characteristics for units managed primarily for other resource considerations.

4.14.3 Impacts on lands with Wilderness Characteristics Common to All Alternatives

The nature and type of impacts described below are common to all alternatives, but the context and intensity may vary by alternative.

Impacts from Travel and Transportation Management

Under all alternatives, approximately 4,310 acres of lands with wilderness characteristics would be closed to OHV travel (**Table 4-86**, Acres of Allocations Potentially Affecting Lands with Wilderness Characteristics and Roadless Areas). Under all alternatives other than Alternative A and Alternative D, which both would close 4,460 acres to OHV travel, no Roadless Areas would be closed to OHV travel. Because the difference between these numbers are small, differences in impacts would likely be negligible. Where OHV travel is closed or limited to existing roads, there would be indirect protection of wilderness characteristics. Restricting OHV travel would reduce the noise of human visitors and the disturbance caused by OHVs, which would enhance experiences of solitude and naturalness. Impacts from closing areas on OHV travel are the same under all alternatives.

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Table 4-86
Acres of Allocations Potentially Affecting Lands with Wilderness Characteristics and Roadless Areas

Management Action	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Proposed Plan
<i>Total Acres of All Types of Habitat, Excluding Nonhabitat</i>							
ROW Exclusion	190,700	901,700	1,429,500	190,700	152,900	901,700	156,300
BLM	12,100	326,100	379,300	12,100	12,100	326,100	28,900
Forest Service	178,600	575,600	1,050,200	178,600	140,800	575,600	127,400
ROW Avoidance	550,000	527,800	0	1,343,200	989,300	527,900	1,050,700
BLM	35,700	53,100	0	369,500	274,000	53,300	344,800
Forest Service	514,300	474,700	0	973,800	715,400	474,700	705,900
Closed to Oil and Gas Leasing	1,137,300	1,352,600	1,430,600	1,439,300	1,041,500	1,352,600	378,300
BLM	8,130	325,200	385,200	310,200	8,140	325,200	3,640
Forest Service	1,129,200	1,027,400	1,045,300	1,129,100	1,033,400	1,027,400	374,700
NSO	56,300	29,700	0	34,400	306,500	29,700	816,500
BLM	38,300	11,800	0	16,500	288,500	11,800	342,800
Forest Service	17,900	17,900	0	17,900	18,000	17,900	473,700
CSU (Oil and Gas)	0	0	0	10,900	0	0	71,800
BLM	0	0	0	10,900	0	0	71,800
Forest Service	0	0	0	0	0	0	30
TL	38,600	10,100	0	50,000	36,900	10,100	0
BLM	38,600	10,100	0	50,000	36,900	10,100	0
Forest Service	0	0	0	30	0	0	0
Recreation Sites	670	670	670	670	670	670	570
BLM	670	670	670	670	670	670	570
Forest Service	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	
Closed to Livestock Grazing	69,600	62,100	1,435,800	69,600	62,100	62,100	48,500
BLM	560	560	385,600	560	560	560	580
Forest Service	69,000	61,500	1,050,200	69,000	61,500	61,500	47,900
Closed to OHV Travel	8,770	4,310	4,310	8,770	4,310	4,310	4,470
BLM	4,310	4,310	4,310	4,310	4,310	4,310	4,470
Forest Service	4,460	0	0	4,460	0	0	0
ACECs/Zoological Areas	19,400	19,100	292,800	19,400	19,100	F1: 830,200 F2: 197,300	18,900

Table 4-86
Acres of Allocations Potentially Affecting Lands with Wilderness Characteristics and Roadless Areas

Management Action	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Proposed Plan
BLM	19,400	19,100	260,000	19,400	19,100	F1: 334,100 F2: 120,500	18,900
Forest Service	N/A	N/A	32,767	N/A	N/A	F1: 496,100 F2: 76,900	N/A

Source: BLM GIS 2015

4.14.4 Alternative A

Management actions to protect other resources and special designation areas offer some protection of wilderness characteristics and Roadless Areas. Alternative A includes the fewest GRSG protections and is least restrictive of surface-disturbing activities that could alter the natural setting, as well as reduce opportunities for solitude or primitive recreation, of lands with wilderness characteristics. Therefore, wilderness characteristics are likely to be degraded under this alternative. Roadless Areas are also least likely to experience additional protections under this alternative.

Impacts from Lands and Realty Management

Under Alternative A, 12,100 acres of lands with wilderness characteristics are managed as ROW exclusion (**Table 4-86**) and 178,600 acres of Roadless Areas are managed as ROW exclusion. This provides indirect protection to wilderness characteristics (preserving naturalness and opportunities for solitude and primitive recreation) and Roadless Areas by prohibiting disturbance from transmission lines, roads, and other utility developments. Additionally, 35,700 acres of lands with wilderness characteristics and 514,300 acres of Roadless Areas are managed as ROW avoidance areas, which would have similar effects on lands with wilderness characteristics and Roadless Areas as ROW exclusion.

Impacts from Leased Fluid Minerals Management

Under Alternative A, 8,130 acres of lands with wilderness characteristics and 1,129,200 acres of Roadless Areas are closed to oil and gas leasing. Closing acres to fluid minerals leasing could protect wilderness characteristics by prohibiting development and infrastructure related to those actions, subject to valid existing rights. However, interest in oil and gas leasing in Idaho is sporadic. There is some interest in leasing oil and gas resources in occupied habitat in the Bear Lake area, but no drilling permits have been applied for or issued in Idaho, and this trend is expected to continue. As such, impacts from oil and gas leasing are likely to be minimal under all alternatives due to the anticipated lack of development.

Impacts from Recreation and Visitor Services Management

Under Alternative A, 670 acres of recreation sites overlap with lands with wilderness characteristics. These would continue to be managed under current guidance, which would result in no additional protections or degradation of wilderness characteristics.

Impacts from Livestock Grazing Management

Under Alternative A, 560 acres of lands with wilderness characteristics and 69,000 acres of Roadless Areas are closed to livestock grazing. Livestock grazing can impact opportunities for solitude and naturalness of appearance. New developments, such as fences, related to livestock grazing could also lessen naturalness of appearance or limit unconfined recreation, although additional development would be limited. Those areas with wilderness characteristics that are not closed to grazing would continue to be affected in a limited way by grazing activities and grazing-related development.

Impacts from Special Designations Management

Under Alternative A, the existing 59 ACECs in the planning area would to be maintained. The 19,400 acres of ACECs that overlap lands with wilderness characteristics would continue to provide indirect protections to those characteristics. Under this alternative, no additional ACECs would be designated, so no additional protection to wilderness characteristics would result. Additionally, no Zoological Areas would overlap with Roadless Areas and, therefore, Roadless Areas would not receive additional protection from Zoological Areas under this alternative.

4.14.5 Alternative B

Impacts from Lands and Realty Management

Under Alternative B, 326,100 acres of lands with wilderness characteristics (314,000 more acres than under Alternative A) and 575,600 acres of Roadless Areas (397,000 more acres than under Alternative A) would be managed as ROW exclusion areas. Additionally, 53,100 acres of lands with wilderness characteristics and 474,700 acres of Roadless Areas would be managed as ROW avoidance areas. Types of impacts are described under Alternative A.

Impacts from Leased Fluid Minerals Management

Under Alternative B, 325,200 acres of lands with wilderness characteristics would be closed to oil and gas leasing, 317,070 more acres than under Alternative A, thereby potentially offering more protection of lands with wilderness characteristics. Under this alternative 1,027,400 acres of Roadless Areas would be closed to oil and gas leasing, which is a 101,800 fewer acres than under Alternative A. This could result in fewer additional protections to Roadless Areas as compared with Alternative A. However, as discussed under Alternative A, oil and gas development interests in Idaho are minimal, so impacts on wilderness characteristics from oil and gas development are likely to be minimal across all alternatives.

Impacts from Recreation and Visitor Services Management

Under Alternative B, 670 acres of recreation sites would overlap lands with wilderness characteristics. In PHMA, the only recreation allowed would be neutral or beneficial to GRSG. Some types of restrictions, such as those that would limit visitor use and surface disturbance, would likely enhance experiences of solitude and provide protections to wilderness characteristics. However, other types of restrictions, such as limits on dispersed recreation, could degrade wilderness characteristics by limiting opportunities for primitive and unconfined recreation.

Impacts from Livestock Grazing Management

Impacts would be approximately the same as those described under Alternative A, as only 7,500 more acres with wilderness characteristics on BLM-administered and National Forest System land would be closed under Alternative B as under Alternative A.



Impacts from Special Designations Management

Under Alternative B, 19,100 acres of lands with wilderness characteristics would overlap with ACECs and would experience indirect protections. Impacts on Roadless Areas would be the same as those described under Alternative A.

4.14.6 Alternative C

Impacts from Lands and Realty Management

Under Alternative C, 379,300 acres of lands with wilderness characteristics (367,200 more acres than under Alternative A) and 1,050,200 acres of Roadless Areas (871,600 more acres than under Alternative A) would be managed as ROW exclusion areas. No lands with wilderness characteristics or Roadless Areas would be designated as ROW avoidance areas under Alternative C. Alternative C would offer more indirect protections to lands with wilderness characteristics and Roadless Areas through ROW exclusion and avoidance than would Alternative A.

Impacts from Leased Fluid Minerals Management

Under Alternative C, 385,200 acres of lands with wilderness characteristics and 1,045,300 acres of Roadless Areas would be closed to oil and gas leasing. Impacts would be similar to those described under Alternative A.

Impacts from Recreation and Visitor Services Management

Impacts are the same as those described under Alternative B.

Impacts from Livestock Grazing Management

Under Alternative C, 385,600 acres of lands with wilderness characteristics would be closed to livestock grazing, 385,040 more acres than under Alternative A. Consequently, Alternative C would provide more protection of wilderness characteristics than Alternative A.

Impacts from Special Designations Management

Under Alternative C, 39 new ACECs would be designated, which would indirectly protect 260,000 acres of land with wilderness characteristics and 32,767 acres of Roadless Areas that overlap the new ACECs.

4.14.7 Alternative D

Impacts from Lands and Realty Management

Under Alternative D, impacts from ROW exclusion areas on lands with wilderness characteristics would be the same as those under Alternative A. Additional protection would result from the 369,500 acres of lands with wilderness characteristics which would be managed as ROW avoidance areas, and 973,800 acres which would be managed as ROW avoidance with limited exclusion. Managing lands with wilderness characteristics as ROW avoidance areas would result in more protection under this alternative than under Alternative A. More acres of Roadless Areas would be managed as ROW exclusion (178,600 acres) and ROW avoidance (973,800) under this alternative than under any of the other alternatives.

Roadless Areas would experience more additional protection from restrictions on ROWs under this alternative than under any of the other alternatives.

Impacts from Leased Fluid Minerals Management

Under Alternative D, 310,200 acres of lands with wilderness characteristics would be closed to oil and gas leasing (302,070 more acres than under Alternative A) and 1,129,100 acres of Roadless Areas would be closed to oil and gas leasing (100 acres less than under Alternative A). Impacts would be similar to those under Alternative A.

Impacts from Recreation and Visitor Services Management

Impacts are similar to those described under Alternative B, except that Alternative D would also try to minimize adverse recreation effects on GRSG.

Impacts from Livestock Grazing Management

Impacts are the same as those described under Alternative A.

Impacts from Special Designations Management

Impacts on lands with wilderness characteristics are the same as those described under Alternative A.

4.14.8 Alternative E

Impacts from Lands and Realty Management

Under Alternative E, 12,100 acres of lands with wilderness characteristics and 140,800 acres of Roadless Areas would be managed as ROW exclusion. This is the fewest acres out of all the alternatives and would result in fewer acres of Roadless Areas and lands with wilderness characteristics receiving protections from ROW exclusions. Additionally, 274,000 acres of lands with wilderness characteristics would be managed as ROW avoidance areas. As such, this alternative would offer more protection to lands with wilderness characteristics than under Alternative A. Roadless Areas would also experience more protection under Alternative E than under Alternative A, with 715,400 acres managed as ROW avoidance.

Impacts from Leased Fluid Minerals Management

Under this alternative, 8,140 acres of lands with wilderness characteristics would be closed to oil and gas leasing, offering negligibly more protection than Alternative A. Additionally 1,033,400 acres of Roadless Areas would be closed to oil and gas leasing, which would result in less additional protection to Roadless Areas than would occur under Alternative A. Impacts would be similar to those under Alternative A due to minimal oil and gas development interest.

Impacts from Recreation and Visitor Services Management

Impacts would be similar to those described under Alternative B, except that Alternative E would also apply seasonal, timing, and travel restrictions in order to reduce impacts on GRSG.



Impacts from Livestock Grazing Management

Impacts are the same as those described under Alternative B.

Impacts from Special Designations Management

Impacts on lands with wilderness characteristics are the same as those described under Alternative B.

4.14.9 Alternative F

Impacts from Lands and Realty Management

Impacts of ROW exclusion areas under Alternative F are the same as under Alternative B. Under Alternative F, 53,300 acres of lands with wilderness characteristics and 474,700 acres of Roadless Areas would be managed as ROW avoidance areas. Types of impacts are would be similar to those described under Alternative B.

Impacts from Leased Fluid Minerals Management

Impacts are the same as those described under Alternative B.

Impacts from Recreation and Visitor Services Management

Impacts are the same as those described under Alternative B.

Impacts from Livestock Grazing Management

Impacts are the same as those described under Alternative A.

Impacts from Special Designations Management

Under Alternative F, 17 or 18 new BLM ACECs would be designated, which would indirectly protect either 334,100 acres or 120,500 acres of land with wilderness characteristics and either 496,100 acres or 76,900 acres of Roadless Areas that overlap the new ACECs.

4.14.10 Proposed Plan

Impacts from Lands and Realty Management

Managing areas as ROW avoidance and ROW exclusion could impact lands with wilderness characteristics and Roadless Areas. Under the Proposed Plan, 34,400 fewer acres would be managed as ROW exclusion than would be under Alternative A. Additionally, under the Proposed Plan 500,700 more acres would be managed as ROW avoidance than under Alternative A, and this would likely result in indirect protections to lands with wilderness characteristics (preserving naturalness and opportunities for solitude and primitive recreation) and Roadless Areas by prohibiting disturbance from transmission lines, roads, and other utility developments, as discussed in **Nature and Types of Effects**.

Table 4-86, Acres of Allocations Potentially Affecting BLM Lands with Wilderness Characteristics and Forest Service Roadless Areas, displays the difference in the amount of acres managed as ROW avoidance and exclusion between Alternative A and the Proposed Plan. A greater number of acres managed as ROW avoidance and exclusion would likely

result in a greater amount of incidental protection to lands with wilderness characteristics and Roadless Areas.

Impacts from Habitat Restoration and Vegetation Management

Vegetation management to protect, enhance, and restore GRSG habitat would be prioritized under the Proposed Plan, and lands with wilderness characteristics encompassing or adjacent to GRSG habitat could be impacted by this management. Vegetation management and habitat restoration could result in temporary disturbance to lands with wilderness characteristics, as discussed in **Nature and Types of Effects**, but would not likely result in any long-term damage.

Impacts from Wildland Fire Management

Wildland fire management could result in impacts on lands with wilderness characteristics and Roadless Areas as described in **Nature and Types of Effects**. Lands with wilderness characteristics and Roadless Areas that encompass or are adjacent to GRSG habitat are most likely to experience these impacts from the prioritizing of fire suppression under the Proposed Plan.

Impacts from Leased Fluid Minerals Management

Closing acres to fluid minerals leasing, as well as placing restrictions such as timing limitations (TL), no-surface occupancy (NSO), and CSU (controlled surface use), on fluid mineral leasing would protect wilderness characteristics by prohibiting or restricting development and infrastructure related to those actions, subject to valid existing rights. Under Alternative A 759,000 more acres are closed to oil and gas leasing than under the Proposed Plan. More acres closed to oil and gas leasing on BLM-administered lands could result in more protection to lands with wilderness characteristics. However, the Proposed Plan would apply NSO stipulations to 816,500 acres, which is more acres than would be applied under any of the other alternatives. This would effectively make up in protection the difference in acres closed to fluid mineral leasing.

Under the Proposed Plan 760,200 more acres would be managed as NSO than under Alternative A, 71,800 more acres would be managed as CSU under the Proposed Plan than under Alternative A, and 38,600 fewer acres would be managed as TL under the Proposed Plan than under Alternative A.

Oil and gas development interest in IHMA, PHMA, and GHMA in Idaho is sporadic and minimal. There is some interest in leasing oil and gas resources within occupied habitat in the Bear Lake area, but no drilling permits have been applied for or issued in Idaho, and this trend is expected to continue. As such, impacts from oil and gas leasing are likely to be minimal due to anticipated lack of development.

Table 4-86, Acres of Allocations Potentially Affecting BLM Lands with Wilderness Characteristics and Forest Service Roadless Areas, displays the differences in restrictions on mineral development between alternatives. In general a greater number of acres experiencing restrictions in mineral development would result in more indirect protections to lands with wilderness characteristics and Roadless Areas.



Impacts from Recreation and Visitor Services Management

Restrictions on recreation could impact lands with wilderness characteristics and Roadless Areas as discussed under **Nature and Types of Effects**. Under the Proposed Plan, new recreation facilities would not be constructed within PHMA and IHMA unless the development would have a net conservation gain to GRSG habitat. Some types of restrictions, such as those that would limit visitor use and surface disturbance, would likely enhance experiences of solitude and provide protections to wilderness characteristics that overlap or are adjacent PHMA, IHMA, and GHMA. However, other types of restrictions, such as limits on dispersed recreation, could degrade wilderness characteristics by limiting opportunities for primitive and unconfined recreation.

Table 4-86, Acres of Allocations Potentially Affecting BLM Lands with Wilderness Characteristics and Forest Service Roadless Areas, shows the acres of recreation sites in Lands with Wilderness Characteristics and Roadless Areas by alternative.

Impacts from Travel and Transportation Management

Under the Proposed Plan OHV travel would be limited to existing roads, primitive roads, and trails. Additionally, areas adversely affected by OHVs would be closed to use until adverse effects are eliminated. These actions could result in indirect protections to lands with wilderness characteristics and Roadless Areas. Restrictions on travel would result in impacts as described in **Nature and Types of Effects** and could especially result in protections to lands with wilderness characteristics and Roadless Areas that encompass or are adjacent to GRSG habitat.

Under the Proposed Plan, fewer acres would be closed to OHV travel than under Alternative A, as shown in **Table 4-86**, Acres of Allocations Potentially Affecting BLM Lands with Wilderness Characteristics and Forest Service Roadless Areas. Closing fewer acres to OHV travel could result in lands with wilderness characteristics and Roadless Areas experiencing fewer indirect protections under the Proposed Plan than under Alternative A.

Impacts from Livestock Grazing Management

More restrictions would be placed on livestock grazing under Alternative A than would be under the Proposed Plan. **Table 4-86**, Acres of Allocations Potentially Affecting BLM Lands with Wilderness Characteristics and Forest Service Roadless Areas, displays the number of acres that would be closed to livestock grazing by alternative. Closing acres of land to livestock grazing could result in the types of impacts described in **Nature and Type of Effects**. The Proposed Plan could result in less indirect protection to ACECs than Alternative A because 21,200 fewer acres would be closed to livestock grazing under the Proposed Plan than under Alternative A. However, the Proposed Plan would have the same amount of active AUMs as Alternative A, and under the Proposed Plan additional provisions would be made to ensure livestock grazing is compatible with GRSG. Some of these provisions could result in additional protections to lands with wilderness characteristics and Roadless areas where these areas overlap with or are adjacent to GRSG habitat.

Impacts from Special Designations Management

No decisions regarding special designations or lands with wilderness characteristics or Roadless Areas were made under the Proposed Plan. Due to this, the amount of lands with wilderness characteristics and Roadless Areas that overlap with ACECs and other special designations vary slightly due to differences in habitat delineations, but impacts would be the same under Alternatives A and the Proposed Plan.

Impacts from Anthropogenic Disturbance Management, Adaptive Management, and Coordination

Under the Proposed Plan, adaptive management would use hard and soft population and habitat triggers to determine when to apply additional restrictions to various habitat areas. In the event a trigger is reached in a habitat area that is either in or adjacent to lands with wilderness characteristics or Roadless Areas, the lands with wilderness characteristics or Roadless Areas could receive additional indirect protections from the increased restrictions on uses in the GRSG habitat.

Similarly, anthropogenic disturbance management would involve a strict increase in restrictions in the event the 3 percent anthropogenic disturbance cap is reached within PHMA or IHMA. In the event a disturbance cap is reached for a habitat area in or adjacent to lands with wilderness characteristics or Roadless Areas, the lands with wilderness characteristics or Roadless Areas could experience indirect protections from the restrictions on uses and surface-disturbing activities enacted by the anthropogenic disturbance management.

4.15 Social and Economic Conditions (Including Environmental Justice)

This section discusses social and economic impacts from proposed GRSG management actions related to other resources and resource uses. Existing social and economic conditions are described in **Section 3.22**, Social and Economic Conditions (Including Environmental Justice). This section also addresses environmental justice impacts and the differences among alternatives for the social and economic impacts identified.

This section is organized slightly differently than the sections for other resource areas. Rather than grouping the analysis of impacts by alternative, the analysis of economic impacts is grouped by affected resource, followed by an overall discussion of social impacts. This grouping assists with the reader's understanding of the analytical approach and assumptions used to analyze economic and social impacts associated with each resource use and facilitates interpretation of results. Impacts are grouped by alternative in **Table 4-88** and **Table 4-89** of the Summary of Social and Economic Impacts and in **Table 4-90**, Environmental Justice Impacts.

4.15.1 Methods and Assumptions

Indicators

Conservation measures related to GRSG habitat could have impacts on resource uses on BLM-administered and Forest Service System lands; impacts on social and economic



conditions could result from these changes in resource uses. Many of the indicators used to characterize social and economic conditions are quantitative, including population, demographics (e.g., age and gender breakouts), local industry (e.g., recreation and mineral development), employment, personal income, and presence of minority and low-income populations. Other indicators, especially for social conditions, are qualitative.

For the analysis of economic impacts, quantitative estimates are provided where sufficient data or estimates are available on the potential changes in authorized uses of federal lands under each alternative. When quantitative estimates of economic impacts were not possible, a qualitative discussion of the potential economic impacts of management actions associated with specific authorized uses is presented. Therefore, the overall economic impacts are a combination of quantitative estimates and qualitative discussion.

When sufficient information was available to quantify the potential economic impact of alternatives, the IMPLAN model, which captures the indirect and induced economic effects of management alternatives in the socioeconomic study area, was used to estimate impacts on outcomes, employment, and earnings in the study area. This was the case of the analysis of impacts through livestock grazing.

The analysis using IMPLAN includes those impacts derived from the multiplier effect, which captures the impact of several rounds of expenditures that follow an initial direct expenditure in the socioeconomic study area. These additional expenditures are due to income received by suppliers and employees directly benefiting from the initial expenditure and who go on to spend a share of their income locally. This allows for a more complete picture of the economic impacts of the management alternatives in the planning area.

However, the IMPLAN model is a static model, and it does not capture changes in the industrial composition of a region over time; nor does it capture dynamic effects that may be associated with processes of growth or decline, such as changes in technology or labor productivity or the feasibility of economic operations that require scale. There is, therefore, a degree of uncertainty in the estimates of impacts obtained through the IMPLAN model.

Assumptions

- The analysis of economic impacts of management alternatives on grazing made use of billed AUMs as a baseline, estimated as a multi-year average share of active AUMs. Active AUMs measure the amount of forage from land available for grazing. The Forest Service terms this measure permitted AUMs. Billed AUMs measure the amount of forage for which the BLM and Forest Service bill annually. The Forest Service uses the term authorized AUMs for the same concept.
- Implementing management for the resources not analyzed in detail in this section was considered to have negligible or no impact on socioeconomics and environmental justice indicators across alternatives. For recreation, BLM and Forest Service recreational specialists determined that the overall number of visits to BLM-administered lands and National Forests would be unchanged; this

is because potentially affected recreation is unlikely to occur when GRSG are using leks, and any displaced recreation would be likely to move to another nearby location. To the extent that there are circumstances in which individual permits for special activities or events are affected in terms of timing or location for GRSG protection, the overall socioeconomic impacts associated with these effects are expected to be negligible.

- Implementing conservation measures in all resource or program areas would contribute to conservation of GRSG habitat and GRSG benefits, as qualitatively discussed in this section and detailed elsewhere in **Chapter 4**.

4.15.2 Nature and Types of Effects

The main economic impacts derived from changes in resource management are reflected in changes in local employment and earnings, costs incurred by the private sector, fiscal revenues and regional growth prospects.

For the analysis of social impacts, two types of impacts capture the main social impacts that can be expected from changes in resource management. The first is derived from migration induced by management actions. These impacts are induced by economic opportunities that drive population into or out of specific areas; they affect population growth as well as the demand for housing and public services. The second is associated with specific interest groups, community livelihoods, or minority and low-income populations—effects described in the section on environmental justice.

- To the extent that there is a degree of uncertainty regarding the changes in authorized uses of federal lands under each management alternative, this uncertainty is carried forward to the socioeconomic impacts of management alternatives.

The Proposed Plan includes a 3 percent disturbance cap on PHMA, independent of surface ownership and an adaptive management plan. If the disturbance cap is reached, economic activity on BLM-administered and National Forest System lands could be curtailed further than what is described in this section. This disturbance cap would be the same as under Alternative B, would be more restrictive than the disturbance cap under Alternatives D and E, but would be less so than the disturbance cap under Alternatives C and F.

Under the adaptive management plan, additional measures could be taken to protect GRSG habitat based on triggers linked to indicators monitored by the BLM and the Forest Service. If triggered, these additional measures could also impose additional restrictions on economic activity. However, because the 3 percent disturbance cap and adaptive management soft and hard triggers apply only to PHMA, they would generate additional socioeconomic impacts only through economic activities that are not already restricted in PHMA.

The Proposed Plan designates SFA, representing recognized strongholds for GRSG that have the strongest levels of protection.



As a landscape level planning effort, none of the alternatives prescribe project-level or site-specific activities on BLM-administered or National Forest System lands. Furthermore, the agencies' selection of an alternative does not authorize funding to any specific project or activity, nor does it directly tie into the agencies' budgets, as appropriated annually through the federal budget process. As a consequence, the agencies' costs and differences in program costs across alternatives have not been quantified. Information has been presented in several resource impact sections on the types of costs that might be associated with various GRSG conservation measures.

4.15.3 Economic Impacts

Impacts from Management Actions Affecting Grazing Allotments

Economic impacts for grazing are quantified for Alternatives C and F, where grazing would not be allowed in any or portions of GRSG habitat. Impacts for all alternatives are qualitatively discussed for other types of restrictions or design feature requirements that are contingent on proximity to lek areas and/or, meeting desired range conditions, disturbance caps, or other protocol for specifying when and where conservation measures are adopted.

Overall Employment, Earnings, and Output per Job Impacted by Management Alternatives

The potential impacts of management alternatives affecting grazing on output and employment were estimated quantitatively using the IMPLAN economic model; detailed assumptions are described in **Appendix AA**. Alternatives A, B, D, and E and the Proposed Plan are estimated to have similar economic effects; this is because no unconditional grazing closures or losses of AUMs occur under those alternatives, although all alternatives, except A, and the Proposed Plan could carry increased restrictions on lessees' ability to construct or maintain range improvements. Alternatives B, D, and the Proposed Plan could restrict the lessees' ability to conduct treatments (e.g., vegetation treatments). These restrictions, as well as compliance with adaptive management, habitat objectives, and disturbance caps, may have implications for operator costs, as discussed below.

Although grazing on federal lands not containing GRSG habitat would not be directly affected by the choice of alternatives, it could be affected indirectly, to the extent that loss of access to federal lands for grazing affects the feasibility of the grazing operations.

The IMPLAN model used 2011 and 2013 data for active AUMs. The model used an average of 2000 to 2011 data for billed AUMs on lands permitted by the BLM, because billed AUMs fluctuate from year to year (BLM 2012d, 2013b, 2013c). On National Forest System lands, the analysis assumed a billed-to-active ratio of 100 percent.

For the analysis, the BLM and Forest Service calculated economic impacts for each alternative based on an estimated reduction in the number of billed AUMs. By multiplying the number of AUMs lost under each alternative relative to Alternative A by the estimated output, employment, and earnings per AUM (Tables R-4 and R-5 of **Appendix AA**),

changes in output, employment, and earnings lost by alternative, relative to Alternative A, are estimated.

Table 4-87 shows the resulting estimates. As explained in **Appendix AA**, the low impact scenario reflects the loss of all billed AUMs in GRSG habitat under Alternative C and the loss of 25 percent of billed AUMs in GRSG habitat under Alternative F. Actual economic impacts could be less than these estimates. For example, where the number of billed AUMs is less than the number of active AUMs, ranchers could shift grazing from lands closed to grazing to lands that remain open for grazing. In other words, ranchers could use non-billed active AUMs as a buffer to absorb reductions in AUMs imposed by management alternatives, resulting in reduced economic impact.

Table 4-87
Annual Impact of Management Actions Affecting Livestock AUMs on Output, Employment, and Earnings Compared to Alternative A

	Alternatives B, D, and E and Proposed Plan ¹	Alternative C		Alternative F	
		Low Impact Scenario	High Impact Scenario	Low Impact Scenario	High Impact Scenario
Primary Study Area					
Output (\$ millions)	See notes	-\$100.6	-\$190.1	-\$26.1	-\$36.9
Employment	See notes	-997	-1,842	-259	-361
Earnings (\$ millions)	See notes	-\$34.5	-\$65.6	-\$8.9	-\$12.7
Primary and Secondary Study Area					
Output (\$ millions)	See notes	-\$100.9	-\$190.6	-\$26.2	-\$37.0
Employment	See notes	-997	-1,842	-259	-361
Earnings (\$ millions)	See notes	-\$34.6	-\$65.8	-\$9.0	-\$12.7

Source: Calculated using the IMPLAN model, applied to active and billed AUMs for each alternative (BLM 2012d, 2013b, 2013c; Forest Service 2013c), as explained in **Appendix AA**.

Note: Output and earnings are in millions of 2010 dollars.

¹Based on available AUMs, there would be no change in economic activity from grazing under Alternatives B, D, or E or the Proposed Plan. However, as described in the text, management actions under Alternatives B, D, and E and the Proposed Plan would restrict range improvements, which may increase ranch operators' costs or lead to other adverse economic impacts.

The high impact scenario represents the case where the loss of AUMs on public lands leads to the loss of additional AUMs due to seasonal limitations of grazing areas. This would be the case if livestock operations were to have no reasonable alternative to seasonal grazing, implying broader impacts on livestock grazing.

The BLM estimated the additional loss of AUMs due to seasonal limitations on livestock grazing based on Torell et al. (2014). Further details are provided in **Appendix AA**. Note that the employment estimates include the labor of proprietors and employees but not



unpaid or paid-in-kind family labor, which is typically not accounted for in labor force statistics. If family labor were included, then labor use differences among alternatives would be larger.

Beyond economic impacts linked to closing federal lands to livestock grazing under Alternatives C and F, management alternatives could impose other costs on livestock operators, as follows:

- Under Alternatives C and F, closure of federal lands to grazing could mean additional costs to livestock operators with respect to constructing new infrastructure on private lands, such as water developments, if previously used infrastructure is no longer accessible.
- Under Alternatives B, C, D, and F and the Proposed Plan, restrictions on OHV travel could affect livestock operators' access to allotments, with associated time and financial costs.
- Under Alternatives B, D, and F and the Proposed Plan, post-fire management actions to restore habitat could impose limitations on grazing during the restoration period.
- Under Alternatives B, D, and F and the Proposed Plan, vegetation treatments prioritizing GRSG habitat could require changes in livestock, management with potentially associated costs.
- Disturbance caps under Alternatives B, C, D, and F and the Proposed Plan could reduce the capacity of livestock operators to build improvements or could limit infrastructure, such as roads, with potential increased costs to operators.
- For Alternatives B, D, and E and the Proposed Plan, in habitat and active lek areas (e.g., nesting or breeding seasons where desired conditions for GRSG are not being met) seasonal modifications to grazing management strategies may be needed, such as changes in pasture rotation or fencing. These modifications could increase costs or limit grazing duration, intensity, or location for some allotments. Habitat conditions for GRSG are less explicit under Alternative E, which may afford greater flexibility for modifying management strategies. The potential for impacts from seasonal management modifications is therefore relatively greater for Alternatives B and D and the Proposed Plan and relatively lower for Alternative E. Additional Forest Service guidelines for habitat, such as 7-inch stubble height for nesting habitat, may increase the potential for impacts for some permittees, depending on specific conditions on allotments.
- For Alternatives B, D, E, and F and the Proposed Plan, design features, such as fence tags, or best management practices may be required to protect active lek areas, implying the potential for increased costs for livestock operators; the potential is relatively greater under Alternatives B, D, and F and the Proposed Plan, compared to Alternative E. Additional guidelines under the Proposed Plan, such as trailing, fencing, and range improvements, may affect some allotments.

Alternative A—Under Alternative A, grazing on federal lands would not be affected. The alternative would not change the extent of land open for grazing (BLM 2013b; Forest Service 2013c). Thus, there would be no change in annual output, jobs, or earnings relative to current trends. Based on the current location of federal grazing lands, the economic contribution of grazing would be similar to the pattern under current management, with particular concentrations in Cassia, Gooding, Jerome, Lincoln, and Owyhee Counties, Idaho. These are the counties in which 20 percent or more of earnings are attributable to livestock, according to **Section 3.22**, Social and Economic Conditions, Including Environmental Justice.

Alternative B—Under Alternative B, economic activity attributable to AUMs on federal lands with GRSG habitat is likely to be similar to that under Alternative A. This is because there would be no changes in the extent of GRSG habitat unconditionally open for grazing. In the long term, livestock grazing in PHMA may be reduced under this alternative, compared to Alternative A, to conform to GRSG habitat objectives, although impacts would be site-specific and likely would occur gradually over time.

Some decisions on range improvements and vegetation treatments would be subject to the conservation, enhancement, or restoration of GRSG habitat, potentially reducing forage available. This is because permittees would be required to move livestock off-range if it were necessary to protect habitat. Seasonal restrictions could also be imposed, requiring that permittees move their livestock elsewhere, adding costs to their operations.

The extent to which these additional constraints would reduce grazing on federal lands is not clear; however, Alternative B would likely result in some additional operating costs and reductions in economic activity compared to Alternative A.

Alternative C—Under Alternative C, economic activity attributable to grazing on federal lands would be reduced. Livestock grazing on federal lands would be restricted to those with no GRSG habitat (BLM 2013b; Forest Service 2013c). Adverse impacts on output, employment, and earnings would be greater under Alternative C than any other alternative, with an estimated reduction in employment of between 997 and 1,842 annual jobs, relative to Alternative A. The economic impact of Alternative C may also be greater if the change in management actions, such as the removal of GRSG habitat from livestock grazing, were to impair the economic viability of some grazing operations, especially if the private ranch land is then left unused. Management actions that prevent the viability of grazing operations could reduce the value of private land as a function of livestock productivity (land values as a function of other uses may increase or decrease).

Alternative D—Economic activity associated with AUMs on federal lands with GRSG habitat would likely be similar to Alternatives A and B because there would be no changes in the extent of GRSG habitat unconditionally open for grazing (BLM 2013b; Forest Service 2013c). Some restrictions on range improvements or seasonal restrictions that require permittees to move livestock off-range could affect the availability of forage. In addition, structural range improvements and measures to limit impacts on leks by trailing livestock could result in additional costs. The extent to which these additional constraints would affect



economic activity from grazing on federal lands is not clear. However, Alternative D would likely result in some reductions in economic activity, compared to Alternative A, but less so than under Alternatives B or E.

Alternative E—Economic activity associated with AUMs on federal lands with GRSG habitat is likely to be similar to Alternatives A, B, and D. This is because there would be no change in the extent of GRSG habitat unconditionally open for grazing (BLM 2013b; Forest Service 2013c). Some limitations would apply to structural range improvements, which could increase costs for construction and maintenance of improvements or impact the ability to distribute livestock. Similar to Alternative B, Alternative E could also impose seasonal restrictions that may increase costs for operators. These restrictions would more likely be imposed on lands designated as core or PHMA, rather than GHMA (BLM 2013b). The extent to which these additional constraints would affect economic activity from grazing is not clear. However, Alternative E may result in some reductions in economic activity, compared to Alternative A. Changes in grazing management would be tailored to address site-specific habitat needs.

Alternative F—Under Alternative F, economic activity due to grazing on federal lands would be reduced. This is because of the closure of some GRSG habitat to livestock grazing, as well as actions to prohibit grazing after fire and prohibit new range improvements, which would result in increased costs for ranchers. Under Alternative F there would be an estimated reduction in employment of between 259 and 361 annual jobs relative to Alternative A. The impact of Alternative F may be greater than shown if the reduction in federal AUMs were to impair the economic viability of some grazing operations. The impact would also be greater if the private ranch land were then left unused. Management actions that prevent the viability of grazing operations could reduce the value of private land as a function of livestock productivity. Economic impacts under Alternative F would be less than under Alternative C; however, it still would be substantially more than under Alternatives A, B, D, and E and the Proposed Plan.

Proposed Plan—Under the Proposed Plan, there would be no change in the extent of GRSG habitat unconditionally open for livestock grazing, relative to Alternative A. The BLM would use the assessment and monitoring data related to the objectives to evaluate whether rangeland health standards are being met, starting with allotments in SFA. The Forest Service would use seasonal habitat desired conditions for GRSG and grazing guidelines for GRSG seasonal habitat.

If rangeland health standards were not being met, livestock grazing would be adjusted at the allotment level. This could include a variety of management approaches, such as changing rotation systems, season or timing or use, distribution of livestock use, intensity of use, type of livestock, class of livestock (e.g., yearlings vs. cow-calf pairs), duration of grazing use, and rest period or stocking rates.

The extent to which permittees may need to change livestock management and what economic costs those changes might entail is unknown. In general, there may be some

increased costs to implement management when it is identified that livestock management is conflicting with meeting GRSG habitat objectives.

Because the BLM takes a collaborative, site-specific approach to modifying livestock grazing, permittees are afforded the opportunity to work with the BLM to develop management approaches that minimize impacts on their operations, while addressing identified habitat issues. When given more than one viable alternative to meet rangeland health standards and GRSG habitat objectives, some permittees may prefer to reduce grazing overall; others may prefer to increase management inputs (e.g., herding or maintaining let-down fences) to prevent a reduction in their authorized use.

The Proposed Plan allows for design and implementation of allotment-specific management that would meet GRSG habitat objectives appropriate for each area, while providing the flexibility to minimize economic impacts on operators. The alternative is to implement a blanket reduction in grazing. This could provide benefits in some areas, while unnecessarily inflicting economic impacts in areas where ongoing management is resulting in satisfactory on-the-ground habitat conditions for GRSG.

In summary, economic impacts from closures in GRSG habitat to livestock grazing and potential increases in costs to operators are greatest under Alternative C, followed by Alternative F. Although no unconditional closures of grazing occur under Alternatives B, D, and E and the Proposed Plan, restrictions on OHV travel, vegetation treatments, and structural improvements could increase costs to operators. Potential reductions in AUMs and operating costs under Alternatives B, D, and E and the Proposed Plan are conditional under certain scenarios: meeting habitat objectives, satisfying disturbance caps, and allowing operator discretion about how to modify grazing strategies and management to meet objectives and design feature requirements. The likelihood of AUM reductions or increases in costs under Alternatives B, D, and E and the Proposed Plan are therefore substantially lower than under Alternatives C and F. The potential for costs under the Proposed Plan may be somewhat greater than under Alternative D and lowest under Alternative E. However, estimating the potential cost impacts on livestock grazing operators associated with management alternatives is not possible. This is due to the landscape level of this planning effort and uncertainty about how individual operators could be affected and how they may operationally respond.

Table 3-67 shows that, although livestock grazing has some importance to all counties in the study area, it constitutes a larger share of earnings in Cassia, Gooding, Jerome, Lincoln, and Owyhee Counties. **Figures 2-1 through 2-12** show that GRSG habitat intersects with all these counties, particularly Gooding, Lincoln, and Owyhee. This suggests economic impacts of management alternatives on livestock grazing may be of particular importance to these three counties. Within these counties, communities may be impacted differently, contingent on each communities' dependency on livestock grazing where it overlaps with GRSG habitat.



Output, employment, and earnings losses reported above, although stemming from direct impacts on livestock grazing, would not all occur in the livestock ranching industry. It also would not occur in industries that provide inputs and services to these activities and in industries where labor earnings from livestock ranching are spent. An additional discussion of the potential impacts on communities is in **Section 4.15.4**, Social Impacts.

Other Values Associated with Livestock Grazing

As described in **Chapter 3**, BLM-administered and National Forest System land managed for livestock grazing provides both market values and non-market values; the latter include open space and western ranch scenery, which provide value to some residents and outside visitors. Ranches may also provide some value to the non-using public (e.g., the cultural icon of the American cowboy). Some residents and visitors also perceive non-market opportunity costs associated with livestock grazing; in addition, some of the lifestyle value of ranching is likely to be captured in markets (e.g., property values of ranches next to BLM-administered and National Forest System lands). In contrast, other residents or visitors may perceive non-market opportunity costs (i.e., damages) associated with livestock grazing and therefore prefer alternative land uses.

The other values discussion in **Section 3.22**, Socioeconomics and Environmental Justice, and **Appendix BB**, Non-Market Valuation Methods, provide additional discussion of these values. Overall, the process for incorporating potential non-market values associated with the management of BLM-administered and National Forest System land for livestock grazing into analyses of net public benefits remains difficult. This is because it implies the need to consider non-market values and uses associated with landscape characteristics and opportunities that would exist in the absence of grazing and ranch activity.

This analysis does not attempt to quantify these values for the present study. This is because the scientific and economic literature on the topic does not provide adequate data or a consensus theoretical framework from which to analyze these values further,

To the degree that there are net benefits associated with non-market values attached to livestock grazing and ranching, these would be greatest under Alternatives A, B, D, and E. This is because these alternatives are likely to result in similar levels of livestock grazing in the study area (albeit with some restrictions for Alternatives B, D, and E). If the net non-market value associated with livestock grazing and ranching is positive, then the likelihood of preserving the value would be greatest under Alternative A, slightly lower under Alternatives B, D, and E, lower still under Alternative F, and lowest of all under Alternative C. This is in line with the expected impacts on market values discussed above. Non-market benefits linked to alternative landscapes and land uses may help offset potential losses in non-market benefits associated with grazing and ranches.

Impacts from Management of Oil and Gas Leases

The potential economic impacts of management alternatives affecting oil and gas drilling, completion, and production were not analyzed using IMPLAN, given the relatively small number of wells that would be affected and that no oil has been commercially produced in the study area to date. Based on the restrictions identified for the management alternatives,

BLM oil and gas specialists projected that the number of wells and production capacity would be the same for Alternatives A and D. Under Alternatives B, C, F, and the Proposed Plan, management actions would restrict exploration and development and would result in approximately half of the production capacity (BLM 2015). The reduction in production capacity relative to Alternative A would not be as pronounced under Alternative E.

Alternative A—Alternative A would continue current trends in economic activity associated with oil and gas leases. The BLM predicts that, under Alternative A and over 20 years, up to 37 wells would be drilled, including 25 wildcat wells and 12 step-out wells (BLM 2015). Of the 37 wells, 16 are predicted to be drilled in GRSG habitat (those in the Four Rivers Field Office, Caribou National Forest, and half of the wells in the Dillon Field Office are not in GRSG habitat). For analysis purposes, the BLM predicts that 16 wells would be productive (8 of those in GRSG habitat), with 28 billion cubic feet of production capacity. There would be no change in trends in annual output, annual jobs, or annual earnings compared to current management. Based on cost and direct employment estimates recently developed for neighboring Utah (BLM 2013g), 16 wells at a drilling and completion cost of \$3.25 million each, could generate an average of 11 annual direct jobs during the period and approximately \$700,000 in direct annual earnings, if approximately 75 percent of expenditures were done locally. Additional jobs and earnings could be generated indirectly. Production of 28 billion cubic feet over 20 years could add two additional annual direct jobs and \$200,000 in direct annual earnings. Additional jobs and earnings would be generated indirectly.

Alternative B—Alternative B would close PHMA to fluid mineral leasing but would have the same restrictions as Alternative A in GHMA. Drilling and production would drop, compared to Alternative A, with approximately 19 wells drilled—13 wildcat wells and 6 step-out wells; 8 wells would be productive. All of these wells would be outside GRSG habitat (BLM 2015) and in total would have 20.5 billion cubic feet of production capacity.

On existing leases, RDFs would be imposed as appropriate to the proposed activity. Alternative B would also impose costs related to required full site-specific reclamation bonds to cover costs to restore the lands to pre-disturbance condition. As a result of implementing Alternative B, economic activity and associated output, employment, and earnings related to oil and gas production would decrease by approximately 30 to 50 percent, compared to Alternative A, to something between six and nine annual direct jobs, \$450,000 to \$630,000 in annual earnings, and additional indirect jobs and earnings. The impacts of reduced oil and gas development would likely be mostly felt in Bear Lake County, Idaho, Beaverhead County, Montana, and surrounding areas.

Alternative C—Economic impacts under Alternative C would be similar to those under Alternative B. Alternative C would further reduce economic activity by closing 80 percent of the planning area to oil and gas leasing. As in the case of Alternative B, 19 wells are predicted under Alternative C, including 13 wildcat wells and 6 step-out wells. Eight wells would be productive (none in GRSG habitat), with 20.5 billion cubic feet of production (BLM 2015).



Alternative D—Implementing Alternative D would result 35 new wells—23 wildcat wells and 12 step-out wells; 16 wells are assumed to be productive. The reduction of two wells with respect to Alternative A would be expected for the Rogerson/Jarbidge area (Twin Falls County). Production capacity is predicted to be the same as Alternative A. The 16 productive wells would have the same economic impact as those under Alternative A (BLM 2015).

Alternative E—Under Alternative E, CHZ and IHZ in Idaho would be open to oil and gas leasing, subject to an NSO stipulation. Implementing Alternative E would have economic impacts most similar to Alternative B in Idaho, although with some increased off-limits acreage in IHZ. Implementing Alternative E would have economic impacts similar to Alternative A in Montana. Under Alternative E, wells could be drilled in the Dillon Field Office, consistent with the Dillon RMP. Under Alternative E, a predicted 19 wildcat wells and 10 step-out wells would be drilled, for a total of 29 wells (BLM 2015). The overall economic impact would be slightly less than under Alternative B, with an expected 11 wells producing (six in the Dillon Field Office area, MT, three of those in GRSG habitat, and five in Idaho, none in GRSG habitat).

As a result of implementing Alternative E, economic activity and associated output, employment, and earnings related to oil and gas production would be slightly more than under Alternatives B and C. Impacts of reduced oil and gas development would likely be mostly felt in Bear Lakes County, Idaho, and surrounding areas. Alternative E involves some restrictions to surface development to minimize impacts on GRSG habitat on existing leases, which would have minor economic impacts.

Alternative F—Economic impacts under Alternative F would be similar to the impacts under Alternatives B and C.

Proposed Plan—Under the Proposed Plan, as under Alternative E, PHMA and IHMA would be open to oil and gas leasing, subject to a No Surface Occupancy stipulation. Implementation of the Proposed Plan would have economic impacts most similar to Alternative E in Idaho; however, the impacts would be greater than Alternative E in Montana, due to the NSO stipulation under the Proposed Plan. Under the Proposed Plan, 15 wildcat and 6 step-out wells would be drilled, for a total of 21 wells (BLM 2015). The overall economic impact would be similar to Alternatives B and C, with eight wells producing. As a result of implementing the Proposed Plan, estimates of economic activity and associated output, employment, and earnings related to oil and gas production would be similar to Alternative B and C, with between six and nine annual direct jobs, \$450,000 to \$630,000 in annual earnings, and additional indirect jobs and earnings. Impacts of reduced oil and gas development would likely be felt more in Bear Lakes County, Idaho, Beaverhead County, Montana, and surrounding areas.

Impacts from Management of Phosphate and Locatable and Salable Minerals

As described in **Chapter 3**, the study area produces phosphate and the salable and locatable minerals Oakley stone, silver, sand, gravel, and some industrial minerals, such as

molybdenum. Areas with phosphate and Oakley stone production potentially overlap with GRSG habitat, which could have implications for mining in the long-term.

As discussed in **Chapter 3**, the three active phosphate operations in Idaho, at least a portion of which is mined from leases of federal minerals, are not in GRSG habitat. As shown in **Figure 3-13**, most of the about 48,500 unleased KPLA acres are in Caribou and Bear Lake Counties. Only three of these acres intersect with GHMA.

The Paris-Bloomington KPLA area, consisting of approximately 1,640 acres and located in Bear Lake County, is entirely in IHMA and PHMA. Of these 1,640 acres, federal minerals underlay 460 acres, 65 of which are leased (the only phosphate lease in GRSG habitat out of 86 federal phosphate leases in Idaho); 240 acres are under a prospecting lease, and, according to the BLM, a phosphate lease application for 35 acres will be submitted in the near future. All of this activity is associated with potential Paris Hills Phosphate project (BLM 2013h, 2014).

An estimated 40,000 tons of Oakley stone are mined annually from unpatented mining claims in southern Idaho and northern Utah, providing full-time employment for approximately 60 people and seasonal employment for an additional 100 to 200 laborers (BLM 2013h).

Many community pits of sand and gravel also fall within GRSG habitat. Economic activity associated with stone quarries and mineral materials disposal and sales could decrease under several of the GRSG habitat management alternatives (BLM 2013h).

Potential impacts from management actions in each alternative are detailed below.

Under Alternatives A and E, KPLAs would be open to phosphate mining. No additional lands would be withdrawn from locatable mineral entry (see **Section 4.10**, Locatable Minerals). No additional lands would be closed to mineral material disposal.

Alternatives B, C, and F would close PHMA to phosphate mining. Of the KPLAs, the only one affected would be in the Paris-Bloomington area. In December 2012, Stonegate Agricom announced positive results of its feasibility study for the development of an underground phosphate mine (known as the Paris Hills Phosphate project). The project has been estimated to have a life of 19 years, producing 16.7 million tonnes of phosphate rock ore (Agapito Associates, Inc. 2013). The proportion of these production projections that could be attributable to federal minerals is not known. However, to the extent that federal minerals account of a portion of estimated reserves, the closing of PHMA to leasing could remove up to 395 acres of federal mineral estate from being accessed (BLM 2015).

Valid rights associated with the current lease of 65 acres would prevent this area from closure, but any development would be subject to RDFs. As discussed in **Section 4.12** Nonenergy Leasable Minerals, this would limit surface disturbance, vehicle use, siting, and design of mineral development operations, in addition to imposing reclamation requirements. If implementing RDFs is not feasible once mining operations begin on this



existing lease, off-site mitigation may be required. Together these management actions could reduce phosphate recovered and increased costs of the project.¹ Impacts under Alternative D may be relatively less; while Alternative D closes PHMA and IHMA to future leasing and prospecting of phosphate, it allows for exceptions for lease modifications and fringe leases where valid existing rights may be affected.

With the exception of the Paris-Bloomington KPLA discussed above, no economic impacts on future phosphate development in other KPLA areas are expected, due to the minimal GRSG habitat in these areas.

The potential for phosphate production from federal lands outside of KPLAs is generally low. However, if this were to occur, prospecting or mining would be affected in areas outside of KPLAs that overlap with PHMA under Alternatives B, C, D, and F. This is because PHMA would be closed to phosphate development. Furthermore, under Alternative D, management actions in GHMA would restrict the exploration and development of nonenergy leasable minerals, including timing restrictions, specific stipulations, and possible off-site mitigation. These management actions could affect the cost of exploration and development of phosphate in GHMA. However, overall, potential economic impacts associated with phosphate-related activities under Alternatives B, C, D and F outside of KPLAs would be minimal, given the limited PHMA in areas of southeast Idaho where phosphate occurs.

Under the Proposed Plan, KPLAs would remain open to phosphate mining, as under Alternatives A and E. PHMA outside of KPLAs would be closed to leasing, subject to valid existing rights. As explained above, these actions would have minor economic impacts outside of KPLAs that overlap PHMA. RDFs would apply to existing leases during exploration and mine development and could have costs to operators to the extent that they differ from current practices.

Alternatives A, D, and E do not recommend any new withdrawals from locatable mineral development. Alternatives B, C, and F recommend withdrawing PHMA from locatable mineral development. These would be the most under Alternative C. The Proposed Plan recommends withdrawing SFA from locatable mineral development, resulting in more withdrawals or recommended withdrawals than Alternatives A and D, but less than B, C, and F. Under Alternatives B, C, and F and the Proposed Plan, withdrawals could have adverse economic impacts on specific communities to the extent that they reduce mineral development in the future. The extent of these economic impacts is not possible to estimate, given the information available. Withdrawal recommendations for areas over 5,000 acres are subject to congressional control, and a number of statutory requirements would need to be satisfied.

Alternatives A and E would keep GRSG habitat open to mineral materials disposal. Under Alternatives B, C, and F mineral material disposal would be closed in PHMA. Restoration of

¹As of January 26, 2015, Stonegate Agricom has temporarily suspended permitting activities on this project due to financial constraints (Stonegate Agricom 2015).

salable mineral pits no longer in use would be required to meet GRSG conservation objectives (see **Section 4.11**, Mineral Materials). Alternative D closes fewer acres to mineral material disposal but does include restrictions across all GRSG habitat. Specifically, no new mineral material pits would be authorized within 2 miles of an occupied lek, and mineral disposal in GRSG habitat would be subject to timing restrictions. Alternative D would also require restoration of salable mineral pits no longer in use and would require reclamation bonds for new (commercial or nonprofit) authorizations in PHMA.

The Proposed Plan would close all PHMA to salable minerals, and its economic impacts would be most similar to Alternative B. Restrictions in accessing mineral materials increase their cost to local users, particularly local governments, because mineral materials would have to be transported over greater distances. Transportation costs are a major component of the total price of mineral materials.

Economic activity associated with management of phosphate, locatable minerals, and salable mineral materials would be the same for Alternatives A and E, slightly lower under Alternative D (due to reduced exploration activity), lower still under Alternatives B and F, and lowest under Alternative C. The Proposed Plan would have impacts similar to Alternatives A and E for phosphate development, to Alternatives B and F for locatable mineral development, and Alternative to B for salable mineral development. Any adverse impacts on mining under Alternatives B, C, and F and the Proposed Plan would most likely be felt in counties such as Caribou, where the mining industry is an important economic contributor, and Cassia, where mineral activity overlaps GRSG habitat.

Impacts from Management Actions Affecting Geothermal Exploration and Development

Economic impacts from geothermal exploration and development are a function of construction and operation expenditures for geothermal electricity development, including drilling wells, constructing power plants, and operating facilities. As of 2013, there were 25 federal geothermal leases, covering approximately 60,000 acres in Idaho, primarily near Raft River, Crane Creek, and Parma; 17 were in GRSG habitat (BLM 2013i).

Over the next 20 years, the BLM expects geothermal exploration to occur in six parts of the planning area. Two power plants would be possible, in the Raft River and Crane Creek areas.

Alternative A—Under Alternative A, the BLM predicts geothermal exploration and development would include 21 new exploratory (temperature gradient) wells, with 18 production wells and 12 injection wells. The Burley Field Office has received applications to drill up to 18 wells on federal leases in the Raft River area. Of these wells, 10 would be production wells and 8 would be used for injection. Twelve wells would be drilled at Crane Creek, in Washington County (seven production and five injection wells); however, no activity has occurred on those leases since around 2010. Both these areas are within GHMA and have stipulations to protect GRSG habitat. No other areas are forecasted for geothermal development. Mitigation on existing leases can include the RDFs identified under Alternative D without affecting valid existing rights. Alternative A would not impact economic activity associated with geothermal leases, relative to current management trends.



Alternative B—Under Alternative B, lands in PHMA would be closed to geothermal leasing, exploration, and development. Existing leases at Raft River and Crane Creek are in PHMA. The lands north and west of the Raft River leases and the federal lands surrounding the Crane Creek leases would be closed to future leasing outside the existing leases. For Alternative B, the RFDS forecasts that 18 temperature-gradient wells would be drilled and fewer seismic operations would be allowed than under Alternative A. Implementing Alternative B would result in the same number of production and injection wells as Alternative A because there are valid rights on the existing leases. The economic impact would be slightly reduced relative to Alternative A due to the reduced local expenditures associated with drilling exploratory wells.

Alternative C—Under Alternative C, lands in all GRSG habitat would be closed to leasing; existing leases would be relinquished if doing so would mitigate the impact of a proposed development, or if relinquishment would mitigate the unanticipated impacts of an approved development (see MLS-9). Terminating leases would directly impact valid existing rights. No wells would be drilled at Raft River or Crane Creek. The reduced drilling and production would have an adverse economic impact in the form of reduced local employment and earnings in the counties of Cassia and Washington and surrounding areas. The federal government would not realize any production royalties.

Alternative D—Under Alternative D, the number of wells would be the same as under Alternative A, because no lands with moderate to high geothermal potential would be closed and no leases would be terminated. Applying RDFs imposed under Alternative D to post-lease actions would not result in additional economic impacts, compared to Alternative A.

Alternative E and Proposed Plan—Under Alternative E and the Proposed Plan, CHZ/PHMA and IHZ/IHMA would be open to geothermal leasing, subject to an NSO stipulation. Existing leases at Raft River and Crane Creek lie within GHZ/GHMA under these alternatives and, therefore, would not be affected. There is some IHZ/IHMA immediately north of leases at Raft River and there would be increased off-limits acreage in IHZ/IHMA at Crane Creek. Implementing Alternative E and the Proposed Plan would have economic impacts slightly greater than those of Alternative B due to a slightly greater reduction in expected exploratory wells. Alternative E and the Proposed Plan also have some restrictions on surface development on existing leases to minimize impacts on GRSG habitat. This would have minor potential costs to operators. However, the BLM can impose these same RDFs to proposed actions on existing leases under Alternative A.

Alternative F—Economic impacts under Alternative F would be similar to the impacts under Alternative B.

The greatest impact on economic activity associated with geothermal development would be expected under Alternative C, where drilling and production in GRSG habitat would be substantially reduced, impacting local employment and earnings in the counties of Cassia and Washington and surrounding areas. Under Alternatives A and D, current trends in geothermal development would be maintained. There would be a slight reduction in economic activity associated with geothermal exploratory drilling under Alternatives B and F

relative to Alternative A, and slightly greater reductions under Alternative E and the Proposed Plan. However, existing leases would not be affected.

Impacts from Management Actions Affecting Wind Energy Development

The amount of future wind development in the study area is uncertain. China Mountain, in Twin Falls, Idaho, for wind energy development in the study area was recently removed. Current wind energy development in the study area is only one project, Bell Rapids, near Hagerman, Idaho, with a proposed capacity of 40 MW. Using estimates of the economic impact of the China Mountain project as a reference (BLM 2011b), scaled proportionally to the size of the project that would be built on BLM-administered lands (i.e., about one-tenth the size of the figures reported in the China Mountain Wind Project Draft EIS), then the Bell Rapids project would generate about 75 jobs for a two-year construction duration and about five long-term annual full-time jobs during operations. These estimates include direct, indirect, and induced positions. The jobs in the Bell Rapids project would most likely be in Elmore and Gooding Counties, based on the location of that project.

Based on the RFDS for wind energy, under Alternatives A and F, this level of development would be maintained. The BLM anticipates that Alternatives B, C, and D and the Proposed Plan may prevent wind energy development entirely. In this case, the planning area would see a loss of jobs equal to what is described above. Alternative E could limit future wind energy development, with some development possible, depending on fulfillment of criteria established by the alternative. Thus, Alternatives B, C, and D and the Proposed Plan would lower annual output, employment, and earnings related to wind energy development compared to Alternatives A and F. This may also be the case under Alternative E.

Impacts from Management Actions Affecting Land and Realty and Travel Management

Management actions that affect development of infrastructure could have important hindering effects on employment and earnings in the area. Limitations on new ROWs for power lines, pipelines, and access routes or restrictions to route construction and to travel on existing roads could increase the cost of new economic investments or make them no longer economically viable. (Additional information about changes in cost effectiveness and efficiency associated with restrictions on ROWs, corridors, and treatments are discussed in **Section 4.7**, Lands and Realty, and **Section 4.3**, Vegetation.) A qualitative discussion of the potential for economic impacts from restrictions on land use and transportation is provided below for each alternative.

Alternative A—Alternative A would place the fewest restrictions on ROW development and route construction and would maintain the most area open to travel, among the alternatives. According to RFDS developed by BLM specialists, of the proposed 516 miles of new 500-kV transmission lines, approximately 100 miles could be built under Alternative A.

Alternative B—Alternative B could result in adverse impacts on economic activity related to lands and realty and travel management by closing areas to ROW authorizations, limiting OHV travel on existing roads, and limiting new road construction in areas with primary GRSG habitat. In addition to restricted economic activity associated with road use and



development restrictions, economic impacts would include increased costs associated with mandatory mitigation for surface disturbance that exceeds 3 percent for the area. Based on the RFDS, the BLM projects no new transmission lines under Alternative B. Alternative B would impose greater limitations and added costs to future economic investments in the study area, compared with Alternative A.

Alternative C—Under Alternative C, economic impacts on lands and realty and travel management would be the same as under Alternative B, although a larger area would be excluded for development.

Alternative D—Alternative D would result in economic impacts slightly less than those under Alternatives B and C. Alternative D would apply similar restrictions on OHV travel, except the restrictions would apply to GHMA as well as PHMA. However, unlike Alternatives B and C, Alternative D would not impose costs related to mandatory mitigation for surface disturbance. Costs resulting from restricting infrastructure development under Alternative D would be greater than under Alternative A but less than under Alternatives B and C.

Alternative E—Management under Alternative E would have similar impacts than under Alternative A and fewer impacts than under Alternatives B, C, and D. However, Alternative E considerably increases the land area subject to avoidance, when compared to Alternative A. The BLM estimates that Alternative E could result in some new transmission lines, depending on whether the proposed projects meet established criteria. New linear developments could, however, face increased costs due to the avoidance stipulations that may impose alternative alignments or mitigation measures.

Alternative F—Economic impacts from Alternative F would be similar to those under Alternatives B and C, except that Alternative F would limit OHV travel in restoration areas, as well as primary habitat, and would prohibit new road construction within a 4-mile buffer from leks. However, the BLM does expect that development of transmission lines would be similar to that under Alternative A, with 100 miles of new transmission lines in the foreseeable future.

Proposed Plan—Under the Proposed Plan, development of major ROWs in PHMA would be avoided, rather than excluded as they would be under Alternative D. This could result in fewer adverse impacts on ROWs, as more acres would be available for major ROW development under the Proposed Plan versus Alternative D. The Proposed Plan would have impacts similar to Alternatives E and fewer impacts than under Alternatives B, C, D, and F. As under Alternative E, the BLM estimates that some new transmission lines could be built, depending on whether the proposed projects meet established criteria. However, new developments could face increased costs due to the avoidance stipulations that may impose alternative alignments or mitigation measures.

Under Alternatives B, C, E, and F and the Proposed Plan, agencies would aim to remove, bury, or modify existing power lines in PHMA. Under Alternative D, new power and communication lines (50 kV or less) outside of existing ROWs would be buried, where

physically feasible. During the reauthorization of existing distribution lines, the physical feasibility of burying lines would also be considered. These Alternative D management actions would apply to PHMA, IHMA, and GHMA.

All the action alternatives include restrictions in habitat that might require all new ROW or SUA routes to be modified or to undergo mitigation. Some public comments on the Draft LUPA/EIS were concerned with the costs of these measures and potential impacts on rate payers. Unit cost information for constructing transmission lines provides context for potential impacts of relocating or rerouting a transmission line. A 2012 WECC study provides information on transmission line costs per mile, ranging from \$927,000 to \$2,967,000, depending on voltage and whether lines are single or double circuit lines. The same study provides cost multipliers for difficult terrains, reaching up to 2.25 in the case of forested lands (WECC 2012). New construction of underground transmission lines can be between 4 and 14 times higher (PSC 2011), depending on terrain, although burying existing lines would be a fraction of the cost of new lines. Burying distribution lines would be considerably less, averaging under \$500 per mile in rural areas (EIA 2012).

According to the Energy Information Administration, on average in the United States, transmission costs account for approximately 11 percent of the cost of energy bills, and distribution costs account for 31 percent, with the remaining being power generation costs (EIA 2013). Because utility providers pass on costs to their ratepayers, per-customer rate impacts would be greater where the ratepayer base is smaller, all else being equal (i.e., given an identical fixed cost associated with burial of transmission lines). Areas with smaller, local utility providers with fewer ratepayers would be required to absorb a greater proportion of the costs of relocation or rerouting compared to areas serviced by larger, multistate providers.

In summary, the most restrictions on economic activity relative to Alternative A, associated with land and realty development and travel management, would be expected to occur under Alternatives B, C, and F, with slightly less restrictions under Alternative D, and less still under Alternative E and the Proposed Plan.

Impacts from Management Actions Affecting Special Status Species Other Values Associated with Populations of GRSG

As described in **Chapter 3**, economists and policymakers have long recognized that rare, threatened, and endangered species have economic values beyond those associated with viewing and hunting. **Chapter 3** and **Appendix BB** document current methods to estimate these “non-use” values, including a description of the literature review that the BLM and Forest Service conducted to determine if there were existing non-use value studies for GRSG. Although there are no existing studies on valuation specific to the GRSG, several studies published in peer-reviewed scientific journals for bird species with similar characteristics find average stated willingness-to-pay between \$15 and \$58 per household per year in order to restore a self-sustaining GRSG population or to prevent regional extinction (see **Appendix BB** for details). These values represent a mix of use and non-use values, but the non-use components of value are likely to be the majority share since the studies primarily address species that are not hunted.



Because GRSG protection is a public good available to all households throughout the Intermountain West, if similar per-household values apply and if even a small portion of the per-household value represents a non-use value, then the aggregate regional non-use value could be substantial. However, the BLM and Forest Service did not quantify the aggregate value. This was because of the uncertainty of comparing existing studies to the GRSG context and the documented difference between stated and actual willingness-to-pay.

From a qualitative perspective, however, the non-use values associated with populations of GRSG would correspond to the degree of habitat protection associated with each alternative. Current management, Alternative A, provides the least protection for GRSG in the planning area and consequently could result in the most adverse impacts on GRSG. As a result, to the degree that there are non-use values associated with populations of GRSG, management under Alternative A would have the greatest adverse impacts on those values.

As discussed in **Section 4.2**, Sage-Grouse and Sage-Grouse Habitat, most of the management actions under the alternatives would be beneficial for GRSG. It is therefore estimated that, compared to Alternative A, each alternative would have a positive impact on non-use values associated with GRSG. However, because vegetation and soils management, livestock grazing management, fire and fuels management, recreation management, renewable energy development impact the protectiveness of each alternative, it is difficult to anticipate the comparative protection, and therefore non-use values, provided by Alternatives B through F.

Impacts on Tax Revenues and Payments to States and Counties

Reductions in economic activity could reduce tax revenues for local, state, and federal governments. At the state level, this could take the form of reductions in mineral severance taxes, mining taxes, sales and use taxes, or personal and corporate income taxes. At the local level, revenues could be reduced if property or sales taxes were to decrease.

As described in **Section 3.22**, Social and Economic Conditions (Including Environmental Justice), most Idaho state revenues come from sales and use taxes, income taxes, and property taxes. Most of Montana's state revenues come from individual income taxes and severance taxes, including oil and gas production taxes, although most of the mineral production in Montana is outside the planning area. Idaho's overall economic output, which provides a measure of its sales tax base, was almost \$53 billion in 2010 dollars. Montana had a 2010 gross state product of almost \$35 billion in 2010 dollars (BEA 2013).

Based on the information available, it is not possible to quantify potential impacts of management alternatives on tax revenues as a share of state overall tax bases or tax collections. However, local government tax revenues could be affected in areas that would experience considerable changes in economic activity. As described in **Section 3.22**, Idaho counties receive most of their revenue from property taxes, charges for local services, and redistribution of state and federal resources; in Montana, local government tax collections come almost entirely from property taxes. In both Idaho and Montana, counties receive a portion of royalties from mining on federal land, as well as fees for grazing, recreation, and rents of ROW and oil and gas tax.

Although specific impacts on local government tax revenues could not be quantified, the anticipated changes (both positive and negative) in economic activity as a result of the various alternatives suggest that local tax revenues could be affected more in certain counties than in others, particularly Cassia, Gooding, Jerome, Lincoln and Owyhee Counties, in Idaho, because of impacts on grazing.

4.15.4 Social Impacts

Impacts from Management Actions Affecting Migration Population

The decrease in employment opportunities in the study area that would occur under Alternative C from the adverse impacts on farming, corresponds to less than 0.45 percent of the current employment in the study area (**Table 4-88**). The BLM and Forest Service do not expect this change in employment to be sufficiently large to induce perceptible changes in population in any particular county, or to impact the capacity of counties in the study area to attract and retain its labor force, with implications for population growth. It is possible that, within counties, specific communities highly dependent on livestock operations could lose sufficient employment opportunities under Alternative C to affect their capacity to attract and retain labor, affecting in turn their population growth trends.

Housing and Public Services

Housing demand would not be affected in a substantial way by any of the alternatives. No alternative would sufficiently increase employment opportunities to generate an inflow of new population to any specific county, affecting housing demand in the communities' capacities to provide the demand for housing or associated public services. However, the abilities of counties to supply public services could be reduced, particularly under Alternative C, in accordance with potential reductions in local tax revenues. State tax revenues would not be affected substantially, as documented in the section on fiscal conditions.

Impacts from Management Actions Affecting Specific Groups and Communities

Consistency with County Land Use Plans

The decision under consideration may amend BLM and Forest Service LUPs throughout the study area. BLM GRSG habitat mapping does not necessarily coincide with mapping made by counties (e.g., Custer County) due to differences in mapping methods. Also, the Custer County GRSG plan does not recognize livestock grazing as a threat to GRSG habitat. Under FLPMA, the BLM and Forest Service management plans and LUPs must be consistent with state and local LUPs, to the extent possible and within the context of other mandates of the BLM and Forest Service. Any potential amendments would aim to maintain consistency to the degree possible. This would be the case under all alternatives.

Interest Groups and Communities of Place

As described in **Chapter 3**, there is a range of groups in the study area with overlapping and divergent interests. Groups centered on recreation, livestock grazing, mining, land development, infrastructure development, business development, and conservation of natural resources would be impacted differently by the management alternatives. The interest



groups most likely to be affected by the choice of alternative are those associated with livestock grazing and wildlife conservation.

Specific communities would be impacted in different ways by the management alternatives. Communities with more diversified economies, and particularly those less dependent on livestock grazing, would likely be less impacted.

The BLM and Forest Service reviewed the scoping report and the notes from the regional economic strategies workshop to identify any comments related to specific communities that may be particularly affected by various management alternatives. Multiple commenters discussed concerns specific to the Magic Valley in Idaho and Twin Falls County, in particular. The commenters identified the importance of grazing for the local economy (BLM and Forest Service 2012). With respect to grazing management actions in other communities, comments included requesting that that BLM consider maintaining livestock operations in the Jarbidge Planning Area and that it preserve customary agricultural use in Custer County (BLM and Forest Service 2012).

A few commenters expressed concern with potential impacts of management alternatives on recreation, including that in Owyhee County and Blaine County. As previously discussed, the BLM and Forest Service do not expect overall levels of visitation to recreation areas on BLM-administered and National Forest System lands to differ among management alternatives. One commenter identified Clark County, Idaho, as a vulnerable area, explaining that 75 percent of it is publicly owned. The commenter expressed concern that restrictions on use of BLM-administered and National Forest System lands could have negative consequences for Clark County residents (BLM and Forest Service 2012).

The BLM and Forest Service also reviewed public comments made on the Draft LUPA/EIS for specific concerns about impacts on individual counties and towns or specific interest groups. Several commenters expressed concern with impacts of management alternatives on livestock operations and mining and their effects on local communities. For example, Custer County was highlighted as having an economy based on mining and agriculture/ranching, with any GRSG management plans on grazing having potentially serious impacts on the viability of individual farms or the history and culture of the community.

Several commenters focused on the importance of phosphate to southeastern Idaho. Others expressed in general terms that the analysis of impacts should be done at a level of specific counties or communities. Additional analysis will be done during implementation of resource management plans and land use plans to properly assess the geographically localized impacts of management actions that many commenters are concern with.

Alternatives C and F would have the most adverse impacts on livestock grazing operators throughout the study area. Economic impacts would be most felt in those counties where livestock operations are a greater share of employment and earnings; nevertheless, individuals and interest groups associated with livestock grazing could be affected in all counties where GRSG habitat intersects with areas commonly used for grazing. In some communities (e.g., Caribou and Custer Counties, Idaho), Alternatives C and F could have

adverse impacts through their effects on mining. Conservation interests could benefit under these management alternatives. Communities would likely be impacted differently by each alternative, depending on the balance of economic activities and social values in each community.

Summary of Social and Economic Impacts

Alternative actions evaluated in this EIS consist of different packages of conservation measures that include land use restrictions, management practices or design features, habitat priorities or desired conditions, and monitoring protocols. These conservation measures, in aggregate, are intended to address threats to and provide protection of GRSG (see **Chapter 2**).

This section has evaluated the social and economic impacts of conservation that addresses threats from specific land and resource uses (e.g., grazing and minerals) that are linked to social and economic conditions (e.g., employment). There are other conservation measures included in the alternatives (to varying degrees) that address other threats. Examples of these threats are fire, invasive plants, and vegetation (e.g., pinyon-juniper) encroachment on GRSG habitat, which would have direct impacts on local economies and on broader GRSG conservation benefits. However, the extent of these impacts is not known due to uncertainty, such as the occurrence of fire. Therefore, while the regional economic impacts of these conservation measures were not evaluated in this section, they would not only play a critical and complementary role in helping meet the goal of effectively protecting GRSG from a full spectrum of threats, but also would support local economic activity.

The discussion and tables below summarize the range of potential social and economic impacts that may occur as a result of the subset of conservation measures that affect land or resource uses linked to readily identifiable social or economic conditions.

Table 4-88 provides a summary of potential economic effects of management alternatives in the study area. Alternative A represents impacts associated with current management.



Table 4-88
Economic Impacts Relative to Alternative A

	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Proposed Plan
Grazing	Potential operational costs or reduced efficiencies	-1,420 jobs (0.54% of 2010 baseline) and -\$50.1 million in earnings (0.29% of 2010 baseline)	Potential operational costs or reduced efficiencies	Potential operational costs and/or reduced efficiencies	-310 jobs (0.12% of 2010 baseline) and -\$10.8 million in earnings (0.06% of 2010 baseline)	Potential operational costs and/or reduced efficiencies
Oil and Gas	50% reduction in employment and earnings from production of federal minerals in GRSG habitat	50% reduction in employment and earnings from production of federal minerals in GRSG habitat	No reduction in employment and earnings relative to Alternative A	Reduction in employment and earnings relative to Alternative A less than under Alternatives B, C, F or Proposed Plan	50% reduction in employment and earnings from production of federal minerals in GRSG habitat	50% reduction in employment and earnings from production of federal minerals in GRSG habitat
Phosphate	Reduced employment and earnings from phosphate mining in the Paris Hills KPLA	Reduced employment and earnings from phosphate mining in the Paris Hills KPLA	No impact on KPLAs	No impact on KPLAs	Reduced employment and earnings from phosphate mining in the Paris Hills KPLA	No impact on KPLAs
Locatable Minerals	Withdrawal recommendation in PHMA could limit future potential employment and earnings	Withdrawal recommendation in PHMA would have the greatest potential impact on employment and earnings	No impact relative to Alternative A	No impact relative to Alternative A	Same as Alternative B	Withdrawal recommendation in SFA would have less potential impacts than Alternatives B, C and F, more than A, D and E
Mineral Materials	Increased costs to local users with closure of PHMA to mineral material disposal	Same as Alternative B	Potential increase in costs to local users due to restrictions across GSRG habitat, but less than Alternative B	No impact relative to Alternative A	Same as Alternative B	Same as Alternative B

Table 4-88
Economic Impacts Relative to Alternative A

	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Proposed Plan
Geothermal	Reduction in employment and earnings from geothermal development in GRSG habitat on BLM and FS managed lands	Most reduction in employment and earnings from geothermal development in GRSG habitat on BLM and FS managed lands	No reduction	Less reduction in employment and earnings from geothermal development when compared to Alternatives B and F	Reduction in employment and earnings from geothermal development in GRSG habitat on BLM and FS managed lands	Less reduction in employment and earnings from geothermal development when compared to Alternatives B and F
Wind	May prevent employment and earnings from wind energy development in GRSG habitat on BLM and FS managed lands	May prevent employment and earnings from wind energy development in GRSG habitat on BLM and FS managed lands	May prevent employment and earnings from wind energy development in GRSG habitat on BLM and FS managed lands	Potential reduction in employment and earnings from wind energy development relative to Alternative A	No impact relative to Alternative A	May prevent employment and earnings from wind energy development in GRSG habitat on BLM and FS managed lands
Lands and Realty and Travel Management	Most potential for reduced employment and earnings from ROW investments and increased costs from travel management restrictions on GRSG habitat on BLM and Forest Service managed lands	Most potential for reduced employment and earnings from ROW investments and increased costs from travel management restrictions on GRSG habitat on BLM and Forest Service managed lands	Less potential for reduced employment and earnings from ROW investments and increased costs from travel management restrictions on GRSG habitat on BLM and Forest Service managed lands	Least potential for reduced employment and earnings from ROW investments and increased costs from travel management restrictions on GRSG habitat on BLM and Forest Service managed lands	Most potential for reduced employment and earnings from ROW investments and increased costs from travel management restrictions on GRSG habitat on BLM and Forest Service managed lands	Least potential for reduced employment and earnings from ROW investments and increased costs from travel management restrictions on GRSG habitat on BLM and Forest Service managed lands

Source: Impacts for grazing calculated using the IMPLAN model, as explained in the text and in **Appendix AA**, Economic Impact Analysis Methodology. Grazing values are the mid-point between the low and high impact scenarios. Percent of 2010 baseline is calculated from value of impacts and baseline information provided in **Section 3.22**, Social and Economic Conditions (Including Environmental Justice). Earnings values are in millions of year 2010 dollars.

Impacts associated with grazing would occur throughout the study area, with concentrations in Cassia, Gooding, Jerome, Lincoln, and Owyhee Counties in Idaho. Impacts associated with reduced oil and gas development would likely be mostly felt in Bear Lake County, Idaho, Beaverhead County, Montana, and surrounding areas. Impacts associated with phosphate would be felt mostly in Bear Lake County. Impacts associated with geothermal development would most likely be felt Cassia and Washington Counties and surrounding areas. Employment associated with the Bell Rapids wind project would most likely be in Elmore and Gooding Counties, based on the location of that project. Impacts associated with lands and realty and travel management would likely be dispersed throughout the study area.

Other impacts not discussed in **Table 4-88** are potential impacts on salable minerals (dispersed throughout the study area), locatable minerals (potentially around counties such as Caribou and Cassia), and state and local tax revenues (largely tied to economic output and earnings, affected as described above).

The BLM and Forest Service do not expect changes in employment in the study area under any of the alternatives to be sufficiently large to induce perceptible changes in population in any particular county. Similarly, no increased demand for housing or public services is expected that could not be accommodated by current trends.

Communities with strong interest groups revolving around conservation and primitive recreation could experience benefits from Alternatives B, C, D, E, and F and the Proposed Plan. Communities with strong interest groups focused on livestock grazing would likely experience the most adverse impacts from Alternatives C and F.

Table 4-89 summarizes the social impacts of the management alternatives.

Table 4-89
Social Impacts Relative to Alternative A

	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Proposed Plan
Population growth; demand for housing and public services	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Consistency with county LUPs	No impact	No impact	No impact	No impact	No impact	No impact
Impacts on interest groups and communities of place	Between E and F	Most benefits to conservation groups; adverse impacts on grazing interests	Similar to B	Most benefits to grazing interests after Alternative A, similar to the Proposed Plan	Some benefits to conservation groups; adverse impacts on grazing interests	Similar to B

Non-market benefits from the management alternatives would be derived from the ability of the full spectrum of conservation measures to conserve, enhance, or restore GRSG habitat by reducing, eliminating, or minimizing threats. Furthermore, as discussed, alternatives also specify different types and levels of mechanisms to guide when and where conservation measures, design features, and treatments are implemented. Examples of these mechanisms are disturbance caps, adaptive management protocols, and desired conditions or objectives, and they will have an important influence on the overall effectiveness and efficiency of the alternatives.

The magnitude of benefits associated with stabilizing or improving GRSG populations or habitat has not been monetized or quantified. This is due to the absence of specific data on the values of non-market benefits of GRSG and uncertainty about quantifying projected responses of GRSG habitat and populations to conservation measures.

A qualitative evaluation of the benefits from potential changes in GRSG populations and habitat resulting from the subset of conservation measures addressing land and resource uses and extraction, as evaluated in this section, indicates alternatives have the following capability to protect or improve benefits from GRSG:

- Alternative A has the lowest capability
- Alternative B has greater capability than A, but lower capability than Alternative F
- Alternative C has the greatest capability
- Alternative D has greater capability than Alternatives A, B, or E but less than Alternatives C and F
- Alternative E has the second lowest capability after Alternative A
- Alternative F has second greatest capability after Alternative C
- The Proposed Plan has greater capability than Alternatives A, B, D, and E but less than Alternatives F and C

In addition to the conservation measures directly associated with social or economic impacts considered in this section, there are other conservation measures that address other threats (e.g., fire, nonnative plants, and encroachment). These also contribute to GRSG and GRSG habitat protection and corresponding benefits that are not addressed here. (For a complete description of potential improvements in GRSG habitat protection resulting from the full spectrum of conservation measures under each alternative, see the effects summary tables in **Chapter 2**.) Social and economic impacts cannot be considered in isolation or exclusive of other impact indicators discussed in this EIS.

4.15.5 Environmental Justice Impacts

The BLM and Forest Service considered information on the presence of minority and low-income populations (from **Chapter 3**), along with additional information, described in this



section, to assess the potential for disproportionately high and adverse impacts on minority or low-income populations. Although conservation measures would be implemented consistently across all identified habitat, with no discrimination over particular populations, environmental justice guidance requires agencies to consider also whether their actions could unintentionally result in disproportionately high and adverse effects.

To help guide the analysis of potential environmental justice impacts, the BLM and Forest Service considered the information gathered in the economic strategies workshop that was conducted in June 2012. That workshop was convened to identify public concerns related to potential social, economic, and environmental justice impacts that could result from the management alternatives. The BLM and Forest Service also reviewed the scoping report for the present EIS to identify any comments related to environmental justice issues. None of the public comments received during that workshop or presented in the scoping report called out a specific concern related to minority populations (BLM and Forest Service 2012; BLM 2013d).

Potential Impacts on Minority Populations

As discussed in **Chapter 3**, CEQ guidance identifies a community or a specific population group as a minority population when either minorities in the affected area exceed 50 percent of the total population or the percentage of minorities in the affected area is meaningfully greater than the percentage in the general population or appropriate unit of geographical analysis. Based on the description of minority presence in the study area in **Chapter 3**, several counties have minority presence considerably above that of the state as a whole. Examples are Clark County, Idaho, whose minority population is 42.9 percent of its total population; Minidoka County, Idaho (34.6 percent); and Power County, Idaho (34 percent).

In total, 14 counties of the study area in Idaho (and neither of the counties in Montana) have a higher percentage of minority presence than the state as a whole. For the purposes of this LUPA/EIS, all 14 counties were considered minority populations: Bingham, Blaine, Cassia, Clark, Elmore, Gooding, Jerome, Lincoln, Minidoka, Owyhee, Payette, Power, Twin Falls, and Washington.

The extent to which existing minority populations are disproportionately impacted by high and adverse human health or environmental effects depends on two factors: the existence of high and adverse human health or environmental effects on any of the resources analyzed, and whether minority populations are particularly vulnerable to these impacts or are more likely to be exposed to such impacts.

Adverse impacts of alternatives were identified under the various resources analyzed and are described in their respective sections of **Chapter 4**. None of the alternatives could be considered to have a high and adverse impact on the study area as a whole.

The BLM and Forest Service considered the possibility that adverse impacts could be concentrated in few counties in the study area and could then constitute a high and adverse impact in those counties. As previously noted, losses of employment and earnings related to grazing would be particularly important for Cassia, Gooding, Jerome, Lincoln, and Owyhee

Counties, where over 20 percent of earnings are attributable to livestock farming. For the purposes of this LUPA/EIS, each of these counties is considered a minority population. If grazing impacts, particularly under Alternative C, were high and adverse in these counties, Alternative C would disproportionately impact minority populations. Employment impacted through grazing under Alternative C was estimated in 1,420 jobs. This represents about 3.6 percent of the total employment in these five counties. However, based on the intersection of GRSG habitat and the study area, grazing impacts would not likely be concentrated in these five counties alone; thus no disproportionately high and adverse impacts on these minority populations would occur.

One issue of potential concern relates to interests of Native American tribes. The planning area is within the traditional or historical use area of several tribes (see **Section 3.18**, Tribal Interests). Members of these tribes hunt on federal lands outside of the boundaries of their reservations. Although hunting would be impacted in certain areas under some management alternatives, the proposed management actions would not affect the overall tribes' ability to hunt in the study area, so no disproportionately high and adverse impact would be expected.

Based on available information about the nature and geographic incidence of impacts, neither specific minority populations nor tribal populations would be exposed to disproportionately high and adverse impacts under any of the management alternatives considered.

Potential Impacts on Low-Income Populations

Fifteen of 29 of the counties in the study area have a concentration of low-income populations that exceeds the state average, as discussed in **Chapter 3**: Bear Lake, Bingham, Butte, Camas, Cassia, Custer, Gem, Gooding, Jerome, Lemhi, Lincoln, Madison, Owyhee and Payette counties in Idaho and Beaverhead in Montana. For the purpose of this LUPA/EIS, all these counties were considered low-income populations. It is also possible that there are smaller communities in the remaining counties that constitute low-income populations, given the large geographic spread of each county.

The extent to which low-income populations are disproportionately impacted by high and adverse human health or environmental effects depends on two factors: the existence of high and adverse human health or environmental effects from management alternatives on any of the resources analyzed, and whether low-income populations are specifically vulnerable to these impacts or more likely to be exposed to such impacts.

Similar to the analysis for minority populations, the BLM and Forest Service reviewed the impacts of alternatives described in the respective sections of **Chapter 4**. None of the alternatives could be considered to have a high and adverse impact on the study area as a whole. As previously explained, the BLM and Forest Service found no evidence that impacts would be sufficiently concentrated in a few counties to constitute high and adverse impacts. Based on available evidence, there would be no disproportionately high and adverse impacts on low-income populations in the study area.



Table 4-90 provides a summary of the findings of this analysis with respect to disproportionately high and adverse effects of the alternatives.

**Table 4-90
Environmental Justice Impacts**

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Disproportionately high and adverse impacts on minority populations	No impact					
Disproportionately high and adverse impacts on low-income populations	No impact					

4.16 The Relationship Between Short-Term Uses of the Human Environment and Maintenance and Enhancement of Long-Term Productivity

This section compares the potential temporary effects of the alternatives analyzed in this LUPA/EIS on the environment with the potential effects on its long-term productivity. The BLM and Forest Service must consider the degree to which the action alternatives would sacrifice a resource value that might benefit the environment in the long term for some temporary value to the proponent or the public.

Implementation of the action alternatives would restrict the use of the environment for mineral extraction, energy projects, livestock grazing, recreation, and lands and realty authorizations. These restrictions would protect soils, vegetation, water quality and supplies, air quality, and visual resources. These measures would also maintain the storage of any such mineral or energy resources for potential future use beyond the time frame of the restrictions outlined in the action alternatives.

For as long as the LUPA is valid, regional economies could experience decreased economic activity from these restrictions. This is because there would be decreases in income-generating livestock grazing and fewer employment opportunities related to construction and energy extraction. However, such economic activity could be restored to these lands through future changes in their management, with a subsequent NEPA analysis.

Implementation of the Alternative A would require fewer resource protections and would allow for greater productivity of the lands.

4.17 Irreversible and Irretrievable Commitment of Resources

NEPA Section 102(2)(C) and Section 1502.16 of the CEQ NEPA implementing regulations require that the discussion of environmental consequences include a description of "...any irreversible or irretrievable commitment of resources which would be involved in the proposal should it be implemented."

An irreversible commitment of a resource is one that cannot be reversed or cannot be renewed within a reasonable time frame. Extinction of a species or disturbance to cultural resources would constitute irreversible impacts, as would extraction of sand, gravel, or oil or gas because these minerals cannot be renewed in the ground within a reasonable time frame.

An irretrievable commitment of a resource occurs when the resource or its use is lost for a period. For example, a decision not to treat juniper encroachment into adjacent sagebrush habitat results in the irretrievable loss of forage production from the grassland community. This action is not irreversible because a treatment applied to the encroaching juniper could restore the forage production of the sagebrush habitat.

The decision to select one of the seven alternatives described in this Proposed LUPA/FEIS does not constitute an irreversible or irretrievable commitment of resources because the decision does not authorize implementation-level activities. Instead, decisions made under the selected alternative serve to guide future actions and subsequent site-specific decisions. Following the signing of the ROD for the LUPA, the BLM and Forest Service will develop and implement implementation plans (activity- or project-specific). Implementation decisions require appropriate project-specific planning and NEPA analysis and constitute BLM and Forest Service final approval authorizing on-the-ground activities to proceed. Overall, the action alternatives analyzed in this EIS are protective of resources over existing conditions and would not subject any of them to irreversible or irretrievable commitments.

4.18 Unavoidable Adverse Impacts

NEPA Section 102(C) also mandates disclosure of “any adverse environmental effects which cannot be avoided should the proposal be implemented.” These are impacts for which there are no mitigation measures or impacts that remain even after the implementation of mitigation measures.

Implementation of the LUPA along the theme of the action alternatives would not result in unavoidable adverse impacts on any resources. Conversely, proposed restrictions on some activities, such as OHV use, energy development, and livestock grazing intended to protect sensitive resources and resource values, would result in unavoidable adverse impacts on some users, operators, and permittees by limiting their ability to use BLM-administered and National Forest System lands and potentially increasing their operating costs.



Chapter 5

Cumulative Impacts



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Changes to Chapter 5 between Draft LUPA/EIS and Proposed LUPA/Final EIS

- The cumulative impact analysis was moved from Chapter 4, Section 4.16 to Chapter 5. All subsequent chapters have been renumbered accordingly.
- The GRSG cumulative impact analysis in the DEIS was supplemented and additional information was included regarding quantitative impacts on the WAFWA Management Zone level.
- All sections were updated to include analysis of the Proposed Plan.
- Table 5-1 was revised to reflect an updated list of past, present, and reasonably foreseeable future actions.
- General corrections (e.g., typographical errors), clarifications, and acreage recalculations were included.

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Chapter 5. Cumulative Impacts

This section presents the likely cumulative impacts on the human and natural environment that could occur from implementing the alternatives presented in **Chapter 2**. This section is organized by topic, similar to **Chapter 3**.

A cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Cumulative impacts on the environment result from implementing any one of the Idaho and Southwestern Montana Greater Sage-Grouse LUPA/EIS alternatives, in combination with other federal, state, or private actions, either within or next to the planning area.

A cumulative impact analysis is required by CEQ regulations because environmental conditions result from many different factors that act together. The total effect of any single action cannot be determined by considering it in isolation; it must be determined by considering the likely result of that action in conjunction with many others. Evaluation of potential impacts considers incremental impacts that could occur from the proposed project, as well as impacts from past, present, and reasonably foreseeable future actions. Management actions could be influenced by activities and conditions on adjacent public and private lands beyond the planning area boundary; therefore, assessment data and information could span multiple scales, landownerships, and jurisdictions. These assessments involve determinations that often are complex and, to some degree, subjective.

5.1 Greater Sage-Grouse Cumulative Effects Analysis: Idaho and Southwestern Montana

This cumulative effects analysis (CEA) discloses the long-term effects on Greater Sage-Grouse (GRSG) from implementing each LUPA/EIS alternative, in conjunction with other past, present, and reasonably foreseeable future actions. In accordance with Council on Environmental Quality guidance, cumulative effects need to be analyzed in terms of the specific resource and ecosystem being affected (Council on Environmental Quality 1997). As discussed in **Chapter 1**, the purpose for the proposed federal action is to identify and incorporate appropriate conservation measures to conserve, enhance, and restore GRSG habitat by reducing, eliminating, or minimizing threats to GRSG habitat. The Western Association of Fish and Wildlife Agencies (WAFWA) delineated seven sage-grouse management zones based on populations within floristic provinces (Stiver et al. 2006). Therefore, the cumulative effects analysis study area for GRSG extends beyond the Idaho and Southwestern Montana Sub-region boundary and incorporates Western Association of Fish and Wildlife Agencies (WAFWA) Management Zones (MZs) IV, and II/VII.

MZ II and VII are combined for the purpose of characterizing GRSG habitat conditions and impacts, as was done in the Summary of Science, Activities, Programs, and Policies That Influence the Range-Wide Conservation of Greater Sage-Grouse (Manier et al. 2013). However, the Idaho and southwestern Montana sub-region contains a portion of MZ II and

does not overlap with MZ VII. The analysis of BLM and Forest Service actions in MZs IV and II/VII is primarily based on MZ-wide datasets developed by the BLM National Operations Center (NOC).

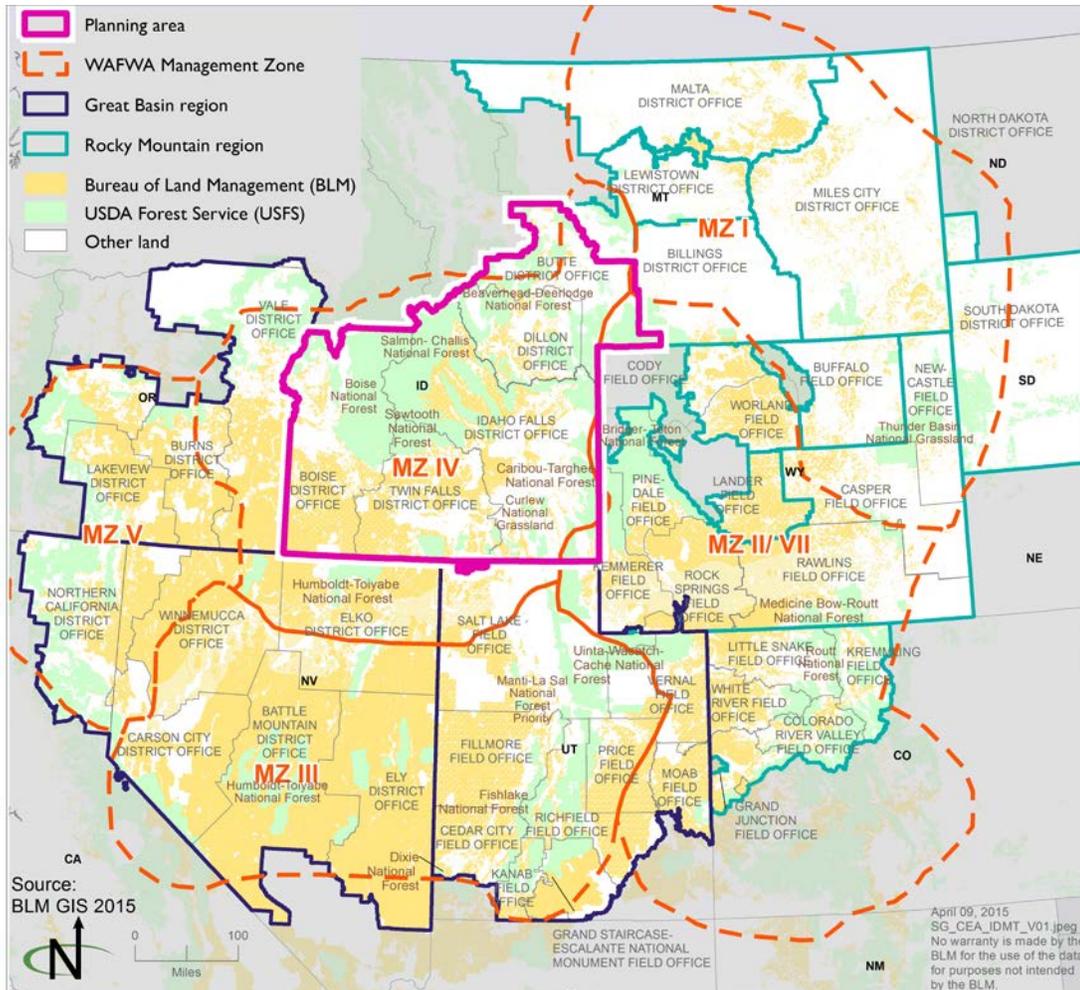
As indicated in the DEIS, the CEA for the FEIS includes quantitative analysis where possible. Where quantitative data are not available, analysis is qualitative. This analysis includes past, present and reasonably foreseeable future actions for all land ownerships in the MZs, and evaluates the impacts of the Idaho and Southwestern Montana LUPA, by alternative, when added to those.

The analysis of nonfederal actions is more qualitative and includes a review and analysis of the following:

- State plans
- Coordination with states and agencies during consistency reviews
- Additional data from non-BLM-administered lands.

The following diagram shows the boundaries of the WAFWA Management Zones and the BLM and Forest Service planning areas. The Idaho and southwestern Montana sub-region contains a large proportion of MZ IV, with 11,827,900 acres of PHMA out of 22,105,600 total acres in MZ IV (54 percent); and 5,635,700 acres of GHMA out of 10,128,500 total acres in MZ IV (56 percent). In contrast, the Idaho and southwestern Montana sub-region has a relatively small influence in the context of MZ II/VII, because it contains relatively few priority habitat management areas (PHMA) or general habitat management areas (GHMA): 147,100 acres of PHMA out of 14,105,000 total acres in MZs II/VII (1 percent); and 23,600 acres of GHMA out of 17,771,500 total acres in MZs II/VII (less than 1 percent). As a result, actions in the Idaho and southwestern Montana LUPA/EIS may have less cumulative impact on GRSG than those in larger planning areas in MZs II/VII.

Section 5.1.1, Methods, provides a description of the methodology used for this cumulative effects analysis. **Section 5.1.2** lists assumptions used in the analysis. **Section 5.1.3** describes existing conditions in WAFWA MZ IV and in the Idaho and southwestern Montana sub-region. **Section 5.1.4**, provides a broad-scale description regional efforts to manage GRSG in MZ IV. **Section 5.1.5** discusses the relevant cumulative actions in MZ IV that will be analyzed in this CEA. **Section 5.1.6** analyzes threats to GRSG in MZ IV and discusses the potential cumulative effects resulting from each threat for each alternative. **Section 5.1.7** describes existing conditions in WAFWA MZs II/VII. **Section 5.1.8** provides a broad-scale description regional efforts to manage GRSG in MZs II/VII. **Section 5.1.9** discusses the relevant cumulative actions in MZs II/VII that will be analyzed in this CEA. **Section 5.1.10** analyzes threats to GRSG in MZs II/VII and discusses the potential cumulative effects resulting from each threat for each alternative. **Section 5.1.11**, Conclusions, determines the cumulative effects on GRSG as a result of implementing each alternative in combination with other private, local, regional, state, and federal past, present, and reasonably foreseeable future actions in MZs IV and II/VII.



5.1.1 Methods

The CEA uses the following methods:

- Data from the USGS publication Summary of Science, Activities, Programs, and Policies That Influence the Range-Wide Conservation of Greater Sage-Grouse (Manier et al. 2013) establishes the reference condition against which the alternatives and other past, present, and reasonably foreseeable future actions are compared. Data from this publication are presented in terms of priority habitat and general habitat. Where Manier et al. (2013) data are used in this CEA, “priority habitat” refers to PPH and “general habitat” refers to PGH”.
- The USFWS’s 12-Month Findings for Petitions to List the Greater Sage-Grouse (*Centrocercus urophasianus*) as Threatened or Endangered” (USFWS 2010) and the USFWS publication Conservation Objectives: Final Report (i.e., the COT report; USFWS 2013a) were reviewed to identify the primary threats facing

GRSG in each WAFWA MZ. Table 2 of the COT report lists threats to GRSG that are present and widespread in each population in the MZ.

- For MZ IV the list of present and widespread threats that are directly or indirectly affected by BLM and Forest Service actions are fire, spread of weeds, conifers, infrastructure, grazing/free-roaming equids, conversion to agriculture, energy development/mining, and recreation (USFWS 2013a, pp. 22-24). For MZ II/VII, these threats include: energy development/mining, infrastructure, grazing, conversion to agriculture, fire, spread of weeds, recreation, and conifers (USFWS 2013a, pp. 17-19, 27-28). Two other threats listed in the COT report, sagebrush eradication and isolation/small population size, affect GRSG populations in MZs IV and II/VII. While they are not addressed separately in this analysis, they are discussed as elements of other threats.
- Predation was not included as a threat in the final COT report and was not identified by USFWS as a significant threat to GRSG populations (USFWS 2010). Predation is a natural occurrence that may be enhanced by human habitat modifications such as construction of infrastructure that may increase opportunities for nesting and perching or increase exposure of GRSG nests. In such altered habitats, predators may exert an undue influence on GRSG populations. Predation is discussed in this CEA in the context of these other threats.
- Sagebrush eradication and isolation/small population size are discussed as a component of other threats and in the conclusions. This is because sagebrush eradication is a component of many threats and is not addressed by any one management program. Isolation/small population size is not analyzed separately because no management actions directly address this threat. Not all the threats discussed in this section represent major threats to GRSG in each planning area in the MZs, but each poses a present and widespread threat to at least one population.
- Each threat is analyzed (quantitatively when possible), and a brief conclusion for each threat is provided.
 - The BLM NOC compiled MZ-wide datasets for quantifiable actions in all LUPA/EISs in MZs IV and II/VII. These datasets provide a means by which to quantify cumulative impacts from direct impacts of the threats identified in the COT report.
 - Data and information were gathered from other federal, state, and local agencies and tribal governments, where available, and were used to inform the analysis of cumulative impacts on GRSG from each of the threats in MZs IV and II/VII.
 - The tables in this cumulative analysis display the number of acres across the entire MZ and the percentage of those acres that are located within the Idaho and southwestern Montana sub-region. To calculate the total number of

acres in the MZ, the number of acres in the other BLM and Forest Service proposed plans across MZ IV or MZs II/VII are added to the number of acres in the applicable Idaho and southwestern Montana LUPA alternative. For example, the total number of acres for Alternative A includes all of the other proposed plans in MZ IV or MZs II/VII plus Idaho and Southwestern Montana LUPA Alternative A. Likewise, the Alternative B acreage includes all of the other proposed plans in MZ IV or MZs II/VII plus Idaho and Southwestern Montana LUPA Alternative B.

- A discussion is provided for each alternative in **Section 5.1.11**. Each alternative considers the cumulative impacts on GRSG from each of the threats. It also considers whether those threats can be ameliorated by implementing that particular alternative in conjunction with past, present, and reasonably foreseeable non-BLM and non-Forest Service actions in MZs IV and II/VII.
- The list of relevant cumulative actions in **Sections 5.1.5** and **5.1.9** was derived from each LUPA in MZs IV and II/VII to provide an overview of the ongoing and proposed land uses there.
- Baseline data that are consistent across planning areas and that analyze cumulative effects for each alternative, including the no action alternative and Proposed Plan, are used in this analysis.
- The Idaho and southwestern Montana sub-region is located within two MZs. In this instance, the CEA analyzes threats and impacts for each MZ separately.
- Although Alternative A does not designate PHMA or GHMA, spatial GIS data was clipped to these boundaries to allow for a consistent comparison across all alternatives.
- This analysis uses the most recent information available. It assumes that the Proposed Plan will be implemented in the other BLM and Forest Service sub-regions in MZs IV and II/VII.

5.1.2 Assumptions

This cumulative analysis uses the same assumptions and indicators as those established for the analysis of direct and indirect effects on GRSG in **Section 4.4.9**. In addition, the following assumptions have been made:

- The timeframe for this analysis is 20 years.
- The CEA area extends beyond the sub-region boundary and encompasses all of WAFWA MZ IV and II/VII; the quantitative impact analysis focuses on impacts across the MZs. The MZ is the appropriate geographic scope for this analysis because it encompasses areas with similar floristic conditions containing important GRSG habitat.

- The magnitude of each threat would vary geographically and may have more or less impact on GRSG in some parts of the MZs, depending on such factors as climate, land use patterns, and topography.
- In order to have consistency of analysis across the various planning areas within the MZ, the proposed Idaho Important Habitat Management Areas (IHMA) have been classified as GHMA for cumulative analysis.
- A management action or alternative would contribute a net conservation gain to GRSG if there is an actual benefit or gain above baseline conditions. Baseline conditions are defined as the pre-existing condition of a defined area and/or resource that can be quantified by an appropriate metric(s). During environmental reviews, the baseline is considered the affected environment that exists at the time the NEPA analysis is initiated, and is used to compare predicted effects of the proposed action and the effects of a reasonable range of alternative actions.
- The CEA quantitatively analyzes impacts on GRSG and their habitat in the MZs. Impacts on habitat are likely to correspond to impacts on populations within the MZs, since reductions or alterations in habitat could affect reproductive success through reductions in available forage or nest sites. Human activity could cause disturbance to the birds, preventing them from mating or successfully rearing offspring. Human activities also could increase opportunities for predation, disease, or other stressors (Connelly et al. 2004; USFWS 2010; Manier et al. 2013).
- The governor of Idaho is expected to issue an executive order providing direction for GRSG conservation in Idaho on state lands. This executive order is expected to be largely consistent with BLM and Forest Service direction, though exact details are not known at the time this FEIS is published.

5.1.3 Existing Conditions in WAFWA MZ IV and the Idaho and Southwestern Montana Sub-region

This section summarizes existing conditions and past and present actions for the Idaho and southwestern Montana sub-region (provided in more detail in **Chapter 3**) and for MZ IV as a whole. Reasonably foreseeable future actions are discussed in **Section 5.1.5**.

GRSG Habitats and Populations

MZ IV consists of nine GRSG populations: Baker, East-Central, Southwest Montana, Snake-Salmon-Beaverhead, Belt Mountains, Weiser, Northern Great Basin, Box Elder, and Sawtooth (Garton et al. 2011). The sub-region includes seven of these populations: East-Central, Southwest Montana, Snake-Salmon-Beaverhead, Weiser, Northern Great Basin, Box Elder, and Sawtooth. This MZ represents one of the largest areas of connected GRSG habitat, as demonstrated by Knick et al. (2011), and supports the largest population of GRSG outside of the Wyoming Basin (Garton et al. 2011). MZ IV includes GRSG populations in Oregon, Idaho, Nevada, Utah and Montana.

In MZ IV, BLM-administered and other federal lands account for approximately 22,522,300 million acres of GRSG habitat (approximately 68 percent of habitat), with state and private lands accounting for over 10 million acres of GRSG habitat (approximately 31 percent of habitat) (Manier et al. 2013, p. 118). The BLM also has some management authority over split estate lands, with privately held surface and federal subsurface mineral rights. Approximately 21 percent of PHMA and 44 percent of GHMA within MZ IV are located on BLM-administered and National Forest System lands in the Idaho and southwest Montana sub-region.

Table 5-1, Management Jurisdiction in MZ IV by Acres of Priority and General Habitats, provides a breakdown of landownership and acres of GRSG habitat in MZ IV. As the table shows, approximately 52 percent of priority habitat and 19 percent of general habitat is on BLM-administered lands. Approximately 7 percent of priority habitat and 5 percent of general habitat is on National Forest System lands.

Table 5-1
Management Jurisdiction in MZ IV by Acres of Priority and General Habitats

	Total Surface Area (Acres)	Priority (Acres)	General (Acres)	Non-habitat (Acres)
MZ IV	78,259,200 (100%)	21,930,600 (28%)	10,958,500 (14%)	45,370,100 (58%)
BLM	26,220,300 (34%)	13,710,700 (52%)	4,928,200 (19%)	7,581,400 (29%)
Forest Service	22,291,600 (28%)	1,613,800 (7%)	1,113,500 (5%)	9,564,300 (43%)
Tribal and other federal	2,431,000 (3%)	633,600 (26%)	522,500 (21%)	1,274,900 (52%)
Private	23,150,400 (30%)	4,890,200 (21%)	3,516,700 (15%)	14,743,500 (64%)
State	3,681,000 (5%)	1,019,400 (28%)	846,200 (23%)	1,815,400 (49%)
Other	484,800 (<1%)	62,900 (13%)	31,400 (6%)	390,500 (81%)

Source: Manier et al. 2013, p. 118

Sub-region Habitat Conditions

Sub-regional habitat conditions and trends are presented by population area in **Table 3-4** in this EIS.

Idaho and Southwestern Montana LUPA/EIS Alternatives

The Idaho and Southwestern Montana LUPA and EIS evaluates the following seven alternatives:

- Alternative A, current management (the no action alternative)

- Alternative B, which was developed using GRSG conservation measures in A Report on National Greater Sage-Grouse Conservation Measures (Sage-Grouse National Technical Team 2011)
- Alternative C, which was developed based on recommendations from individuals and conservation groups for protecting and conserving GRSG and habitat rangewide
- Alternative D, which incorporates conservation measures to conserve, enhance, and restore GRSG habitat on BLM-administered and National Forest System lands, while balancing resources and resource use among competing human interests, land uses, and the conservation of natural and cultural resource values, and sustaining and enhancing ecological integrity across the landscape, including plant, wildlife, and fish habitat
- Alternative E, which was developed from recommendations by the State of Idaho's GRSG Task Force
- Alternative F, which was derived from individual and conservation group comments. This alternative contains a mixture of management actions from A Report on National Greater Sage-Grouse Conservation Measures as well as additional restrictions on resource uses and increased resource protection; and
- Proposed Plan, which was developed through a coordinated partnership of BLM, Forest Service, the States of Idaho and Montana and the USFWS and is consistent with the objectives described in the COT report

Population Trends in Management Zone IV

Historic conversion of habitat to agriculture as well as fire, urbanization, and spread of weeds have resulted in a residual sagebrush landscape that is less productive and more fragmented than those prior to European colonization. As a result, more GRSG populations in the region are relatively small and/or separated from adjacent populations. Notable exceptions are the Snake-Salmon-Beaverhead and Northern Great Basin populations (Manier et al. 2013, p. 132). Garton et al. (2011) predicted a 10.5 percent chance this MZ will fall below 200 males by 2037, and a 39.7 percent chance it would fall below 200 males by 2107 (USFWS 2013a, p. 75).

While population estimates and trends for the sub-region are not available, GRSG populations are described in **Section 3.2** of the EIS. The Snake-Salmon-Beaverhead and Northern Great Basin populations encompass the largest number of occupied leks in the sub-region. The Northern Great Basin population is especially important to long-term conservation of GRSG in MZ IV. This is because it comprises a substantial portion of the Great Basin core population (Connelly et al. 2004); shared with Nevada, Utah, and Oregon, this is one of the two remaining major population strongholds in the range of the species. Between 2007 and 2013, this population showed a 34 percent decline in the estimated minimum male population attending leks in the population (Garton et al. 2015, p. 35). The Snake-Salmon-Beaverhead population provides additional and substantial population

contributions within Idaho. It also provides known connectivity with the Southwest Montana population area.

In Montana, the GRSG population changes cyclically. The GRSG population declined sharply from 1991 to 1996, before increasing through 2000 (Montana Sage Grouse Work Group 2005). The population is thought to be down 33 percent from historic levels. Between 2004 and 2013, the average number of displaying males per lek in a given year in Montana ranged from 7 to 19 (Greater Sage-Grouse Habitat Conservation Advisory Council 2014).

5.1.4 Regional Efforts to Manage Threats to GRSG in MZ IV

There are several regional efforts to manage threats to GRSG in MZ IV. Regional efforts include past, present and reasonably foreseeable actions conducted by the BLM, Forest Service, and by other federal and or in cooperation with non-federal agencies, organizations, landowners, or other groups in MZ IV. Because state and private lands account for approximately 10 million acres (approximately 31 percent) of GRSG habitat in MZ IV (Manier et al. 2013, p. 118) these efforts play an important role in alleviating threats to GRSG.

Idaho Statewide Efforts

Similar to efforts in nearby states, the governor of Idaho is expected to issue an executive order providing direction for GRSG conservation in Idaho on state lands. This executive order is expected to be largely consistent with BLM and Forest Service direction, though exact details are not known and are speculative as of the time of this FEIS publication.

Idaho Department of Lands prepared the Proposed Greater Sage-Grouse Conservation Plan (IDL 2015). Released in February 2015, and complementing Idaho Governor Otter's proposed plan (Alternative E of the Draft Idaho and Southwest Montana LUPA/EIS), the draft plan focuses on three primary threats to GRSG in Idaho: wildfire, infrastructure, and invasive species. The plan outlines enforceable stipulations in leases, permits, and easements on IDL lands. Conservation measures in the plan will be used as BMPs for activities supporting fire prevention, suppression, and rehabilitation, regulating oil and gas development, some mining activities, and abandoned mine reclamation. While the plan is comprised of voluntary management guidelines, the guidelines may be utilized by state regulatory agencies for projects requiring agency review or approval.

The Idaho Sage-grouse Advisory Committee prepared their Conservation Plan for the Greater Sage-grouse in Idaho (Idaho Sage-grouse Advisory Committee 2006) to provide guidance, tools, and resources to GRSG Local Working Groups, and to facilitate and provide statewide consistency between Local Working Group plans. The plan identifies 19 threats to GRSG and GRSG habitat and presents conservation measures to address each of those threats. Rural Fire Protection Districts have been established within the state to help suppress fires in GRSG habitat.

Utah State Efforts

On February 25, 2015, Utah Governor Gary Herbert signed Utah Executive Order EO/2015/002. The EO directs state agencies whose actions may affect GRSG to implement Utah Division of Wildlife Resources' Conservation Plan for Greater Sage Grouse in Utah (Utah Greater Sage-Grouse Working Group 2013). The conservation plan identifies 11 population areas in Utah that are the focus of GRSG conservation efforts, and helps coordinate the efforts of ten local working groups in the state and UDWR. The goal of the state plan is to protect, maintain, improve and enhance GRSG populations and habitats on public and private lands within the established management areas. It includes conservation strategies and measurable objectives regarding populations and habitat, and through the EO, provides a regulatory mechanism to preserve GRSG through specific restrictions on public or private land use.

Montana Statewide Efforts

The Montana Department of Fish, Wildlife and Parks (MFWP) is tasked with implementing the range-wide WAFWA Sage-Grouse Strategy (Stiver et al. 2006) in Montana. The WAFWA Sage-Grouse Strategy monitors, researches, provides outreach, and funds conservation projects for GRSG. A basic premise of the WAFWA Sage-Grouse Strategy is that additional conservation capacity must be developed at all local, state, federal, and range-wide levels for both the short term (3 to 5 years) and for the long term (10 years or more) to ensure GRSG conservation.

In addition, the MFWP's Montana Management Plan and Conservation Strategy for Sage-Grouse was initiated in 2005 to protect, maintain, and restore GRSG habitat. The plan ranks threats to the species across the state and provides an overall strategy for public and private cooperation in conservation actions. In 2013, the governor established the Greater Sage-Grouse Habitat Conservation Advisory Council to provide recommendations on policies and actions for GRSG conservation. The council provided these recommendations in January 2014. The governor subsequently issued an executive order on September 9, 2014 (State of Montana 2014), based on the council recommendations that provided the direction for GRSG conservation in Montana.

Montana Executive Order. The Montana governor issued an executive order on September 9, 2014 (State of Montana 2014), based on the council recommendations that provided the direction for GRSG conservation in Montana. Stipulations for development in the executive order and Montana Management Plan and Conservation Strategy for Sage-Grouse include but are not limited to:

- A 0.6-mile NSO buffer around the perimeter of active leks for new activities
- Locating new overhead power lines and communication towers a minimum of 0.6-mile from the perimeter of active leks
- A minimum 2.0-mile buffer from active lek perimeters for main roads and a minimum 0.6-mile buffer for facility site access roads



- A 5 percent limit on anthropogenic surface disturbance within the Density and Disturbance Calculation Tool examination area (based upon suitable habitat)
- As authorized by permitting agency or agencies, activities (production, maintenance and emergency activity exempted), will typically be prohibited from March 15 through July 15 outside of the NSO perimeter of an active lek and within 2 miles of that perimeter in Core Population Areas where breeding, nesting, and early brood-rearing habitat is present

The approach of the Montana executive order/Montana Management Plan and Conservation Strategy for GRSG is similar to the Wyoming executive order. Montana's plan will apply a disturbance cap in core habitat and will limit well density and apply timing limitations. The 0.6-mile buffer would protect males in the vicinity of leks during the breeding season; the density limits and disturbance cap would protect GRSG during nesting, brood-rearing, and winter concentration activities. The timing restrictions would reduce the potential for displacement or disruption during the breeding season.

Oregon Statewide Efforts

The Oregon Department of Fish and Wildlife (ODFW) has developed a strategy to promote conservation of GRSG and intact, functioning, GRSG habitats in Oregon. The Greater Sage-Grouse Conservation Assessment and Strategy for Oregon: A Plan to Maintain and Enhance Populations and Habitat (Oregon State Plan, Hagen 2011) describes the ODFW's proposed management of GRSG. It also provides guidance to public land management agencies and land managers for GRSG conservation. GRSG conservation guidelines in the State Plan are designed to maintain (at a minimum) or enhance the quality (the optimum) of current habitats. They will also assist resource managers in achieving the population and habitat objectives of the State Plan.

The Oregon State Plan provides biological recommendations for long-term conservation of GRSG in Oregon based on the best available science; however implementing recommendations is the responsibility of the respective land manager. Thus, the intent of the Oregon State Plan is plan is to inform decision-maker regarding the biological consequences of various actions on GRSG, but not to dictate land management decisions. Similarly, GRSG conservation proposed in the plan is voluntary on private lands (Hagen 2011, p. viii).

The Oregon State Plan establishes "Core Areas" to help delineate landscape planning units by distinguishing areas of high biological value to GRSG. These areas are based on the locations of breeding areas, wintering areas, and connectivity corridors and are intended to help balance GRSG habitat requirements with development outside of Core Areas, which would be subject to stipulations and regulations (Hagen 2011, p. 80). ODFW developed Core Areas necessary to conserve 90 percent of Oregon's GRSG population with emphasis on highest density and important use areas which provide for breeding, wintering and connectivity corridors. BLM used the same boundaries of ODFW Core Areas to delineate PHMA.

While the plan is comprised of voluntary management guidelines, the guidelines may be utilized by state regulatory agencies including the Energy Facility Siting Council as conditions of approval on a case-by-case basis for certain energy projects. For example, the council has jurisdiction on wind energy projects greater than 105 MW (Dave Budeau, phone conversation with author, March 26, 2015).

Further, The Oregon Governor's natural resources department is currently in the process of developing regulations for GRSG conservation. The forthcoming Sage Grouse Conservation Action Plan will supplement the state plan and provide land use regulations and mitigations for Oregon core habitat areas (Dave Budeau, phone conversation with author, March 26, 2015).

Oregon Candidate Conservation Agreements (CCA) and Candidate Conservation Agreements with Assurances (CCAA). CCAs are voluntary agreements between the USFWS and one or more parties (including federal agencies) to address the conservation needs of on-listed species at risk of being listed under the ESA. CCAAs are similar, though these voluntary agreements are made between the USFWS and non-federal landowners. One CCA and several CCAAs are currently in place or will soon be implemented that will cover the entire GRSG range in the state of Oregon. Under these agreements and the associated Enhancement of Survival permit issued under the ESA, landowners would voluntarily undertake management activities on their properties to enhance, restore, or maintain habitat benefiting GRSG, in exchange for assurances that they would not be subject to increased land use restrictions should GRSG become listed under the ESA in the future. The agreements have a term of 30 years, and can be renewed upon expiration. As of April 2015, over 2.7 million acres of GRSG habitat in Oregon are either enrolled or pending enrollment under such agreements; the amount of GRSG habitat enrolled is expected to rise as the GRSG listing decision nears (Jeff Everett, Email to author, April 16, 2015).

GRSG Programmatic Candidate Conservation Agreement for Rangeland Management Practices on BLM Lands in Oregon. In cooperation with the BLM and USFWS, the Oregon Cattlemen's Association developed a Programmatic Candidate Conservation Agreement (Programmatic CCA) to reduce or eliminate negative impacts of rangeland management practices to GRSG and to maintain and support livestock grazing practices that are beneficial or neutral to GRSG on enrolled allotments administered by the BLM in Oregon. The Programmatic CCA covers approximately 10.2 million acres of GRSG habitat on BLM grazing allotments in southeast Oregon; however, not all these lands may eventually be enrolled in the programmatic CCA (USFWS 2013b). As of April 2015, BLM has received 65 written requests for enrollment covering 121 allotments on more than 1.9 million acres (Jeff Everett, Email to author, April 16, 2015).

Harney County Programmatic CCAA. After implementation of the Programmatic CCA described above, Oregon's Harney County Soil and Water Conservation District developed a programmatic CCAA for private lands in the county (USFWS 2013c). The covered area encompasses all GRSG habitat on non-federal lands in Harney County, Oregon and on some lands immediately adjacent to but outside of Harney County, including 346,965 acres of PPH and 825,395 acres of PGH. BLM-administered grazing allotments within Harney



County are still eligible for inclusion under the Programmatic CCA. Because many grazers in Oregon utilize both private lands and BLM-administered allotments, the CCAA was structured after the Programmatic CCA in part to facilitate implementation of the agreements and encourage enrollment by such grazers (Jeff Everett, phone conversation with author, April 16, 2015). As of April 2015, 54 landowners have entered lands into the CCAA totaling approximately 320,000 acres of GRSG habitat (Jeff Everett, Email to author, April 16, 2015).

Oregon Multi-County Soil and Water Conservation District CCAA. Following development of the Harney County Programmatic CCAA, USFWS and the Soil and Water Conservation Districts from Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union counties developed a CCAA for over 2.3 million acres of private rangelands within these counties, which represents the range of GRSG in Oregon. Again, BLM-administered grazing allotments within the counties are still eligible for inclusion under the Programmatic CCA, and again, the CCAA was structured after the Harney County CCAA in part to facilitate implementation of the agreements and encourage enrollment by grazers who utilize both private and BLM-administered allotments. As of April 2015, 55 landowners have entered lands into the CCAA totaling approximately 466,050 acres of GRSG habitat (Jeff Everett, Email to author, April 16, 2015).

The Oregon Department of State Lands (DSL) CCAA. DSL is working with the USFWS to develop a CCAA for State Common School Fund Rangelands in Oregon. These lands represent the final “gaps” in land ownership throughout GRSG range in Oregon not already covered by the CCA/CCAAs described above. The CCAA covers over 633,000 acres of DSL lands, including approximately 380,700 acres of low-density habitat, and 153,100 acres of core area habitat (80 FR 9475). The required Environmental Assessment under NEPA is currently available for public comment and will be finalized in May 2015 (Jeff Everett, phone conversation with author, April 16, 2015).

Nevada/California State Efforts

Nevada State Plan. The state of Nevada submitted a state alternative for inclusion in the Nevada and Northeast California Sub-Regional Greater Sage-Grouse Draft Land Use Plan Amendment and Environmental Impact Statement (EIS). The Nevada Greater Sage-Grouse Conservation Plan (Sagebrush Ecosystem Technical Team 2014) includes regulatory mechanisms to avoid, minimize (with the use of design features) and/or mitigate impacts through the Conservation Credit System (described in additional detail below) to protect and restore GRSG habitat. The plan defines Sage Grouse Management Areas (SGMA), and aims to reach a conservation goal of a Net Conservation Gain of GRSG habitat due to new anthropogenic disturbances. The state plan identifies GRSG core, priority, and general habitat within the SGMA.

Under the plan, project proponents must seek to avoid GRSG habitat disturbance. If a project proponent wishes to demonstrate that avoidance cannot be reasonably accomplished, exemptions will be granted to this restriction as part of the SETT Consultation. The project proponent must demonstrate that specific criteria are met; criteria are summarized in Table 3-1 of the plan. Criteria are more stringent in Core Management

Areas, and become less so as habitat quality decreases. If a project cannot avoid adverse effects (direct or indirect) to GRSG habitat, the project proponent will be required to implement design features that minimize the project's adverse effects to GRSG habitat to the extent practicable. Mitigation will be required for all anthropogenic disturbances to GRSG habitat, including those that have minimized disturbances through the process above. Mitigation requirements will be determined by the Conservation Credit System, a market-based mechanism that quantifies conservation outcomes (credits) and impacts from new anthropogenic disturbances (debits), defines standards for market transactions, and tracks conservation action implementation progress in the state.

GRSG habitat is determined based on the Nevada Habitat Suitability Map (described below) for GRSG habitat prepared by the state and USGS. The habitat map incorporates GRSG telemetry data along with environmental data at multiple scales, such as land cover, vegetation communities, physiographic indices and anthropogenic attributes. The habitat suitability model will be used to inform management decisions on protecting the most critical habitat and to provide strategic decision tools to identify where conservation activities will have the greatest beneficial impact on the habitat.

The Nevada state plan only applies to the state; it does not apply to portions of the Nevada and Northeastern California Sub-region within California.

Nevada State Regulations/Programs. Nevada has several state regulations and programs pertaining to GRSG. Assembly Bill 461 formally created and gave regulatory authorization for the Sagebrush Ecosystem Program. Governor Sandoval signed the bill into law in July, 2013. Nevada also has a pesticide registration fee; portions of the revenue from the fee will provide funding to the state noxious weed program and GRSG habitat conservation (WGA 2014). The state also has a Nevada Cheatgrass Action Team (WGA 2014), a voluntary multi-disciplinary group of individuals to assist the SETT with planning and managing projects to address cheatgrass and other invasive or noxious weeds that impact GRSG habitat.

Natural Resource Conservation Service Sage Grouse Initiative

The Natural Resource Conservation Service's (NRCS) Sage Grouse Initiative (SGI) is working with private landowners in 11 western states to improve habitat for GRSG (Manier et al. 2013, p. 117). With approximately 31 percent of all sagebrush habitats across the range in private ownership (Stiver 2011, p. 39), and over 25 percent in MZ IV and nearly 38 percent in MZ II/VII (Manier et al. 2013, p. 118), a unique opportunity exists for the NRCS to benefit GRSG and ensure the persistence of large and intact rangelands through long-term contracts and conservation easements (USFWS 2010, p.5).

Participation in the SGI program is voluntary, but willing participants enter into binding contracts or easements to ensure that conservation practices that enhance GRSG habitat are implemented. Participating landowners are bound by a contract (usually 3 to 5 years) to implement, in consultation with NRCS staff, conservation practices if they wish to receive the financial incentives offered by the SGI. These financial incentives generally take the form of payments to offset costs of implementing conservation practices and easements or rental payments for long-term conservation.



While potentially effective at conserving GRSG populations and habitat on private lands, incentive-based conservation programs that fund the SGI generally require reauthorization from Congress under subsequent farm bills. These funding streams are potentially variable as they are subject to the political process.

As of 2014, the most recent year for which data are available, SGI has secured conservation easements on 98,167 acres within MZ IV (NRCS 2015). On these and additional private lands, SGI has completed other GRSG conservation actions within MZ IV, including implementation of grazing systems, conifer removal, vegetation seeding, and fence marking. These conservation actions are targeted at the critical threats in each MZ, consistent with those outlined in the COT report. SGI clusters implementation to achieve landscape benefits.

Other Regional Efforts

As part of the Greater Sage-Grouse Rangewide Planning Effort, other BLM and Forest Service sub-regions, as explained in **Chapter 1**, are undergoing LUPA/EIS processes similar to this one for the Idaho and Southwestern Montana Sub-Region. The Final EIS associated with each of these efforts has identified a Proposed Plan that meets the purpose and need of conserving, enhancing, and/or restoring GRSG habitat by reducing, eliminating, or minimizing threats. The management actions from the various Proposed Plans will cumulatively decrease the threat of GRSG habitat loss and will limit fragmentation throughout the range. Key actions present in many of the Proposed Plans include changes in land use allocations, a mitigation framework, an adaptive management strategy, anthropogenic disturbance cap, and lek buffers.

MZ IV contains 4,198,900 acres of the Southern Idaho/Northern Nevada Sagebrush Focal Area (SFAs), and MZs II/VII contain 563,300 acres of the Bear River Watershed Area SFA. SFAs are a subset of PHMA and represent recognized "strongholds" for the species that have been noted and referenced by the conservation community identified as having the highest densities of the species and other criteria important for the persistence of the species. Those portions of SFAs on BLM-administered and National Forest System lands would be recommended for withdrawal from mineral entry; subject to an NSO stipulation with no exceptions, modifications, or waivers (MZ IV only); and would be prioritized for management and conservation actions, including but not limited to, review of livestock grazing permits/leases. Management of SFAs would enhance protection of GRSG in these areas, providing a net conservation gain to the species in light of other past, present, and reasonably foreseeable future actions considered in this CEA.

Tribes, counties, and local working groups are playing a critical role in promoting GRSG conservation at the local level. Individual conservation plans have been prepared by most local working groups to develop and implement strategies to improve or maintain GRSG habitat and reduce or mitigate threats on the local level. The proposed conservation actions and recommendations in these plans are voluntary actions for private landowners.

Local working group projects have included monitoring, research, and mapping habitat areas, as well as public outreach efforts, such as landowner education and collaboration with federal, state, and other local entities.

A programmatic EIS by the Western Area Power Administration (WAPA) and the USFWS for the entire upper Great Plains will focus future wind energy developments in specific corridors outside of GRSG core habitat (WAPA 2013). In accordance with Section 7 of the ESA, preparation of the programmatic EIS has involved consultation between cooperating entities and the USFWS and preparation of a programmatic Biological Assessment to ensure that the action will not jeopardize the continued existence of any federally-listed species, including the federal candidate GRSG. At the time of this LUPA specific conservation measures for protecting GRSG and its habitat under the programmatic EIS are not developed.

Some local working group conservation plans recommend restricting resource uses as well. For example, the Big Desert Sage-Grouse Conservation Plan (Big Desert Sage-grouse Local Working Group 2010) limiting recreational OHV use to existing designated roads and trails. Local working group GRSG conservation plans in MZ IV include the following:

- North Magic Valley Conservation Plan (2011)
- West Central Conservation Plan (2010)
- East Idaho Uplands Conservation Plan (2011)
- Big Desert Conservation Plan (2010)
- Shoshone Basin Conservation Plan (2008)
- Jarbidge Conservation Plan (2007)
- Curlew Valley Conservation Plan (2004)
- Owyhee County Conservation Plan (2013)
- Upper Snake Conservation Plan (2009)
- Challis Conservation Plan (2010)

5.1.5 Relevant Cumulative Actions

This cumulative effects analysis considers the incremental impact of the Idaho and Southwestern Montana Proposed LUPA and alternatives in combination with other past, present, and reasonably foreseeable future federal and non-federal actions on all lands in MZ IV (**Section 5.1.12**). Where these actions occur within GRSG habitat, they would cumulatively add to the impacts of BLM- and Forest Service-authorized activities set forth in the Idaho and Southwestern Montana Proposed LUPA. In addition to the conservation efforts described above, relevant reasonably foreseeable future cumulative actions occurring on federal, private, or mixed land ownership in MZ IV are described in the Proposed



RMPAs/LUPAs for Idaho and southwestern Montana, Utah, Montana, Oregon, and Nevada and northeastern California, which are hereby incorporated by reference.

The following list includes large-scale past, present, and future actions in MZ IV that, when added to the Proposed Plan and alternatives for the Idaho and Southwestern Montana sub-region, could cumulatively affect threats to GRSG (more detail is included in the table in **Section 5.1.12**):

- Gateway West 230/500 Transmission Line Project, Wyoming and Idaho
- Boardman to Hemingway Transmission Line Project, Oregon and Idaho
- Fuels and vegetation treatments throughout the MZ
- Grazing permit renewals and allotment management plan updates throughout the MZ
- China Mountain Wind Project, Nevada and Idaho
- Small mining projects throughout the MZ

Several Native American tribal members have expressed concern about military overflights causing mortality of GRSG chicks as they incubate within their eggs. Further investigation into these impacts is needed, as effects seem to be anecdotal.

5.1.6 Threats to GRSG in Management Zone IV

In its CO_T report, the USFWS identifies fire, spread of weeds, conifer encroachment, infrastructure, grazing/free-roaming equids, conversion to agriculture, energy development, and recreation as the present and widespread threats facing GRSG populations in MZ IV (USFWS 2013a, pp. 22-24). These threats impact GRSG mainly by fragmenting and degrading their habitat. The loss of sagebrush steppe across the West approaches or exceeds 50 percent in some areas. It is a primary factor in long-term declines in GRSG abundance across its historical range (USFWS 2010).

Habitat fragmentation reduces connectivity of populations and increases the likelihood of extirpation from random events, such as drought or outbreak of West Nile virus. Furthermore, climate change is predicted to affect the distribution of species through changes in annual average precipitation, greater early season plant growth, and increased frequency and severity of wildfires (BLM 2013a). Sensitive species such as GRSG, which are already stressed by declining habitat, increased development, and other factors, could experience additional pressures as a result of climate change.

Each CO_T report threat considered present and widespread in at least one population in MZ IV is discussed below. The quantitative impact analysis focuses on impacts in the MZ (sub-region percentages are provided for context).

Wildfire

Nature and Type of Effects. Sagebrush killed by wildfire often requires many years to recover, especially after large fires. Contiguous old-growth sagebrush sites are at high fire risk, as are large blocks of contiguous dead sagebrush and sagebrush sites with a substantial cheatgrass understory. Before recovering, these sites are of limited use to GRSG, except along the edges and in unburned islands.

Because of its widespread impact on habitat, fire has been identified as a primary factor associated with GRSG population declines. Depending on the species of sagebrush and the size of a burn, a return to a full pre-burn community cover can take from 25 to 120 years (Baker 2011). In addition, fires can reduce invertebrate food sources and may facilitate the spread of invasive weeds.

While most sagebrush subspecies are killed by fire and slow to reestablish, cheatgrass recovers within one to two years of a fire from seed in the soil. This annual recovery leads to a reoccurring fire cycle that prevents sagebrush reestablishment (USFWS 2010, p. 13932).

BLM management to prevent or control wildfires can also affect GRSG and habitat. Increased human activity and noise associated with fire suppression, fuels treatments, and prescribed fire in areas occupied by GRSG could affect nesting, breeding, and foraging behavior. Important habitats could be altered because of the use of heavy equipment, hand tools, and noise.

In addition, suppression may initially result in higher rates of conifer encroachment in some areas. In the initial stages of encroachment, fuel loadings remain consistent with the sagebrush understory. As conifer encroachment advances, fire return intervals are altered by decreasing understory abundance. The depleted understory causes the stands to become resistant to low intensity wildfires; over years, the accumulating conifer loads contribute to larger-scale wildfires and confound control efforts due to extreme fire behavior.

Conditions in the Sub-region and in MZ IV. Wildfire has been a primary threat to GRSG habitats and populations occurring across MZ IV, with 81 percent of priority habitat and general habitat having high risk for fire, including the Snake-Salmon-Beaverhead and Northern Great Basin population areas (Manier et al. 2013, p. 133). Since 2000, more than 4.9 million acres (14 percent of priority habitat and 17 percent of general habitat) of GRSG habitats have burned in this MZ, with an average of more than 239,000 acres of priority habitats burned annually; more than 1 million acres burned in some years (Manier et al. 2013, p. 133). The Murphy Fire in Idaho and Nevada affected over 650,000 acres of habitat in this MZ in 2007 (USFWS 2013a, p. 78). In 2012, the Miller Homestead and Long Draw fires in southeastern Oregon burned 160,800 and 558,200 acres, respectively, mostly on BLM-administered lands with significant losses of GRSG habitat (BLM 2013c). An additional factor in the analysis of cumulative effects of fire on GRSG is the trend of increasing fire size and frequency and severity, due to factors including exotic annual grasses, and climate change.



Impact Analysis. Management actions in the Idaho and southwestern Montana sub-region that emphasize wildfire suppression in GRSG habitat would benefit the species by limiting habitat loss in the event of wildfire. Under current management (Alternative A), prescribed burning may be used to achieve habitat objectives. Alternatives B through F and the Proposed Plan provide for similar protection and maintenance of sagebrush habitat in implementing prescribed burning. The action alternatives all provide sagebrush protection in fuels treatment programs and would provide superior protection for sagebrush in prescribed burning, fuels treatment and fire suppression. The inter-agency Greater Sage Grouse Wildfire, Invasive Annual Grasses & Conifer Expansion Assessment (Fire and Invasive Assessment Tool (FIAT)) under the Proposed Plan prioritizes landscapes for wildfire prevention and suppression, fuels management, and habitat restoration and rehabilitation within key GRSG habitats based on resistance and resilience concepts in Chambers et al. (2014). These actions are in accordance with the COT report objective to retain and restore healthy native sagebrush plant communities within the range of GRSG.

The use of chaff and flares by the military may increase wildfire risk, but this risk is generally mitigated by release altitudes about 2,000 feet above ground level and only above 5,000 feet above ground level during fire risk categories 4 and 5 (Mountain Home Air Force Base 2012).

Recognition of the importance of sagebrush habitat during interagency wildfire response would benefit GRSG in the event of an unplanned fire. The State of Idaho, State of Nevada and State of Utah GRSG conservation plans discussed in **Section 5.1.4** would benefit GRSG habitat in the MZ. The Montana Executive Order emphasizes fire suppression in Core Population Areas, while recognizing other suppression priorities may take precedent. These programs would benefit GRSG during wildfire planning and response, particularly on lands not administered by the BLM or Forest Service.

On the local level, the Owyhee County Sage-Grouse Conservation Plan (Owyhee County 2013) recommends reseeding burned areas with sagebrush and implementing sagebrush restoration projects in historical GRSG habitat where historical fires have removed sagebrush cover. However, the conservation plan does not identify a funding source for this action.

The Interagency Standards for Fire and Fire Aviation Operations “Red Book” includes a BMP for GRSG habitat conservation for wildlife and fuels management (BLM 2013b). This document is a supplemental policy or guidance for the BLM, the Forest Service, and the USFWS. This BMP would benefit the GRSG during interagency wildland fire operations by using spatial habitat data and predictive services to prioritize and preposition firefighting resources in critical habitat areas. In January 2015, Secretarial Order 3336 “Rangeland Fire Prevention, Management and Restoration” was signed by the Secretary of the Interior. The order sets forth strategies for preventing and suppressing rangeland wildfire and for restoring sagebrush landscapes impacted by wildfire across the West. The order will improve coordination with local, state, tribal, and regional efforts to address rangeland wildfire at a landscape level. Coordination with rural fire districts to manage wildfires in GRSG habitat

will further reduce this threat across land ownership types and improve the quality and quantity of habitat.

Reasonably foreseeable wildland fire management efforts are projected to increase (**Section 5.1.12**), especially through increased coordination of federal, state, and local fire prevention actions and the implementation of other BLM and Forest Service LUPAs in MZ IV. When the impacts of the Idaho and southwestern Montana LUPA are added to these actions, this would result in a net conservation gain to GRSG habitats and populations in MZ IV.

Spread of Invasive Plants

Nature and Type of Effects. As discussed in **Section 3.3**, invasive weeds alter plant community structure and composition, productivity, nutrient cycling, and hydrology. Invasive weeds also may cause declines in native plant populations, including sagebrush habitat, through such factors as competitive exclusion and niche displacement. Invasive plants reduce and may eliminate vegetation that GRSG use for food and cover. Invasive weeds fragment existing GRSG habitat and reduce habitat quality by competitively excluding vegetation essential to GRSG. Invasive weeds can also create long-term changes in ecosystem processes, such as fire cycles and other disturbance regimes that persist even after an invasive plant is removed (Connelly et al. 2004).

Roads and recreation can promote the spread of invasive weeds through vehicular traffic. Weed infestations can further exacerbate the fragmentation effects of roadways. Irrigation water has also supported the conversion of native plant communities to hayfields, pasture, and cropland, thus fragmenting sagebrush habitats. Excessive grazing in these habitats can lead to the demise of the most common perennial grasses in this system and an abundance of invasive species, such as cheatgrass or Japanese brome (Reisner et al. 2013).

Conditions in the Sub-region and in MZ IV. By way of seeds carried by wind, humans, machinery, and animals, invasive and noxious weeds have invaded and will continue to invade many locations in MZ IV, including the sub-region. Some species, including annual bromes and Canada thistle, have become so ubiquitous throughout the sub-region that it is considered economically unfeasible to attempt to control certain areas, such as those that have crossed a threshold that precludes their returning to traditional plant community composition through normal plant succession. Such species are considered part of the vegetative landscape despite their adverse impacts on other vegetation. Canada thistle, although common throughout the sub-region, is not treated on a plant-by-plant basis; rather, it is treated when plant populations reach densities high enough to make it the majority species. Examples are when it is growing in the bottom of dry reservoirs, on recreation sites, and along established roads and undeveloped vehicle trails.

The BLM and Forest Service currently manage weed infestations through integrated weed management: biological, chemical, mechanical, manual, and educational methods. The BLM is guided by the 1991 and 2007 RODs for Vegetation Treatment on BLM Lands in Thirteen Western States (BLM 1991) and by the 2007 Programmatic Environmental Report (BLM 2007). Weeds are managed in cooperation with county governments and represents a landscape-level approach across management jurisdictions.



Impact Analysis. Increased activity, such as surface disturbance, motorized transportation, and animal and human activity, would increase the chance for the establishment and spread of invasive plants.

Management under Alternative A would allow for the most acres of surface disturbance; therefore, the potential for invasive weed spread and establishment would be greatest under this alternative, and effects to GRSG (e.g. reduction in quality of habitat) would be more pronounced. All of the action alternatives would reduce surface disturbance and would include weed-prevention measures to some degree. Of all alternatives, the Proposed Plan would likely have the lowest potential for invasive weed spread and establishment, given the three percent anthropogenic disturbance threshold which would limit surface disturbance; extensive mitigation and monitoring plans; wildfire and invasive species assessments and subsequent prioritization; application of RDFs and BMPs; and requirement for no net loss of key GRSG habitat. The COT report objective for invasive species is to maintain and restore healthy native sagebrush plant communities.

Invasive species on BLM-administered and National Forest System lands would be controlled under all alternatives. This would provide a net conservation gain to GRSG by restoring degraded sagebrush habitat.

Relevant cumulative actions that result in surface-disturbing activities, such as ROWs and energy and mining projects, would increase the potential for the spread of invasive weeds on both federal and non-federal lands. Projects subject to the general stipulations outlined in the Montana Executive Order are required to control noxious and invasive weed species and to use native seed mixes during reclamation processes. Similarly, Utah's state plan directs land managers to aggressively respond to new infestations of invasive plants, and prioritize containment of infestations within sagebrush habitats. The Nevada state plan includes stipulations for including control of invasive plant species and use of native seed mixes during reclamation. The Nevada and Utah state plans also address invasive species in fire management. The Idaho state plan includes conservation measures to prevent invasive species spread. These stipulations would benefit GRSG habitat by limiting the spread or establishment of invasive species, particularly on lands that lack BLM and Forest Service protective regulatory mechanisms. Further, the Greater Sage-Grouse Habitat Conservation Strategy for NRCS in Idaho has identified GRSG conservation measures related to invasive weeds, such as reducing the risk and rate of fire spread, restoration and rehabilitation, and weed control. A number of projects are ongoing or in the planning phase to treat nonnative, invasive species (**Section 5.1.12**). These impacts would be the same under all alternatives.

Reasonably foreseeable weed management efforts are projected to increase (**Section 5.1.12**), including other state and county noxious weed regulations and the implementation of other BLM and Forest Service LUPAs in MZ IV. When the impacts of the Idaho and southwestern Montana LUPA are added to these actions, this would result in a net conservation gain to GRSG habitats and populations in MZ IV. The Proposed Plan may result in the greatest net conservation gain due to its three percent anthropogenic disturbance cap that should reduce potential for the spread of weeds during the 20-year analysis period.

Conifer Encroachment

Nature and Type of Effects. Conifer woodlands, especially juniper (*Juniperus* spp.) and in some regions pinyon pine (*Pinus edulis*), may expand into sagebrush habitat and reduce availability of habitat for GRSG. Conifer expansion may be encouraged by human activities, including fire suppression and grazing (Miller et al. 2011). If woodland development is sufficient to restrict shrub and herbaceous understory growth, habitat quality for GRSG will be reduced (Connelly et al. 2004). Mature trees offer perch sites for raptors; thus, woodland expansion may also increase the threat of predation, as with powerlines (Manier et al. 2013, p. 91). Locations within approximately 1,000 yards of current pinyon-juniper woodlands are at highest risk of expansion (Bradley 2010). Studies have shown that GRSG incur population-level impacts at very low levels of conifer encroachment (Baruch-Mordo et al. 2013). In MZ IV, conifer encroachment reduces habitat quality in important seasonal ranges when woodland development is sufficient to restrict shrub and herbaceous production (Connelly et al. 2004 in Manier et al. 2013, p. 91).

Conditions in the Sub-region and in MZ IV. Approximately 55 percent of conifer encroachment risk in priority habitat (and 34 percent in general habitat) occur on BLM-administered lands within MZ IV (Manier et al. 2013, p. 93). In comparison, 25 percent of conifer encroachment risk in priority habitat (and 32 percent in general habitat) occur on private lands and 15 percent in priority habitat occurs on National Forest System lands (25 percent in general habitat). Therefore, BLM actions are likely to have a greater potential to ameliorate the effects of conifer encroachment on GRSG, particularly in priority habitat, than any other single land management entity.

Impact Analysis. The CO_T objective is to remove pinyon-juniper from areas of sagebrush that are most likely to support GRSG (post-removal) at a rate that is at least equal to the rate of pinyon-juniper incursion (USFWS 2013a, p. 47). Management under Alternatives D, E, and the Proposed Plan would target conifers in GRSG habitat for removal. Treatment acres under the Proposed Plan are presented in **Table 2-5**. The Proposed Plan would also incorporate GRSG habitat objectives to guide treatments. Alternatives A, B, C, and F are largely silent on conifer removal and thus would not serve to reduce this threat on BLM-administered and National Forest System lands in the sub-region, though the cumulative impact of other past, present, and reasonably foreseeable future actions in the sub-region and larger MZ would help reduce the threat across the MZ.

Relevant cumulative actions on federal, private, and state lands within the MZ include several large conifer removal projects (**Section 5.1.12**). Further, the NRCS carries out conservation measures to remove encroaching conifers near leks and lek seasonal habitats while minimizing disturbance to GRSG (NRCS 2012, p. 13). SGI has helped reduce the threat of early succession conifer encroachment through mechanical removal on 206,099 acres of private lands within MZ IV. The majority of these efforts were located inside PACs (NRCS 2015), helping to preserve historic fire return intervals and important GRSG habitat. The Utah and Idaho state plans direct land management agencies to remove encroaching conifers and conduct restoration of sagebrush habitats to expand GRSG habitat where possible.



Reasonably foreseeable conifer encroachment management efforts are projected to increase (**Section 5.1.12**), including efforts on private land and implementation of other BLM and Forest Service LUPAs in MZ IV. When the impacts of the Idaho and southwestern Montana LUPA are added to these actions, this would result in a net conservation gain to GRSG habitats and populations in MZ IV. The Proposed Plan would have the greatest reduction in the threat from conifer encroachment and provide a net conservation gain to GRSG. Alternatives D and E would also reduce the threat, though to a lesser degree than the Proposed Plan because they do not specify acres for treatment or habitat objectives.

Infrastructure

Rights-of-Way

Nature and Type of Effects. As discussed in **Section 4.2**, power lines can directly affect GRSG by posing a collision and electrocution hazard. They also can indirectly decrease lek attendance and recruitment by providing perches and nesting habitat for potential avian predators, such as golden eagles and ravens (Connelly et al. 2004). In addition, power lines and pipelines often extend for many miles. The ground disturbance associated with construction, as well as vehicle and human presence on maintenance roads, may introduce or spread invasive weeds over large areas, degrading habitat. Impacts from roads may include direct habitat loss from road construction and direct mortality from collisions with vehicles. Roads may also present barriers to migration corridors or seasonal habitats, facilitate predator movements, spread invasive plants, and increase human disturbance from noise and traffic (Forman and Alexander 1998).

Conditions in the Sub-region and in MZ IV. Infrastructure, such as ROWs and associated facilities and urbanization, is widespread throughout MZ IV. In some locations, infrastructure development has affected GRSG habitat. Development of roads, fences, and utility corridors has also contributed to habitat loss and fragmentation in portions of MZ IV. The best available estimates suggest about 25 percent of the MZ IV is within approximately 4 miles of urban development (Knick et al. 2011, p. 214). Impacts of infrastructure development in MZ IV are primarily related to highways, roads, power lines, and communication towers, with 90 percent of MZ I within 4 miles of a road, 30 percent within 4 miles of a power line, and 5 percent within 4 miles of a communication tower (Knick et al. 2011, pp. 215-216).

Although not representative of all infrastructure ROWs, transmission lines greater than 115 kilovolts indirectly influence 37 percent of priority habitat and 38 percent of general habitat across MZ IV. Indirect effects are assumed to occur to a radius of 4 miles (Manier et al. 2013, p. 41). Approximately 62 percent of transmission lines in priority habitat and 43 percent in general habitat are on BLM-administered lands across GRSG habitats in MZ IV (Manier et al. 2013, p. 41). In contrast, National Forest System lands contain 5 percent of transmission lines in priority habitat and 7 percent in general habitat. Therefore, BLM actions are likely to have a greater potential to affect transmission line ROWs in GRSG habitat than any other land management entity. Designating ROW exclusion and avoidance areas in PHMA and GHMA on BLM-administered and National Forest System lands could reduce the threat on these lands. However, in areas with scattered federal landownership, infrastructure may be routed around federal lands, often increasing its length and impact.

ROW avoidance and exclusion areas on BLM-administered and National Forest System lands could increase this tendency.

Impact Analysis. **Table 5-2**, Acres of Rights-of-Way Designations in GRSG Habitat in MZ IV, lists the areas of ROW avoidance and exclusion in GRSG habitat by alternative. **Table 5-3**, Acres of Existing and Proposed Utility Corridors in GRSG Habitat in MZ IV, lists acres of PHMA and GHMA in existing or future utility corridors.

Alternative A (current management) has the most acres open to ROWs in PHMA. Across MZ IV, Alternative B, C, D, and F reduce the number of open acres in PHMA, with even larger reductions under Alternative E and the Proposed Plan. For GHMA, most of the action alternatives have comparable open acreage except for Alternative D, which has over a two-fold reduction. However, impacts would likely also be reduced under the Proposed Plan, which would use anthropogenic disturbance criteria to screen projects in GHMA. Alternatives B, C, and F would increase ROW exclusion areas in PHMA in MZ IV, whereas Alternatives A, E, and the Proposed Plan would have fewer acres managed as ROW exclusion in PHMA. Alternative D would have the fewest acres managed as ROW exclusion in both PHMA and GHMA. The other action alternatives would have a similar acreage managed as ROW exclusion compared to Alternative A.

In PHMA, Alternatives B, C, and F would not contribute acres of ROW avoidance within MZ IV, as PHMA would be managed as ROW exclusion under these alternatives. In contrast, Alternatives D, E, and the Proposed Plan manage PHMA as ROW avoidance, thereby increasing the acreage compared to Alternative A. The Proposed Plan offers additional protections due to the anthropogenic disturbance criteria, buffers, 3 percent disturbance cap, and mitigation requirements (**Appendix J**). Acres of utility corridors would be largely similar across all alternatives in both PHMA and GHMA.

Because of the additional protections under the Proposed Plan, this alternative provides the greatest net conservation gain to GRSG in the Idaho and southwestern Montana sub-region and is most likely to meet the COT report objective, which is to avoid development of infrastructure in GRSG priority areas for conservation.

The numbers of ROW authorizations are anticipated to grow in the sub-region. Increasing populations, continued energy development, and new communication sites drive the need for new ROWs on both federal and non-federal lands. For instance, the Boardman to Hemingway and Gateway West projects would influence GRSG habitat in MZ IV. While these projects would be exempted from the conservation measures in this plan, conservation measures for GRSG will be incorporated via the site-specific NEPA process for these projects. Actual impacts and contribution to cumulative effects from these projects are unknown at this time. Impacts on GRSG habitat on state or private land could be greater due to less restrictive management on those lands.



Table 5-2
Acres of Rights-of-Way Designations in GRSG Habitat in MZ IV

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ IV	<i>Percent Within Sub-Region</i>	MZ IV	<i>Percent Within Sub-Region</i>
Open to Rights-of-Way				
Alternative A	6,511,000	99%	2,066,000	95%
Alternative B	113,000	40%	1,981,000	95%
Alternative C	153,000	56%	104,000	0%
Alternative D	116,000	41%	147,000	29%
Alternative E	68,000	0%	2,509,000	96%
Alternative F	113,000	40%	2,425,000	96%
Proposed Plan	97,000	30%	1,731,000	94%
Right-of-Way Exclusion				
Alternative A	922,000	74%	373,000	92%
Alternative B	8,411,000	97%	322,000	91%
Alternative C	11,264,000	98%	29,000	0%
Alternative D	238,000	0%	30,000	3%
Alternative E	907,000	74%	339,000	91%
Alternative F	8,411,000	97%	361,000	92%
Proposed Plan	787,000	70%	493,000	94%
Right-of-Way Avoidance				
Alternative A	7,600,000	14%	3,626,000	22%
Alternative B	6,510,000	0%	3,537,000	20%
Alternative C	6,510,000	0%	2,813,000	0%
Alternative D	14,682,000	56%	5,893,000	52%
Alternative E	13,478,000	52%	3,615,000	22%
Alternative F	6,510,000	0%	3,554,000	21%
Proposed Plan	11,092,000	41%	6,642,000	58%

Source: BLM 2015

¹ Includes IHMA

This table displays the acres of PHMA and GHMA within rights-of-way designations in MZ IV; it also displays the percentage of those acres that are found within the sub-region.

Table 5-3
Acres of Existing and Proposed Utility Corridors in GRSG Habitat in MZ IV

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ IV	<i>Percent Within Sub-Region</i>	MZ IV	<i>Percent Within Sub-Region</i>
Proposed Utility Corridor				
Alternative A	134,000	31%	104,000	40%
Alternative B	134,000	30%	103,000	39%
Alternative C	174,000	49%	63,000	0%
Alternative D	134,000	31%	104,000	40%
Alternative E	134,000	31%	103,000	40%
Alternative F	134,000	34%	109,000	42%
Proposed Plan	118,000	25%	123,000	49%

Source: BLM 2015

¹ Includes IHMA

This table displays the acres of PHMA and GHMA within existing and proposed utility corridors in MZ IV; it also displays the percentage of those acres that are found within the sub-region.

New ROW authorizations that require state agency review or approval would be subject to the permitting process and stipulations for development in GRSG Core Areas (Montana and Nevada)/GRSG Management Areas (Utah) under the Montana Executive Order and the Nevada and Utah state conservation plans for GRSG. These stipulations would benefit the GRSG in these areas by encouraging ROW development outside of habitat, restricting surface occupancy within 0.6 mile of occupied leks, prohibiting power lines greater than 115 kV outside of designated corridors, and locating new roads used to transport products or waste over 1.9 miles from occupied leks. The Idaho state plan also includes conservation measures to reduce the impacts from ROW development.

The effect of the alternatives and other conservation actions in the MZ (most notably the Montana executive order) could be synergistic, meaning that the effects of the actions together is greater than the sum of their individual effects. By implementing restrictions on infrastructure in PHMA and on state and private lands together, the cumulative beneficial effect on GRSG would be greater than the sum of their individual effects because protections would be applied more consistently across the landscape. This is especially important in areas of mixed land ownership patterns where complementary protections can benefit leks, early brood rearing habitat, or other important areas that do not follow geopolitical boundaries.

Reasonably foreseeable ROW development in MZ IV is expected to increase over the 20-year analysis period (**Section 5.1.12**), though state and private GRSG conservation efforts as well as other BLM and Forest Service proposed plans in MZ IV would reduce the threat by



restricting the type and location of developments. When restrictions within the Idaho and southwestern Montana LUPA are added to these conservation actions, the impacts of future ROW developments would be further reduced. The Proposed Plan would provide the greatest net conservation gain to GRSG habitats and populations in MZ IV by providing the flexibility to site ROWs with the least impact on GRSG habitat.

Renewable Energy

Nature and Type of Effects. Impacts on GRSG from renewable energy development, such as that for wind and solar power, are similar to those from nonrenewable energy development. Additional concerns associated with wind energy developments are rotor blade noise, structure avoidance, and mortality caused by collisions with turbines (Connelly et al. 2004).

Conditions in the Sub-region and in MZ IV. Wind energy development is an increasing threat in some populations. Over the last six years, the BLM in Idaho has authorized and then relinquished a ROW for wind development and has two pending applications. Wind testing sites have been authorized on BLM lands in the sub-region, though no wind developments have been authorized and constructed.

Solar energy potential is low in MZ IV, and the BLM has not received any applications for utility-scale solar production in the sub-region, nor are there solar resources comparable to the areas where utility-scale solar production projects are being proposed or built.

Although not representative of all renewable energy development, wind turbines indirectly influence less than 1 percent of priority habitat and general habitat combined across MZ IV. Private lands account for 82 percent of wind turbines affecting GRSG in priority habitat (and 62 percent in general habitat) within MZ IV. Therefore, conservation actions on private land are likely to have a greater potential to ameliorate the effects of wind energy development than any other single land management entity.

Impact Analysis. **Table 5-4**, Acres of Wind Energy Management Designations in GRSG Habitat in MZ IV, lists areas of wind energy ROW by alternative.

In the Idaho and southwestern Montana sub-region, the alternatives do not contribute to the open acres in PHMA in MZ IV, whereas the alternatives contribute most of the open and ROW exclusion acres in GHMA. Alternatives D and E manage the greatest acreage of PHMA as ROW avoidance, while Alternatives B, C, D, F, and the Proposed Plan would have the most acres managed as ROW exclusion for wind energy. The Proposed Plan would offer additional protections for PHMA, including anthropogenic disturbance criteria, a 3 percent disturbance cap, buffers, and mitigation requirements (**Appendix J**). Across MZ IV, most other sub-regions' proposed plans maintain exclusion areas in PHMA for wind energy, with the exception of Oregon which allows for avoidance in Lake, Harney, and Malheur counties. The Proposed Plan in Idaho would allow wind energy development in GHMA, subject to a screening process, whereas Montana would manage GHMA as avoidance for wind.

**Table 5-4
Acres of Wind Energy Management Designations in GRSG Habitat in MZ IV**

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ IV	<i>Percent Within Sub-Region</i>	MZ IV	<i>Percent Within Sub-Region</i>
Open to Wind Rights-of-Way				
Alternative A	6,104,000	100%	1,876,000	100%
Alternative B	0	0%	1,8023,000	100%
Alternative C	85,000	100%	0	0%
Alternative D	47,000	100%	43,000	100%
Alternative E	44,000	100%	2,243,000	100%
Alternative F	0	0%	2,236,000	100%
Proposed Plan	0	0%	1,500,000	100%
Wind Right-of-Way Exclusion				
Alternative A	6,846,000	21%	557,000	95%
Alternative B	13,644,000	60%	493,000	94%
Alternative C	16,452,000	67%	30,000	0%
Alternative D	12,405,000	56%	412,000	93%
Alternative E	6,726,000	19%	621,000	95%
Alternative F	13,644,000	60%	552,000	95%
Proposed Plan	10,587,000	49%	1,261,000	98%
Wind Right-of-Way Avoidance				
Alternative A	2,084,000	33%	3,572,000	20%
Alternative B	1,390,000	0%	3,485,000	18%
Alternative C	1,390,000	0%	2,857,000	0%
Alternative D	2,581,000	46%	5,550,000	49%
Alternative E	7,982,000	82%	3,540,000	19%
Alternative F	1,390,000	0%	3,492,000	18%
Proposed Plan	1,390,000	0%	6,046,000	53%

Source: BLM 2015

¹ Includes IHMA

This table displays the acres of PHMA and GHMA within wind energy management designations in MZ IV; it also displays the percentage of those acres that are found within the sub-region.

Projects that require state agency review or approval would be subject to the Montana Executive Order permitting process. This would encourage wind energy development outside of Core Areas. Similarly, in Nevada, wind energy developments would be located outside of core, priority and general habitats, or would minimize and/or mitigate for impacts if avoidance is not feasible. The Utah Executive Order directs state agencies to minimize disturbance within GRSG Management Areas and maintain consistency with conservation measures in the Utah state plan. In Oregon and Idaho, wind energy projects could voluntarily site development outside of GRSG habitat, but currently no regulatory mechanisms are in place to reduce impacts to GRSG habitat from projects requiring state agency review or approval.

Reasonably foreseeable renewable energy development in MZ IV is expected to increase over the 20-year analysis period (**Section 5.1.12**), though state GRSG conservation efforts as well as wind energy restrictions in other BLM and Forest Service proposed plans in MZ IV would reduce the threat by implementing disturbance caps and restricting the location of developments. When restrictions in the Idaho and southwestern Montana LUPA are added to these conservation actions, this would result in a net conservation gain to GRSG habitats and populations in MZ IV.

Grazing/Free-Roaming Equids

Nature and Type of Effects. In general, livestock can influence habitat by modifying plant biomass, plant height and cover, and plant species composition. As a result, livestock grazing could cause changes in habitat that alter species abundances and composition in GRSG insect prey. Changes in plant composition could occur in varying degrees and could change vegetative structure, affecting cover for nesting birds. Grazing could also alter fire regimes (Davies et al. 2010).

If not managed properly, cattle and sheep grazing can compact soil, enrich soil with nutrients, trample vegetation and nests, directly disturb GRSG and negatively affect GRSG recruitment. Cattle and sheep also can reduce invertebrate prey for GRSG or increase their exposure to predators (Beck and Mitchell 2000, pp. 998-1,000; Knick 2011; Coates 2007, pp. 28-33). Grazing in riparian areas can destabilize streams and riverbanks, cause the loss of riparian shade, and increase sediment and nutrient loads in the aquatic ecosystem (George et al. 2011). Stock watering tanks can contribute to stream and aquifer dewatering and may concentrate livestock movement and congregation in sensitive areas (Vance and Stagliano 2007).

However, grazing can reduce the spread of invasive grasses, if applied annually before the grasses have dried. It also can be used to reduce fuel load (Connelly et al. 2004, p. 7, 28-30). Light to moderate grazing does not appear to affect perennial grasses, which are important to nest cover (Strand and Launchbaugh 2013). However, excessive grazing can eliminate perennial grasses and lead to expansion of invasive species such as cheatgrass or medusahead (Reisner et al. 2013).

Periodic overgrazing can damage range resources over the long term. It often exacerbates drought effects when stocking levels are not quickly reduced to match the limited forage

production. The degree to which grazing affects habitat depends on several factors, such as the number of animals grazing in an area, the time of grazing, and the grazing system used.

A well-developed understory of grass, forbs, and deciduous shrubs is critical for GRSG and other wildlife. Impacts on habitat vary with livestock densities and distribution; the more evenly livestock is distributed, the lower their impact on any given area (Gillen et al. 1984). However, cattle show a strong preference for certain areas, leading to high use in some areas and little to no use in others. Livestock grazing is generally limited by slopes of greater than 30 percent, dense forests and vegetation, poor or little upland forage, and lack of water.

Since the passage of the 1934 Taylor Grazing Act, range conditions on BLM-administered lands have improved due to improved grazing management practices and decreased livestock numbers and annual duration of grazing.

In addition, the BLM has applied Standards for Rangeland Health since 1997. On National Forest Systems lands, livestock grazing is administered in accordance with a number of laws and regulations, including the Multiple Use and Sustained Yield Act of 1960, Granger-Thye Act of 1950, and Organic Administration Act of 1897. The purpose of these regulations is to enhance sustainable livestock grazing and wildlife habitat, while protecting watersheds and riparian ecosystems.

Although livestock grazing is the most widespread land use across the sagebrush biome, it exerts a more limited influence on soils and vegetation than land uses that remove or fragment habitat (e.g., mineral extraction or infrastructure development). GRSG are able to co-exist with grazing animals when properly managed. Thus, reducing AUMs or acres open to grazing would not necessarily restore high quality GRSG habitat.

Reducing grass height caused by livestock grazing in GRSG nesting and brood-rearing areas has been shown to negatively impact nesting success. Livestock grazing could reduce the suitability of breeding and brood-rearing habitat, which would impact GRSG populations (USFWS 2010).

For BLM-administered and National Forest System lands, Standards for Rangeland Health require the agencies to maintain or enhance habitats that support or could support endangered, threatened, or sensitive species. The BLM Washington Office IM 2009-018 requires that land health considerations, such as vegetation cover for GRSG, are considerations for prioritizing the processing of grazing authorizations.

Range improvements could result in livestock overusing important GRSG areas. For example, developing springs would generally change vegetative composition from a high diversity of grasses and forbs, important to broods, to one dominated by grasses; conversely, in areas where livestock use was not well managed, invasive forbs would rise in prevalence.

Concentrated livestock use would remove standing vegetation and subsequently reduce associated insects and forbs, both of which are important to GRSG broods. Allowing spring



developments along ephemeral streams and wetlands and allowing livestock watering tanks would decrease GRSG habitat. Springs, seeps, and wetland areas are vitally important to GRSG broods; therefore, allowing spring developments under this alternative could benefit some resources but not GRSG.

Wild horse and burro grazing has similar impacts as livestock grazing in their effect on soils, vegetation health, species composition, water, and nutrient availability by consuming vegetation, redistributing nutrients and seeds, trampling soils and vegetation, and disrupting microbial systems (Connelly et al. 2004).

Conditions in the Sub-region and in MZ IV. Livestock grazing is present and widespread on many land types, such as federal and private, across MZ IV. Rangeland health assessments have found that over 19 percent of BLM-administered grazing allotments in GRSG habitat in MZ IV are not meeting wildlife standards with grazing as a causal factor (Manier et al. 2013, p. 97). Additionally, nearly 2 million acres of GRSG habitat within MZ IV is federally managed wild horse and burro range (Manier et al. 2013, p. 102).

Perhaps the most pervasive change associated with grazing management in GRSG habitats throughout MZ IV is the construction of fencing and water developments (Knick et al. 2011, p. 224). Barbed wire fences contribute to direct mortality through fence collisions (Stevens et al. 2011); water developments may contribute to the increased occurrence of West Nile virus (Walker and Naugle 2011).

Additional habitat modifications associated with grazing management are mechanical and chemical treatments to increase grass production, often by removing sagebrush (Knick et al. 2011). Standards for Rangeland Health protect habitat from elements detrimental to GRSG, but not all rangelands in MZ IV are in compliance with these standards.

Wild horses also occur within MZ IV and the sub-region; within MZ IV, 5.7 percent of priority habitat is negatively influenced by free-roaming equids (Manier et al. 2013, p. 102). Six designated herd management areas (HMAs) and nine herd areas occur on BLM-administered lands in the sub-region; no active wild horse and burro territories occur on National Forest System lands in the sub-region (**Section 3.6**). The BLM establishes an appropriate management level (AML) for each HMA, which represents the population objective.

Impact Analysis. On all lands in the sub-region, the BLM manages livestock grazing on 12,129,800 acres, encompassing 2,654 grazing allotments, while the Forest Service manages 9,646,900 acres encompassing 319 grazing allotments. **Table 5-5, Acres Available and Unavailable to Livestock Grazing in GRSG Habitat in MZ IV**, lists the acres of PHMA and GHMA available and unavailable for grazing, by alternative.

Acres available to livestock grazing in PHMA and GHMA are similar across most alternatives. Acres unavailable to livestock grazing would be greatest under Alternative C, which closes all GRSG habitat to grazing, followed by Alternative F, which would reduce

Table 5-5
Acres Available and Unavailable to Livestock Grazing in GRSG Habitat in MZ IV

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ IV	<i>Percent Within Sub-Region</i>	MZ IV	<i>Percent Within Sub-Region</i>
Available to Livestock Grazing				
Alternative A	14,819,000	55%	5,845,000	51%
Alternative B	14,819,000	55%	5,651,000	50%
Alternative C	6,696,000	0%	2,853,000	0%
Alternative D	14,819,000	55%	5,845,000	51%
Alternative E	14,224,000	53%	6,288,000	55%
Alternative F	14,819,000	55%	6,151,000	54%
Proposed Plan	11,687,000	43%	8,679,000	67%
Unavailable to Livestock Grazing				
Alternative A	123,000	25%	66,000	52%
Alternative B	123,000	25%	62,000	50%
Alternative C	11,166,000	99%	32,000	0%
Alternative D	123,000	25%	66,000	52%
Alternative E	135,000	32%	51,000	37%
Alternative F	123,000	25%	62,000	50%
Proposed Plan	262,000	65%	124,000	75%

Source: BLM 2015

¹ Includes IHMA

This table displays the acres of PHMA and GHMA available and unavailable to livestock grazing in MZ IV; it also displays the percentage of those acres that are found within the sub-region.

grazing by 25 percent in PHMA. Such reductions and closures would benefit GRSG by maintaining nesting cover for protection and forage; however, the increased need for fencing to exclude grazing animals could also harm nesting GRSG by increasing the likelihood of predation and collision.

However, as discussed, moderate grazing is compatible with GRSG habitat; thus, closing acres to grazing may not itself benefit or harm GRSG. Possibly equally or more beneficial is restricting range improvements in GRSG habitat, limiting fencing, and effectively implementing range health standards on grazing allotments in GRSG habitat. Alternatives B through F and the Proposed Plan include grazing restrictions (to varying degrees) which would help protect GRSG from potential impacts such as habitat changes due to herbivory and collisions with fencing. In terms of impacts on BLM-administered and National Forest System lands, Alternative A would have no GRSG-specific protective grazing restrictions,



and would therefore have the greatest impacts on the species. Alternative C would have no areas available for livestock within with designated habitat, and would therefore have the fewest impacts on the species. However, as a result of restricting grazing in GRSG habitat under Alternative C, increased fencing on private lands may occur. This could result in higher cumulative effects though mortality from fencing collisions. Reduced grazing under Alternative F would have similar, but fewer impacts, compared to Alternative C.

The COT report objectives for livestock grazing are to manage grazing in a manner consistent with local ecological conditions. This management would maintain or restore healthy sagebrush shrub and native perennial grass and forb communities and conserve essential habitat components for GRSG. Restoration to meet these standards and adequate monitoring would be required. The COT report also states that land managers should avoid or reduce the impact of range management structures on GRSG habitat.

If BLM-administered and National Forest System lands were made unavailable for livestock grazing, as under Alternative C, this could increase grazing pressure on adjacent private lands. Loss of federal grazing permits would pose a threat of indirect adverse effects, including potential conversion of private grazing lands to agriculture, if the loss of federal grazing privileges made ranching less economically viable.

Since 2010, SGI has enhanced rangeland health through rotational grazing systems, re-vegetating former rangeland with sagebrush and perennial grasses and control of invasive weeds. On privately-owned lands, SGI has developed a prescribed grazing approach that balances forage availability with livestock demand. This system allows for adjustments to timing, frequency, and duration of grazing, ensuring rangelands are managed sustainably to provide continued ecological function of sagebrush-steppe. A primary focus of the prescribed grazing approach is maintenance of key plant species, such as deep-rooted perennial grasses that have been shown to be essential for ecological resistance to invasive annual grasses (Reisner et al. 2013, pp. 1047-1048). These actions help to alleviate the adverse impacts associated with improper grazing practices outlined above under Nature and Type of Effects. Within MZ IV, SGI has implemented 314,930 acres of prescribed grazing systems. This program is likely the largest and most impactful program on private lands within MZ IV. Because of its focus on priority areas for conservation, which often overlap PHMA, the SGI's past, present, and reasonably foreseeable work has had and likely will continue to have a cumulative beneficial impact on GRSG when considered alongside protective BLM management actions in PHMA.

Reasonably foreseeable livestock grazing management efforts in MZ IV are expected to increase over the analysis period (**Section 5.1.12**), through increased NRCS conservation actions under the Sage-Grouse Initiative (e.g., fence marking and conservation easements), state efforts to maintain ranchland, and the implementation of other BLM and Forest Service LUPAs in MZ IV. When grazing management within the Idaho and southwestern Montana LUPA is added to these conservation actions, this would result in a net conservation gain to GRSG habitats and populations in MZ IV.

Under all alternatives the BLM has the ability to adjust appropriate management levels of wild horses if resource damage occurs; however, only Alternatives B through F and the Proposed Plan provide management guidelines specific to GRSG habitat (e.g. prioritizing gathers in GRSG habitat), which would benefit the species more than Alternative A.

Reasonably foreseeable wild horse management efforts are projected to increase over the analysis period (**Section 5.1.12**) with implementation of other BLM and Forest Service LUPAs in MZ IV. Other past, present, and reasonably foreseeable future actions are unlikely to affect the threat from wild horses and burros, as these animals are federally-managed. When wild horse management within the Idaho and southwestern Montana LUPA is added to these conservation actions, this would result in a net conservation gain to GRSG habitats and populations in MZ IV. Impacts may be reduced to the greatest extent under the Proposed Plan, where AMLs would be evaluated with consideration of GRSG habitat objectives for BLM-administered lands.

Conversion to Agriculture

Nature and Type of Effects. Converting sagebrush habitat to agricultural use, commonly referred to as sodbusting, causes direct loss of habitat available for GRSG. Habitat loss also decreases the connectivity between seasonal habitats, increasing population isolation and fragmentation. Fragmentation then increases the probability for decline of the population, reduced genetic diversity, and extirpation from stochastic events (Knick and Hanser 2011).

In addition to reducing the land area available to support GRSG, habitat loss and fragmentation also increase the likelihood of other disturbances, such as human traffic, wildfire, and invasive plant spread.

Converting cropland has eliminated or fragmented sagebrush on private lands in areas with deep fertile soils or irrigation potential. Sagebrush remaining in these areas has been limited to the agricultural edge or to relatively unproductive environments.

Conditions in the Sub-region and in MZ IV. Regional assessments estimate that while only 1 percent of priority habitat and general habitat in MZ IV are directly influenced by agricultural development, over 85 percent of these habitats are within approximately 4 miles of agricultural land (Manier et al. 2013, p. 27).

Impact Analysis. The BLM and Forest Service do not convert public lands to agriculture. As such, the only direct authority these agencies have over conversion to agriculture is by retaining or disposing of lands in the realty program. Lands retained under BLM and Forest Service management will not be converted to agriculture and disposing of lands could increase the likelihood they will be converted to agriculture, depending on their location and new management authority.

As shown below in **Table 5-6**, Acres Identified for Retention and Disposal in GRSG Habitat in MZ IV, acres identified for retention are similar in the sub-region and in MZ IV among the alternatives. Under Alternatives B, C, D, F, and the Proposed Plan, the BLM and



**Table 5-6
Acres Identified for Retention and Disposal in GRSG Habitat in MZ IV**

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ IV	<i>Percent Within Sub-Region</i>	MZ IV	<i>Percent Within Sub-Region</i>
Acres Identified for Retention				
Alternative A	12,348,000	45%	4,930,000	45%
Alternative B	14,997,000	55%	4,760,000	43%
Alternative C	17,878,000	62%	2,707,000	0%
Alternative D	14,995,000	55%	5,803,000	53%
Alternative E	11,784,000	42%	5,352,000	49%
Alternative F	14,997,000	55%	5,209,000	48%
Proposed Plan	11,973,000	43%	8,628,000	69%
Acres Identified for Disposal				
Alternative A	520,000	99%	431,000	59%
Alternative B	4,000	0%	431,000	59%
Alternative C	4,000	0%	178,000	0%
Alternative D	5,000	10%	182,000	2%
Alternative E	436,000	99%	518,000	66%
Alternative F	4,000	0%	447,000	60%
Proposed Plan	4,000	0%	178,000	0%

Source: BLM 2015

¹ Includes IHMA

This table displays the acres of PHMA and GHMA identified for retention and disposal in MZ IV; it also displays the percentage of those acres that are found within the sub-region.

Forest Service would generally retain GRSG habitat, thereby eliminating the possibility that GRSG habitat would be converted to agriculture use. Alternatives A and E do not specify retention of GRSG habitat, and thus there is the possibility of these lands being disposed. Most acres within MZ IV that are identified for disposal under Alternatives A and E are within the Idaho and southwestern Montana sub-region. However, land tenure adjustments require site-specific NEPA analysis and land sales must meet the disposal criteria under applicable law. BLM land tenure adjustments are not anticipated to be a significant contributing element to the threat of agriculture conversion.

Cumulative impacts vary relatively little across alternatives because BLM and Forest Service management have little impact on alleviating this threat. Restrictions on grazing on federal land could increase agriculture pressure on adjacent private lands. If the loss of federal grazing privileges makes ranching economically unviable, the potential conversion of private

grazing lands to agriculture would increase. However, the Proposed Plan does not substantially increase acreage unavailable to grazing.

The COT report objectives for converting land to agriculture are to avoid further loss of sagebrush habitat for agricultural activities (both plant and animal production) and to prioritize restoration. In areas where taking agricultural lands out of production has benefited GRSG, the programs supporting these actions should be targeted and continued (USFWS 2013a, p. 48). In accordance with this objective, the NRCS's SGI program focuses on maintaining ranchland that provides habitat for GRSG. This voluntary program provides private landowners with monetary incentives to protect GRSG habitat, often through conservation easements. As a result, private land containing GRSG habitat is protected from conversion to agriculture or other development for the life of the conservation agreement. The conservation easements and other conservation incentives, such as restoration of water features and fence marking, can enhance the ability of private ranchlands to support GRSG. As of 2014, SGI has secured conservation easements on 98,167 acres within MZ IV and marked or removed 95 miles of fence (NRCS 2015). This has preserved habitat and reduced the risk of direct mortality on these lands.

Over the analysis period, conversion to agriculture is expected to increase (**Section 5.1.12**), though state and private conservation efforts as well as other BLM and Forest Service proposed plans in MZ IV would reduce the threat. When land tenure decisions within the Idaho and southwestern Montana LUPA are added to these conservation actions, this would result in net conservation gain to GRSG habitats and populations in MZ IV.

Energy Development and Mining

The COT report states that energy development should be designed to ensure that it will not impinge on stable or increasing GRSG population trends. For mining, the COT report objective is to maintain stable to increasing GRSG populations and no net loss of GRSG habitats in areas affected by mining (USFWS 2013a, p. 49).

There are approximately 1,137,700 acres of GRSG habitat in MZ IV where energy and mineral development (including geothermal, mineral materials, wind energy, and non-energy leasable minerals) is presently occurring. There are 6,553,300 acres indirectly influenced by energy development (including oil and gas, mineral materials, and wind energy; indirect effects were not quantified for geothermal and nonenergy leasable mineral developments) (Manier et al. 2013, pp. 52-71). No coal or oil and gas development is presently occurring in MZ IV.

Oil and Gas

Nature and Type of Effects. As discussed in **Section 4.2**, oil and gas development impacts GRSG and sagebrush habitats through direct disturbance and habitat loss from well pads, access construction, seismic surveys, roads, power lines, and pipeline corridors. Indirect disturbances result from noise, gaseous emissions, changes in water availability and quality, and human presence. These factors could cumulatively or individually lead to habitat fragmentation in the long term (Connelly et al. 2004; Holloran 2005).



Oil and gas development results in direct loss of habitat from well pad and road construction as well as indirect disturbance impacts from increased noise and vehicle traffic. Oil and gas development also directly impacts GRSG through the species' avoidance of infrastructure. This development can also impact GRSG survival or reproductive success. Indirect effects include habitat quality changes, predator communities, and disease dynamics (Naugle et al. 2011).

Conditions in the Sub-region and in MZ IV. There is currently no oil and gas development within MZ IV (Manier et al. 2013, p. 52) and approximately 346,000 acres (1 percent) of GRSG habitat are leased but undeveloped (Manier et al. 2013, p. 55). Less than one percent of GRSG habitat in MZ IV is within 1.8 miles of oil and gas wells (Knick et al. 2011, p. 240). There are two leases in Bonneville County in the sub-region within MZ IV (**Section 3.12**).

Although oil and gas activities have a disproportionately greater effect on private lands, regulatory mechanisms on both federal surface and split estate lands in MZ IV are influential. Split estate lands with federal subsurface minerals may provide mitigation for impacts on GRSG habitat on private surface lands that would not be required on lands with both privately held surface and subsurface.

According to the RFD scenario (**Appendix O**), permanent disturbance associated with oil and gas development is projected to occur on 156 acres within the Idaho and southwestern Montana sub-region over the next 10 years, representing less than one percent of GRSG habitat within either the sub-region or MZ IV. Within MZ IV outside of the sub-region, less than 200 acres are projected by the Nevada, Oregon, and Utah sub-regional RFD scenarios. The potential for impacts would be reduced where areas are closed to fluid mineral leasing and where NSO and CSU/TL stipulations are applied. Given the small acreage and implementation of RDFs and BMPs (**Appendix B**), the likelihood for impacts on GRSG habitat on BLM-administered and National Forest System lands is anticipated to be small and localized under all alternatives.

Impact Analysis. **Tables 5-7**, Acres Open* and Closed to Fluid Mineral Leasing in GRSG Habitat in MZ IV, and **5-8**, Acres with NSO and CSU/TL Stipulations in GRSG Habitat in MZ IV, provide a quantitative summary of fluid mineral leasing conditions on BLM-administered and National Forest System lands across MZ IV, followed by an analysis of the Idaho and southwestern Montana sub-regional alternatives.

As shown in **Tables 5-2** and **5-3**, fluid mineral closures and stipulations within the Idaho and southwestern Montana sub-region exert a fairly large influence within the broader MZ. Alternatives B, C, and F would provide the greatest protection to GRSG in the MZ by closing PHMA to new leases. This would reduce well density and impacts associated with construction and operation. Acres open and closed in GHMA would be similar across the alternatives, though the Proposed Plan would have approximately double the acreage closed

Table 5-7
Acres Open* and Closed to Fluid Mineral Leasing in GRSG Habitat in MZ 1V

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ IV	<i>Percent Within Sub-Region</i>	MZ IV	<i>Percent Within Sub-Region</i>
Open ² to Fluid Mineral Leasing				
Alternative A	85,742,000	100%	2,010,000	100%
Alternative B	0	0%	1,962,000	100%
Alternative C	0	0%	0	0%
Alternative D	0	0%	0	0%
Alternative E	0	0%	2,468,000	100%
Alternative F	0	0%	2,465,000	100%
Proposed Plan	0	0%	0	0%
Closed to Fluid Mineral Leasing				
Alternative A	1,737,000	60%	759,000	37%
Alternative B	9,447,000	93%	730,000	35%
Alternative C	12,740,000	94%	478,000	0%
Alternative D	9,210,000	92%	759,000	37%
Alternative E	1,679,000	58%	592,000	40%
Alternative F	762,000	93%	762,000	37%
Proposed Plan	1,507,000	53%	1,308,000	63%

Source: BLM 2015

¹ Includes IHMA

² Open with standard lease terms and conditions. This table displays the acres of PHMA and GHMA open and closed to fluid mineral leasing in MZ IV; it also displays the percentage of those acres that are found within the sub-region.

Table 5-8
Acres with NSO and CSU/TL Stipulations in GRSG Habitat in MZ 1V

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ IV	<i>Percent Within Sub-Region</i>	MZ IV	<i>Percent Within Sub-Region</i>
NSO Stipulations				
Alternative A	7,332,000	12%	685,000	93%
Alternative B	6,485,000	0%	545,000	92%
Alternative C	6,485,000	0%	45,000	0%
Alternative D	6,597,000	2%	718,000	94%
Alternative E	13,543,000	52%	660,000	93%
Alternative F	6,485,000	0%	550,000	92%
Proposed Plan	11,354,000	43%	3,828,000	99%
CSU/TL Stipulations				
Alternative A	1,138,000	100%	3,327,000	19%
Alternative B	18,000	100%	3,290,000	18%
Alternative C	18,000	100%	2,710,000	0%
Alternative D	142,000	100%	5,304,000	49%
Alternative E	74,000	100%	3,285,000	18%
Alternative F	18,000	100%	3,290,000	18%
Proposed Plan	0	0%	5,037,000	46%

Source: BLM 2015

¹ Includes IHMA

This table displays the acres of PHMA and GHMA with NSO Stipulations and CSU/TL Stipulations in MZ IV; it also displays the percentage of those acres that are found within the sub-region.

in GHMA compared to the other alternatives. Acres managed as NSO would be similar across alternatives in PHMA and GHMA, with more acres managed as NSO under Alternative E and the Proposed Plan. The Proposed Plan would provide additional protections to GRSG from fluid mineral development by requiring anthropogenic disturbance criteria, a 3 percent disturbance cap, buffers, mitigation requirements (**Appendix J**), RDFs and BMPs, and by managing SFAs as NSO with no waivers, exceptions, and modifications.

Restoring disturbed habitats would require the reestablishment of native shrubs and forbs, including big sagebrush, which would benefit GRSG; however, restored habitats may not support GRSG for long periods following restoration (Arkle et al. 2014). For this reason, successful restoration may not be successful without a nearby source population.

Under the Montana Executive Order, authorizations of oil and gas development that require state agency review or approval would be subject to the GRSG permitting process. They also would be subject to stipulations for development in GRSG Core areas. Similarly, authorizations in Nevada would be subject to measures in the Nevada state plan, including avoidance, minimization, and mitigation of any unavoidable impacts to GRSG habitat. Oil and gas lease authorizations in Utah that require state agency review or approval would be subject to the Utah executive order, which directs the Utah division of Oil, Gas, and Mining to consult with UDWR on all actions within GRSG Management Areas, and incorporate conservation measures from the state's GRSG conservation plan. The Idaho state plan includes mandatory restrictions on surface use and timing on IDL lands and site reclamation requirements, as well as voluntary conservation measures that could be applied.

The effect of the alternatives and other conservation actions in the MZ (most notably the Nevada state plan and Montana and Utah executive order) could be synergistic, meaning that the effects of the actions together is greater than the sum of their individual effects. For example, applying buffers in PHMA and on state and private land would effectively conserve larger blocks of land than if these actions occurred individually. This would provide a landscape-scale net conservation benefit, especially in areas where little development has occurred to date.

Reasonably foreseeable oil and gas development in MZ IV is negligible though it is expected to increase over the 20-year analysis period (**Section 5.1.12**). However, state and private GRSG conservation efforts as well as other BLM and Forest Service proposed plans in MZ IV would reduce the threat by restricting the location of developments and requiring mitigation. When restrictions within the Idaho and southwestern Montana LUPA are added to these conservation actions, this would result in a net conservation gain to GRSG habitats and populations in MZ IV due in large part to implementation of NSO stipulations, anthropogenic disturbance caps, and adaptive management that would minimize future disturbances to GRSG populations and habitats.

Geothermal

Nature and Type of Effects. Impacts to GRSG from geothermal development are not well documented since geothermal development has been too recent to identify any immediate or lag effects (Knick et al. 2011 in Manier et al. 2013, p. 70). However, geothermal development is similar to fossil-fuel development and direct impacts to habitats would occur from development of power plants, access roads, pipelines and transmission lines. As a result, impacts of geothermal developments to GRSG from direct habitat loss, habitat fragmentation via roads and transmission lines, noise, and increased human presence (Connelly et al. 2004) may be similar to those discussed for nonrenewable energy development. Comparable effects on local GRSG populations are also anticipated (Manier et al. 2013, p. 70). Other concerns related to geothermal energy development include air and water pollution, disposal of hazardous waste, land subsidence, and release of toxic gases into the environment (Manier et al. 2013, p. 70).

Conditions in the Sub-region and MZ IV. Geothermal energy development potential is particularly high throughout MZ IV and geothermal leases directly affect 75,900 acres (less



than 1 percent) of GRSG habitats in the MZ (Manier et al. 2013, p. 71). Geothermal leases in the sub-region cover 60,000 acres (**Section 3.12**).

The RFD scenario for the Idaho and southwestern Montana sub-region (**Appendix O**) predicts up to 410 acres of permanent disturbance associated with geothermal development over the next 10 years. The potential for impacts would be reduced where areas are closed to fluid mineral leasing and where NSO and CSU/TL stipulations are applied. Given the small acreage and implementation of RDFs and BMPs (**Appendix B**), the likelihood for impacts on GRSG habitat is anticipated to be small and localized under all alternatives.

Impact Analysis. The quantitative analysis of effects from geothermal leasing would be the same as described for oil and gas because allocations and past, present, and reasonably foreseeable future actions would be the same.

Coal

Coal potential is low throughout MZ IV (Manier et al. 2013, p. 133) and there are no direct or indirect effects from surface coal leases in the MZ (Manier et al. 2013, p. 74). There is no coal development in the sub-region and lands are determined to be unsuitable for leasing; thus this threat will not be described further in this document.

Mineral Materials

Nature and Type of Effects. Development of surface mines (for sand, gravel and other common mineral materials found in MZ IV) may negatively impact GRSG numbers and disrupt the habitat and life-cycle of the species, similar to other types of mining activities (Braun 1998; Manier et al. 2013, pp. 70-71).

Conditions in the Sub-region and in MZ IV. There are 652,000 acres of mining and mineral materials disposal sites (not including minerals mined as energy sources) on BLM-administered surface land on priority habitat and general habitat in MZ IV. There are 1,049,600 acres across all landownership types, making BLM-administered land the largest contributor to direct effects from this threat. National Forest System lands contribute to direct effects on 170,200 acres of priority habitat and general habitat. Indirect effects are estimated to 1.5 miles out from the direct effects area (Manier et al. 2013, p. 77).

The mineral materials currently being developed for commercial purposes in the Idaho and southwestern Montana sub-region include stone, sand and gravel, limestone, soil, and pumice.

Across MZ IV, PHMA and GHMA are most affected by mining and mineral materials disposal sites on BLM-administered lands. GRSG may be directly impacted, being in the path of development; however, indirect impacts on habitat affect a much wider population of birds. In total, 61 percent of priority habitat and 48 percent of general habitat influenced by the indirect impact of mining and mineral materials disposal sites are on BLM-administered land. This does not include minerals mined as energy sources. Mining and mineral materials disposal sites on private land, by comparison, indirectly affect 26 percent of priority habitat and 34 percent of general habitat. National Forest System lands indirectly

affect 10 percent of priority habitat and 13 percent of general habitat (Manier et al. 2013, p. 77). As a result, management of mining and material disposal sites on BLM-administered land would have the greatest impact on GRSG habitat conditions. For example, closure of BLM-administered lands to mineral materials disposal could shift mineral material disposal in the MZ onto adjacent lands.

Impact Analysis. **Table 5-9**, Acres Open and Closed to Mineral Material Disposal in GRSG Habitat in MZ IV, provides a quantitative summary of acreages of BLM-administered and National Forest System lands open and closed to mineral material disposal across MZ IV.

Table 5-9
Acres Open and Closed to Mineral Material Disposal in GRSG Habitat in MZ IV

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ IV	<i>Percent Within Sub-Region</i>	MZ IV	<i>Percent Within Sub-Region</i>
Open to Mineral Material Disposal				
Alternative A	8,592,000	100%	6,518,000	58%
Alternative B	0	0%	5,820,000	53%
Alternative C	0	0%	2,728,000	0%
Alternative D	5,830,000	100%	5,944,000	54%
Alternative E	7,982,000	100%	6,915,000	61%
Alternative F	0	0%	6,346,000	57%
Proposed Plan	5,000	100%	8,609,000	68%
Closed to Mineral Material Disposal				
Alternative A	7,732,000	7%	677,000	25%
Alternative B	15,922,000	55%	676,000	25%
Alternative C	19,113,000	62%	505,000	0%
Alternative D	10,092,000	29%	806,000	37%
Alternative E	7,798,000	8%	614,000	18%
Alternative F	15,922,000	55%	690,000	27%
Proposed Plan	12,850,000	44%	1,529,000	67%

Source: BLM 2015

¹ Includes IHMA

² This table displays the acres of PHMA and GHMA open and closed to mineral material disposal in MZ IV; it also displays the percentage of those acres that are found within the sub-region.

Under Alternatives B, C, F, and the Proposed Plan, all PHMA would be closed to mineral material disposal, which would constitute much of the closed acreage on BLM-administered

and National Forest System lands in MZ IV. Restrictions on mineral material development in the sub-region would be applied under Alternative D, and for IHMA and GHMA under the Proposed Plan. Acres closed in GHMA would be similar across most alternatives, though Alternative E and the Proposed Plan would have the greatest acres of GHMA closed. The Proposed Plan would provide additional protections to GRSG from mineral material development by requiring anthropogenic disturbance criteria, a 3 percent disturbance cap, RDFs and BMPs, buffers, and mitigation. These closures and restrictions would reduce the effect on GRSG from mineral material development on BLM-administered and National Forest System lands in MZ IV for most action alternatives, particularly the Proposed Plan and Alternative C.

Under the Montana Executive Order, authorizations of new mineral material disposal sites that require state agency review or approval would be subject to the GRSG permitting process. They also would be subject to stipulations for development in GRSG Core Areas. Similarly, authorizations in Nevada would be subject to measures in the Nevada state plan, including avoidance, minimization, and mitigation of any unavoidable impacts to GRSG habitat, and authorizations in GRSG Management Areas in Utah would be subject to consultation with UDWR and conservation measures. New authorizations that would occur in the majority of MZ IV within Idaho or Oregon that lack state plans containing regulatory mechanisms, may incorporate GRSG habitat recommendations from these states' plans though these would voluntary measures and not binding conditions. These stipulations would be of particular benefit on privately-owned surface and subsurface lands, where BLM and Forest Service protective regulatory mechanisms do not apply.

Reasonably foreseeable mineral materials development in MZ IV is expected to increase over the 20-year analysis period (**Section 5.1.12**), though state and private GRSG conservation efforts as well as other BLM and Forest Service proposed plans in MZ IV would reduce the threat by restricting the location of developments and requiring mitigation. When restrictions within the Idaho and southwestern Montana LUPA are added to these conservation actions, this would result in a net conservation gain to GRSG habitats and populations in MZ IV.

Locatable Minerals

Nature and Type of Effects. Locatable minerals include gold, silver, uranium, and bentonite. Activities associated with locatable mineral development, such as stockpiling topsoil and extracting and transporting material, would cause mortality and nest disruption. These actions also would reduce the functionality of the surrounding habitat with noise and light disturbance, resulting in lost and degraded GRSG PHMA and GHMA.

As with fluid mineral development, reclamation practices may help to reduce long-term impacts on GRSG and their habitat. Although disturbed areas have not been restored to near pre-disturbance conditions in the past, recent efforts have been directed toward restoring functional habitat. Future reclamation should be focused on restoring habitats capable of supporting viable GRSG populations. Even with effective restoration, restored areas may not support GRSG populations at the same level as prior to disturbance.

Conditions in the Sub-region and in MZ IV. The primary locatable minerals in commercially viable quantities in the Idaho and southwestern Montana sub-region are zeolite and bentonite. Other locatable minerals are known to exist in the sub-region, but they are currently uneconomical to produce.

Impact Analysis. **Table 5-10**, Acres Open and Recommended for Withdrawal from Mineral Entry in GRSG Habitat in MZ IV, provides a quantitative summary of acreages of BLM-administered and National Forest System lands open and recommended for withdrawal from mineral entry across MZ IV.

Table 5-10
Acres Open and Recommended for Withdrawal from Mineral Entry
in GRSG Habitat in MZ IV

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ IV	<i>Percent Within Sub-Region</i>	MZ IV	<i>Percent Within Sub-Region</i>
Open to Mineral Entry				
Alternative A	12,308,000	67%	6,390,000	51%
Alternative B	4,006,000	0%	6,140,000	49%
Alternative C	4,006,000	0%	3,108,000	0%
Alternative D	12,308,000	67%	6,390,000	51%
Alternative E	11,706,000	66%	6,780,000	54%
Alternative F	4,006,000	0%	6,625,000	53%
Proposed Plan	6,108,000	34%	9,960,000	69%
Recommended for Withdrawal from Locatable Mineral Entry				
Alternative A	3,038,000	0%	0	0%
Alternative B	11,339,000	73%	0	0%
Alternative C	14,390,000	79%	0	0%
Alternative D	3,038,000	0%	0	0%
Alternative E	3,038,000	0%	0	0%
Alternative F	11,339,000	73%	0	0%
Proposed Plan	5,974,000	49%	9,000	100%

Source: BLM 2015

¹ Includes IHMA

² This table displays the acres of PHMA and GHMA open to mineral entry and recommended for withdrawal from locatable mineral entry in MZ IV; it also displays the percentage of those acres that are found within the sub-region.

Alternatives A and E would have similar acres open in PHMA and would not incorporate special mitigation measures for locatable mineral development in GRSG habitat. Locatable



mineral mining would continue to affect GRSG through habitat loss and degradation. As a result, Alternative E would not provide any net conservation gain to GRSG compared to Alternative A.

Under Alternatives B, C and F, PHMA would be recommended for withdrawal and applicable RDFs would be applied consistent with applicable law within PHMA. The most acreage of all the alternatives would be recommended for withdrawal in PHMA. These alternatives would restrict future locatable mineral operations on GRSG habitat more than other alternatives; thus they would provide more protections and conservation gains to GRSG habitat from locatable mineral development.

Under Alternatives D and the Proposed Plan, the BLM and Forest Service would apply reasonable and appropriate RDFs, consistent with applicable law, as Conditions of Approval to prevent unnecessary or undue degradation of GRSG habitat. The Proposed Plan would also recommend SFAs for withdrawal. Thus, these alternatives would provide a net conservation gain to GRSG.

Under all alternatives, RDFs outlined in **Appendix B** would help minimize impacts on GRSG from locatable mineral development on federal land to the extent they are applied consistent with applicable law. Clustering operations and facilities as close as possible and placing new infrastructure in already disturbed locations would reduce impacts on sagebrush habitats.

Authorizations of new locatable mineral sites that require state agency review or approval would be subject to either the regulatory mechanisms of the Montana, Nevada, or Utah state plans. These measures would be of particular benefit on privately-owned surface and on split-estate lands with BLM-administered federal mineral estate and other surface ownership, where BLM and Forest Service protective regulatory mechanisms do not apply.

Reasonably foreseeable locatable mineral development in MZ IV is expected to increase over the 20-year analysis period (**Section 5.1.12**), though state and private GRSG conservation efforts as well as other BLM and Forest Service proposed plans in MZ IV would reduce the threat by applying RDFs as Conditions of Approval consistent with applicable law. The disturbance caps in the Proposed Plans would not block locatable mineral entry projects, but any locatable mineral entry would be considered as disturbance under the cap. When restrictions within the Idaho and southwestern Montana LUPA are added to these conservation actions, this would result in a net conservation gain to GRSG habitats and populations in MZ IV.

Nonenergy Leasable Minerals

Nonenergy leasable minerals are materials such as phosphate, sulfates, silicates, and trona (sodium carbonate). Impacts on GRSG are similar to those from other types of mining.

Conditions in the Sub-region and in MZ IV. Existing leases for nonenergy leasable minerals represent a relatively small threat spatially, as 12,000 acres (less than 1 percent) of GRSG habitats in MZ IV are directly affected by existing prospecting permits (Manier et al. 2013, p.

71). Phosphate development is prevalent in southeastern Idaho, though acres disturbed are not known (**Section 3.12**).

Impact Analysis. **Table 5-11**, Acres Open and Closed to Nonenergy Leasable Mineral Leasing in GRSG Habitat in MZ IV, provides a quantitative summary of acreages of BLM-administered and National Forest System lands open and closed to nonenergy leasable mineral leasing across MZ IV.

Table 5-11
Acres Open and Closed to Nonenergy Leasable Mineral Leasing in GRSG Habitat in MZ IV

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ IV	Percent Within Sub-Region	MZ IV	Percent Within Sub-Region
Open to Nonenergy Leasing				
Alternative A	7,886,000	100%	6,006,000	54%
Alternative B	0	0%	3,815,000	28%
Alternative C	0	0%	2,755,000	0%
Alternative D	6,000	100%	6,003,000	54%
Alternative E	7,220,000	100%	6,484,000	58%
Alternative F	0	0%	3,821,000	28%
Proposed Plan	0	0%	8,391,000	67%
Closed to Nonenergy Leasing				
Alternative A	8,036,000	11%	744,000	36%
Alternative B	15,922,000	55%	716,000	33%
Alternative C	19,185,000	63%	478,000	0%
Alternative D	15,916,000	55%	744,000	36%
Alternative E	8,064,000	11%	691,000	31%
Alternative F	15,922,000	55%	746,000	36%
Proposed Plan	12,855,000	44%	1,747,000	73%

Source: BLM 2015

¹ Includes IHMA

² This table displays the acres of PHMA and GHMA open and closed to nonenergy leasing in MZ IV; it also displays the percentage of those acres that are found within the sub-region.

Alternatives B, C, D, F and the Proposed Plan would increase the acreage of PHMA closed to nonenergy leasing compared to current management (Alternative A) and Alternative E. The alternatives would provide fewer protections in GHMA, though the Proposed Plan would increase the acres closed to nonenergy leasing. The Proposed Plan would provide

additional protections compared to the other action alternatives by requiring anthropogenic disturbance criteria, a 3 percent disturbance cap, buffers, RDFs and BMPs, and mitigation.

However, under the Montana Executive Order, authorizations of new nonenergy mineral leases that require state agency review or approval would be subject to the GRSG permitting process. They also would be subject to stipulations for development in GRSG Core Areas. Similarly, authorizations in Nevada would be subject to measures in the Nevada state plan, including avoidance, minimization, and mitigation of any unavoidable impacts to GRSG habitat, and authorization in GRSG Management Areas in Utah would subject to consultation with UDWR and conservation measures. New authorizations that would occur in the majority of MZ IV within Idaho or Oregon that lack state plans containing regulatory mechanisms, may incorporate GRSG habitat recommendations from these states' plans though these would voluntary measures and not binding conditions. These stipulations would be of particular benefit on privately-owned surface and on split-estate lands with BLM-administered federal mineral estate and other surface ownership, where BLM and Forest Service protective regulatory mechanisms do not apply.

Reasonably foreseeable nonenergy leasable mineral development in MZ IV is expected to increase over the 20-year analysis period (**Section 5.1.12**). However, state and private GRSG conservation efforts as well as other BLM and Forest Service proposed plans in MZ IV would reduce the threat by providing additional protections such as disturbance caps, RDFs, and mitigation. When restrictions within the Idaho and southwestern Montana LUPA are added to these conservation actions, this would result in a net conservation gain to GRSG habitats and populations in MZ IV.

Recreation

Nature and Type of Effects. Recreation, such as camping, bicycling, wildlife viewing, horseback riding, fishing, and hunting, can be dispersed; concentrated, such OHV use and developed campsites; and permitted, such as via BLM Special Recreation Permit and Forest Service Special Use Permit. The BLM also manages Special Recreation Management Areas (SRMAs) where recreation is a primary resource management consideration.

Recreation on federally administered lands that use the extensive network of double-track and single-track routes have an impact on sagebrush and GRSG. Ecological impacts of roads and motorized trails are mortality due to collisions; behavior modifications due to noise, activity, and habitat loss; alteration of physical environment; nutrient leaching; erosion; invasive plants spread; increased use; and alteration by humans due to accessibility (Knick et al. 2011, p. 219). Recreation activities can degrade GRSG habitat through direct impacts on vegetation and soils, introduction or spread of invasive species, and habitat fragmentation. This occurs in areas of concentrated use, trailheads, staging areas, and routes and trails.

Motorized activities, including OHV use, are expected to have a larger footprint on the landscape. They are anticipated to have the greatest level of impact due to noise levels, compared to nonmotorized uses, such as hiking or equestrian use. Cross-country motorized travel, which is permitted in designated areas on BLM-administered lands but not National Forest lands, would increase the potential for soil compaction, perennial grasses and forbs

loss, and reduce sagebrush canopy cover. Losses in sagebrush canopy could be the result of repeated, high frequency, cross-country OHV use over long periods. In addition, the chances of wildfire are increased during the summer, when fire dangers are high and recreation is at its highest.

Dispersed uses expand the human footprint. Closing areas to recreation and reclaiming unused, minimally used, or redundant roads in and around sagebrush habitats during seasonal use by GRSG may reduce the footprint and presumably impacts on wildlife. Restricting access to important habitat areas during seasonal use (lekking, nesting, brood-rearing, and wintering) may decrease the impacts associated with humans. However, access restriction will not eliminate other impacts, such as invasive plant spread, predator movements, cover loss, and erosion (Manier et al. 2013, p. 108).

Conditions in the Sub-region and in MZ IV. Human populations have increased and expanded, primarily over the past century and in the western portion of the sagebrush distribution (Knick et al. 2011, p. 212). With these expanding populations come greater human impacts (Leu et al. 2008).

The COT report objectives for recreation are to maintain healthy native sagebrush communities, based on local ecological conditions, and to manage direct and indirect human disturbance (including noise) to avoid interruption of normal GRSG behavior (USFWS 2013a, p. 49). Limits on road use under the action alternatives and limits on OHVs would help meet these objectives.

In the Idaho and southwestern Montana sub-region, travel management planning is underway to determine specific routes available for closure.

Impact Analysis. **Table 5-12**, Acres of Travel Management Designations in GRSG Habitat in MZ IV, shows Acres of Travel Management Designations in GRSG Habitat in MZ IV.

As shown in **Table 5-12**, there are slight variations among alternatives in acres closed and limited to motorized vehicles in both PHMA and GHMA. However, the action alternatives would reduce acres open in PHMA, particularly Alternatives C and the Proposed Plan, under which no acres would be open to motorized vehicles. There would be a similar reduction in GHMA except under Alternative E where more acres would be open compared to current management. As a result of travel management planning, impacts on GRSG from recreational motorized vehicle use would be greatest under Alternatives A and E; impacts would be reduced most under Alternative C and the Proposed Plan.

For recreation, Alternatives B, D, and the Proposed Plan would aim to reduce impacts on GRSG with issuance of SRPs and SUPs. Alternative F would take a similar approach, but with the addition of seasonal restrictions within 4 miles of active leks. Alternatives A, C, and E would not manage recreation to reduce impacts on GRSG.



Table 5-12
Acres of Travel Management Designations in GRSG Habitat in MZ IV

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ IV	<i>Percent Within Sub-Region</i>	MZ IV	<i>Percent Within Sub-Region</i>
Open				
Alternative A	2,236,000	100%	671,000	100%
Alternative B	1,000	100%	671,000	100%
Alternative C	0	0%	0	0%
Alternative D	1,000	100%	1,000	100%
Alternative E	1,833,000	100%	1,083,000	100%
Alternative F	1,000	100%	255,000	100%
Proposed Plan	0	0%	1,000	100%
Limited				
Alternative A	11,501,000	45%	5,561,000	41%
Alternative B	13,736,000	54%	5,359,000	38%
Alternative C	16,463,000	62%	3,304,000	0%
Alternative D	13,736,000	54%	6,231,000	47%
Alternative E	11,361,000	45%	5,530,000	40%
Alternative F	13,736,000	54%	5,530,000	47%
Proposed Plan	10,897,000	42%	66,262,000	64%
Closed				
Alternative A	824,000	90%	194,000	89%
Alternative B	824,000	90%	183,000	87%
Alternative C	984,000	91%	23,000	0%
Alternative D	824,000	90%	194,000	89%
Alternative E	785,000	89%	224,000	90%
Alternative F	824,000	90%	196,000	89%
Proposed Plan	640,000	87%	177,000	88%

Source: BLM 2015

¹ Includes IHMA

This table displays the acres of PHMA and GHMA within travel management designations of open, limited and closed in MZ IV; it also displays the percentage of those acres that are found within the sub-region.

Reasonably foreseeable recreation in MZ IV is expected to increase over the 20-year analysis period (**Section 5.1.12**). However, state and private GRSG conservation efforts as well as other BLM and Forest Service proposed plans in MZ IV would reduce the threat by providing additional protections such as disturbance caps and limitations on National Forest System lands. When restrictions within the Idaho and southwestern Montana LUPA are added to these conservation actions, this would result in a net conservation gain to GRSG habitats and populations in MZ IV.

5.1.7 Existing Conditions in WAFWA MZs II/VII

This section summarizes existing conditions and past and present actions for the Idaho and southwestern Montana sub-region (provided in more detail in **Chapter 3**) and for MZs II/VII as a whole. Reasonably foreseeable future actions are discussed in **Section 5.1.9**.

GRSG Habitat and Populations

MZs II/VII consist of eleven GRSG populations: Eagle-South Routt, Middle Park, Laramie, Jackson Hole, Wyoming Basin, Rich-Morgan-Summit, Uintah, North Park, Northwest Colorado, Parachute-Piceance-Roan Basin, and Meeker-White River (Garton et al. 2011). The sub-region includes the Wyoming Basin population. Leks in the northern portion of MZs II/VII are the most highly connected in the range (Knick and Hanser 2011); populations in southern portions of MZ II/VII (the Colorado Plateau) are less robust, with low lek connectivity and a 96 percent chance of populations declining below 200 males by 2037 (Garton et al. 2011; Knick and Hanser 2011). The Wyoming Basin population showed a 63 percent decline in estimated minimum male population attending leks in the population between 2007 and 2013 (Garton et al. 2015, p. 34). MZs II/VII include GRSG populations in Idaho, Montana, Wyoming, Utah, and Colorado.

In MZs II/VII, BLM-administered, National Forest System and other federal lands account for over 20 million acres of GRSG habitat (approximately 58 percent of habitat), with state and private lands accounting for approximately 16 million acres of GRSG habitat (approximately 44 percent of habitat) (Manier et al. 2013, p. 118). This indicates the importance of conservation and restoration on both private and public lands.

Table 5-13, Management Jurisdiction in MZs II/VII by Acres of Priority and General Habitats, provides a breakdown of landownership and acres of GRSG habitat in MZs II/VII. As the table shows, approximately 52 percent of priority habitat and 47 percent of general habitat is on BLM-administered lands. Less than one percent of priority habitat and 2 percent of general habitat is on National Forest System lands. The remaining 18,028,000 million acres (49 percent) of GRSG habitat in the MZs comprise private, local state, and other federal and tribal lands. Acres in these and other tables are rounded to the nearest 1,000 acres. Values of less than 1,000 acres are presented as 0 acres.



Table 5-13
Management Jurisdiction in MZs II/VII by Acres of Priority and General Habitats

	Total Surface Area (Acres)	Priority (Acres)	General (Acres)	Non-habitat (Acres)
MZ IV	92,776,100 (100%)	17,476,000 (19%)	19,200,200 (21%)	56,099,900 (60%)
BLM	30,295,000 (33%)	9,021,200 (30%)	9,012,500 (30%)	12,261,300 (40%)
Forest Service	23,558,800 (25%)	162,000 (<1%)	452,500 (2%)	22,944,300 (97%)
Tribal and other federal	7,086,200 (8%)	784,000 (11%)	1,354,600 (19%)	4,947,600 (70%)
Private	27,405,400 (30%)	6,233,900 (23%)	7,394,800 (27%)	13,776,700 (50%)
State	4,053,900 (4%)	1,244,800 (31%)	979,800 (24%)	1,829,300 (45%)
Other	376,700 (<1%)	30,100 (8%)	6,000 (2%)	340,600 (90%)

Source: Manier et al. 2013, p. 118

A very small percentage—approximately one tenth of one percent—of PHMA and GHMA in MZs II/VII are located on BLM-administered and National Forest System lands in the Idaho and southwest Montana sub-region. As a result, BLM and Forest Service management in this sub-region would have very little influence on GRSG across the broader MZs II/VII. BLM and Forest Service management in this sub-region would be most effective at conserving a portion of the Wyoming Basin population; it would have little or no effect on other populations in the MZs. Because past, present, and reasonably foreseeable future actions do not vary by alternative, the incremental effect of implanting any of the Idaho and southwest Montana LUPA alternatives on GRSG in MZs II/VII would vary little across the range of alternatives.

Population Trends in Management Zones II/VII

The Wyoming Basin population within MZs II/VII is the largest population in the GRSG range with over 20,000 males attending leks annually. Although recent data suggests a population increase, long-term monitoring is trending downward and population modeling suggests this trend will continue (Garton et al. 2011). Between 2007 and 2013, this population showed a 63 percent decline in the estimated minimum male population attending leks in the population (Garton et al. 2015, p. 34).

Wyoming data suggest a cyclic pattern with population lows in 1995, 2002 and 2013 and peaks in 2000 and 2006. Actual trends are difficult to discern due to the lower survey effort prior to 2007, meaning the number and proportion of active/inactive leks is unknown. Since 2007, the number of active leks has remained stable (approximately 1,100 active leks), but the number of males/active lek has declined by more than half (from 42 to 17 males/lek).

The isolation of many other populations on the fringes of MZs II/VII makes them particularly vulnerable to habitat loss and fragmentation. The Wyoming Basin population within Wyoming and extending into the sub-region is at risk due to renewable and non-renewable energy development, long-term drought, and brush eradication programs (USFWS 2013a, p. 68).

5.1.8 Regional Efforts to Manage Threats to GRSG in MZs II/VII

There are several regional efforts to manage threats to GRSG in MZs II/VII. Regional efforts include past, present and reasonably foreseeable actions conducted by the BLM, Forest Service, and by other federal and or in cooperation with non-federal agencies, organizations, landowners, or other groups in MZs II/VII. These efforts may have a strong influence in alleviating threats to GRSG than BLM and Forest Service actions alone. This is because state and private lands account for approximately 16 million acres (approximately 44 percent) of GRSG habitat in MZs II/VII (Manier et al. 2013, p. 118).

Idaho Statewide Efforts

Idaho statewide efforts are as described in **Section 5.1.4**.

Montana Statewide Efforts

Montana statewide efforts are as described in **Section 5.1.4**.

Natural Resource Conservation Service Sage Grouse Initiative

The NRCS SGI is as described in **Section 5.1.4**. As of 2014, the most recent year for which data are available, SGI has secured conservation easements on 243,403 acres within MZs II/VII (NRCS 2015).

Wyoming Statewide Efforts

Wyoming has established Core Population Areas to help delineate landscape planning units by distinguishing areas of high biological value. These areas are based on the locations of breeding areas and are intended to help balance GRSG habitat requirements with demand for energy development (Doherty et al. 2011).

In 2000, the Wyoming Sage-Grouse Working Group (WSGWG) was formed to develop a statewide strategy for GRSG conservation. This group prepared the Wyoming GRSG Conservation Plan (WSGWG 2003) to provide coordinated management and direction across the state. In 2004, local GRSG working groups were formed to develop and implement local conservation plans. Eight local working groups around Wyoming have completed conservation plans, many of which prioritize addressing past, present, and reasonably foreseeable threats at state and local levels, and prescribe management actions for private landowners to improve GRSG conservation at the local scale, consistent with the overall Wyoming Core Area Strategy.

Wyoming Executive Order. Wyoming Governor Matt Mead issued an executive order on June 2, 2011, that complemented and replaced several executive orders issued by his predecessor. The 2011 Wyoming Executive Order articulates Wyoming's Core Population



Area Strategy (Core Area Strategy) as an approach to balancing GRSG conservation and development. It also provides an approach to mitigating human disturbances to GRSG. The USFWS believes that Wyoming's Core Area Strategy, if extended to all landowners via regulatory mechanisms, would provide adequate protection for GRSG and its habitat (USFWS 2010); however, universal implementation remains uncertain due to the variety in landownership and management (Manier et al. 2013).

The Wyoming Executive Order applies to state trust lands starting in 2008. These trust lands cover almost 23 percent of GRSG habitat and benefit approximately 80 percent of the estimated breeding population in the state (USFWS 2010). All proposed activities are evaluated through a density/disturbance calculation tool to determine if the project would exceed recommended density/disturbance thresholds. Additionally, the order has stipulations to be included in permits, with varying restrictions depending on whether the proposed development activity occurs within or outside delineated Core Population Areas (Wyoming Executive Order, June 2, 2011).

In Core Areas, there is a 0.6-mile no surface occupancy (NSO) buffer around occupied leks, density restrictions of one location per 640 acres, a disturbance cap of 5 percent, and restrictions on activities in breeding and winter concentration habitat. This buffer provides protection for males during lekking season and acts in coordination with the density disturbance cap. Large wind energy and other development projects would not be allowed within Core Areas unless they would have no adverse effects to GRSG. Such a combination of restrictions could offer GRSG considerable regulatory protection within Wyoming.

Statewide modeling of trends under the Core Area Strategy suggests that with effective enforcement statewide, the strategy could reduce population losses by 9 to 15 percent across Wyoming. Moreover, the number of Core Areas predicted to maintain 75 percent of their current populations could increase from 20 to 25 under long-term scenarios (Copeland et al. 2013). Combining the Core Area Strategy with \$250 million in target conservation easements (provided willing landowners and funding are available) could reduce population declines by another 9 to 11 percent (Copeland et al. 2013).

Sweetwater River Conservancy Habitat Conservation Bank. The Sweetwater River Conservancy Habitat Conservation Bank is the first conservation bank established for GRSG. Located in central Wyoming, the bank manages habitat for GRSG allowing energy development and other activities to proceed on other lands within Wyoming. A conservation bank is a site or suite of sites established under an agreement with the USFWS, intended to protect, and improve habitat for species. Credits may be purchased which result in perpetual conservation easements and conservation projects on the land to offset impacts occurring elsewhere. The Sweetwater River Conservancy Habitat Conservation Bank launched with 55,000 deeded acres of GRSG habitat, and could expand up to 700,000 acres on other lands owned by the Sweetwater River Conservancy contingent upon demand (USFWS 2015).

Wyoming Landscape Conservation Initiative. The Wyoming Landscape Conservation Initiative is a long-term science based effort to assess and enhance aquatic and terrestrial habitats at a landscape scale in southwest Wyoming, while facilitating responsible

development through local collaboration and partnership. Collaborative efforts address multiple concerns at a scale that considers all activities on the landscape, and can leverage resources that might not be available for single agency projects. GRSG initiatives from the Wyoming Landscape Conservation Initiative have included habitat enhancement efforts (e.g., invasive weed treatment, prescribed grazing strategies), and GRSG research studies (Wyoming Landscape Conservation Initiative 2013).

Umbrella Candidate Conservation Agreement with Assurances for Wyoming Ranch Management. Candidate Conservation Agreements with Assurances are voluntary conservation agreements between the USFWS and one or more federal or private partners (e.g., the ranchers). In return for managing lands to benefit GRSG, landowners receive assurances against additional regulatory requirements should GRSG be listed under the Endangered Species Act. Within Wyoming, the USFWS and Wyoming Governor's Office in conjunction with the BLM, Natural Resources Conservation Service, Forest Service, and other agencies, have developed an umbrella Candidate Conservation Agreement with Assurances for range management activities. Enrolled landowners are expected to comply with grazing specific conservation measures including but not limited to: avoid (or rotationally utilize) known nesting and brood-rearing habitat as a location for activities that concentrate livestock such as stock tank placement branding and roundup; place salt or mineral supplements in sites minimizing impacts to GRSG habitat; and within 24 months develop and implement a written grazing management plan to maintain or enhance the existing plant community as suitable GRSG habitat (USFWS et al. 2013).

Colorado Statewide Efforts

In 2008, the Colorado Division of Wildlife (now Colorado Parks and Wildlife) developed a state conservation plan, which prioritized threats and identified key issues facing conservation. The plan included issues, objectives, and strategies in detail. The strategies for conservation discussed responsible parties, lead agency, timeline, and cost associated with implementation of the strategy.

In 2012, a state conservation plan revision process began, and in consultation with stakeholders, a matrix summarizing implementation and effectiveness of the strategies was developed (Colorado Package), along with a subsequent Synthesis Report. The Colorado Package identified a number of conservation efforts within Colorado which have resulted in positive impacts to GRSG including acquisition of conservation easements and habitat improvement projects (Colorado Department of Natural Resources 2013). The Synthesis Report provided additional information on the effectiveness of conservation efforts such as county zoning ordinances which support protection of GRSG habitat, and measures from the Colorado State Board of Land Commissioners which will support adaptive management techniques to improve GRSG habitat (Colorado Department of Natural Resources 2014).

Colorado Oil and Gas Conservation Commission Rules. Oil and gas development in Colorado is governed primarily by statutory provisions of the Oil and Gas Conservation Act (Colo. Rev. Stat. § 34-60-100, et seq.) and rules developed by the Colorado Oil and Gas Conservation Commission (COGCC) (2 CCR 404-1, et seq.). The rules are intended to prevent waste and to conserve oil and gas in Colorado while protecting public health, safety,



and welfare, including the environment and wildlife resources. As the state agency charged with promoting the exploration, development, and conservation of Colorado's oil and gas resources, the COGCC also handles the drilling permit process and ensures industry compliance with state-wide oil and gas statutes and regulations. Operators may be subject to consultation requirements under the Colorado Oil and Gas Conservation Commission Rules, to determine if conditions of approval are necessary to minimize adverse impacts from proposed oil and gas operations in sensitive wildlife habitat (e.g., GRSG PHMA).

Utah Statewide Efforts

The Conservation Plan for Greater Sage-grouse in Utah (2013) was designed to protect, enhance, and restore GRSG habitat, in an effort to reduce the threats to the species. The plan identifies 11 GRSG management areas throughout the state (including lands within MZs II/VII), which represent areas of high habitat value. The plan calls for state and local efforts to obtain incentive-based negotiated covenants, easements, leases or other legal tools in order to protect habitat. Additionally, the plan identifies a five percent disturbance limitation of habitat on state or federally managed lands, intended to limit the effects of large scale disturbances.

Other Regional Efforts

Other regional efforts are as described in **Section 5.1.4**.

5.1.9 Relevant Cumulative Actions

This cumulative effects analysis considers the incremental impact of the Idaho and Southwestern Montana Proposed LUPA and alternatives in combination with other past, present, and reasonably foreseeable future federal and non-federal actions on all lands in MZs II/VII (**Section 5.1.12**). Where these actions occur within GRSG habitat, they would cumulatively add to the impacts of BLM- and Forest Service-authorized activities set forth in the Idaho and Southwestern Montana Proposed LUPA. In addition to the conservation efforts described above, relevant reasonably foreseeable future cumulative actions occurring on federal, private, or mixed land ownership in MZs II/VII are described in the Proposed RMPAs/LUPAs for Idaho and southwestern Montana, Northwest Colorado, Wyoming Greater Sage-Grouse, Lander, Bighorn Basin, Billings, and Utah RMPs/LUPAs, which are hereby incorporated by reference.

The following list includes large-scale past, present, and future actions in MZs II/VII that, when added to the Proposed Plan and alternatives for the Idaho and Southwestern Montana sub-region, could cumulatively affect threats to GRSG (more detail is included in the table in **Section 5.1.12**):

- Pinedale Anticline Project, Wyoming
- LaBarge Platform Exploration and Development Project, Wyoming
- Continental Divide-Creston Natural Gas Project, Wyoming
- Moneta Divide Natural Gas and Oil Development Project, Wyoming

- Black Fork Project (Formerly Moxa Arch Area Infill), Wyoming
- Atlantic Rim Natural Gas Field Development Project, Wyoming
- Chokecherry Sierra Madre Wind Farm, Wyoming
- Hiawatha Regional Energy Development Project, Wyoming, Colorado
- Oil Shale and Tar Sands Programmatic EIS, Wyoming, Colorado, Utah
- Gateway South Transmission Project, Wyoming, Colorado, Utah
- TransWest Express Transmission Line Project, Wyoming, Colorado, Utah, Nevada
- Gateway West Transmission Line Project, Wyoming, Idaho
- Riley Ridge to Natrona Pipeline Project, Wyoming
- Invasive Plant Management EIS for the Medicine Bow-Routt National Forests and Thunder Basin National Grassland, Wyoming, Colorado

5.1.10 Threats to GRSG in Management Zones II/VII

In its COT report, the USFWS identifies energy development, infrastructure, grazing/free-roaming equids, conversion to agriculture, fire, spread of weeds, recreation, and conifers as the present and widespread threats facing GRSG in MZs II/VII (USFWS 2013a, pp. 17-19, 27-28). Each threat is discussed below.

Energy Development and Mining

The COT report states that energy development should be designed to ensure that it will not impinge on stable or increasing GRSG population trends. For mining, the COT report objective is to maintain stable to increasing GRSG populations and no net loss of GRSG habitats in areas affected by mining (USFWS 2013a, p. 49).

There are approximately 1,144,800 acres of GRSG habitat in MZs II/VII where energy and mineral development is presently occurring. There are over 30 million acres indirectly influenced by energy development (including oil and gas, coal leasing, mineral materials, and renewables) (Manier et al. 2013, pp. 52-71). No geothermal energy development is presently occurring in MZs II/VII. Indirect influences are primarily due to oil and gas leases. Of the 80 percent of GRSG habitat in MZ II/VII indirectly influenced by oil and gas development, approximately 50 percent occurs on BLM-administered land, with most of the remainder on private lands (Manier et al. 2013, p. 52). Only 1 percent of oil and gas development affects National Forest System lands. Approximately 7 percent of federal lands are closed to oil and gas leasing, but the majority of leased lands are presently undeveloped. BLM and Forest Service regulatory actions would primarily influence unleased areas by way of attaching stipulations, conditions of approval, and other conservation measures on future leases.



Oil and Gas

Nature and Type of Effects. The impacts of oil and gas development on GRSG are described in **Section 4.2** and above in **Section 5.1.6**.

Conditions in the Sub-region and in MZs II/VII. Forty-four percent of the 39-million acre federal mineral estate in MZs I and II is leased and authorized for exploration and development (Naugle et al. 2011). The Greater Green River Basin, Uintah-Piceance Basin, and North Park Basin are all important oil and gas reserves in MZs II/VII. In Wyoming, which contains the bulk of the mineral estate, 52 percent is authorized for development (Naugle et al. 2011). There are two leases on the Bear Lake Plateau within the sub-region but there has been no oil and gas development.

Approximately 15 percent of GRSG habitat in MZs II/VII is within 1.8 miles of oil and gas wells (Knick et al. 2011, p. 240). Oil and natural gas development-related wells indirectly influence over 50 percent of priority habitat and general habitat on BLM-administered lands across MZs II/VII, occurring to a distance of 12 miles from the development. There are virtually no indirect impacts on National Forest System lands. Private surface lands account for 33 percent of the indirect impact in priority habitat and 37 percent in general habitat in MZs II/VII (Manier et al. 2013, p. 52). Thus, actions on BLM-administered land are likely to have a greater potential to ameliorate the adverse impacts of oil and gas development on GRSG habitat than any other single land management entity.

Though the BLM and Forest Service may restrict future leasing for oil and gas on BLM-administered and National Forest System lands within GRSG habitat, existing leases remain valid with potential for development based on locations of geologic fields for traditional oil and gas distributed extensively across eastern portions of GRSG range (Manier et al. 2013, p. 51). Oil and gas reserves are extensive across the Powder River Basin of northeastern Wyoming and southeastern Montana; the Wyoming Thrust Belt of extreme southwestern Wyoming, and the Southwest Wyoming Basin including portions of southwestern and central Wyoming. The Southwestern Wyoming and the Uinta–Piceance geological basins are both located partly in MZs II/VII, and coincide with high-density areas of GRSG, large numbers of leks, and the highest male attendance at leks compared with any areas in the eastern part of the range (USFWS 2010).

According to the RFD scenario (**Appendix O**), permanent disturbance associated with oil and gas development is projected to occur on 156 acres within the sub-region over the next 10 years. The potential for impacts would be reduced where areas are closed to fluid mineral leasing and where NSO and CSU/TL stipulations are applied. Given the small acreage and implementation of RDFs and BMPs (**Appendix B**), the likelihood for impacts on GRSG habitat on BLM-administered and National Forest System lands in the sub-region is anticipated to be small and localized under all alternatives.

Impact Analysis. **Tables 5-14**, Acres Open* and Closed to Fluid Mineral Leasing in GRSG Habitat in MZ II/VII, and **5-15**, Acres with NSO and CSU/TL Stipulations in GRSG Habitat in MZ II/VII, provide a quantitative summary of fluid mineral leasing conditions on

BLM-administered and National Forest System lands across MZs II/VII, followed by an analysis of the Idaho and southwestern Montana sub-regional alternatives.

Table 5-14
Acres Open* and Closed to Fluid Mineral Leasing in GRSG Habitat in MZ II/VII

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ II/VII	<i>Percent Within Sub-Region</i>	MZ II/VII	<i>Percent Within Sub-Region</i>
Open ² to Fluid Mineral Leasing				
Alternative A	30,000	100%	2,401,000	1%
Alternative B	0	0%	2,382,000	<1%
Alternative C	0	0%	2,378,000	0%
Alternative D	0	0%	2,378,000	0%
Alternative E	0	0%	2,384,000	<1%
Alternative F	0	0%	2,382,000	<1%
Proposed Plan	0	0%	2,378,000	0%
Closed to Fluid Mineral Leasing				
Alternative A	1,307,000	1%	1,170,000	1%
Alternative B	1,358,000	5%	1,166,000	<1%
Alternative C	1,368,000	6%	1,164,000	0%
Alternative D	1,340,000	4%	1,170,000	1%
Alternative E	1,308,000	1%	1,166,000	<1%
Alternative F	1,358,000	1%	1,166,000	<1%
Proposed Plan	1,290,000	0%	1,165,000	<1%

Source: BLM 2015

¹ Includes IHMA

² Open with standard lease terms and conditions. This table displays the acres of PHMA and GHMA open and closed to fluid mineral leasing in MZ II/VII; it also displays the percentage of those acres that are found within the sub-region.



Table 5-15
Acres with NSO and CSU/TL Stipulations in GRSG Habitat in MZ II/VII

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ II/VII	<i>Percent Within Sub-Region</i>	MZ II/VII	<i>Percent Within Sub-Region</i>
NSO Stipulations				
Alternative A	4,415,000	<1%	1,254,000	<1%
Alternative B	4,393,000	0%	1,254,000	<1%
Alternative C	4,393,000	0%	1,251,000	0%
Alternative D	4,397,000	<1%	1,256,000	<1%
Alternative E	4,442,000	1%	1,256,000	<1%
Alternative F	4,393,000	0%	1,254,000	<1%
Proposed Plan	4,442,000	1%	1,281,000	2%
CSU/TL Stipulations				
Alternative A	5,407,000	0%	6,955,000	0%
Alternative B	5,407,000	0%	6,955,000	0%
Alternative C	5,407,000	0%	6,955,000	0%
Alternative D	5,421,000	<1%	6,977,000	<1%
Alternative E	5,407,000	0%	6,955,000	0%
Alternative F	5,407,000	0%	6,955,000	0%
Proposed Plan	5,407,000	0%	6,957,000	<1%

Source: BLM 2015

¹ Includes IHMA

This table displays the acres of PHMA and GHMA with NSO Stipulations and CSU/TL Stipulations in MZ II/VII; it also displays the percentage of those acres that are found within the sub-region.

Acres open, closed, and with stipulations for fluid mineral leasing do not vary substantially across alternatives, as the acres in **Tables 5-14** and **5-15** represent the Proposed Plans from other BLM and Forest Service sub-regions and planning areas in MZs II/VII combined with the management in the MZs II/VII portion of the Idaho and southwestern Montana sub-region. Since the Idaho and southwestern Montana sub-region has so few acres within MZs II/VII, alternatives in this sub-region would have a relatively small influence on total acres open, closed, or with stipulations. As shown in **Tables 5-14** and **5-15**, any action alternative for fluid mineral leasing in the Idaho and southwestern Montana LUPA would affect 6 percent or less of GRSG habitat within MZs II/VII.

Implementing any alternative under the Idaho and southwestern Montana LUPA/EIS would not affect pending or future oil and gas development projects outside of the sub-region. For example, numerous oil and gas development projects are proposed in Wyoming (**Section 5.1.12**). However, the NSO buffer and the disturbance cap under the Wyoming Executive Order would reduce the threat to GRSG from oil and gas development on non-federal lands in MZs II/VII.

All BLM and Forest Service Proposed Plans within MZs II/VII include BMPs and RDFs to minimize impacts on GRSG from oil and gas development on federal lands. In areas where mineral estate is currently unleased, these tools can be applied to future leases; in areas which are already leased, BMPs can be applied as conditions of approval for development of existing leases. Examples include: locating new compressor stations outside of PHMA to reduce noise disturbance; clustering operations and facilities as closely as possible; placing infrastructure in already disturbed locations where the habitat has not been fully restored; and restoring disturbed areas at final reclamation to the pre-disturbance landforms and desired plant communities. State plans contain similar measures to reduce impacts. Together, these measures would help protect unfragmented habitats, minimize habitat loss and fragmentation, and maintain conditions that meet GRSG life history needs. Recent research indicates that restored habitats lack many of the features sought by GRSG in their habitat areas, and may not support GRSG for long periods following restoration activities. In order to conserve GRSG populations on the landscape, protection of existing habitat through minimizing development, would provide the best hope for GRSG persistence (Arkle et al. 2014).

The effect of the Proposed Plans and other conservation actions in the MZ (most notably the Montana and Wyoming executive orders) could be synergistic, meaning that the effects of the actions together is greater than the sum of their individual effects. For example, applying buffers in PHMA and on state and private land would effectively conserve larger blocks of land than if these actions occurred individually. This would provide a landscape-scale net conservation benefit, especially in areas where little development has occurred to date.

Reasonably foreseeable oil and gas development in MZs II/VII is widespread and expected to increase over the 20-year analysis period (**Section 5.1.12**), though state and private GRSG conservation efforts as well as other BLM and Forest Service proposed plans in MZ IV would reduce the threat by restricting the location of developments, implementing disturbance caps and planned restoration activities. Together these conservation actions would result in a net conservation gain to GRSG habitats and populations in MZ IV regardless of management within the Idaho and southwestern Montana sub-region.

Coal

While coal is the major mining activity in GRSG habitat (Braun 1998), there is no potential for coal within the sub-region. Coal mines are widespread in southern portions of MZs II/VII, and federal leases developed through surface extraction directly influence approximately 52,100 acres of these MZs. There is the potential for additional coal mining in large portions of priority habitat and general habitat in MZs I, II, and VII. Indirect effects of



surface coal mines suggest influence over approximately 8 percent of priority habitat across the range of the species and approximately 5 percent of priority habitat in MZs II/VII. Approximately 36 percent of priority habitat that is indirectly influenced by coal mines across the species' range are managed by BLM. Although coal companies have demonstrated that disturbed lands can be restored to a point that supports a diversity of vegetative species, including big sagebrush, there is little evidence that GRSG populations have reoccupied habitat disturbed by coal mining, at least in terms of lek establishment (Manier et al. 2013, pp. 70-71, 74).

Coal development is also managed at the state level. For example, coal development that requires state agency review or approval would be subject to the permitting process and stipulations for development in GRSG Core areas under the Wyoming Executive Order. Additionally, new coal leases applications on federal lands would be subject to 43 CFR, Part 3461.5, Criterion 15. This states that a lease may be issued if, after consultation with the state, the surface management agency determines that all or certain stipulated methods of coal mining would not have a significant long-term impact on the GRSG. Special conditions could be required, as identified during the leasing process, to protect GRSG habitat. The requirements of 43 CFR, Part 3461.5, Criterion 15, in combination with BLM and Forest Service planning efforts and state plans, would help reduce the threat from coal extraction and would provide a net conservation gain to GRSG habitats and populations in MZs II/VII.

Mineral Materials

Nature and Type of Effects. The impacts of mineral material development on GRSG are described in **Section 4.2** and above in **Section 5.1.6**.

Conditions in the Sub-region and in MZs II/VII. There are 846,600 acres of mining and mineral materials disposal sites (not including minerals mined as energy sources) on BLM-administered surface land on priority habitat and general habitat in MZs II/VII. There are 1,027,500 acres across all landownership types, making BLM-administered land the largest contributor to direct effects from this threat. National Forest System lands contribute to direct effects on 3,100 acres of priority habitat and general habitat (Manier et al. 2013, p. 77).

Indirect effects are estimated to 1.5 miles out from the direct effects area. In total, 65 percent of priority habitat and 60 percent of general habitat influenced by the indirect impact of mining and mineral materials disposal sites are on BLM-administered land. This does not include minerals mined as energy sources. Mining and mineral materials disposal sites on private land, by comparison, indirectly affect 26 percent of priority habitat and 32 percent of general habitat. National Forest System lands have virtually no indirectly effects on priority habitat and general habitat (Manier et al. 2013, p. 77). As a result, management of mining and material disposal sites on BLM-administered land would have the greatest impact on GRSG habitat conditions. For example, closure of BLM-administered lands to mineral material disposal could shift mineral material disposal in the MZ onto adjacent lands.

Impact Analysis. Acres open and closed to mineral material disposal do not vary substantially across alternatives, as the acres in **Table 5-16** represent the Proposed Plans

from other BLM and Forest Service sub-regions and planning areas in MZs II/VII combined with the management in the MZs II/VII portion of the Idaho and southwestern Montana sub-region. Since the Idaho and southwestern Montana sub-region has so few acres within MZs II/VII, alternatives in this sub-region would have a relatively small influence on total acres open or closed. As shown in **Table 5-16**, Acres Open and Closed to Mineral Material Disposal in GRSG Habitat in MZ II/VII, any alternative for mineral materials management in the Idaho and southwestern Montana LUPA would affect 2 percent or less of GRSG habitat within MZs II/VII.

Table 5-16
Acres Open and Closed to Mineral Material Disposal in GRSG Habitat in MZ II/VII

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ II/VII	<i>Percent Within Sub-Region</i>	MZ II/VII	<i>Percent Within Sub-Region</i>
Open to Mineral Material Disposal				
Alternative A	7,249,000	1%	9,762,000	<1%
Alternative B	7,181,000	0%	9,740,000	<1%
Alternative C	7,181,000	0%	9,730,000	0%
Alternative D	7,222,000	1%	9,758,000	<1%
Alternative E	7,247,000	1%	9,743,000	<1%
Alternative F	7,181,000	0%	9,740,000	<1%
Proposed Plan	7,181,000	0%	9,762,000	<1%
Closed to Mineral Material Disposal				
Alternative A	3,446,000	0%	1,390,000	0%
Alternative B	3,514,000	2%	1,390,000	0%
Alternative C	3,524,000	2%	1,390,000	0%
Alternative D	3,473,000	1%	1,394,000	<1%
Alternative E	3,446,000	0%	1,390,000	0%
Alternative F	3,514,000	2%	1,390,000	0%
Proposed Plan	3,495,000	1%	1,390,000	0%

Source: BLM 2015

¹ Includes IHMA

² This table displays the acres of PHMA and GHMA open and closed to mineral material disposal in MZ II/VII; it also displays the percentage of those acres that are found within the sub-region.

Reasonably foreseeable future mineral material disposals in MZs II/VII could affect GRSG through habitat disturbance, fragmentation, or behavior disruptions, depending on the



location and extent of the project; however, implementation of BLM and Forest Service Proposed Plans in other areas of MZs II/VII would restrict development, thereby reducing the risk of removing or fragmenting habitat elsewhere in MZs II/VII, particularly on federal lands. There would be a net conservation gain to GRSG habitats and populations in MZs II/VII, but it would be concentrated in areas outside the Idaho and southwestern Montana sub-region.

Under the Wyoming and Montana Executive Orders, authorizations of new mineral material disposal sites that require state agency review or approval would be subject to the GRSG permitting process. They also would be subject to stipulations for development in GRSG Core areas. These stipulations would be of particular benefit on privately owned surface and subsurface lands, where BLM and Forest Service protective regulatory mechanisms do not apply.

Reasonably foreseeable mineral material development in MZs II/VII is expected to increase over the 20-year analysis period (**Section 5.1.12**), though state and private GRSG conservation efforts as well as other BLM and Forest Service proposed plans in MZ IV would reduce the threat by restricting the location of developments, implementing disturbance caps and planned restoration activities. Together these conservation actions would result in a net conservation gain to GRSG habitats and populations in MZ IV regardless of management within the Idaho and southwestern Montana sub-region.

Locatable Minerals

Nature and Type of Effects. The impacts of locatable mineral development on GRSG are described in **Section 4.2** and above in **Section 5.1.6**.

Conditions in the Sub-region and in MZ II/VII. The magnitude of existing conditions in the sub-region is largely unknown, but mining of locatable federal mineral resources currently affects approximately 2.2 percent of GRSG habitat in MZs II/VII (Manier et al. 2013, p. 74).

Impact Analysis. Under all alternatives, RDFs in all BLM and Forest Service Proposed Plans would help minimize the impacts on GRSG from locatable mineral development on federal land, consistent with applicable law. Examples include: clustering operations and facilities as closely as possible; placing infrastructure in already disturbed locations where the habitat has not been fully restored; and restoring disturbed areas at final reclamation to the pre-disturbance landforms and desired plant communities.

Acres open and recommended for withdrawal from locatable mineral entry do not vary substantially across alternatives, as the acres in **Table 5-17**, Acres Open and Recommended for Withdrawal from Mineral Entry in GRSG Habitat in MZ II/VII, represent the Proposed Plans from other BLM and Forest Service sub-regions and planning areas in MZs II/VII combined with the management in the MZs II/VII portion of the Idaho and southwestern Montana sub-region. Since the Idaho and southwestern Montana sub-region has so few acres within MZs II/VII, alternatives in this sub-region would have a relatively small influence on total acres open or recommended for withdrawal. As shown in **Table 5-17**, any alternative for locatable minerals management in the Idaho and southwestern Montana

LUPA would affect 7 percent or less of GRSG habitat within MZs II/VII. The greatest impacts would result under Alternatives B, C, and F, where PHMA in the Idaho and southwestern Montana sub-region would be recommended for withdrawal.

Table 5-17
Acres Open and Recommended for Withdrawal from Mineral Entry
in GRSG Habitat in MZ II/VII

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ II/VII	<i>Percent Within Sub-Region</i>	MZ II/VII	<i>Percent Within Sub-Region</i>
Open to Mineral Entry				
Alternative A	8,204,000	1%	8,932,000	<1%
Alternative B	8,140,000	0%	8,914,000	<1%
Alternative C	8,140,000	0%	8,905,000	0%
Alternative D	8,204,000	1%	8,932,000	<1%
Alternative E	8,202,000	1%	8,917,000	<1%
Alternative F	8,140,000	0%	8,914,000	<1%
Proposed Plan	8,190,000	1%	8,940,000	<1%
Recommended for Withdrawal from Locatable Mineral Entry				
Alternative A	893,000	0%	235,000	0%
Alternative B	957,000	7%	235,000	0%
Alternative C	965,000	7%	235,000	0%
Alternative D	893,000	0%	235,000	0%
Alternative E	893,000	0%	235,000	0%
Alternative F	957,000	7%	235,000	0%
Proposed Plan	893,000	0%	235,000	0%

Source: BLM 2015

¹ Includes IHMA

² This table displays the acres of PHMA and GHMA open to mineral entry and recommended for withdrawal from locatable mineral entry in MZ II/VII; it also displays the percentage of those acres that are found within the sub-region.

Under the Proposed Plans, portions of SFAs would be recommended for withdrawal. SFAs represent areas having the highest densities of GRSG and other criteria important for the persistence of the species. As such, if these areas are withdrawn, the Proposed Plan would provide a greater net conservation gain to GRSG populations by reducing disturbance to birds from mining. However due to the sub-region containing such a small percentage of GRSG habitat within the larger MZs, the impact of the sub-region would be limited.



Reasonably foreseeable locatable mineral development in MZs II/VII is expected to increase over the 20-year analysis period (**Section 5.1.12**), though state and private GRSG conservation efforts as well as other BLM and Forest Service proposed plans in MZ IV would reduce the threat. Together these conservation actions would result in a net conservation gain to GRSG habitats and populations in MZ IV regardless of management within the Idaho and southwestern Montana sub-region.

Nonenergy Leasable Minerals

Nature and Type of Effects. The impacts of nonenergy leasable mineral development on GRSG are described in **Section 4.2** and above in **Section 5.1.6**.

Conditions in the Sub-region and in MZs II/VII. Existing prospecting permits for nonenergy leasable minerals directly affect 935,500 acres (2.5 percent) of GRSG habitats in MZs II/VII, which is the largest proportion of GRSG habitat compared with the other MZs (Manier et al. 2013, p. 79). Phosphate development is prevalent in southeastern Idaho, though acres disturbed are not known (**Section 3.12**).

Impact Analysis. Acres open and closed to nonenergy leasable mineral leasing do not vary substantially across alternatives, as the acres in **Table 5-18** represent the Proposed Plans from other BLM and Forest Service sub-regions and planning areas in MZs II/VII combined with the management in the MZs II/VII portion of the Idaho and southwestern Montana sub-region. Since the Idaho and southwestern Montana sub-region has so few acres within MZs II/VII, alternatives in this sub-region would have a relatively small influence on total acres open or closed. As shown in **Table 5-18**, Acres Open and Closed to Nonenergy Leasable Mineral Leasing in GRSG Habitat in MZ II/VII, any alternative for nonenergy leasable minerals management in the Idaho and southwestern Montana LUPA would affect 2 percent or less of GRSG habitat within MZs II/VII.

Reasonably foreseeable nonenergy leasable mineral development in MZs II/VII is expected to increase over the 20-year analysis period (**Section 5.1.12**), though state and private GRSG conservation efforts as well as other BLM and Forest Service proposed plans in MZ IV would reduce the threat by restricting the location of developments, implementing disturbance caps and planned restoration activities. Together these conservation actions would result in a net conservation gain to GRSG habitats and populations in MZ IV regardless of management within the Idaho and southwestern Montana sub-region.

Infrastructure

Rights-of-Way

Nature and Type of Effects. The impacts of ROWs on GRSG are described in **Section 4.2** and above in **Section 5.1.6**.

Conditions in the Sub-region and in MZs II/VII. Infrastructure, such as ROWs and associated facilities and urbanization, is widespread throughout MZs II/VII. In some locations, infrastructure development has affected GRSG habitat. Development of roads, fences, and utility corridors has also contributed to habitat loss and fragmentation in

Table 5-18
Acres Open and Closed to Nonenergy Leasable Mineral Leasing
in GRSG Habitat in MZ II/VII

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ II/VII	<i>Percent Within Sub-Region</i>	MZ II/VII	<i>Percent Within Sub-Region</i>
Open to Nonenergy Leasing				
Alternative A	5,972,000	1%	7,939,000	<1%
Alternative B	5,921,000	0%	7,916,000	<1%
Alternative C	5,921,000	0%	7,913,000	0%
Alternative D	5,921,000	0%	7,939,000	<1%
Alternative E	5,970,000	1%	7,924,000	<1%
Alternative F	5,921,000	0%	7,916,000	<1%
Proposed Plan	5,921,000	0%	7,939,000	<1%
Closed to Nonenergy Leasing				
Alternative A	3,614,000	<1%	1,112,000	<1%
Alternative B	3,665,000	2%	1,109,000	<1%
Alternative C	3,675,000	2%	1,106,000	0%
Alternative D	3,665,000	2%	1,112,000	<1%
Alternative E	3,614,000	<1%	1,108,000	<1%
Alternative F	3,665,000	2%	1,109,000	<1%
Proposed Plan	3,646,000	1%	1,114,000	<1%

Source: BLM 2015

¹ Includes IHMA

² This table displays the acres of PHMA and GHMA open and closed to nonenergy leasing in MZ II/VII; it also displays the percentage of those acres that are found within the sub-region.

portions of MZs II/VII. The best available estimates suggest about 25 percent of the MZs II/VII are within approximately 4 miles of urban development (Knick et al. 2011, p. 214). Impacts of infrastructure development in MZ IV are primarily related to highways, roads, power lines, and communication towers, with 90 percent of MZs II/VII within 4 miles of a road, 25 percent within 4 miles of a power line, and 5 percent within 4 miles of a communication tower (Knick et al. 2011, pp. 215-216).

Although not representative of all infrastructure ROWs, transmission lines greater than 115 kilovolts indirectly influence 60 percent of priority habitat and 63 percent of general habitat across MZs II/VII. Indirect effects are assumed to occur to a radius of 4 miles (Manier et al. 2013, p. 41). Approximately 50 percent of transmission lines in priority habitat and 45

percent in general habitat are on BLM-administered lands across GRSG habitats in MZs II/VII (Manier et al. 2013, p. 41). There is also a substantial contribution from private lands, where 42 percent of transmission lines in priority habitat and 47 percent in general habitat are located. In contrast, National Forest System lands contain 1 percent of transmission lines in priority habitat and 1 percent in general habitat. Therefore, actions on BLM-administered and private lands are likely to have the greatest potential to affect transmission line ROWs in GRSG habitat than other land management entities. Designating ROW exclusion and avoidance areas in PHMA and GHMA on BLM-administered and National Forest System lands could reduce the threat on these lands. However, in areas with scattered federal landownership, infrastructure may be routed around federal lands, often increasing its length and impact. ROW avoidance and exclusion areas on BLM-administered and National Forest System lands could increase this tendency.

Impact Analysis. Acres managed as open, exclusion, and avoidance for ROWs do not vary substantially across alternatives, as the acres in **Table 5-19** represent the Proposed Plans from other BLM and Forest Service sub-regions and planning areas in MZs II/VII combined with the management in the MZs II/VII portion of the Idaho and southwestern Montana sub-region. Since the Idaho and southwestern Montana sub-region has so few acres within MZs II/VII, alternatives in this sub-region would have a relatively small influence on total acres managed as open, exclusion, or avoidance. As shown in **Table 5-19**, Acres of Rights-of-Way Designations in GRSG Habitat in MZ II/VII, any action alternative for ROW management in the Idaho and southwestern Montana LUPA would affect 8 percent or less of GRSG habitat within MZs II/VII. The greatest impacts would result under Alternatives B, C, and F, where PHMA in the Idaho and southwestern Montana sub-region would be managed as ROW exclusion.

The numbers of ROW authorizations are anticipated to grow in the sub-region. Increasing populations, continued energy development, and new communication sites drive the need for new ROWs on both federal and non-federal lands.

New ROW authorizations that require state agency review or approval would be subject to the permitting process and stipulations for development in GRSG Core areas under the Wyoming and Montana Executive Orders. These stipulations would benefit the GRSG in Core Areas by encouraging ROW development outside of core habitat areas, restricting surface occupancy within 0.6 mile of occupied leks, prohibiting power lines greater than 115 kV outside of designated corridors, and locating new roads used to transport products or waste over 1.9 miles from occupied leks.

Presidential Priority transmission projects which are proposed in MZs II/VII (i.e., Transwest Express and Gateway West), would not be subject to GRSG conservation requirements in BLM and Forest Service LUPAs, but would be subject to requirements in applicable state plans as well as other state and federal laws and regulations. They would also develop their own suite of protective measures analyzed in project-specific NEPA documents. Whether or

Table 5-19
Acres of Rights-of-Way Designations in GRSG Habitat in MZ II/VII

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ II/VII	<i>Percent Within Sub-Region</i>	MZ II/VII	<i>Percent Within Sub-Region</i>
Open to Rights-of-Way				
Alternative A	122,000	37%	5,980,000	<1%
Alternative B	77,000	0%	5,958,000	<1%
Alternative C	77,000	0%	5,594,000	<1%
Alternative D	77,000	0%	5,954,000	<1%
Alternative E	77,000	0%	5,961,000	<1%
Alternative F	77,000	0%	5,958,000	<1%
Proposed Plan	77,000	0%	5,954,000	<1%
Right-of-Way Exclusion				
Alternative A	564,000	0%	675,000	<1%
Alternative B	609,000	7%	674,000	0%
Alternative C	614,000	8%	674,000	0%
Alternative D	564,000	0%	674,000	0%
Alternative E	564,000	0%	674,000	0%
Alternative F	609,000	7%	674,000	0%
Proposed Plan	564,000	0%	674,000	0%
Right-of-Way Avoidance				
Alternative A	8,306,000	0%	3,114,000	0%
Alternative B	8,305,000	0%	3,114,000	0%
Alternative C	8,305,000	0%	3,114,000	0%
Alternative D	8,351,000	<1%	3,142,000	<1%
Alternative E	8,348,000	<1%	3,114,000	0%
Alternative F	8,305,000	0%	3,114,000	0%
Proposed Plan	8,336,000	<1%	3,134,000	<1%

Source: BLM 2015

¹ Includes IHMA

This table displays the acres of PHMA and GHMA within rights-of-way designations in MZ II/VII; it also displays the percentage of those acres that are found within the sub-region.

not these project-specific measures would adequately protect GRSG is unknown at this point in time because the measures have not been finalized. Regardless, impacts would likely be greater in Colorado where the proposed route would impact approximately 26 miles in PACs and 57 miles in PHMA in the Little Snake and White River BLM Field Offices. This impact would be especially harmful to fringe GRSG populations in Colorado, as some are less robust than those in Wyoming and southern Montana. In Wyoming, the routes avoid Core Areas due to that state plan's requirements; this would reduce impacts in Wyoming.

The effect of the alternatives and other conservation actions in the MZ (most notably the Montana and Wyoming executive orders) could be synergistic, meaning that the effects of the actions together is greater than the sum of their individual effects. By implementing restrictions on infrastructure in PHMA and on state and private lands together, the cumulative beneficial effect on GRSG would be greater than the sum of their individual effects because protections would be applied more consistently across the landscape. This is especially important in areas of mixed land ownership patterns where complementary protections can benefit leks, early brood rearing habitat, or other important areas that do not follow geopolitical boundaries.

Reasonably foreseeable ROW development in MZs II/VII is expected to increase over the 20-year analysis period (**Section 5.1.12**), though state and private GRSG conservation efforts as well as other BLM and Forest Service proposed plans in MZs II/VII would reduce the threat by restricting the type and location of developments. These conservation actions would provide a net conservation gain to GRSG habitats and populations in MZs II/VII regardless of management within the Idaho and southwestern Montana sub-region.

Renewable Energy

Nature and Type of Effects. The impacts of renewable energy development on GRSG are described in **Section 4.2** and above in **Section 5.1.6**.

Conditions in the Sub-region and in MZs II/VII. While most federal lands are not currently leased or developed for wind or solar energy, the areas of potential development coincide closely with GRSG habitats, especially in MZs II/VII (Manier et al. 2013, p. 60).

Although not representative of all renewable energy development, wind turbines on BLM-administered land indirectly influence less than 1 percent of priority habitat and general habitat combined across MZs II/VII. Private lands account for 70 percent of wind turbines affecting GRSG in priority habitat (and 73 percent in general habitat) within MZs II/VII (Manier et al. 2013, p. 61). Therefore, conservation actions on private land are likely to have a greater potential to ameliorate the effects of wind energy development than any other single land management entity.

Impact Analysis. **Table 5-20**, Acres of Wind Energy Management Designations in GRSG Habitat in MZ II/VII, displays acres open to wind energy ROW and wind energy exclusion and avoidance areas by alternative.

Table 5-20
Acres of Wind Energy Management Designations in GRSG Habitat in MZ II/VII

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ II/VII	<i>Percent Within Sub-Region</i>	MZ II/VII	<i>Percent Within Sub-Region</i>
Open to Wind Rights-of-Way				
Alternative A	45,000	100%	5,487,000	<1%
Alternative B	0	0%	5,465,000	<1%
Alternative C	0	0%	5,460,000	0%
Alternative D	0	0%	5,460,000	0%
Alternative E	0	0%	5,467,000	<1%
Alternative F	0	0%	5,465,000	<1%
Proposed Plan	0	0%	5,461,000	0%
Wind Right-of-Way Exclusion				
Alternative A	3,765,000	0%	957,000	0%
Alternative B	3,810,000	1%	957,000	0%
Alternative C	3,815,000	1%	957,000	0%
Alternative D	3,809,000	1%	957,000	0%
Alternative E	3,765,000	0%	957,000	0%
Alternative F	3,810,000	1%	957,000	0%
Proposed Plan	3,796,000	1%	958,000	<1%
Wind Right-of-Way Avoidance				
Alternative A	5,184,000	0%	3,305,000	0%
Alternative B	5,184,000	0%	3,305,000	0%
Alternative C	5,184,000	0%	3,305,000	0%
Alternative D	5,185,000	<1%	3,332,000	<1%
Alternative E	5,226,000	1%	3,305,000	0%
Alternative F	5,184,000	0%	3,305,000	0%
Proposed Plan	5,184,000	0%	3,323,000	<1%

Source: BLM 2015

¹ Includes IHMA

This table displays the acres of PHMA and GHMA within wind energy management designations in MZ II/VII; it also displays the percentage of those acres that are found within the sub-region.

Acres managed as open, avoidance, and exclusion for wind energy development do not vary substantially across alternatives, as the acres in **Table 5-20** represent the Proposed Plans from other BLM and Forest Service sub-regions and planning areas in MZs II/VII combined with the management in the MZs II/VII portion of the Idaho and southwestern Montana sub-region. Since the Idaho and southwestern Montana sub-region has so few acres within MZs II/VII, alternatives in this sub-region would have a relatively small influence on total acres managed as open, avoidance, or exclusion. As shown in **Table 5-20**, any action alternative for wind energy management in the Idaho and southwestern Montana LUPA would affect 1 percent or less of GRSG habitat within MZs II/VII.

All Proposed Plans within Wyoming in MZs II/VII rely on wind ROW avoidance designations to protect GRSG habitat rather than wind ROW exclusion. Similar to other ROWs, this approach preserves management flexibility in situations where landownership is mixed. Without this flexibility, rerouting ROWs across nonfederal land may result in a longer route, increasing disturbance of GRSG leks, nests, and brood-rearing and wintering areas more than direct routing across federal land. Other Proposed Plans in MZs II/VII would manage PHMA as ROW exclusion, thereby providing the greatest protection on federal lands, but potentially increasing impacts on nonfederal lands.

Reasonably foreseeable future projects within MZs II/VII include renewable energy developments, such as the Chokecherry/Sierra Madre Wind Farm in southern Wyoming. Projects which require state agency review or approval would be subject to the Wyoming Executive Order permitting process for development in core areas, which would encourage ROW development outside of Core Areas and restrict surface occupancy within 0.6 miles of occupied leks.

Overall, the Montana and Wyoming state actions, other BLM and Forest Service Proposed Plans within MZs II/VII, and other past, present, and reasonably foreseeable future actions will provide a net conservation gain to GRSG habitats and populations in MZs II/VII from wind energy management regardless of management within the Idaho and southwestern Montana sub-region.

Reasonably foreseeable renewable energy development in MZs II/VII is expected to increase over the 20-year analysis period (**Section 5.1.12**), though state and private GRSG conservation efforts as well as other BLM and Forest Service proposed plans in MZs II/VII would reduce the threat by restricting the location of developments. These conservation actions would provide a net conservation gain to GRSG habitats and populations in MZs II/VII regardless of management within the Idaho and southwestern Montana sub-region.

Grazing/Free-Roaming Equids

Nature and Type of Effects. The impacts of livestock grazing and free-roaming equids on GRSG are described in **Section 4.2** and above in **Section 5.1.6**.

Conditions in the Sub-region and in MZs II/VII. Livestock grazing is present and widespread on many land types, such as federal and private, across MZs II/VII. Rangeland health assessments have found that nearly 4 percent of BLM-administered grazing

allotments in GRSG habitat in MZs II/VII are not meeting wildlife standards with grazing as a causal factor. Additionally, nearly 5 million acres of GRSG habitat within MZs II/VII, largely in the central portion of the area, is federally managed wild horse and burro range (Manier et al. 2013, p. 131).

Impact Analysis. **Table 5-21**, Acres Available and Unavailable to Livestock Grazing in GRSG Habitat in MZ II/VII, lists the acres of PHMA and GHMA available and unavailable for grazing by alternative.

Table 5-21
Acres Available and Unavailable to Livestock Grazing in GRSG Habitat in MZ II/VII

	Priority Habitat Management Areas		General Habitat Management Areas	
	MZ II/VII	<i>Percent Within Sub-Region</i>	MZ II/VII	<i>Percent Within Sub-Region</i>
Available to Livestock Grazing				
Alternative A	8,915,000	1%	9,711,000	<1%
Alternative B	8,915,000	1%	9,689,000	<1%
Alternative C	8,871,000	0%	9,684,000	0%
Alternative D	8,915,000	1%	9,711,000	<1%
Alternative E	8,913,000	<1%	9,692,000	<1%
Alternative F	8,915,000	1%	9,689,000	<1%
Proposed Plan	8,901,000	<1%	9,705,000	<1%
Unavailable to Livestock Grazing				
Alternative A	28,000	0%	16,000	0%
Alternative B	28,000	0%	16,000	0%
Alternative C	78,000	64%	16,000	0%
Alternative D	28,000	0%	16,000	0%
Alternative E	28,000	0%	16,000	0%
Alternative F	28,000	0%	16,000	0%
Proposed Plan	28,000	0%	16,000	0%

Source: BLM 2015

This table displays the acres of PHMA and GHMA available and unavailable to livestock grazing in MZ I; it also displays the percentage of those acres that are found within the sub-region.

Acres available and unavailable to livestock grazing generally do not vary substantially across alternatives, as the acres in **Table 5-21** represent the Proposed Plans from other BLM and Forest Service sub-regions and planning areas in MZs II/VII combined with the management in the MZs II/VII portion of the Idaho and southwestern Montana sub-region.

Since the Idaho and southwestern Montana sub-region has so few acres within MZs II/VII, alternatives in this sub-region would have a relatively small influence on total acres available or unavailable. As shown in **Table 5-21**, most alternatives for livestock grazing management in the Idaho and southwestern Montana LUPA would affect 1 percent or less of GRSG habitat within MZs II/VII. The exception would be under Alternative C, where grazing would be removed from PHMA in the Idaho and southwestern Montana sub-region. This represents 64 percent of the total acres unavailable to grazing in MZs II/VII under this alternative. Impacts from removal of grazing under Alternative C would be as described in **Section 5.1.6**.

Since 2010, SGI has enhanced rangeland health through rotational grazing systems, re-vegetating former rangeland with sagebrush and perennial grasses and control of invasive weeds. On privately-owned lands, SGI has developed a prescribed grazing approach that balances forage availability with livestock demand. This system allows for adjustments to timing, frequency, and duration of grazing, ensuring rangelands are managed sustainably to provide continued ecological function of sagebrush-steppe. A primary focus of the prescribed grazing approach is maintenance of key plant species, such as deep-rooted perennial grasses that have been shown to be essential for ecological resistance to invasive annual grasses (Reisner et al. 2013, pp. 1047-1048). These actions help to alleviate the adverse impacts associated with improper grazing practices outlined above under Nature and Type of Effects. Within MZs II/VII, SGI has implemented 543,511 acres of prescribed grazing systems. This program is likely the largest and most impactful program on private lands within MZs II/VII. Because of its focus on priority areas for conservation, which often overlap PHMA, the SGI's past, present, and reasonably foreseeable work has had and likely will continue to have a cumulative beneficial impact on GRSG when considered alongside protective BLM management actions in PHMA.

Reasonably foreseeable livestock grazing management efforts in MZs II/VII are expected to increase over the analysis period (**Section 5.1.12**), through increased NRCS conservation actions under the Sage-Grouse Initiative (e.g., fence marking and conservation easements), state efforts to maintain ranchland, and the implementation of other BLM and Forest Service LUPAs in MZs II/VII. These conservation actions would result in a net conservation gain to GRSG habitats and populations in MZ II/VII regardless of management within the Idaho and southwestern Montana sub-region.

Spread of Invasive Plants

Nature and Type of Effects. The impacts of weed spread on GRSG are described in **Section 4.2** and above in **Section 5.1.6**.

Conditions in the Sub-region and in MZs II/VII. Cheatgrass is distributed throughout these MZs, though generally not with the same abundance observed in other areas, such as the Great Basin. Localized areas, such as southern Wyoming, are more invaded than cooler parts of the region (Manier et al. 2013, p. 131).

The BLM and Forest Service currently manage weed infestations through integrated weed management: biological, chemical, mechanical, manual, and educational methods. The BLM

is guided by the 1991 and 2007 RODs for Vegetation Treatment on BLM Lands in Thirteen Western States (BLM 1991) and by the 2007 Programmatic Environmental Report (BLM 2007). Weeds are managed in cooperation with county governments and represents a landscape-level approach across management jurisdictions.

Impact Analysis. Given the small acreage of the Idaho and southwestern Montana sub-region within MZs II/VII, it is unlikely that the alternatives in the Idaho and southwestern Montana LUPA would have a measurable contribution to cumulative effects from invasive weed management within MZs II/VII.

Invasive species on BLM-administered and National Forest System lands would be controlled under all alternatives and may be more successful given the lower extent of invasion within the MZs. This would provide a net conservation gain to GRSG by restoring degraded sagebrush habitat.

Relevant cumulative actions that result in surface-disturbing activities would increase the potential for the spread of invasive weeds on both federal and non-federal lands. Projects subject to the general stipulations outlined in the Montana and Wyoming Executive Orders are required to control noxious and invasive weed species and to use native seed mixes during reclamation processes. These stipulations would benefit GRSG core habitat areas. They would accomplish this by limiting the spread or establishment of invasive species, particularly on lands that lack BLM and Forest Service protective regulatory mechanisms. Further, the Greater Sage-Grouse Habitat Conservation Strategy for NRCS in Idaho has identified GRSG conservation measures related to invasive weeds, such as reducing the risk and rate of fire spread, restoration and rehabilitation, and weed control. A number of projects are ongoing or in the planning phase to treat nonnative, invasive species (**Section 5.1.12**).

Reasonably foreseeable weed management efforts are projected to increase (**Section 5.1.12**), including other state and county noxious weed regulations and the implementation of other BLM and Forest Service LUPAs in MZ II/VII. These conservation actions would result in a net conservation gain to GRSG habitats and populations in MZs II/VII regardless of management within the Idaho and southwestern Montana sub-region.

Conversion to Agriculture

Nature and Type of Effects. The impacts of conversion to agriculture on GRSG are described in **Section 4.2** and above in **Section 5.1.6**.

Conditions in the Sub-region and in MZs II/VII. Regional assessments estimate that while only 1 percent of priority habitat and general habitat in MZs II/VII are directly influenced by agricultural development, over 80 percent of these habitats are within approximately 4 miles of agricultural land (Manier et al. 2013, p. 27).

Impact Analysis. The BLM and Forest Service do not convert public lands to agriculture. As such, the only direct authority these agencies have over conversion to agriculture is by retaining or disposing of lands in the realty program. Lands retained under BLM and Forest



Service management will not be converted to agriculture and disposing of lands could increase the likelihood they will be converted to agriculture, depending on their location and the policies of the new management authority.

Acres identified for retention and disposal generally do not vary substantially across alternatives, as the acres in **Table 5-22**, Acres Identified for Retention and Disposal in GRSG Habitat in MZ II/VII, represent the Proposed Plans from other BLM and Forest Service sub-regions and planning areas in MZs II/VII combined with the management in the MZs II/VII portion of the Idaho and southwestern Montana sub-region. Since the Idaho and southwestern Montana sub-region has so few acres within MZs II/VII, alternatives in this sub-region would have a relatively small influence on total acres identified for retention or disposal. As shown in **Table 5-22**, most alternatives for land tenure adjustments in the Idaho and southwestern Montana LUPA would affect 4 percent or less of GRSG habitat within MZs II/VII. The exception would be under Alternatives A and E, which would identify some PHMA in the Idaho and southwestern Montana sub-region for disposal. This represents 65 and 63 percent of the total acres identified for disposal in MZs II/VII under Alternatives A and E, respectively.

Cumulative impacts vary relatively little across alternatives, and BLM and Forest Service management may have little impact on alleviating this threat. Restrictions on grazing on federal land could increase agriculture pressure on adjacent private lands. If the loss of federal grazing privileges makes ranching economically unviable, the potential conversion of private grazing lands to agriculture would increase. However, the Proposed Plan does not substantially increase acreage unavailable to grazing.

The COT report objectives for converting land to agriculture are to avoid further loss of sagebrush habitat for agricultural activities (both plant and animal production) and to prioritize restoration. In areas where taking agricultural lands out of production has benefited GRSG, the programs supporting these actions should be targeted and continued (USFWS 2013a, p. 48). In accordance with this objective, the NRCS's SGI program focuses on maintaining rangeland that provides habitat for GRSG.

This voluntary program provides private landowners with monetary incentives to protect GRSG habitat, often through conservation easements. As a result, private land containing GRSG habitat is protected from conversion to agriculture or other development for the life of the conservation agreement. The conservation easements and other conservation incentives, such as restoration of water features and fence marking, can enhance the ability of private rangelands to support GRSG. As of 2014, SGI has secured conservation easements on 243,403 acres within MZs II/VII and marked or removed 23 miles of fence (NRCS 2015). This has preserved habitat and reduced the risk of direct mortality on these lands.

Table 5-22
Acres Identified for Retention and Disposal in GRSG Habitat in MZ II/VII

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ II/VII	<i>Percent Within Sub-Region</i>	MZ II/VII	<i>Percent Within Sub-Region</i>
Acres Identified for Retention				
Alternative A	7,272,000	<1%	8,930,000	<1%
Alternative B	7,315,000	1%	8,908,000	<1%
Alternative C	7,320,000	1%	8,907,000	0%
Alternative D	7,315,000	1%	8,934,000	<1%
Alternative E	7,272,000	<1%	8,908,000	<1%
Alternative F	7,315,000	1%	8,908,000	<1%
Proposed Plan	7,291,000	<1%	8,938,000	<1%
Acres Identified for Disposal				
Alternative A	67,000	65%	160,000	3%
Alternative B	24,000	0%	160,000	3%
Alternative C	24,000	0%	156,000	0%
Alternative D	24,000	0%	156,000	0%
Alternative E	65,000	63%	162,000	4%
Alternative F	24,000	0%	160,000	3%
Proposed Plan	24,000	0%	156,000	0%

Source: BLM 2015

¹ Includes IHMA

This table displays the acres of PHMA and GHMA identified for retention and disposal in MZ II/VII; it also displays the percentage of those acres that are found within the sub-region.

Over the analysis period, conversion to agriculture is expected to increase (**Section 5.1.12**), though state and private conservation efforts as well as other BLM and Forest Service proposed plans in MZs II/VII would reduce the threat. These conservation actions would result in net conservation gain to GRSG habitats and populations in MZs II/VII regardless of management within the Idaho and southwestern Montana sub-region.

Wildfire

Nature and Type of Effects. The impacts of fire on GRSG are described in **Section 4.2** and above in **Section 5.1.6**.

Conditions in the Sub-region and in MZs II/VII. Fire risk is generally low across MZs II/VII, though areas in the northern and southern portions of the MZs have a higher fire

risk (Manier et al. 2013, p. 131). Within the MZs, 10 percent of priority habitat and general habitat have a high risk for fire (Manier et al. 2013, p. 85).

Impact Analysis. Given the small acreage of the Idaho and southwestern Montana sub-region within MZs II/VII, it is unlikely that the alternatives in the Idaho and southwestern Montana LUPA would have a measurable contribution to cumulative effects from fire management within MZs II/VII.

Recognition of the importance of sagebrush habitat during interagency wildfire response would benefit GRSG in the event of an unplanned fire. The Montana Executive Order emphasizes fire suppression in Core Population Areas, while recognizing other suppression priorities may take precedent. This would benefit GRSG during wildfire planning and response, particularly on lands not administered by the BLM or Forest Service.

The Interagency Standards for Fire and Fire Aviation Operations “Red Book” includes a BMP for GRSG habitat conservation for wildlife and fuels management (BLM 2013b). This document is a supplemental policy or guidance for the BLM, the Forest Service, and the USFWS. This BMP would benefit the GRSG during interagency wildland fire operations. It would do this by using spatial habitat data and predictive services to prioritize and preposition firefighting resources in critical habitat areas. In January 2015, Secretarial Order 3336 “Rangeland Fire Prevention, Management and Restoration” was signed by the Secretary of the Interior. The order sets forth strategies for preventing and suppressing rangeland wildfire and for restoring sagebrush landscapes impacted by wildfire across the West. The order will improve coordination with local, state, tribal, and regional efforts to address rangeland wildfire at a landscape level. Coordination with rural fire districts to manage wildfires in GRSG habitat will further reduce this threat across land ownership types and improve the quality and quantity of habitat.

Reasonably foreseeable wildland fire management efforts are projected to increase (**Section 5.1.12**), especially through increased coordination of federal, state, and local fire prevention actions and the implementation of other BLM and Forest Service LUPAs in MZs II/VII. These conservation actions would result in a net conservation gain to GRSG habitats and populations in MZs II/VII regardless of management within the Idaho and southwestern Montana sub-region.

Recreation

Nature and Type of Effects. The impacts of recreation on GRSG are described in **Section 4.2** and above in **Section 5.1.6**.

Conditions in the Sub-region and in MZs II/VII. Human populations have increased and expanded, primarily over the past century and in the western portion of the sagebrush distribution. Within MZs II/VII, population densities have increased 31 percent on the Colorado Plateau and 19 percent in the Wyoming Basin (Knick et al. 2011, p. 212). With these expanding populations come greater human impacts (Leu et al. 2008).

The COT report objectives for recreation are to maintain healthy native sagebrush communities, based on local ecological conditions, and to manage direct and indirect human disturbance (including noise) to avoid interruption of normal GRSG behavior (USFWS 2013a, p. 49). Limits on road use under the action alternatives and limits on OHVs would help meet these objectives.

In the Idaho and southwestern Montana sub-region, travel management planning is underway to determine specific routes available for closure.

Impact Analysis. **Table 5-23**, Acres of Travel Management Designations in GRSG Habitat in MZ II/VII, shows Acres of Travel Management Designations in GRSG Habitat in MZs II/VII.

Acres open, closed, and limited to motorized vehicles do not vary substantially across alternatives, as the acres in **Table 5-23** represent the Proposed Plans from other BLM and Forest Service sub-regions and planning areas in MZs II/VII combined with the management in the MZs II/VII portion of the Idaho and southwestern Montana sub-region. Since the Idaho and southwestern Montana sub-region has so few acres within MZs II/VII, alternatives in this sub-region would have a relatively small influence on total acres open, closed or limited. As shown in **Table 5-23**, any alternative for travel management in the Idaho and southwestern Montana LUPA would affect 1 percent or less of GRSG habitat within MZs II/VII.

Reasonably foreseeable recreation in MZs II/VII is expected to increase over the 20-year analysis period (**Section 5.1.12**). However, state and private GRSG conservation efforts as well as other BLM and Forest Service proposed plans in MZs II/VII would reduce the threat by providing additional protections such as disturbance caps and limitations on National Forest System lands. These conservation actions would result in a net conservation gain to GRSG habitats and populations in MZs II/VII regardless of management within the Idaho and southwestern Montana sub-region.

Conifer Encroachment

Nature and Type of Effects. Conifer woodlands, especially juniper (*Juniperus* spp.) and in some regions pinyon pine (*Pinus edulis*), may expand into sagebrush habitat and reduce availability of habitat for GRSG. Conifer expansion may be encouraged by human activities, including fire suppression and grazing (Miller et al. 2011). If woodland development is sufficient to restrict shrub and herbaceous understory growth, habitat quality for GRSG will be reduced (Connelly et al. 2004). Mature trees offer perch sites for raptors; thus, woodland expansion may also increase the threat of predation, as with powerlines (Manier et al. 2013). Locations within approximately 1,000 yards of current pinyon-juniper woodlands are at highest risk of expansion (Bradley 2010). The greatest risks from conifer encroachment are thought to be in the Great Basin, with smaller risks (6 to 7 percent of priority and general habitat) in the Wyoming Basin (Connelly et al. 2004; Manier et al. 2013). Studies have shown that GRSG incur population-level impacts at very low levels of conifer encroachment (Baruch-Mordo et al. 2013).



Table 5-23
Acres of Travel Management Designations in GRSG Habitat in MZ II/VII

	Priority Habitat Management Areas		General Habitat Management Areas ¹	
	MZ II/VII	<i>Percent Within Sub-Region</i>	MZ II/VII	<i>Percent Within Sub-Region</i>
Open				
Alternative A	5,000	0%	58,000	100%
Alternative B	5,000	0%	5,000	0%
Alternative C	5,000	0%	5,000	0%
Alternative D	5,000	0%	5,000	0%
Alternative E	5,000	0%	5,000	0%
Alternative F	5,000	0%	5,000	0%
Proposed Plan	5,000	0%	58,000	72%
Limited				
Alternative A	8,876,000	1%	9,338,000	<1%
Alternative B	8,876,000	1%	9,315,000	<1%
Alternative C	8,876,000	1%	9,310,000	0%
Alternative D	8,876,000	1%	9,338,000	<1%
Alternative E	8,873,000	<1%	9,317,000	<1%
Alternative F	8,876,000	1%	9,315,000	<1%
Proposed Plan	8,861,000	<1%	9,331,000	<1%
Closed				
Alternative A	112,000	0%	366,000	0%
Alternative B	112,000	0%	366,000	0%
Alternative C	112,000	0%	366,000	0%
Alternative D	112,000	0%	366,000	0%
Alternative E	112,000	0%	366,000	0%
Alternative F	112,000	0%	366,000	0%
Proposed Plan	112,000	0%	366,000	0%

Source: BLM 2015

¹ Includes IHMA

This table displays the acres of PHMA and GHMA within travel management designations of open, limited and closed in MZ II/VII; it also displays the percentage of those acres that are found within the sub-region.

Conditions in MZs II/VII. Approximately 46 percent of conifer encroachment risk in priority habitat (and 43 percent in general habitat) occur on BLM-administered lands within MZs II/VII (Manier et al. 2013). Therefore, BLM actions are likely to have a greater potential to ameliorate the effects of conifer encroachment on GRSG than any other single land management entity.

Impact Analysis. Specific required design features common to all BLM and Forest Service plans in MZs II/VII include removal of standing and encroaching trees within 100 meters of occupied leks and other habitats (e.g., nesting, wintering, and brood rearing). Additionally, reintroduction of appropriate fire regimes would limit conifer encroachment into the sagebrush plant communities. These actions would benefit GRSG by improving the quality of habitat throughout the MZ.

Additionally, under the Proposed Plan, conifer removal treatments would be prioritized closest to occupied GRSG habitats and near occupied leks, and where juniper encroachment is phase 1 or phase 2. This action would benefit GRSG by improving the quality of habitat and functionality.

In Colorado, the Colorado Parks and Wildlife has conducted conifer treatments totaling 2,600 acres (Colorado Department of Natural Resources 2013). In addition, SGI has helped reduce the threat of early succession conifer encroachment through mechanical removal on 10,500 acres of private lands within MZs II/VII. The majority of these efforts were located inside PACs (NRCS 2015), helping to preserve historic fire return intervals and important GRSG habitat.

Reasonably foreseeable conifer encroachment management efforts are projected to increase (**Section 5.1.12**), including efforts on private land and implementation of other BLM and Forest Service LUPAs in MZs II/VII. These conservation actions would result in a net conservation gain to GRSG habitats and populations in MZs II/VII regardless of management in the Idaho and southwestern Montana sub-region.

5.1.11 Conclusions

In addition to BLM and Forest Service management in the Idaho and southwestern Montana sub-region and other planning areas in MZs IV and II/VII, GRSG in these MZs will also be impacted by management and conservation at state, regional, tribal and local levels. This analysis takes into account each alternative in the Idaho and southwestern Montana LUPA in conjunction with state and private initiatives, as well as past, present, and reasonably foreseeable future actions at the federal, state, and local levels. The analysis assumes that the Proposed Plans would be implemented in the other BLM and Forest Service LUPA planning areas in MZs IV and II/VII.

Some of the most important past and present actions benefitting GRSG populations on private land in MZ IV and II/VII are the conservation easements coordinated by federal agencies such as BLM and the Forest Service, individual states, and by NRCS SGI with private ranchers. SGI has also worked with landowners to increase fence marking, seeding of



native vegetation, and conifer removal to improve GRSG habitat quality. Future coordination of private landowners with SGI is expected to provide further benefits to GRSG habitat.

This coordination with private landowners enhances conservation in addition to what BLM and Forest Service management can accomplish on federal lands. Ranchers in Wyoming and Montana are also using Candidate Conservation Agreement with Assurances with the USFWS. Under these instruments, the ranchers voluntarily agree to manage lands to reduce threats to GRSG in exchange for a guarantee that they will not be subject to additional regulations should the species become listed. While ranchers have used these agreements across the GRSG range, thus far the agreements have been applied to only a small number of ranches in Wyoming and Montana.

As discussed in **Sections 5.1.4** and **5.1.8**, both Wyoming and Montana have adopted statewide plans to promote GRSG conservation. Both plans implement a Core Population Area Strategy with well density limitations, timing restrictions, and a uniform 5 percent disturbance cap across all landownership types. These measures would improve GRSG population levels if effectively enforced (Copeland et al. 2013) and would primarily affect MZs II/VII. The limitations on timing and density of energy development along with the disturbance cap, and BLM and Forest Service management on lands with federal mineral estate, would act in concert to promote GRSG conservation and reduce the impacts from energy development on leks, breeding habitat, and wintering habitat.

However, a majority of MZ IV, including the states of Idaho, Oregon, Nevada, and Utah, do not have similar executive orders in place. These states do have GRSG conservation plans, but these plans generally include voluntary guidelines, not regulatory mechanisms. This could allow for more impacts on the 31 percent of GRSG habitat within the MZ that is state or privately owned. Since most GRSG habitat in MZ IV (68 percent) is under federal management, BLM and Forest Service regulatory mechanisms will have a substantial contribution to cumulative effects.

BLM and Forest Service restrictions on ROWs/SUAs, renewable energy, and energy development in GRSG habitat would help reduce loss and disturbance of GRSG populations. The Proposed Plan includes numerous measures to allow development while reducing the likelihood for impacts on GRSG, such as requirements for anthropogenic disturbance criteria, a 3 percent disturbance cap, buffers, mitigation, and RDFs and BMPs.

The more challenging threats to manage in MZ IV are fire, the spread of weeds, and conifer encroachment. Fire regimes are complex and vary tremendously across the sagebrush region and through time; furthermore, the ecological role of fire has changed dramatically since the European settlement era (circa 1850) due to changing fuel and habitat patterns (Manier et al. 2013, p. 79). Fire is exacerbated by invasive weeds, particularly in Wyoming big sagebrush types, where the invasion by exotic annuals has resulted in dramatic increases in number and frequency of fires with widespread, detrimental effects on habitat conditions (Manier et al. 2013, p. 88). Expansion of conifer woodlands, especially juniper (*Juniperus* spp.) do not provide suitable habitat for GRSG, and mature trees displace shrubs, grasses and forbs

through direct competition (Manier et al. 2013, p. 91). These threats are at the landscape scale and are extensive throughout MZ IV; the Proposed Plans within MZ IV include a comprehensive strategy to address these threats.

Alternative A: Current Management

Under Alternative A, current management would continue on BLM-administered and National Forest System lands in the Idaho and southwestern Montana sub-region. Several protective measures would not be implemented; for example, the BLM and Forest Service would not designate PHMA or GHMA and would not manage any additional ROW/SUA avoidance or exclusion areas. Alternative A does not include any consistent management prescriptions to protect GRSG across the sub-region, though several individual BLM district offices and National Forests have some protections in place. Appropriate and allowable uses and restrictions with regard to such activities as mineral leasing and development, recreation, utility corridors, and livestock grazing would also remain unchanged.

Under current management, widespread wildfire and subsequent spread of nonnative, invasive species have destroyed and degraded PHMA and PGMA, particularly in MZ IV. This is likely to continue and reinforce the cycle of fire and weed spread. Further, the expansion of conifers, particularly juniper, will continue to reduce the suitability of sagebrush habitats for GRSG.

In the rest of MZs IV and II/VII, other BLM and Forest Service LUPA planning efforts would implement their Proposed Plans to improve protection of GRSG and their habitat. In addition, GRSG conservation strategies would be implemented on state and private lands. As a result, the lack of protections under the Idaho and southwestern Montana LUPA Alternative A would be offset to an extent by more protective management elsewhere in the MZs, particularly within MZs II/VII. In the Idaho and southwestern Montana sub-region, though, continuation of current management would do little to reduce the major threats to GRSG in the sub-region: wildfire, invasive weeds, and conifer encroachment. Current management provides a limited number and extent of regulatory mechanisms to avoid continued degradation of GRSG habitat in MZs IV and II/VII, but it would not meet the COT report objectives for conservation of GRSG.

Alternative B

Under Alternative B, the BLM and Forest Service would manage lands to conserve, enhance, and restore sagebrush ecosystems. In conjunction with NRCS and state initiatives on private land, several aspects of BLM and Forest Service management under Alternative B would benefit GRSG conservation at a landscape level. These include implementation of a 3 percent disturbance cap, retention of GRSG habitat, restrictions on resource uses such as managing PHMA as ROW exclusion and closed to mineral development, and prioritizing restoration in GRSG habitat. Implementing these protective measures on BLM-administered and National Forest System lands within the Idaho and southwestern Montana sub-region would help reduce damage to GRSG habitat, minimize loss of connectivity and could also minimize the spread of invasive species by limiting human activities that disturb soil or introduce seeds. However, such restrictions could also risk pushing development onto adjacent, nonfederal lands with less restrictive management. This is particularly a concern



where nonfederal lands have fewer protections (e.g., most of MZ IV). In parts of MZ IV and MZs II/VII, some nonfederal lands have similarly restrictive measures such as in Core Areas in Wyoming and Montana (though Core areas do not cover all existing GRSG populations), which would reduce the likelihood for impacts.

In combination with other past, present, and reasonably foreseeable future actions, Alternative B would likely meet the objectives laid out in the COT report for infrastructure, grazing/free-roaming equids, conversion to agriculture, energy development, and recreation. Without a comprehensive strategy to address fire, invasive weeds, and conifer encroachment, it may not meet the COT objectives for these threats.

Alternative C

Under Alternative C, the BLM and Forest Service would manage lands to conserve, enhance, and restore sagebrush ecosystems and would apply management to all occupied GRSG habitats, making it the most restrictive alternative for development in GRSG habitat. In conjunction with NRCS and state initiatives on private land, several aspects of BLM and Forest Service management under Alternative C would benefit GRSG conservation at a landscape level. These include implementation of a 3 percent disturbance cap, removal of livestock grazing from BLM-administered and National Forest System lands, and closure to leasable mineral development. Impacts would be similar to those described for Alternative B, but could be greater due to the larger area over which restrictions would be applied.

Together with other past, present, and reasonably foreseeable future actions, Alternative C would likely meet the objectives laid out in the COT report for infrastructure, conversion to agriculture, energy development, and recreation. Without a comprehensive strategy to address fire, invasive weeds, and conifer encroachment, it may not meet the COT objectives for these threats. Further, it is unknown whether removal of grazing would meet the COT objectives for range management, as analyzed above and in greater detail in **Section 4.2**.

Alternative D

Under Alternative D, the BLM and Forest Service would manage lands to conserve, enhance, and restore sagebrush ecosystems. Management and impacts would be similar to Alternative B, though Alternative D would incorporate more flexibility and adaptive management applied to resource uses to account for sub-regional conditions. The BLM and Forest Service would require a no net unmitigated loss of PHMA and IHMA and would implement numerous conservation measures to reduce impacts from human activities in PHMA, such as management of GRSG habitat as ROW avoidance areas and closure to some mineral development. Alternative D also includes additional measures and planning for wildfire management.

Under Alternative D, the BLM would increase GRSG habitat protection over current management, but with less restrictive actions than under Alternatives B or C. In conjunction with state and regional planning efforts, implementation of state disturbance caps in GRSG core areas, conservation easements on private lands, implementation of other BLM and Forest Service LUPAs in MZ IV and MZs II/VII, and other past, present, and reasonably foreseeable future actions, Alternative D would likely meet the objectives laid out in the

COT report for fire, infrastructure, grazing/free-roaming equids, conversion to agriculture, energy development, and recreation. Without a comprehensive strategy to address invasive weeds and conifer encroachment, it may not meet the COT objectives for these threats.

Alternative E

Under Alternative E, the BLM and Forest Service would manage to maintain, conserve, enhance, and restore sagebrush ecosystems. In PHMA and IHMA, the BLM and Forest Service would incorporate management flexibility to permit high value infrastructure with appropriate mitigation and best management practices tailored for the sub-region. Management and impacts are similar to Alternative D, though Alternative E would require less stringent use restrictions and would designate the least amount of PHMA compared to the other alternatives' management area designations. Alternative E also includes additional measures and planning for wildfire management.

Under Alternative E, the BLM would increase GRSG habitat protection over current management, but with less restrictive actions than under Alternatives B C, or D. In conjunction with state and regional planning efforts, implementation of state disturbance caps in GRSG core areas, conservation easements on private lands, implementation of other BLM and Forest Service LUPAs in MZ IV and MZs II/VII, and other past, present, and reasonably foreseeable future actions, Alternative E would likely meet the objectives laid out in the COT report for fire, infrastructure, grazing/free-roaming equids, and recreation. Alternative E imposes fewer restrictions on mining and energy development and does not provide guidance for land tenure decisions, so the alternative may not meet the COT objectives for mining, energy development, and conversion to agriculture. Without a comprehensive strategy to address invasive weeds and conifer encroachment, it also may not meet the COT objectives for these threats.

Alternative F

Management under Alternative F would be largely similar to that described for Alternative B, though with more stringent guidance and restrictive management in sagebrush ecosystems. Alternative F would implement a 3 percent disturbance cap but all surface disturbances (including human disturbance and fire) would count toward this cap. In addition, grazing would be reduced by 25 percent.

In combination with other past, present, and reasonably foreseeable future actions, Alternative F would likely meet the objectives laid out in the COT report for infrastructure, grazing/free-roaming equids, conversion to agriculture, energy development, and recreation. Without a comprehensive strategy to address fire, invasive weeds, and conifer encroachment, it may not meet the COT objectives for these threats.

Proposed Plan

Under the Proposed Plan, the BLM and Forest Service would manage lands to conserve, enhance and restore GRSG habitat and the sagebrush ecosystem upon which GRSG populations depend. Management and impacts would be similar to Alternatives D and E, though the Proposed Plan would incorporate robust strategies and approaches to GRSG management, including wildfire and invasive species management, conifer removal, adaptive



management, mitigation, a 3 percent disturbance cap, anthropogenic disturbance criteria, buffers, habitat objectives and monitoring. The Proposed Plan provides vegetation treatment acres by decade sufficient to meet desired habitat conditions (70 percent of the analysis area meeting 10 to 30 percent sagebrush cover) (NTT 2011). In addition to habitat management areas, SFAs would also be managed to protect recognized the most important areas for the species.

The Proposed Plan would provide a higher level of GRSG habitat protection compared to current management, while allowing flexibility for resource uses when there would be no impacts to GRSG.

In the rest of MZs II/VII, other BLM and Forest Service LUPAs would implement their Proposed Plans to improve protection of GRSG and their habitat. In addition, other regional GRSG conservation strategies as discussed in **Section 5.1.8**, would be implemented on non-federal lands. Reasonably foreseeable future actions in MZs II/VII such as proposed oil and gas developments, interstate transmission lines, and other land disturbance projects would be subject to the requirements set forth in the BLM and Forest Service Proposed Plans which encompass MZs II/VII, where those projects occur on federal decision area lands. For non-federal lands, reasonably foreseeable future projects may be subject to disturbance caps, buffer restrictions, and other requirements of GRSG state plans, as well as site specific mitigation measures.

In conjunction with state and regional planning efforts, implementation of state disturbance caps in GRSG core areas, conservation easements on private lands, implementation of other BLM and Forest Service LUPAs in MZ IV and MZs II/VII, and other past, present, and reasonably foreseeable future actions, the Proposed Plan would likely meet the objectives laid out in the COT report for fire, infrastructure, grazing/free-roaming equids, mining, energy development, conversion to agriculture, invasive weeds, conifer encroachment, and recreation. Specifically, the following measures which would be implemented under the Proposed LUPA, or are considered reasonably foreseeable future actions, would help meet the COT report objectives:

- Implementation of the FIAT would help meet the COT report objective for fire by prioritizing landscapes for wildfire prevention and suppression, fuels management, and habitat restoration. This would help to retain and restore healthy native sagebrush plant communities within the range of GRSG.
- Managing ROW exclusion and avoidance areas would help meet the COT report objective for infrastructure by limiting ROW/SUA development within PHMA. These actions would also help to meet the COT objectives for non-native, invasive plant species by reducing disturbances that promote the spread of weeds.
- Designating major and moderate oil and gas stipulations would limit development in PHMA, except where pre-existing valid rights apply. In these areas Conditions of Approval would limit disturbance.

- Implementation of state conservation plans and/or state executive orders would help meet all COT report objectives, particularly on non-BLM and non-National Forest System lands. Applying a 5 percent disturbance limit (under the Wyoming and Montana GRSG plans/executive orders) would reduce impacts contributing to population declines and range erosion associated with multiple threats including energy, mining, and infrastructure.
- Removal of standing and encroaching trees within 100 meters (328 feet) of occupied leks and other habitats (e.g., nesting, wintering, and brood-rearing) would reduce the rate of pinyon-juniper incursion and help to maintain health native sagebrush plant communities.
- Continued implementation of the Natural Resource Conservation Service Sage-Grouse Initiative would help meet the COT objective for the threat of agriculture conversion, by securing conservation easements on private lands. Fence marking, implementing prescribed grazing systems, and vegetation seeding would help meet the COT objectives for range management structures, grazing, and non-native, invasive plant species.

Summary

Overall, GRSG populations across MZ IV and MZs II/VII face the greatest pressures from wildfire, invasive weeds, energy development, and infrastructure. BLM and Forest Service actions within the Idaho and southwestern Montana sub-region would have a limited influence on GRSG populations and habitats within MZs II/VII, but would substantially contribute to cumulative effects on populations and habitats within MZ IV.

Infrastructure and energy development are of particular concern in MZs II/VII because they affect the greatest amount of land. Numerous multi-state transmission lines are proposed through GRSG habitat, as are large-scale oil and gas field developments in excess of 100,000 acres. Implementation of the BLM and Forest Service Proposed Plans in MZs II/VII is unlikely to preclude such projects from proceeding, especially Presidential Priority transmission line projects that are not subject to GRSG protective measures in the BLM/USFS planning efforts. However, GRSG protective measures are being considered in the project-specific analysis. The cumulative effect of the conservation measures in the proposed LUPA will result in protection of GRSG populations. In some localized areas small populations may be at continued risk due to the cumulative effect of reasonably foreseeable future infrastructure and energy development projects over the next 20 years, when combined with unplanned events such as wildfires, drought, or West Nile virus outbreaks. However, restrictions on land use in combination with project-specific BMPs and required design features, and other regional efforts will help mitigate the effects on small at-risk populations.

Of particular concern is that threat reduction for fire is difficult and costly. Given the intensity and widespread distribution of the threat, it may never be fully eliminated (USFWS 2013a, p. 40), but the comprehensive strategies under Alternatives D, E, and the Proposed Plan, may be able to reduce the threat considerably.



The Idaho and southwestern Montana sub-region in MZ IV contains one of the GRSG strongholds with the largest area of habitat rangewide with low similarity to extirpated portions of the range (USFWS 2013a, p. 70). Both MZ IV and MZs II/VII support the two largest populations of GRSG rangewide (USFWS 2013a, p. 75). As such, management within the sub-region and MZs is critical to preserving the species. All action alternatives considered in the Idaho and southwestern Montana LUPA would reduce threats to some degree and via different strategies.

Implementing Alternatives B, E, F, or the Proposed Plan in combination with other regional efforts (such as the Proposed Plans for other BLM and Forest Service planning areas; conservation strategies in state plans; increased land protections via NRCS SGI, and local habitat restoration efforts) would effectively conserve the region-wide population of GRSG in MZs IV and II/VII.

5.1.12 MZ-Wide Reasonably Foreseeable Future Actions Summary Tables

Tables 5-24, Reasonably Foreseeable Future Actions in Management Zone IV Likely to Impact GRSG Habitat, and **Table 5-25**, Reasonably Foreseeable Future Actions in Management Zone II/VII Likely to Impact GRSG Habitat, include a selection of some of the larger projects from the reasonably foreseeable future actions tables in the RMPAs/LUPAs for MZs IV and II/VII, respectively. The full tables can be found in each EIS within each MZ.

Table 5-24
Reasonably Foreseeable Future Actions in Management Zone IV Likely to Impact GRSG Habitat

MZ	Sub-region	Affected GRSG Population	Project Name	Project Location	Project Description	Project Status
Energy and Mining						
IV	Idaho and Southwestern Montana	Northern Great Basin	Sawtooth #4 Plan of Operation Modification	Twin Falls District, Idaho	Locatable mineral surface mining over 20 acres.	NEPA in progress.
IV	Idaho and Southwestern Montana	Northern Great Basin	Mineral Extraction	Dillon Field Office, Montana	Approximately 25 notices for locatable mineral extraction covering less than 50 acres.	Ongoing
IV	Idaho and Southwestern Montana	Northern Great Basin	Quarry Expansions	Sawtooth National Forests, Utah and Idaho	Several quarry expansions covering 40 acres total.	Planned for 2016.
IV	Idaho and Southwestern Montana	East Central	Dairy Syncline Phosphate Mine	Soda Springs, Idaho	Phosphate mine on estimated 580 acres (281 acres of open pit) within PGH/PHMA.	Planning phase
IV	Idaho and Southwestern Montana	Northern Great Basin	Oil and gas lease nominations	Rogerson-Brown's Bench, Idaho	Determine whether to offer leases on up to 90,000 acres.	Deferred, pending completion of Jarbidge RMP and GRSG EIS
IV	Idaho and Southwestern Montana	East Central	Oil and gas lease nominations	Payette-Weiser area, Idaho	Determine whether to offer oil and gas leases. Several nominations, totaling an estimated 181,000 acres.	Deferred, pending completion of Four Rivers RMP and GRSG EIS
IV	Oregon	Northern Great Basin	Malheur Queen Placer Project	North-central Malheur County, Oregon	Approximately 800 acres approved for development of placer gold extraction.	Development underway
IV	Oregon	Northern Great Basin	High Bar/Upper and Lower Pine Creek Placer Mining Project	Baker County, Oregon	Up to 250 acres of activity would be disturbed for mineral extraction.	Planning phase
IV	Nevada	Northern Great Basin	Round Mountain Gold Mine			

Table 5-24
Reasonably Foreseeable Future Actions in Management Zone IV Likely to Impact GRSG Habitat

MZ	Sub-region	Affected GRSG Population	Project Name	Project Location	Project Description	Project Status
Expansion	Nye County, Nevada	Expansion of existing facilities at the Round Mountain Mine and development of new mining and leaching facilities at the adjacent Gold Hill ore deposit.	Planning phase			
IV	Nevada	Northern Great Basin	Angel Wing Exploration Plan	60 miles northwest of West Wendover, Nevada, on the Utah/Nevada State Line	Expansion of mining exploration activities, including construction of drill pads and access roads and existing road maintenance, from a 3.3 acre Notice to 60 acres. Access to the proposed Plan is through Utah near the town of Grouse Creek.	Planning phase
IV	Nevada	Northern Great Basin	Murdock Mountain Phosphate Prospecting Permit	35 miles northwest of West Wendover, Nevada, and 10 miles southwest of Montello, Nevada	Phosphate exploration drilling and trenching in the Murdock Mountain area. The operator is proposing to construct 31 drill pads with 2 drill holes per pad and 29 exploration trenches measuring 100 feet long by 5 feet wide by 5 feet deep. Exploration roads will also be constructed and existing roads will be utilized. Exploration operations are anticipated to take 200 days to complete.	Planning phase
Lands and Realty						
IV	Idaho and Southwestern Montana	Northern Great Basin; Snake-Salmon-Beaverhead	Gateway West 230/500 Transmission Line Project	Wyoming, Southern Idaho	Authorize ROW for 1,100-mile 500-kV transmission line.	Pending; Scheduled for implementation starting 2016

Table 5-24
Reasonably Foreseeable Future Actions in Management Zone IV Likely to Impact GRSG Habitat

MZ	Sub-region	Affected GRSG Population	Project Name	Project Location	Project Description	Project Status
IV	Idaho and Southwestern Montana; Oregon	Baker; Northern Great Basin	Boardman to Hemingway Transmission Line Project	From Boardman, Oregon to Melba, Idaho	A proposal for an approximately 300-mile 500-kV transmission line.	Project under NEPA review.
IV	Oregon	Northern Great Basin	North Steens 230-kV Transmission Line Project	Harney County, Idaho	North Steens is a 29-mile 230-kV transmission line that would convey 104 MW of power generated from wind farms proposed on private land on the north side of Steens Mountain.	Project approved and ROD signed in December 2011; in litigation.
IV	Nevada	Northern Great Basin	China Mountain Wind Project	Northeastern Nevada	Utility-scale wind facility	Temporarily deferred pending NVCA GRSG EIS
IV	Idaho and Southwestern Montana	Northern Great Basin	Owyhee Land Exchange	Western Owyhee County, Idaho	Proposing to dispose of approximately 33,000 acres of non-GRSG habitat and acquiring around 38,000 acres of primarily GRSG habitat	Proposal
Fuels and Vegetation						
IV	Idaho and Southwestern Montana	Northern Great Basin	Juniper Treatments in Pole Creek Allotment	Owyhee Field Office, Idaho	Juniper removal to enhance resource conditions on 24,486 acres of public, private, and state lands.	Decision issued; treatment implementation pending litigation
IV	Idaho and Southwestern Montana	Northern Great Basin	Juniper Treatment in Trout Springs Allotment	Owyhee Field Office, Idaho	Juniper removal to enhance resource conditions on 29,475 acres of public, private, and state lands.	Planning
IV	Idaho and Southwestern Montana	Northern Great Basin	Upper Castle Creek Fuels Project	Bruneau Field Office, Idaho	Juniper control project on approximately 33,000 acres. 25,000 acres implemented; anticipate 2,000-4,000 acres per year for the remaining areas.	Ongoing through 2014

Table 5-24
Reasonably Foreseeable Future Actions in Management Zone IV Likely to Impact GRSG Habitat

MZ	Sub-region	Affected GRSG Population	Project Name	Project Location	Project Description	Project Status
IV	Idaho and Southwestern Montana	Northern Great Basin	Curlew Fuel Breaks and Juniper Reduction Project	Southeast Idaho	Compartmentalize the Curlew area using existing roads to improve wildfire suppression and reduce wildfire growth over 60,000 acres. Efforts will help to retain existing intact Wyoming sagebrush habitat. Remove encroaching junipers from within Wyoming sagebrush.	Planning; project implementation anticipated in 2017.
IV	Idaho and Southwestern Montana	Northern Great Basin	Burley Landscape Sage-Grouse Habitat Restoration	Burley Field Office, Idaho	Treat encroaching juniper on approximately 38,000 acres.	Approximately 8,500 acres already completed; implementation of remaining 29,500 acres expected over the next 7 years
IV	Idaho and Southwestern Montana	Snake-Salmon-Beaverhead	Paradigm Project	Four Rivers Field Office, Idaho	Fuel break project that would create up to 294 miles of fuel breaks between 50 and 300 feet wide over a 10-year period. Fuel breaks would be associated with roads and other linear disturbances. At the maximum width of 300 feet, up to 10,690 acres would be directly affected. 2,111 acres of PPH/PHMA and 24,667 acres of PGH/GHMA in project area; fuel breaks would affect 61 acres of sagebrush in PPH/PHMA and 606 acres in PGH/GHMA.	Pending
IV	Idaho and Southwestern Montana	Northern Great Basin	South Owyhee Fuel Breaks	Boise District, Idaho	Fuel breaks over 2,000,000 acres, 850 miles.	Draft EA

Table 5-24
Reasonably Foreseeable Future Actions in Management Zone IV Likely to Impact GRSG Habitat

MZ	Sub-region	Affected GRSG Population	Project Name	Project Location	Project Description	Project Status
IV	Idaho and Southwestern Montana	Snake-Salmon-Beaverhead	Big Desert Fuel Breaks	Idaho Falls and Twin Falls Districts, Idaho	Compartmentalize the Big Desert management area using existing roads to improve wildfire suppression and reduce wildfire growth; efforts will help to retain intact Wyoming sagebrush habitat within the northern portion of the management area. 291 miles of existing desert roads with a footprint of 10,581 acres. Upper Snake Field Office: 245 miles of roads with 8,908 footprint acres. Shoshone Field Office: 46 miles of roads with 1,673 footprint acres.	NEPA is complete and project began in 2012 within the Upper Snake Field Office; those fuel breaks identified within the Shoshone Field Office require further analysis and consultation before NEPA can be finalized.
IV	Idaho and Southwestern Montana	Snake-Salmon-Beaverhead	Big Desert Noxious Weed Treatments	Idaho Falls District, Idaho	Treating noxious weeds within the Big Desert management area over 600,000 acres. Annual treatment target of 5,000 acres.	Ongoing, began in 2006.
IV	Idaho and Southwestern Montana	Snake-Salmon-Beaverhead	Cheatgrass Treatments	Idaho Falls District, Idaho	Chemically reduce cheatgrass densities over 7,000 acres to modify fire return intervals and allow for seeded native species to become established.	Planning phase
IV	Idaho and Southwestern Montana	Snake-Salmon-Beaverhead	Salmon-Challis National Forest Forest-wide Invasive Plant Treatment EIS	Salmon-Challis National Forest	Programmatic noxious weed treatment planning within the nonwilderness portion of the Salmon-Challis National Forest (3.2 million acres)	Planning phase

Table 5-24
Reasonably Foreseeable Future Actions in Management Zone IV Likely to Impact GRSG Habitat

MZ	Sub-region	Affected GRSG Population	Project Name	Project Location	Project Description	Project Status
IV	Idaho and Southwestern Montana	Northern Great Basin	Twin Falls District Noxious Weed and Invasive Plant Treatments	Twin Falls District, Idaho	Proposed action is to use prevention, prescribed fire, herbicides, and manual, mechanical, and biological methods to treat areas dominated by annual invasive species to restore perennial grasses, forbs, and shrubs. This is a programmatic planning effort. Estimated annual restoration is 5,000-10,000 acres in Burley Field Office (FO), 10,000-15,000 acres in Shoshone FO, and 10,000-15,000 acres in Jarbidge FO. Ten-year total for each office could approach 100,000 acres in Burley FO, 150,000 acres in Shoshone FO, and 150,000 acres in Jarbidge FO.	Planning phase. Implementation is planned to cover 10 years starting in 2015.
IV	Idaho and Southwestern Montana	Northern Great Basin	Shrub Planting	Twin Falls District, Idaho	Reintroduction of shrub species through hand planting of seedlings; up to 200,000 seedlings (13,000 acres) may be planted annually.	Implementation since 2010 and expected to continue over the next 10 years.
IV	Idaho and Southwestern Montana	Northern Great Basin	Twin Falls District Wildlife Tracts Restoration	Twin Falls District, Idaho	Proposed action is to use prescribed fire, chemical, drill and harrow seeding, shrub seeding, and plantings to establish perennial vegetation and restore native shrub habitat on wildlife tracts. 500-1,000 acres per year, for a cumulative total of 10,000 acres over ten years.	Implementation has been occurring since 2011 and is planned to continue over the next 8 years.
IV	Oregon	Northern Great Basin	Five Creeks Rangeland Restoration Project	Three Rivers and Andrews/Steens Resource Areas, Oregon	A landscape-scale vegetation treatment encompassing approximately 73,500 acres (approximately 26,000 acres in the CMPA) to return vegetation communities to historic compositions and reduce hazardous fuel loads. Various forms of prescribed fire and mechanical treatments have been used to reduce influence of encroaching western juniper.	Ongoing

Table 5-24
Reasonably Foreseeable Future Actions in Management Zone IV Likely to Impact GRSG Habitat

MZ	Sub-region	Affected GRSG Population	Project Name	Project Location	Project Description	Project Status
IV	Oregon	Northern Great Basin	Multiple restoration projects	Three Rivers Resource Area, Oregon	Implementation plans include thinning, piling, pile burning, and implementing a forest underburn.	Ongoing
IV	Oregon	Northern Great Basin	District-wide noxious weed treatments	Oregon	Ongoing interagency noxious weed treatment efforts with Oregon Department of Agriculture and Oregon counties.	Ongoing
IV	Oregon	Northern Great Basin	District-wide Vegetation Management (Weed EA)	Harney County, Oregon	Use new chemicals to treat noxious and invasive species.	Planning phase
IV	Oregon	Baker; Northern Great Basin	Baker Habitat Restoration and Fuels Treatment projects	Baker County, Oregon	Multi-year phased hazardous fuels and wildlife habitat restoration project on approximately 45,000 acres.	Planning phase
IV	Utah	Box Elder	Noxious weed treatments	Utah	Treating noxious weeds	Ongoing
IV	Nevada	Northern Great Basin	Santa Rosa Fuels Project	Winnemucca District, Nevada	355,699 acre planning area to reduce fire threat and improve wildlife habitat.	Ongoing
IV	Nevada	Northern Great Basin	North Tuscarora Sage-Grouse Habitat Restoration Project	Elko District Office, Nevada	Restoration of up to 10,000 acres of GRSG habitat. Treatments would improve, protect GRSG habitat, protect PPH/PHMA, protect Lahontan Cutthroat Trout Streams, improve wildlife habitat, reduce invasive weeds, and reduce hazardous fuels.	Planning phase
IV	Nevada	Northern Great Basin	Spruce Mountain Project	Elko District Office, Nevada	Spruce Mountain seeding maintenance over 700 acres. Mastication and seeding to reduce fire threat and improve wildlife habitat.	Ongoing
Livestock Grazing						
IV	Idaho and Southwestern Montana	Snake-Salmon-Beaverhead	Grazing Permit Renewals	Challis Field Office	Renewing/modifying 2 to 5 grazing permits per year for the next ten years over 770,000 acres	Project under NEPA review.

Table 5-24
Reasonably Foreseeable Future Actions in Management Zone IV Likely to Impact GRSG Habitat

MZ	Sub-region	Affected GRSG Population	Project Name	Project Location	Project Description	Project Status
IV	Idaho and Southwestern Montana	Snake-Salmon-Beaverhead	Range NEPA for C&H allotments	Boise National Forest, Idaho	Allotments cover over 53,000 acres.	Projects under NEPA review.
IV	Idaho and Southwestern Montana	Northern Great Basin	Allotment Management Plan Updates	Sawtooth National Forest, Idaho and Utah	Cattle and sheep allotment management plan updates on over 350,000 acres.	Ongoing
IV	Idaho and Southwestern Montana	Snake-Salmon-Beaverhead	Allotment Management Plan Updates	Sawtooth National Forest, Idaho	Cattle and sheep allotment management plan updates on over 140,000 acres.	Ongoing
IV	Idaho and Southwestern Montana	Snake-Salmon-Beaverhead	Grazing Allotment Management NEPA	Salmon-Challis National Forest	Grazing allotment management NEPA on over 2 million acres.	Ongoing
IV	Idaho and Southwestern Montana	Southwest Montana	Cessation of Lima-Tendoy Sheep Grazing	Beaverhead-Deerlodge National Forest	Permittee waiving sheep permits on 11,700 acres in PPH/PHMA back to Forest Service. Allotments will be closed to future domestic sheep grazing. No new grazing permits for any livestock will be issued for the Indian Creek Allotment. Three-year trial of 100 AUMs fall cattle grazing for Bear Canyon.	Ongoing. NEPA review and new AMP after 2015 grazing season.
IV	Nevada	Northern Great Basin	White Rock Mountain Aspen Exclosures	Northeastern Nevada	Place up to nine exclosures around aspen stands to protect from overgrazing by livestock.	Planning process
IV	Utah	Box Elder	Fence marking	Utah	The NRCS is planning to mark fences within 3.2 miles of leks throughout Utah on private lands.	Ongoing

Table 5-24
Reasonably Foreseeable Future Actions in Management Zone IV Likely to Impact GRSG Habitat

MZ	Sub-region	Affected GRSG Population	Project Name	Project Location	Project Description	Project Status
Wild Horses and Burros						
IV	Idaho and Southwestern Montana	Northern Great Basin	Wild horse gathers	Owyhee Field Office, Idaho	Gather, fertility treatment, removal of excess wild horses from HMAs. Covers 128,389 acres of public and other (private and state) land.	EAs and decisions have been approved; gathers and treatment are pending due to funding and other priority treatments within the BLM wild horse program.
IV	Oregon	Northern Great Basin	Wild horse gathers	Oregon	Gather wild horses.	Ongoing
Recreation						
IV	Idaho and Southwestern Montana	Northern Great Basin	Special Recreation Permits	Owyhee Field Office, Idaho	Various motorcycle, foot, and mountain bike races, horse endurance rides, dog trials, pioneer treks, and poker runs on 260,000 acres.	Ongoing
Travel Management						
IV	Idaho and Southwestern Montana	Northern Great Basin	Curlew/Deep Creek Travel Management Plan Implementation	Idaho Falls District, Idaho	Implement Travel Management Plan on 375,000 acres; limit motorized travel to designated routes, prohibit cross-country travel	Ongoing
IV	Idaho and Southwestern Montana	Snake-Salmon-Beaverhead	North Highway 20 Travel Plan	Idaho Falls District, Idaho	Designate 127 miles of existing trails; construct 52 miles of new trails, construct 3 acres of parking areas, close and rehabilitate 116 miles of existing routes.	Pending
IV	Utah	Box Elder	Motorized Travel Plan Implementation	Utah	Implementation of motorized route designation plans across the planning region.	Ongoing

Table 5-24
Reasonably Foreseeable Future Actions in Management Zone IV Likely to Impact GRSG Habitat

MZ	Sub-region	Affected GRSG Population	Project Name	Project Location	Project Description	Project Status
Land Use Planning						
IV	Idaho and Southwestern Montana	Northern Great Basin	Jarbidge RMP	Jarbidge Field Office, Idaho	Revise the Jarbidge RMP that provides a comprehensive plan for 1,366,000 acres that further restores or maintains resource conditions and provides for the economic needs of local communities over the long term	Ongoing
IV	Idaho and Southwestern Montana	Snake-Salmon-Beaverhead	Craters LUP Amendment	Craters of the Moon National Monument and Preserve, Idaho	Analyze a range of alternatives for livestock grazing in the Craters of the Moon covering 300,000 acres (i.e., identify lands available or unavailable for grazing, identify the amount of forage available, seasons of use, range improvements)	Ongoing

This table includes a selection of some of the larger projects from the reasonably foreseeable future actions tables in the RMPAs/LUPAs for MZ IV. The full tables can be found in each EIS.

Table 5-25
Reasonably Foreseeable Future Actions in Management Zone II/VII Likely to Impact GRSG Habitat

MZ	Planning Area	Affected GRSG Population	Project Name	Project Location	Project Description, Estimated Footprint	Project Status
Energy and Mining						
II/VII	Northwest Colorado, 9-Plan	Wyoming Basin, Northwest Colorado	Hiawatha Regional Energy Development EIS	Sweetwater County, Wyoming; Moffat County, Colorado	Proposed development of up to 4,208 new natural gas wells on approximately 157,361 acres of mixed federal, state, and private lands. The project area overlaps with lands identified as GRSG Core Areas. 91% of the project area is managed by the BLM.	Proposed
II/VII	9-Plan	Wyoming Basin	LaBarge Platform Exploration & Development Project	Lincoln and Sublette County, Wyoming	Proposed development of up to 838 new oil and gas wells on 218,000 acres of private, state, and federal lands. Approximately 154,000 acres of surface lands are administered by the BLM.	Proposed
II/VII	9-Plan	Wyoming Basin	Continental Divide-Creston Natural Gas Project	Carbon and Sweetwater Counties, Wyoming	Proposed development of up to 8,950 additional natural gas wells on 1.1 million acres of land, including GRSG Core Areas. The proposed facilities would add to the existing network of wells, pipelines, access routes and electrical distribution systems. Approximately 59 percent of the project area is on federally-owned lands.	Proposed
II/VII	Lander, 9-Plan	Wyoming Basin	Moneta Divide Natural Gas and Oil Development Project	Fremont and Natrona Counties, Wyoming	Proposed development of approximately 4,250 natural gas and oil wells on 265,000 acres of land (including approximately 169,500 acres of land administered by the BLM). The project area includes GRSG Core Areas.	Proposed
II/VII	9-Plan	Wyoming Basin	Pinedale Anticline Project	Sublette County, Wyoming	Proposed development of natural gas resources within nearly 200,000 acres of land, of which approximately 80 percent is federal surface ownership. The project area occurs within GRSG Core Areas.	Ongoing
II/VII	9-Plan	Wyoming Basin	Blacks Fork Project (Formerly Moxa Arch Area Infill)	Sweetwater, Uinta, and Lincoln Counties, Wyoming	Proposed infill drilling project, on approximately 7,500 hydrocarbon wells within 633,532 acres of mixed federal, state, and private lands.	Proposed

Table 5-25
Reasonably Foreseeable Future Actions in Management Zone II/VII Likely to Impact GRSG Habitat

MZ	Planning Area	Affected GRSG Population	Project Name	Project Location	Project Description, Estimated Footprint	Project Status
II/VII	9-Plan, Northwest Colorado, Utah	Wyoming Basin, Northwest Colorado	Oil Shale and Tar Sands Programmatic EIS	Colorado, Utah, and Wyoming	Amendment of 10 BLM RMPs to designate certain public lands as available for application for leasing and future exploration and development of oil shale and tar sands resources. A ROD was signed in 2013 which made approximately 678,000 acres available for potential development of soil shale, and approximately 132,000 acres available for development of tar sands.	Ongoing
II/VII	9-Plan	Wyoming Basin	Atlantic Rim Natural Gas Field Development Project	Carbon County, Wyoming	Ongoing development of oil gas resources on 270,080 acres of land, of which 173,672 are federal surface estate. A ROD was signed in 2007. The project area includes GRSG Core Areas.	Ongoing
II/VII	9-Plan	Wyoming Basin	Chokecherry/Sierra Madre Wind Farm	Carbon County, Wyoming	Proposed development of approximately 1,000 wind turbines and associated ancillary facilities on 220,000 acres of land. The project area includes private, state, and federally managed lands, and overlaps with GRSG Core Areas	Proposed
II/VII	9-Plan	Wyoming Basin	Normally-Pressured Lance Natural Gas EIS	Sublette County, Wyoming	Proposed development of approximately 3,500 natural gas wells within 141,000 acres of state, private, and BLM-administered lands.	Proposed
II/VII	9-Plan	Wyoming Basin	Bird Canyon Field Infill Project	Sublette and Lincoln Counties, Wyoming	Proposed drilling and production of 348 new natural gas wells within 17,612 acres of BLM-administered land.	Proposed

Table 5-25
Reasonably Foreseeable Future Actions in Management Zone II/VII Likely to Impact GRSG Habitat

MZ	Planning Area	Affected GRSG Population	Project Name	Project Location	Project Description, Estimated Footprint	Project Status
Rights-of-way						
II/VII	9-Plan, NW Colorado, Utah	Wyoming Basin, Rich-Summit-Morgan, Uintah, North Park, NWCO, Strawberry Valley, Carbon	Gateway South Transmission Line Project	17 Counties in Wyoming, Colorado, and Utah	Proposed 500 kV transmission line which would begin near Medicine Bow, Wyoming, and would extend south and west to a proposed substation near Mona, Utah. The proposed transmission line would span over 400 miles, with a 250-foot right-of-way, and would cross multiple land jurisdictions including lands administered by the BLM.	Proposed
II/VII	9-Plan, NW Colorado, Utah	Wyoming Basin, Northwest Colorado, Sheeprock, Strawberry Valley, Carbon, Bald Hills.	TransWest Express Transmission Line Project	Wyoming, Colorado, Utah, and Nevada	Proposed 600 kV transmission line extending from south-central Wyoming to southern Nevada. The transmission line corridor would span over 700 miles and would cross private, state, and federally owned lands. The proposed route and alternative routes under consideration would cross PPH and PGH.	Proposed
II/VII	9-Plan, Idaho and Southwest Montana	Wyoming Basin, East Central, Northern Great Basin, Box Elder	Gateway West Transmission Line Project	Wyoming and Idaho	Proposed 230 kV and 500 kV transmission line project between Glenrock, Wyoming, and Melba, Idaho. Approximately 1,000 miles of new high-voltage transmission lines would be constructed. The project would cross multiple land jurisdictions, including sage grouse Core Areas in Wyoming.	Proposed
II/VII	9-Plan	Wyoming Basin	Riley Ridge to Natrona Pipeline Project	Sublette, Sweetwater, Fremont, and Natrona Counties, Wyoming	Proposed 243-mile pipeline from Riley Ridge to Big Piney, Wyoming. The pipeline would consist of a 50-foot right-of-way, and would cross GRSG Core Areas.	Proposed
II/VII	9-Plan	Wyoming Basin	Zephyr Power Line Transmission Project	Wyoming, Colorado, Utah, and Nevada	Proposed 500 kV transmission line spanning between Chugwater, Wyoming to just south of Las Vegas, Nevada.	Proposed

Table 5-25
Reasonably Foreseeable Future Actions in Management Zone II/VII Likely to Impact GRSG Habitat

MZ	Planning Area	Affected GRSG Population	Project Name	Project Location	Project Description, Estimated Footprint	Project Status
Weeds						
II/VII	9-Plan, Northwest Colorado	Wyoming Basin, Northwest Colorado, Powder River Basin, North Park	Invasive Plant Management EIS for the Medicine Bow - Routt National Forests, and Thunder Basin National Grassland	Wyoming and Colorado	Proposed treatment of invasive plant species using adaptive and integrated invasive plant treatment methods. These include manual, mechanical, biological, aerial, and ground herbicide applications. Potential treatment areas include GRSG Core Areas.	Proposed

5.2 Cumulative Analysis Methodology

The cumulative impacts discussion that follows considers the alternatives in the context of the broader human environment, specifically, actions that occur within and next to the geographic area covered by the planning area.

Because of the programmatic nature of the LUPA and cumulative assessment, the analysis of cumulative effects tends to be broad and generalized. Consequently, this assessment is primarily qualitative for most resources because of lack of detailed information that would result from project-level decisions and other activities or projects.

Quantitative information is used whenever available and as appropriate to portray the magnitude of an impact. The analysis assesses the magnitude of cumulative impacts by comparing the environment in its baseline condition with the expected impacts of the alternatives and other actions in the same geographic area. The magnitude of an impact is determined through a comparison of anticipated conditions against the naturally occurring baseline in the affected environment (see **Chapter 3**) or the long-term sustainability of a resource or social system.

The following factors were considered in this cumulative impact assessment:

- Federal, nonfederal, and private actions
- Potential for combined effects or interaction among or between effects
- Potential for effects across political and administrative boundaries
- Other spatial and temporal characteristics of each affected resource
- Comparative scale of cumulative impacts across alternatives

The geographic scope for the cumulative impact analysis may extend beyond the planning area boundary appropriate to the resource under consideration. For Greater Sage-Grouse (GRSG), the cumulative impact analysis includes an analysis at the WAFWA MZ level, in addition to the planning area analysis. WAFWA MZs are biologically based delineations that were determined by GRSG populations and subpopulations identified within seven floristic provinces. WAFWA MZs II and IV overlap the planning area and are included in the analysis. Analysis at this level enables the decision maker to understand the impacts on GRSG at a biologically meaningful scale.

5.3 Past, Present, and Reasonably Foreseeable Future Actions

Past, present, and reasonably foreseeable future actions are considered in the analysis to identify whether and to what extent the environment has been degraded or enhanced and whether ongoing activities are causing impacts (**Table 5-26**, Past, Present, and Reasonably Foreseeable Future Actions). Also considered are trends for activities in and impacts on the



**Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions**

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Lands and Realty					
Communication sites renewal – 2	Renewal of existing sites	Owyhee Field Office	Southwest Idaho	Less than 5 acres	Pending
Communication sites renewal – 2	Renewal of existing sites	Four Rivers Field Office	Unknown	No new surface disturbance	Pending
Communication site amendment - 1	Change 199-foot tower to 699-foot tower	Owyhee Field Office	Southwest Idaho	Over 15 acres	Pending
Communication site amendment - 1	Tower replacement	Four Rivers Field Office	Unknown	Less than 1 acre	Pending
Road ROW applications – 10	Construct new roads	Owyhee Field Office	Southwest Idaho	Unknown	Pending
Road ROW applications – 4	New applications for ROW on existing roads	Bruneau Field Office	Southwest Idaho	Less than 20 acres	Pending
Road ROW application – 3	New road application on existing roads	Four Rivers Field Office	Unknown	Less than 20 acres	Pending
Road ROW – renewals – 4	Renewal of existing ROW	Owyhee Field Office	Southwest Idaho	No new surface disturbance	Pending
Road ROW renewal – 1	Renewal of existing road	Four Rivers Field Office	Unknown	No new surface disturbance	Pending
Old Highway 37 Reroute Project	Move highway out of canyon and riparian corridor ½-mile east onto the upland, over a 5-mile stretch	Curlew National Grassland, 8 miles NW of Holbrook, ID	South Side Snake	5 miles	EA; In the planning phase; Decision Notice FONSI expected in 2016
Oil and gas facility – 1	Expand existing facility	Owyhee Field Office	Southwest Idaho	Less than 2 acres	Pending
Oil and gas facility renewal – 1	Renewal of existing ROW	Bruneau Field Office	Southwest Idaho	No new surface disturbance	Pending
Oil and gas facility renewal – 2	Renewal of existing sites	Four Rivers Field Office	Weiser	No new surface disturbance	Pending

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Oil and gas temporary use areas – 3	Temporary use for construction and maintenance	Four Rivers Field Office	Weiser	Less than 5 acres	Pending
Transmission line ROW application – 1	New transmission line	Bruneau Field Office	Southwest Idaho	Less than 5 acres	Pending
Transmission line ROW application – 1	New transmission line	Four Rivers Field Office	Unknown	Less than 15 acres	Pending
Hooper Springs Transmission Line	New transmission line	Soda Springs, Idaho	Southeast Idaho	No direct disturbance of PGH; if southern alternative is selected, line will be within a mile of PGH in Trail Creek/Slug Creek	FEIS 2013
Transmission line ROW renewals – 3	Renewal of existing lines	Owyhee Field Office	Southwest Idaho	No new surface disturbance	Pending
Transmission line ROW renewals – 12	Renewal of existing lines	Four Rivers Field Office	Unknown	No new surface disturbance	Pending
Transmission line ROW upgrade – 1	Add tap, upgrade line	Owyhee Field Office	Southwest Idaho	Less than 2 acres	Pending
Telephone line ROW renewals – 12	Renewal of existing ROW	Owyhee Field Office	Southwest Idaho	No new surface disturbance	Pending
Telephone line ROW renewals – 7	Renewal of existing lines	Four Rivers Field Office	Unknown	No new surface disturbance	Pending
Telephone line ROW renewal - 1	Renewal of existing ROW	Bruneau Field Office	Southwest Idaho	No new surface disturbance	Pending

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Idaho Power - Smith's Prairie SUP renewal	Renewal of power line, which includes some new line and some new access roads	Mountain Home Ranger District – Boise National Forest	North Side Snake	5 miles	NEPA Decision in FY 2014; implementation in FY 2015
King-Moon-Wood River transmission line rebuild	Rebuild of 138 kV transmission line	Twin Falls District	North Side Snake	Unknown	Planning; projected build 2014-2016
Waterline ROW – 1	New buried water pipeline	Owyhee Field Office	Southwest Idaho	Less than 5 acres	Pending
Irrigation facility ditch ROW – 1	Renewal of existing ROW	Owyhee Field Office	Southwest Idaho	No new surface disturbance	Pending
Water facility ROW renewal – 8 (weirs)	Renewals of existing ROWs	Owyhee Field Office	Southwest Idaho	No new surface disturbance	Pending
Water facility ROW renewal – 2	Renewal of existing ROWs	Bruneau Field Office	Southwest Idaho	No new surface disturbance	Pending
Water facility ROW renewal – 1	Renewal of existing pipeline	Four Rivers Field Office	Unknown	Less than 1 acre	Pending
Water facility ROW amendment – 1	Include portions of canal on lands acquired by BLM	Four Rivers Field Office	Unknown	Less than 5 acres	Pending
Symbiotics LLC Hydro Facility	Hydro facility, including a transmission line, substation, dam, penstock, and upper reservoir	Dam located in Idaho, NE of Jackpot, Nevada, Twin Falls District	Southwest Idaho	110 acres	Feasibility study being conducted
New land use Authorizations	Approximately 40 ROW/authorizations/power lines, buried and overhead, roads, communication sites	Throughout PPH and PGH in the Dillon Field Office	Southwest Montana	Approximately 100 acres of disturbance. Associated with new ROW	Projected for 10 years based on previous last 5 years in LR2000

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Leases/Permits – 3	Cabins and apiaries	Owyhee Field Office	Southwest Idaho	Less than 10 acres	Pending
Leases/Permits – 8	Agricultural and apiaries	Bruneau Field Office	Southwest Idaho	Less than 25 acres	Pending
Leases and Permits renewal – 3	Occupancy and Trespass Resolution	Four Rivers Field Office	Unknown	Less than 10 acres	Pending
Leases and Permits application – 8	Occupancy and Trespass Resolution	Four Rivers Field Office	Unknown	Less than 15 acres	Pending
Land Use Lease	Lease lands to resolve cabin encroachment on BLM-administered lands	Centennial Valley – PPH in the Dillon Field Office	Southwest Montana	5 acres total	Proposal stage
Owyhee land exchange	Land exchange with the state	Western portion of Owyhee County, Bruneau Field Office	Southwest Idaho	Proposing to dispose of approximately 33,000 acres of non-GRSG habitat and acquiring around 38,000 acres of primarily GRSG habitat	2015
Thompson Creek Mine land exchange	Increase public land acres through a land exchange within PPH	Challis Field Office, Idaho Falls District	Mountain Valleys	Unknown	Project under NEPA review; decision anticipated in 2014
Dairy Syncline land sale	Land sale and tailings pond construction; possible mitigation GRSG habitat land parcel in Stump Creek as exchange	Slug creek watershed, Idaho Falls District	East-Central Idaho	225 acres	Draft EIS to be released early 2015

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Mackay Transfer Station land sale	Sale of land to Custer County for transfer station	T 7N, R 24E, Sec. 22, Idaho Falls District	Mountain Valleys	10 acres	Waiting for completed application from Custer County. Decision anticipated 2014.
Military training	From low-level up to high-altitude flights by military aircraft; military motor vehicle access to emitter sites and use at emitter sites.	Entire Bruneau Field Office and vehicles use roads and emitter sites on the Highway 51/Rowland Road area; military withdrawal site has relatively heavy use.	Southwest Idaho	Unknown	Ongoing
F-35 A Operational Wing Bed Down EIS	Alternative in place to bed down the aircraft at the Mountain Home Air Force Base	Entire Bruneau Field Office	Southwest Idaho	Unknown	Proposed
F-35 A Training Wing Bed Down EIS	Alternative in place to bed down the aircraft at the Gowen Field Military Base	Entire Bruneau Field Office	Southwest Idaho	Unknown	Proposed

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Idaho Power Integrated Resource Plan	Describes the company's projected need for additional electricity and the resources necessary to meet that need while balancing reliability, environmental responsibility, efficiency, and cost.	Entire sub-region	All GRSG population areas	None – planning effort	Completed June 2013
Rocky Mountain Power Integrated Resource Plan	Describes the company's projected need for additional electricity and the resources necessary to meet that need while balancing reliability, environmental responsibility, efficiency, and cost.	Entire sub-region	All GRSG population areas	None – planning effort	Completed April 2013
Major Realty Actions					
Gateway West 230/500 Transmission Line project	Authorize ROW for 1,100-mile 500-KV transmission line	Wyoming, Southern Idaho, Boise District, Curlew National Grassland, Idaho Falls District	Southwest Idaho, North Side Snake	1,100 miles	Pending; final EIS 2013 Scheduled for implementation starting 2016
Boardman to Hemingway	New transmission line	Owyhee Field Office	Southwest Idaho	Unknown	Pending

**Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions**

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Fuels and Vegetation					
ARS South Mountain Juniper Management Study	Determine the effects of management-driven juniper treatments on the hydrology of four watersheds in the South Mountain Area, including snowpack distribution and drifts, after altering the canopy by removing juniper from the sagebrush-steppe ecosystem. Removal would be through prescribed burning.	South Mountain (T 9S, R 5W, Sect. 2, 3, 10, 11), Owyhee Field Office	Southwest Idaho	603 acres (357 BLM; 246 private)	Scoping complete; NEPA and ROD pending
ARS Reynolds Creek Experimental Watershed Prescribed Fire Research Plan	Study the effects of juniper encroachment and prescribed fire on soil-water balance. Treatments occurred through prescribed burning.	Reynolds Creek Experimental Watershed, Owyhee Field Office	Southwest Idaho	5,549 acres of public and private lands; acreage broken into four treatment areas	Three of the four treatment areas have been implemented as planned. The fourth (Johnson Draw) is pending. Due to topography, the treatment area may be adjusted.
Juniper Treatments in Pole Creek Allotment	Juniper removal to enhance resource conditions	Pole Creek Allotment, Owyhee Field Office	Southwest Idaho	24,486 acres of public, private, and state land	Decision issued; treatment implementation pending litigation

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Juniper Treatment in Trout Springs Allotment	Juniper removal to enhance resource conditions	Trout Springs Allotment, Owyhee Field Office	Southwest Idaho	29,475 acres of public, private, and state lands	Planning; draft EA complete
Upper Castle Creek Fuels Project	Juniper control project on approximately 33,000 acres in the northwestern portion of Upper Castle Creek	Upper Castle Creek, Bruneau Field Office	Southwest Idaho	25,000 acres implemented; of the remaining areas to treat, 2,000-4,000 acres/year	Ongoing through 2014
BOSH Sage-Grouse Juniper	Juniper thinning	Boise District, Owyhee Field Office, Boise Field Office, Owyhee County	Southwest Idaho	1,500,000 acres	Draft EA
Pixley Basin	Juniper treatments (mechanical and prescribed fire)	Boise District, Boise Field Office, Owyhee County, South Oreana	Southwest Idaho	1,933 acres	Ongoing project
West Antelope	Juniper thinning	Boise District, Boise Field Office, Owyhee County	Southwest Idaho	287 acres	Ongoing project
Tex Creek Aspen Health Project	Remove encroaching junipers from within historic aspen clones	Tex Creek WMA east of Idaho Falls, Idaho, Idaho Falls District	East-Central Idaho	70 acres	NEPA is complete; implementation of the project began in 2012.

**Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions**

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Patelzik Creek Aspen Health Project	Remove encroaching conifers from within historic aspen clones and thin remaining conifer stands	Medicine lodge management area within the northern portion of the Upper Snake Field Office, Idaho Falls District	Mountain Valleys	750 acres	NEPA started; implementation slated to begin in 2014
Cedar Butte Juniper Thinning	Remove encroaching junipers from within Wyoming sagebrush and thin remaining stands of juniper	Northern portion of the Big Desert management area west of Idaho Falls, Idaho, Idaho Falls District	North Side Snake	1,000 acres	Planning phase; project implementation anticipated in 2016
Deadman Juniper Thinning	Remove encroaching junipers from within Wyoming sagebrush and thin remaining stands of juniper	Northern portion of the Big Desert management area west of Idaho Falls, Idaho, Idaho Falls District	Mountain Valleys	1,000 acres	Planning phase 1 project implementation anticipated in 2015
Samaria Mountain Fuels Reduction and Restoration Project, Juniper Thinning	Remove encroaching junipers from within Wyoming sagebrush and thin remaining stands of juniper	Southeast Idaho, northern Utah, southwest Wyoming, 15 miles south of Samaria, Idaho, Idaho Falls District	Southwest Idaho	3,000 acres	NEPA complete; approximately 1,000 acres completed, remaining acres to be completed over next 7 years

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Soda Hills Fuels Reduction and Restoration Project, Juniper and Douglas-Fir Thinning	Remove encroaching junipers and Douglas-fir from within Wyoming sagebrush and thin remaining stands of juniper and Douglas-fir	Southeast Idaho, Soda Springs area, Idaho Falls District	East-Central Idaho	3,000 acres	NEPA complete; approximately 1,500 acres completed, remaining acres to be completed over next 5 years
Crystal Springs/Toponce Fuels Reduction and Restoration Project, Juniper and Douglas-Fir Thinning	Remove encroaching junipers and Douglas-fir from within Wyoming sagebrush and thin remaining stands of juniper and Douglas-fir	Southeast Idaho, 20 miles north of Lava Hot Springs, Blackfoot River area, Idaho Falls District	East-central Idaho	2,000 acres	Planning phase; project implementation anticipated in 2014
South Stone Juniper Thinning Project	Remove encroaching junipers from within Wyoming sagebrush	Southeast Idaho, Idaho Falls District	South Side Snake	1,700 acres	In progress; approximately 600 acres completed
Juniper Town Site Juniper Thinning Project	Remove encroaching junipers from within Wyoming sagebrush	Southeast Idaho, Idaho Falls District	South Side Snake	700 Acres	Planning phase; project implementation anticipated in 2020

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Curlw Fuel Breaks and Juniper Reduction Project	Compartmentalize the Curlw area using existing roads to improve wildfire suppression and reduce wildfire growth. Efforts will help to retain existing intact Wyoming sagebrush habitat. Remove encroaching junipers from within Wyoming sagebrush.	Southeast Idaho, north Utah, Idaho Falls District	South Side Snake	60,000 acres	Planning phase; project implementation anticipated in 2017
Bear Lake Fuels Reduction and Restoration Project	Remove encroaching junipers from within Wyoming sagebrush, improve and restore sagebrush habitat	Southeast Idaho, north Utah, Idaho Falls District	Bear Lake	30,000 acres	Planning phase; project implementation anticipated in 2020
Wolverine Fuels Reduction Project	Remove encroaching juniper and Douglas-fir from within Wyoming sagebrush; improve and restore sagebrush habitat	Southeast Idaho, Idaho Falls District	East-central Idaho	2,000 acres	Planning phase; project implementation anticipated in 2021
Trapper Creek Vegetation Project	Reduce conifer encroachment in riparian areas, shrublands, and grasslands; increase the aspen component; slash and jackpot burn; broadcast burn	Wise River Ranger District, Beaverhead-Deerlodge National Forest	Southwest Montana	Approximately 3,200 acres total, less than 1,100 acres in PGH	Project withdrawn per litigation; NEPA supplements underway; ROD anticipated end of 2013

**Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions**

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Sage-Grouse Habitat Improvement	Remove conifer from Phase I-II sagebrush habitat	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth National Forest	South Side Snake	800 acres	Completed
Burley Landscape Sage-Grouse Habitat Restoration	Treat encroaching juniper on approximately 38,000 acres	Various locations throughout the Burley Field Office, Twin Falls District	South Side Snake	38,000	Approximately 8,500 acres already completed; implementation of remaining 29,500 acres expected over the next 7 years
Douglas-fir removal	Mechanically remove Douglas-fir in sagebrush habitat	Throughout PPH and PGH in the Dillon Field Office	Southwest Montana	Approximately 50 acres yearly	Complies with NEPA; ongoing
Bruneau Fuel Breaks Project	Fuel breaks, in the form of greenstrips and roadside mowing, will occur in the eastern portion of the Bruneau Field Office. The projects may take 5 years to implement; maintenance is anticipated every 7-10 years.	11 allotments in Bruneau Field Office: Blackstone China Creek Crab Creek East Canyon View Louse Creek Miller Table Seeding Northwest Owens Table Butte West Canyon View	Southwest Idaho	Treatments along 128 miles of roads; 2,836 acres of shrub modification	Project approved; awaiting completion of appeal period before beginning implementation

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Paradigm Project	Fuel break project that would create up to 294 miles of fuel breaks between 50 and 300 feet wide over a 10-year period. Fuel breaks would be associated with roads and other linear disturbances. At the maximum width of 300 feet, up to 10,690 acres would be directly affected. Methods proposed to create fuel breaks include seeding with forage kochia or native/nonnative grass species, disking/bare ground, mechanical thinning and mowing, herbicides, targeted grazing, and prescribed burning.	Ada (eastern) and Elmore (western) Counties between Boise and Glenns Ferry, between the railroad and the base of the foothills (293,891 total acres), in Four Rivers Field Office	North Side Snake	2,111 acres of PPH and 24,667 acres of PGH in project area; five leks within the project boundary, two leks within 0.5 mile, and 17 leks within 10 miles; fuel breaks in PPH would be 50 feet on either side of road and in PGH would be 100 feet on either side of road; would affect 61 acres of sagebrush in PPH and 606 acres in PGH	Pending
Bruneau Mow	Fuel breaks	Boise District, Boise Field Office, Owyhee County, south of Bruneau	Southwest Idaho	130 miles	EA done in 2013; ready for treatments

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
South Owyhee Fuel Breaks	Fuel breaks	Boise District, Owyhee Field Office, Boise Field Office, Owyhee County	Southwest Idaho	2,000,000 acres, 850 miles	Draft EA
I-84	Fuel breaks	Boise District, Four Rivers Field Office, I-84 Oregon – Glens Ferry	North Side Snake	80 miles	Ongoing project
Curlew National Grassland Sagebrush Protection Project	Mechanical mowing of 314 acres of fuel breaks in strategic locations to protect existing stands of sagebrush from wildland fire	Curlew National Grassland	South Side Snake	314 acres	Decision completed; work started in 2012 and will continue through 2014 as funding allows
Curlew Sagebrush Protection Project Upgrade	Fuel break mowing	Westside Ranger District, Curlew Grasslands	South Side Snake	900 acres	Planned for 2017

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Big Desert Fuel Breaks	Compartmentalize the Big Desert management area using existing roads to improve wildfire suppression and reduce wildfire growth; efforts will help to retain intact Wyoming sagebrush habitat within the northern portion of the management area	Big Desert Area in the southwest portion of the Upper Snake Field Office and the eastern portion of the Shoshone Field Office, Idaho Falls and Twin Falls Districts	North Side Snake	291 miles of existing desert roads with a footprint of 10,581 acres Upper Snake Field Office: 245 miles of roads with 8,908 footprint acres Shoshone Field Office: 46 miles of roads with 1,673 footprint acres	NEPA is complete and project began in 2012 within the Upper Snake Field Office; those fuel breaks identified within the Shoshone Field Office require further analysis and consultation before NEPA can be finalized.
Blackfoot River Fuel Breaks	Compartmentalize the Blackfoot River Corridor area using existing roads to improve wildfire suppression and reduce wildfire growth; efforts will help to retain existing intact Wyoming sagebrush habitat	Blackfoot River, 20 miles East of Blackfoot Idaho, Idaho Falls District	East-central Idaho	2,000 acres	Planning phase; project implementation anticipated in 2018

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Minidoka Fuel Break	Maintenance treatments of forage kochia fuel breaks	Minidoka desert road network approximately 30 miles northeast of Burley, Idaho, Twin Falls District	North Side Snake	100-foot fuel breaks on each side of multiple roads for 28 miles; approximately 690 acre footprint	Fuel breaks were implemented in 2010 – 2012; maintenance actions are expected within the next 10 years to improve fuel break effectiveness.
Jarbidge Fuel Breaks	Implementation of self-sustaining fuel breaks using prescribed fire, herbicide, mechanical seedbed preparation, broadcast and drill seeding methods	Multiple locations along road corridors within the Jarbidge Field Office, Twin Falls District	South Side Snake	160 miles of 550-foot-wide fuel breaks along existing roads; approximately 10,499-acre footprint	Planned ROD in 2014; implementation is planned to cover a 5- to 10-year period
Pocatello Field Office Noxious Weed Control	Apply chemical treatments for noxious weed control	BLM-administered and National Forest System lands within Bear Lake County, Idaho, Idaho Falls District	Bear Lake	300 acres per year	Ongoing
Challis Field Office weed treatments	Treating weeds across the field office with biological, chemical, and mechanical treatments	Challis Field Office	Mountain Valleys	1,000 acres per year	Ongoing
Big Desert Noxious Weed Treatments	Treating noxious weeds within the Big Desert management area	Big Desert Area in the southwest portion of the Upper Snake Field Office, Idaho Falls District	North Side Snake	Total landmass is 600,000 acres with an annual treatment target of 5,000 acres	NEPA is complete; project began in 2006

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Eastside Sheeptrail Cheatgrass Treatment	Chemically reduce cheatgrass densities to modify fire return intervals and allow for seeded native species to become established	Eastern portion of the Big Desert management area west of Blackfoot, Idaho, Idaho Falls District	North Side Snake	2,000 acres	Planning phase; project implementation anticipated in 2016
Rock Corral Cheatgrass Treatment	Chemically reduce cheatgrass densities to modify fire return intervals and allow for seeded native species to become established	Eastern portion of the Big Desert management area west of Blackfoot, Idaho, Idaho Falls District	North Side Snake	2,000 acres	Planning phase; project implementation anticipated in 2018
Stage Road Cheatgrass Treatment	Chemically reduce cheatgrass densities to modify fire return intervals and allow for seeded native species to become established	Eastern portion of the Big Desert management area west of Blackfoot, Idaho, Idaho Falls District	North Side Snake	3,000 acres	Planning phase; project implementation anticipated in 2017

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Birch Willow Lost EIS Vegetation Management EIS	Vegetation management treatments to meet Forest Plan desired conditions including removing encroaching conifers in Sagebrush, Aspen, Mountain Mahogany, thinning Douglas-fir, daylighting Whitebark Pine.	Dillon Ranger District Southern portion of East Pioneers	No population overlap.	Unknown at this time Possible slight overlap of PGH	EIS on hold
Salmon-Challis National Forest Forest-wide Invasive Plant Treatment EIS	Programmatic Noxious Weed Management EIS and ROD	Salmon-Challis National Forest	Mountain Valleys	Project area is nonwilderness portion of the Salmon-Challis National Forest (3.2 million acres)	NEPA anticipated to be completed by September 2014

**Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions**

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Clear Creek Restoration	Treat cheatgrass-dominated site and restore to perennial grasses and shrubs	15 miles east of Almo, Idaho, Twin Falls District	South Side Snake	1,000 acres	Planned implementation within the next 3 years
Twin Falls District Noxious Weed and Invasive Plant Treatments	Proposed action is to use prevention, prescribed fire, herbicides, and manual, mechanical, and biological methods to treat areas dominated by annual invasive species to restore perennial grasses, forbs, and shrubs.	Various locations throughout the Shoshone, Jarbidge, and Burley Field Offices, Twin Falls District	South Side Snake	This is a programmatic planning effort. Estimated annual restoration is 5,000-10,000 acres in Burley, 10,000-15,000 acres in Shoshone, and 10,000-15,000 acres in Jarbidge. Ten-year total for each office could approach 100,000 acres in Burley, 150,000 acres in Shoshone, and 150,000 acres in Jarbidge.	Programmatic EA with planned ROD in 2014. Implementation is planned to cover 10 years starting in 2015.

**Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions**

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Noxious weeds treatment	Treat noxious weeds across the Dillon Field Office	Throughout PPH and PGH in the Dillon Field Office	Southwest Montana	Approximately 1,500 acres yearly	Ongoing
Rock Creek Riparian Restoration Project	In association with the Old Highway 37 Reroute Project, once the highway is moved, remove road materials and restore hydrologic function to Rock Creek	Curlew National Grassland, 8 miles northwest of Holbrook, Idaho	South Side Snake	5 miles	In the planning phase; expected EA in 2014 once a decision is made on highway project (above)
Rock Creek Fuels EA	Fuels reduction and vegetation improvement adjacent to sagebrush communities	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth NF	South Side Snake	7,959 acres	Planned for 2016
Pocatello Field Office Seedling plantings	Seedling planting of sagebrush and antelope bitterbrush	BLM-administered and National Forest System lands within Bear lake County, Idaho, Idaho Falls District	Bear Lake	20 acres per year	Ongoing, includes Fish and Game habitat restoration projects
Pocatello Field Office Curlew Seedling plantings	Seedling planting of sagebrush and antelope bitterbrush	BLM-administered and National Forest System lands within Oneida County, Idaho – Curlew and South Stone areas, Idaho Falls District	South Side Snake	20 acres per year	Ongoing, includes Fish and Game habitat restoration projects

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Pahsimeroi Sagebrush Restoration	Treating sagebrush with Lawson aerator and seeding native herbaceous species	West River Flat Pasture of the Upper Pahsimeroi Allotment, Challis Field Office, Idaho Falls District	Mountain Valleys	700 acres	Project under NEPA review; decision date anticipated in 2014
Buckwalter Sage-Grouse Habitat Project	Treating sagebrush cover to increase herbaceous cover to site potential	T 8N.,R 23E., Sec. 36, Challis Field Office, Idaho Falls District	Mountain Valleys	Up to 640 acres	Project under NEPA review; decision date anticipated in 2014
Pocatello Shrub Planting Programmatic EA	Reintroduction of shrub species through hand planting of seedlings	Various locations throughout southeast Idaho, Idaho Falls District	Bear Lake, South Side Snake, east-central Idaho	Up to 500 acres annually	NEPA complete; implementation has been occurring since 2011 and is expected to continue for next 5-10 years.
Burley Shrub Planting	Reintroduction of shrub species through hand planting of seedlings; up to 150,000 seedlings may be planted annually.	Various locations throughout the Burley Field Office, Twin Falls District	South Side Snake	Up to approximately 8,000 acres annually	Implementation has been occurring since 2010 and is expected to continue over the next 7-10 years.
Jarbidge Shrub Planting	Reintroduction of shrub species through hand planting of seedlings; up to 50,000 seedlings may be planted annually.	Various locations throughout the Jarbidge Field Office, Twin Falls District	South Side Snake	Up to approximately 5,000 acres annually	Implementation has been occurring since 2012 and is expected to continue over the next 10 years.

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Twin Falls District Wildlife Tracts Restoration	Proposed action is to use prescribed fire, chemical, drill and harrow seeding, shrub seeding, and plantings to establish perennial vegetation and restore native shrub habitat on wildlife tracts.	Multiple wildlife tracts throughout the Shoshone, Burley, and Jarbidge Field Offices, Twin Falls District	South Side Snake	500-1,000 acres per year, for a cumulative total of 10,000 acres over ten years	Implementation has been occurring since 2011 and is planned to continue over the next 8 years.
Upper Horse Prairie Crested Wheatgrass Sagebrush Restoration	Reseeding crested wheatgrass with native grasses and forbs	Upper Horse Prairie watershed in the Dillon Field Office	Southwest Montana	500 acres total over the life of the RMP	NEPA completed 2012, anticipate implementation beginning in 2014
Sublett Prescribed Fire - Aspen	Prescribed fire in aspen; sagebrush surrounds the project	Minidoka Ranger District, Sublett Division, Idaho, Sawtooth National Forest	South Side Snake	1,000 acres	Planned for 2015
Jeff Creek Prescribed Burn	Prescribed fire	Challis-Yankee Fork Ranger District, Salmon-Challis National Forest	Mountain Valleys	4,035-acre project area; 90 acres of project area in GRSG habitat but not planning to burn in this area	Planned for 2014
Prescribed Fire	Used prescribed fire to restore sagebrush habitat by removing Douglas-fir colonization	Throughout PPH and PGH in the Dillon Field Office	Southwest Montana	Approximately 600 acres yearly	NEPA compliant and ongoing

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Woodcutting Permits	Woodcutting permits would continue to be issued. Each permit allows a minimum of 10 cords and a maximum of 20 cords to be purchased. Stipulations regarding distance from perennial streams, diameter of trees, and distance from paved roads are included.	Within the Owyhee Field Office jurisdiction. Cutting in Wilderness areas, ACECs, Mud Flat Scenic By-Way, a corridor to Silver City, and within rock outcroppings is not allowed.	Southwest Idaho	Unknown	Permitting process is approved and being implemented.
Ramey Creek Reforestation Project	Restoring healthy lodgepole and Douglas fir communities through thinning, removal of dead, and burning in Ramey Creek watershed	Lost River Ranger District	Mountain Valleys	3,000 acres	Decision planned in next two years
Canyon Creek Stream Restoration Project	Instream Habitat Restoration & Willow Cutting Plantings	Leadore Ranger District	Mountain Valleys	4.0 miles stream restored	Decision & implementation in 2015, implementation in 2016-2019
Sawmill Canyon Aspen Regeneration	Removing conifer trees from aspen stands for aspen regeneration	Lost River Ranger District	Mountain Valleys	40 acres	Continuing implementation

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Range					
Permit Renewals	Will complete environmental assessments before making decisions regarding grazing permit renewals	Allotments: Owens, East Castle Creek, Battle Creek, Big Springs, Bruneau Canyon, in Bruneau Field Office	Southwest Idaho	Unknown	Ongoing
Grazing Permit Renewals	Renewing/modifying 2 to 5 grazing permits per year for the next ten years	Challis Field Office	Mountain Valleys	770,000 acres	Project under NEPA review; decision dates 2014-2024
North Little Camas Allotment	Range NEPA for on-off C&H allotment	Mountain Home Ranger District – Boise National Forest	North Side Snake	1,377 acres	NEPA decision in FY 2014
South Little Camas Allotment	Range NEPA for on-off C&H allotment	Mountain Home Ranger District – Boise National Forest	North Side Snake	1,790 acres	NEPA decision in FY 2014
Bennett Mountain Allotment	Range NEPA for C&H allotment	Mountain Home Ranger District – Boise National Forest	North Side Snake	7,076 acres	Planned within the next 10 years
Dixie Allotment	Range NEPA for C&H allotment	Mountain Home Ranger District – Boise National Forest	North Side Snake	20,046 acres	Planned within the next 10 years
Granite Allotment	Range NEPA for S&G allotment	Mountain Home Ranger District – Boise National Forest	North Side Snake	6,351 acres	Planned within the next 10 years
Lake Creek Allotment	Range NEPA for C&H allotment	Mountain Home Ranger District – Boise National Forest	North Side Snake	3,147 acres	Planned within the next 10 years

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Mennecke Creek Allotment	Range NEPA for C&H allotment	Mountain Home Ranger District – Boise National Forest	North Side Snake	13,272 acres	Planned within the next 10 years
Almo Park C&H Allotment	Cattle allotment management plan (AMP) update	Minidoka Ranger District, Albion Division, Idaho, Sawtooth National Forest	South Side Snake	11,990 acres	2017
Conner Creek C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Albion Division, Idaho, Sawtooth National Forest	South Side Snake	5,609 acres	2017
Goose Creek C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth National Forest	South Side Snake	66,872 acres	2021
Oakley Valley C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth National Forest	South Side Snake	30,674 acres	2025
Coal Pit C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth National Forest	South Side Snake	32,454 acres	2025

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Big Hollow C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth National Forest	South Side Snake	7,958 acres	2025
Third Fork S&G Allotment	Sheep allotment AMP renewal	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth National Forest	South Side Snake	9,041 acres	2033
Buckbrush S&G Allotment	Sheep allotment AMP renewal	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth National Forest	South Side Snake	19,937 acres	2033
Little Fork S&G Allotment	Sheep allotment AMP renewal	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth National Forest	South Side Snake	5,360 acres	2033
Deadline S&G Allotment	Sheep allotment AMP renewal	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth National Forest	South Side Snake	8,625 acres	2033

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Little Piney S&G Allotment	Sheep allotment AMP renewal	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth National Forest	South Side Snake	7,658 acres	2033
Trout Creek S&G Allotment	Sheep allotment AMP renewal	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth National Forest	South Side Snake	10,261 acres	2033
Badger S&G Allotment	Sheep allotment AMP renewal	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth National Forest	South Side Snake	7,535 acres	2033
Trapper Creek S&G Allotment	Sheep allotment AMP renewal	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth National Forest	South Side Snake	11,403 acres	2033
Ridgeline C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth National Forest	South Side Snake	9,583 acres	2025

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Fall-Swanty C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth National Forest	South Side Snake	Unknown	2025
Albion C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Albion Division, Idaho, Sawtooth National Forest	South Side Snake	11,991 acres	2017
Barnes Canyon C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Raft River Division, Utah, Sawtooth National Forest	South Side Snake	2,841 acres	2029
Basin C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Albion Division, Idaho, Sawtooth National Forest	South Side Snake	8,220 acres	2017
Cross Creek C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Albion Division, Idaho, Sawtooth National Forest	South Side Snake	322 acres	2017

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
East End C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Raft River Division, Utah, Sawtooth National Forest	South Side Snake	7,777 acres	2029
East Park Valley C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Raft River Division, Utah, Sawtooth National Forest	South Side Snake	1,625 acres	2029
Elba C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Albion Division, Idaho, Sawtooth National Forest	South Side Snake	19,488 acres	2017
Land Creek C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Albion Division, Idaho, Sawtooth National Forest	South Side Snake	2,017 acres	2017
Pine Hollow C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Albion Division, Idaho, Sawtooth National Forest	South Side Snake	340 acres	2017

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Pothole/Bedke C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Albion Division, Idaho, Sawtooth National Forest	South Side Snake	3,744 acres	2017
Rosette C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Raft River Division, Utah, Sawtooth National Forest	South Side Snake	11,503 acres	2029
West Park Valley C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Raft River Division, Utah, Sawtooth National Forest	South Side Snake	3,942 acres	2029
Willow Creek C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Albion Division, Idaho, Sawtooth National Forest	South Side Snake	18,854 acres	2017
Clear Creek C&H Allotment	Cattle allotment AMP renewal	Minidoka Ranger District, Raft River Division, Utah, Sawtooth National Forest	South Side Snake	10,237 acres	2029

**Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions**

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Clark's Basin S&G	Sheep allotment AMP renewal	Minidoka Ranger District, Raft River Division, Utah, Sawtooth National Forest	South Side Snake	8,499 acres	2029
East Dry Pole S&G Allotment	Sheep allotment AMP renewal	Minidoka Ranger District, Black Pine Division, Idaho, Sawtooth NF	South Side Snake	9,571 acres	2045
Walters Creek	Cattle allotment AMP update	Minidoka Ranger District, Albion Division, Idaho, Sawtooth National Forest	South Side Snake	1,062 acres	2017
Deer Creek/Curran S&G Allotment	Sheep allotment AMP renewal	Ketchum Ranger District, Idaho, Sawtooth National Forest	North Side Snake	21,119 acres	2022
Greenhorn – Kelly Mountain C&H Allotment	Cattle allotment AMP renewal	Ketchum Ranger District, Idaho, Sawtooth National Forest	North Side Snake	6,880 acres	2013
Cove Creek S&G Allotment	Sheep allotment AMP renewal	Ketchum Ranger District, Idaho, Sawtooth National Forest	North Side Snake	8,942 acres	2020

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Stanley Basin C&H, Alpine Way On/Off, Goat Creek On/Off, Anderson On/Off	Cattle allotment AMP renewal	Sawtooth NRA, Idaho, Sawtooth NF	Sawtooth	31,530 acres	2016
Williams Creek C&H	Cattle allotment AMP renewal	Sawtooth NRA, Idaho, Sawtooth National Forest	Sawtooth	466 acres	2021
Soldier C&H Allotment	Cattle allotment AMP renewal	Fairfield Ranger District, Idaho, Sawtooth National Forest	North Side Snake	23,406 acres	2021
Bremner-Middle Fork S&G Allotment	Sheep allotment AMP renewal	Fairfield Ranger District, Idaho, Sawtooth National Forest	North Side Snake	17,207 acres	2016
Hunter Creek C&H Allotment	Cattle allotment AMP renewal	Fairfield Ranger District, Idaho, Sawtooth National Forest	North Side Snake	4,973 acres	2017
Wardrop C&H Allotment	Cattle allotment AMP renewal	Fairfield Ranger District, Idaho, Sawtooth National Forest	North Side Snake	10,383 acres	2021
Corral Creek S&G Allotment	Sheep allotment AMP renewal	Fairfield Ranger District, Idaho, Sawtooth National Forest	North Side Snake	4,014 acres	2018

**Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions**

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
North Fork Lime Creek S&G Allotment	Sheep allotment AMP renewal	Fairfield Ranger District, Idaho, Sawtooth National Forest	North Side Snake	15,145 acres	2016
Deer Creek C&H Allotment	Cattle allotment AMP renewal	Fairfield Ranger District, Idaho, Sawtooth National Forest	North Side Snake	1,225 acres	2020
Sheep Basin C&H Allotment	Cattle allotment AMP renewal	Fairfield Ranger District, Idaho, Sawtooth National Forest	North Side Snake	7,068 acres	2017
Cherry Creek S&G Allotment	Sheep allotment AMP renewal	Fairfield Ranger District, Idaho, Sawtooth National Forest	North Side Snake	2,461 acres	2020
Willow C&H Allotment	Cattle allotment AMP renewal	Fairfield Ranger District, Idaho, Sawtooth National Forest	North Side Snake	18,554 acres	2021
Spud and Marco Creek Allotments	Grazing Allotment Management NEPA	Challis-Yankee Fork Ranger District, Salmon-Challis National Forest	Mountain Valleys	7,131 acres	Decision planned in 1 year
Antelope Grazing Management Project	Grazing Allotment Management NEPA	Lost River Ranger District, Salmon-Challis National Forest	Mountain Valleys	49,269 acres	Decision planned in 2016

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Morgan Creek Allotment and Sleeping Deer Unit of Eddy Creek	Grazing Allotment Management NEPA	Challis-Yankee Fork Ranger District, Salmon-Challis National Forest	Mountain Valleys	44,050 acres	Decision planned in 2 years
Lee Creek to Cove Creek Allotments	Grazing Allotment Management NEPA	Leadore Ranger District, Salmon-Challis National Forest	Mountain Valleys	71,826 acres	Decision planned in 2 years
Pahsimeroi and Upper Pahsimeroi Allotments (3)	Grazing Allotment Management NEPA	Challis-Yankee Fork Ranger District, Salmon-Challis National Forest	Mountain Valleys	75,159 acres	Decision planned in 3-4 years
Gilmore to Nez Perce Allotments	Grazing Allotment Management NEPA	Leadore Ranger District, Salmon-Challis National Forest	Mountain Valleys	27,414 acres	Decision planned in 3-4 years
Sandy to Agency and Twelvemile	Grazing Allotment Management NEPA	Leadore and Salmon-Cobalt Ranger Districts, Salmon-Challis National Forest	Mountain Valleys	44,790 acres	Decision planned in 3-4 years
Hawley Creek Allotment	Grazing Allotment Management NEPA	Leadore Ranger District, Salmon-Challis National Forest	Mountain Valleys	31,472 acres	Decision planned in 3-4 years
Pass Creek Allotment	Grazing Allotment Management NEPA	Lost River Ranger District, Salmon-Challis National Forest	Mountain Valleys	43,412 acres	Decision planned in 4 years

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Little Lost Allotments	Grazing Allotment Management NEPA	Lost River Ranger District, Salmon-Challis National Forest	Mountain Valleys	129,312 acres	Decision planned in 4 years
Upper Salmon Allotments	Grazing Allotment Management NEPA	Challis-Yankee Fork Ranger District, Salmon-Challis National Forest	Mountain Valleys	217,150 acres	Decision planned in 4-5 years
Hayden Allotments (up to 3)	Grazing Allotment Management NEPA	Leadore Ranger District, Salmon-Challis National Forest	Mountain Valleys	63,575 acres	Decision planned in 4-5 years
North Fork Allotments	Grazing Allotment Management NEPA	North Fork Ranger District, Salmon-Challis National Forest	Mountain Valleys	116, 254 acres	Decision planned in 4-5 years
Middle Salmon Allotments	Grazing Allotment Management NEPA	Salmon-Cobalt Ranger District, Salmon-Challis National Forest	Mountain Valleys	98,343 acres	Decision planned in 4-5 years
Various Sheep Allotments	Grazing Allotment Management NEPA	Lost River and Middle Fork Ranger Districts, Salmon-Challis National Forest	Mountain Valleys	56,226 acres	Decision within the reasonably foreseeable time frame (by 2023)
White Knob Cattle Allotments	Grazing Allotment Management NEPA	Lost River Ranger District, Salmon-Challis National Forest	Mountain Valleys	54,997 acres	Decision possible within the reasonably foreseeable time frame (by 2023)

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Little Eightmile and Grizzly Hill	Grazing Allotment Management NEPA	Leadore Ranger District, Salmon-Challis National Forest	Mountain Valleys	46,086 acres	Decision possible within the reasonably foreseeable time frame (by 2023)
Middle Fork Allotments	Grazing Allotment Management NEPA	Middle Fork Ranger District, Salmon-Challis National Forest	Mountain Valleys	52,905 acres	Decision possible within the reasonably foreseeable time frame (by 2023)
Pioneer Cattle Allotments	Grazing Allotment Management NEPA	Lost River Ranger District, Salmon-Challis National Forest	Mountain Valleys	246,179 acres	Decision planned in 6-7 years
Lost River Allotments	Grazing Allotment Management NEPA	Lost River Ranger District, Salmon-Challis National Forest	Mountain Valleys	113,122 acres	Decision planned in 4-7 years
Lemhi/Salmon Allotments	Grazing Allotment Management NEPA	Leadore Ranger District, Salmon-Challis National Forest	Mountain Valleys	52,661 acres	Decision planned in 6-10 years
North Lost River Allotments	Grazing Allotment Management NEPA	Challis-Yankee Fork Ranger District, Salmon-Challis National Forest	Mountain Valleys	71,492 acres	Decision planned in 6-10 years
Lower Salmon/Panther Allotments	Grazing Allotment Management NEPA	Salmon-Cobalt Ranger District, Salmon-Challis National Forest	Mountain Valleys	297,730 acres	Decision planned in 8-10 years

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
NW Lemhi Allotments	Grazing Allotment Management NEPA	Challis-Yankee Fork Ranger District, Salmon-Challis National Forest	Mountain Valleys	57,782 acres	Decision planned in 8-10 years
Kelly Canyon-Indian Creek Grazing Analysis Project	Grazing re-authorization	Dubois Ranger District	Mountain Valleys	53,220 acres	Planned for 2018
South Soda Sheep AMP revisions	Grazing re-authorization	Soda Spring Ranger District	East-Central Idaho	132,000 acres	Planned for 2016
NW Big Hole AMP Revision	Cattle allotment management plan revision (7 cattle allotments)	Wisdom Ranger District, Beaverhead-Deerlodge National Forest	Southwest Montana, Wisdom sub-population (P37)	4 allotments overlapping 687 acres of PGH	NEPA underway; ROD in late 2015

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Cessation Lima-Tendoy Sheep Grazing	Indian Creek and Bear Canyon Allotments	Dillon Ranger District, Beaverhead-Deerlodge National Forest	Southwest Montana, Red Rocks sub-population (P24)	11,700 acres in PPH	Permittee waiving sheep permits back to Forest Service (pending receipt of waiver of term grazing permit-2013). Allotments will be closed to future domestic sheep grazing. No new grazing permits for any livestock will be issued for Indian Creek. Three-year trial of 100 AUMs fall cattle grazing for Bear Canyon. NEPA review and new AMP after 2015 grazing season
Range Improvement Construction	Construction or maintenance of fencing (allotment boundary, pasture or enclosure fencing), water developments (water hauls, pipelines and troughs)	Owyhee Field Office jurisdiction.	Southwest Idaho	Approximately 25 miles of new fence to be constructed; approximately 5 miles of pipelines and associated troughs; approximately 30 water haul sites	Various; projects either waiting for available funding or in the planning stages; maintenance of existing projects is ongoing

**Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions**

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Range Water Developments	40 new spring developments and associated pipeline and drinkers	Throughout PPH and PGH in the Dillon Field Office	Southwest Montana	20 miles of pipeline estimated 20 acres disturbance.	NEPA compliant and ongoing
Fence Removal	Removal of approximately 5 miles of old fences yearly	Throughout PPH and PGH in the Dillon Field Office	Southwest Montana	50 miles removed in next ten years	Ongoing
New Fence Construction	Approximately 5 miles of new fence construction per year	Throughout PPH and PGH in the Dillon Field Office	Southwest Montana	50 miles of new fence in the next ten years	NEPA compliant and ongoing
Pocatello Field Office – Fence Flagging	Install GRSG fence reflectors	BLM-administered and National Forest System lands throughout southeast Idaho, Pocatello Field Office	Bear Lake, South Side Snake	10 miles per year	Ongoing
Grouse Creek Fences	Construct 1 mile of fence to protect 2 springs and ½ mile of Sulphur Creek	Section 30, T13N, R23E; Section 13, T.14N., R.21E., W½SW¼, Challis Field Office, Idaho Falls District	Mountain Valleys	1 mile	NEPA completed; construction in 2014
Upper Pahsimeroi/Burnt Creek Fences	Construct 2.5 miles of fence	at T.10N., R.24E; Challis Field Office, Idaho Falls District	Mountain Valleys	2.5 miles	Project under NEPA review, decision date anticipated 2014

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Rock Springs Pipeline Extension Reconstruct with Two New Troughs	Extending an existing pipeline 4 miles and adding two additional troughs	T.13N., R.22E., Section 27 E½ and the other in T.13N., R.22E., Section 15 SE¼SW¼, Challis Field Office, Idaho Falls District	Mountain Valleys	4 miles, 1.4 acres of disturbance	NEPA completed; construction in 2014
Rattlesnake Pipeline	Reconstruct Rattlesnake Pipeline, which includes 3 troughs	Sections 30 and 19 of T.13N., R.22E., Challis Field Office, Idaho Falls District	Mountain Valleys	1.5 miles	NEPA completed; construction in 2014
Upper Pahsimeroi/Burnt Creek Pipeline	Construct additional water sources within the Burnt Creek and Upper Pahsimeroi Allotments	T. 10N., R.24E.; T.11N., R.23E., sec. 10 NW¼SE¼, Challis Field Office, Idaho Falls District	Mountain Valleys	2.5 miles	Project under NEPA review; decision date anticipated in 2014
Upper Pahsimeroi/Burnt Creek Troughs	Adding three additional troughs in the Burnt Creek and Upper Pahsimeroi Allotments	T.10N.,R.24E.; T.11N., R.23E., sec. 10 NW¼SE¼, Challis Field Office, Idaho Falls District	Mountain Valleys	2.1 acres	Project under NEPA review; decision date anticipated in 2014
Mill Creek Reconnect Project	To reconnect Mill Creek to Big Creek; this would involve public and private lands to restore the historic channel alignment of Mill Creek.	T.14N., R.23E. Sec. 35; T. 13N.,R.23E., Sec. 2, Challis Field Office, Idaho Falls District	Mountain Valleys	640 acres, 3 miles of stream	Project under NEPA review; decision date anticipated in 2014

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Spring Hill Spring Restoration	Fence springs and move troughs to uplands; CE or EA	Challis-Yankee Fork Ranger District-Pahsimeroi allotment, Salmon-Challis National Forest	Mountain Valleys	Approximately 10 acres	Planning stage, but implementation likely in 2014
Lost River Small Batch Fences	Road/Ramey, North Fork, and Kane Lake Fences to manage livestock	Lost River Ranger District - 30 miles west of Mackay, Idaho, Salmon-Challis National Forest	Mountain Valleys	1.25 miles	Environmental analysis ongoing; ROD 2016
Warm Creek Habitat Improvement Fence	Fence to keep cattle off Warm Creek	Lost River Ranger District - on Warm Creek at mouth of Sawmill Canyon, Salmon-Challis National Forest	Mountain Valleys	0.25 miles	Environmental analysis ongoing; ROD 2013
Mud Lake Fence Modification	Convert electric fence to permanent with slight adjustment in location	Lost River Ranger District - Pass Creek, Salmon-Challis National Forest	Mountain Valleys	3 miles	Environmental analysis anticipated in 2015
Copper Basin Swamps Troughs	Add one to two troughs to pipeline in Swamps pasture of Copper Basin Allotment	Lost River Ranger District - Copper Basin, Salmon-Challis National Forest	Mountain Valleys	600 acres	Environmental analysis anticipated in 2015

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Minerals					
Western Standard Metals - Almaden Exploration Mining Notice Revision	IDI-37044 Addition of 16 drill sites requiring approximately 4,270 linear feet of constructed roads and approximately 350 linear feet of overland travel for mineral exploration.	Boise Meridian, T. 10 N., R. 3 W., Sections 4 & 5 and T. 11 N., R. 3 W., Section 32 in Washington County, Idaho, Four Rivers Field Office	Weiser	Approximately 3.74 acres	Authorization of this revised notice activity is pending receipt and acceptance of required additional reclamation bond.
Western Standard Metals - Nutmeg Mountain Exploration Mining Notice	IDI-37444 Proposed construction of nine drill sites and 8,455 linear feet of new road for condemnation drilling.	Boise Meridian, T. 10 N., R. 3 W, Sections 3 & 4, and T. 11 N., R. 3 W., Section 33 in Washington County, Idaho, Four Rivers Field Office	Weiser	Approximately 4.21 acres	Authorization of this mining notice is pending receipt and acceptance of required reclamation bond.
Sawtooth #4 Plan of Operation Modification	Locatable mineral surface mining	Middle Mountain, West of Elba, Idaho, Twin Falls District T 14 S R 22 E Section 34	South Side Snake	20 acres	NEPA in progress

**Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions**

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Mineral Extraction	Approximately 25 notices	Throughout PPH and PGH in the Dillon Field Office	Southwest Montana	Less than 50 acres	Ongoing
Otis Gold Exploratory Drilling Notice of Intent	Exploratory drilling	South of Oakley, Idaho, Twin Falls District T 16 S R 22 E Section 20	South Side Snake	1 acre	Pending
Prudent Man Mining	Hand excavations	Lost River Ranger District-Alder Creek, Salmon-Challis National Forest	Mountain Valleys	5 acres	Ongoing next 5 years
Geothermal drilling and development	Drilling of up to 26 production/injection wells on federal leases and adjacent private lands. Construction of pipelines, access roads, and on-lease infrastructure proposed. Power plant proposed on private lands.	Raft River area (southeast end of Jim Sage Mountain).	South Side Snake	Total of up to 275 acres on leased public lands and adjacent private lands.	Pending NEPA analysis and approval. Drilling anticipated to begin fall 2015.
Oakley Stone quarries	Development of quarries (43 CFR 3809)	Middle Mountain, Raft River Mountains in Utah	South Side Snake	Approximately 60 acres	Ongoing

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Goat Springs Quarry	Proposal for surface mining of sand and gravel material	South Hills, south of Twin Falls, Idaho, Twin Falls District T 13S, R 17E, Section 18	South Side Snake	17 acres	NEPA in progress
Lynn Springs Quarry	Plan of Operations-Quarry Expansion	Minidoka Ranger District, Raft River Division, Utah, Sawtooth National Forest	South Side Snake	20 acres	Planned for 2017-2018
Fish Creek Quarry	Plan of Operations Amendment-Quarry Expansion	Minidoka Ranger District, Burley, Idaho, Albion Division, Idaho, Sawtooth National Forest	South Side Snake	10 acres	Planned for 2017-2018
Dove Creek Quarry	Plan of Operations-Amendment-Expansion	Minidoka Ranger District, Raft River Division, Utah, Sawtooth National Forest	South Side Snake	10 acres	Planned for 2018
Paris Hills Phosphate Project	Underground phosphate mine	Paris, Idaho, not on BLM-administered or National Forest System lands	Southeast Idaho	Unknown	Company announced it was ceasing activity on this project for the foreseeable future.
Phosphate mine development	Develop mine, mostly on private and state surface, federal minerals	Trail Creek/Caldwell Canyon	East-central Idaho	Approximately 600 acres	Anticipate submission of a mine plan in 2015

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Oil and Gas	Application for permit to drill	Dillon Ranger District, Beaverhead-Deerlodge National Forest	Southwest Montana - Red Rocks subpopulation (P24)	Unknown, but Forest Service PPH totals approximately 84,800 acres, less than 8,500 acres PPH in moderate potential for development.	NO current APDs; Beaverhead-Deerlodge National Forest Update to Beaverhead-Deerlodge National Forest Oil and Gas ROD on hold pending outcome of GRSG EIS; likely less than 10 APDs over the next 10-15 years.
Oil and gas lease nominations	Determine whether to offer leases	Bear Lake Plateau	Bear Lake	Two nominations, totaling an estimated 59,700 acres	Deferred, pending completion of GRSG EIS
Oil and gas lease nominations	Determine whether to offer leases	Rogerson-Brown's Bench	South Side Snake	90,000 acres	Deferred, pending completion of Jarbidge RMP and GRSG EIS
Oil and gas lease nominations	Determine whether to offer leases	Payette-Weiser area	East-central Idaho	Several nominations, totaling an estimated 181,000 acres	Deferred, pending completion of Four Rivers RMP and GRSG EIS

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Mineral Gulch Plan of Operation	Exploration drilling plan of operations	Minidoka Ranger District, Idaho, Black Pine Division, Idaho, Sawtooth National Forest	South Side Snake	16 acres	Authorized 2012; not yet implemented. Authorization expires December 31, 2016 (all reclamation required to be completed by this date)
Great Western Exploration Drilling	Core drilling	Lost River Ranger District - Camp Creek area, Salmon-Challis National Forest	Mountain Valleys	1 acre	NEPA; implementation fall 2013
Gold Star Exploration Drilling	Mineral exploration	Salmon-Cobalt Ranger District – Tower Creek Drainage, Salmon-Challis National Forest	Mountain Valleys	Fewer than 5 acres	Planned in 2014
Flume Creek Exploration Drilling	Mineral exploration	Leadore Ranger District – Flume Creek Drainage, Salmon-Challis National Forest	Mountain Valleys	Fewer than 5 acres	Planned in 2013

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Wild Horses and Burros					
Wild horse gathers	Gather, fertility treatment, removal of excess wild horses from HMAs	Sands Basin, Hardtrigger, and Black Mountain HMAs, Owyhee Field Office	Southwest Idaho	128,389 acres of public and other (private and state) land	EAs and decisions have been approved; gathers and treatment are pending due to funding and other priority treatments within the BLM wild horse program.
Recreation					
Special Recreation Permits	Various motorcycle, foot, and mountain bike races, horse endurance rides, dog trials, pioneer treks, and poker runs	Owyhee Front; all motorized activities occur within the designated competitive use area of the Murphy Sub-regional Travel Management Area, Owyhee Field Office	Southwest Idaho	260,000 acres; most activities occur within the Murphy and Wilson Creek travel management areas; approximately 900 miles of designated routes; dog trials occur within the Blackstock SRMA (6,149 acres of BLM-administered land)	Future applications and permitting are expected annually.

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Special Recreation Permits	Typical applications each year include: <ul style="list-style-type: none"> • 2 motorcycle races • 1-2 bighorn sheep guided hunts, 1 wildlife viewing trip, and 1 group hiking trip 	Motorcycle races in East/West Castle Creek Allotments, Bruneau Field Office Other SRPs typically are in or near Wilderness	Southwest Idaho	Unsure	Ongoing
Willow Springs Trail	Single-track motorized trail	Palisades Ranger District in Fall Creek watershed	East-central Idaho	3 miles	Planned for 2015
Indian Spring Trail Plan	Construct new trails and maintain/relocate existing trails for use by mountain bikes	South Hills, south of Kimberly, Idaho, Twin Falls District	South Side Snake	60 miles	Working on NEPA
Horse Endurance Race	Special use permit for horse endurance race	Castle Rocks/City of Rocks west of Almo, Idaho, Twin Falls District	South Side Snake	14 miles	Pending
BORE SRP Jackpot 200	Special use permit for motorcycle race	Shoshone Basin Idaho, North of Jackpot, Nevada, Twin Falls District	South Side Snake	90 miles	Working on NEPA
Recreation Trail Reroutes	Possible addition of one motorcycle trail – Fawn Springs	Minidoka Ranger District, Cassia Division, Idaho, Sawtooth National Forest	South Side Snake	1 mile	Planned for 2016

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Stanley Bunkhouses	Install 3 modular bunkhouses	Sawtooth NRA, Redfish Lake Recreation Complex, Idaho, Sawtooth National Forest	Sawtooth	1 acre	Planned activity 2014-2016
Travel Management					
Bear Lake Travel Management Plan Implementation	Implement Bear Lake Travel Management Plan; limit motorized travel to designated routes, prohibit cross-country travel	BLM-administered and National Forest System lands within Bear Lake County, Idaho, Idaho Falls District	Bear Lake	50,000 acres	Travel plan approved 2012; implementation ongoing
Curlew/Deep Creek Travel Management Plan Implementation	Implement Bear Lake Travel Management Plan; limit motorized travel to designated routes, prohibit cross-country travel	BLM-administered and National Forest System lands within Oneida and Power Counties, as well as small portions of Cassia and Bannock Counties, Idaho, Idaho Falls District	South Side Snake	375,000 acres	Proposed decision out for review, June 2013; anticipated decision September 2013; implementation on-going
North Highway 20 Travel Plan	Designate routes and types of use, parking areas/trailheads and future trail construction corridors	North of HWY 20 in the Shoshone Field Office, Twin Falls District	North Side Snake	Designate 127 miles of existing trails; construct 52 miles of new trails, construct 3 acres of parking areas, close and rehabilitate 116 miles of existing routes.	Pending

**Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions**

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Dillon, Wisdom, Wise River Ranger Districts Travel Management Project EA	Analysis for designating wheeled motorized use on the Dillon, Wisdom and Wise River ranger districts of the Beaverhead-Deerlodge NF.	Dillon, Wisdom, Wise River Ranger Districts	Unknown at this time	Unknown at this time	NEPA On Hold
Madison Ranger District Road Decommissioning as Identified in the Madison MVUM Decision CE	Road 1237B, (0.5 miles) will require complete obliteration. Road closure devices, water bars, tread scarification and re-contouring will discourage motorized use and promote re-vegetation. Road 9677, (1.6 miles) will require only a closed sign.	Madison RD	Road 1237B-No population overlap, no PGH or PPH Road 9677 slight overlap on north end of Pop 24 polygon. Slight overlap of PGH no PPH	Road 9677 slight overlap on north end of Pop 24 polygon. Slight overlap of PGH no PPH. 1.6 miles closed by signing. No earthwork	Expected implementation 8/2015
Road Decommissioning	Road decommissioning associated with travel plan	Minidoka Ranger District, Cassia and Sublett Division, Idaho, Sawtooth National Forest	South Side Snake	30 miles per year	Planned 2016
Redfish Lake Road and Bridges – Phase 1	Road and bridge construction	Sawtooth NRA, Redfish Lake Recreation Complex, Idaho, Sawtooth National Forest	Sawtooth	3 acres	Activity during next 2 field seasons

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Redfish Lake Road and Bridges – Phases 2 and 3	Road construction	Sawtooth NRA, Redfish Lake Recreation Complex, Idaho, Sawtooth National Forest	Sawtooth	3 acres	Planned in 5 years
Stanley-Redfish trail	Trail construction	Sawtooth NRA, Redfish Lake Recreation Complex, Idaho, Sawtooth National Forest	Sawtooth	Approximately 2 acres (3 miles) of trail construction	Planned in 3 years
Iron Creek Road	Road reconstruction	Sawtooth NRA, Redfish Lake Recreation Complex, Idaho, Sawtooth National Forest	Sawtooth	3 acres	Planned in 4 years
Pole Creek Travel Management	ATV trail construction and unauthorized road obliteration	Sawtooth National Recreation Area, Idaho, Sawtooth National Forest	Sawtooth	4.6 acres of rehabilitation; 1.1 acres (1.75 miles) of trail construction	Implementation started in 2012 and continuing in 2013
Land Use Planning					
Jarbidge RMP	Revise the Jarbidge RMP that provides a comprehensive plan that further restores or maintains resource conditions and provides for the economic needs of local communities over the long term	Jarbidge Field Office, Twin Falls District	South Side Snake	1,366,000 acres	Finalizing the EIS

Table 5-26
Past, Present, and Reasonably Foreseeable Future Actions

Name	Description	Location	Sage-Grouse Population Area	Estimated Footprint (Acres or Miles)	Status of Action
Craters LUP Amendment	Analyze a range of alternatives for livestock grazing in the Craters of the Moon (i.e., identify lands available or unavailable for grazing, identify the amount of forage available, seasons of use, range improvements)	Craters of the Moon National Monument and Preserve, Twin Falls District	North Side Snake	300,000 acres	Working on scoping package and planning public meetings

area. Projects and activities are evaluated on the basis of proximity, connection to the same environmental systems, potential for subsequent impacts or activity, similar impacts, the likelihood a project will occur, and whether the project is reasonably foreseeable.

Projects and activities considered in the cumulative analysis were identified by BLM and Forest Service employees with knowledge of the area. Each was asked to provide information on the most influential past, present, or reasonably foreseeable future actions. Additional information was obtained through discussions with agency officials and a review of publicly available materials and websites.

Effects of past actions and activities are manifested in the current condition of the resources, as described in the affected environment (**Chapter 3**). Reasonably foreseeable future actions are those that have been committed to or known proposals that would take place within a 20-year planning period.

Reasonably foreseeable future action scenarios are projections made to predict future impacts; they are not actual planning decisions or resource commitments. Projections, which have been developed for analysis only, are based on current conditions and trends and represent a best professional estimate. Unforeseen changes in such factors as economics, demand, and federal, state, and local laws and policies could result in different outcomes than those projected in this analysis.

Other potential future actions have been considered and eliminated from further analysis because there is a small likelihood these actions would be pursued and implemented within the life of the plan or because so little is known about the potential action that formulating an analysis of impacts is premature.

In addition, potential future actions protective of the environment (such as new regulations related to fugitive dust emissions) have less likelihood of creating major environmental consequences alone, or in combination with this planning effort. Federal actions such as species listing would require the BLM and Forest Service to reconsider decisions created from this action. This is because the consultations and relative impacts might no longer be appropriate. These potential future actions may have greater capacity to affect resource uses within the planning area; however, until more information is developed, no reasonable estimation of impacts could be developed.

Data on the precise locations and overall extent of resources within the planning area are considerable, although the information varies according to resource type and locale. Furthermore, understanding of the impacts on and the interplay among these resources is evolving. As knowledge improves, management measures (adaptive or otherwise) would be considered to reduce potential cumulative impacts, in accordance with law, regulations, and current LUPs.

Projects and activities identified as having the greatest likelihood to generate potential cumulative impacts when added to the Idaho and Southwestern Montana Greater Sage-Grouse EIS/Plan Amendment alternatives are displayed in **Table 5-26**.

5.3.1 Vegetation

Past, present, and reasonably foreseeable future actions and conditions that affect vegetation are vegetation and habitat management and improvement projects, noxious weed control, wildfire management, livestock grazing management, lands and realty management, mineral extraction and development, and travel management planning.

Sagebrush-promoting and conifer-removing vegetation and habitat treatments would retain and enhance sagebrush vegetation and overall ecosystem productivity, while reducing the distribution of invasive weeds and woody conifer species. Given the limited distribution of suitable sagebrush habitats and the cost of habitat restoration, management plans that protect intact sagebrush acreage and restore impacted areas strategically to improve habitat connectivity have the best chance of increasing the amount and quality of sagebrush cover (Manier et al. 2013).

An assortment of nonnative annuals and perennials and native conifers is invading sagebrush ecosystems. Many areas throughout the range of GRSG are at high risk from invasive plants; the most concentrated areas of risk include the Intermountain West and Great Basin (Manier et al. 2013). Invasive plants can alter plant community structure and composition, productivity, nutrient cycling, and hydrology and may competitively exclude native plant populations. Invasive plant spread may result in habitat loss and fragmentation and may also increase the risk of wildfire. The spread of invasive plants such as cheatgrass has increased the frequency and intensity of fires in some areas (Balch et al. 2012). Treatments designed to prevent encroachment of shrubs, nonnative species, or woody vegetation would alter the condition of native vegetation communities by changing the density, composition, and frequency of species within plant communities. The intent of these management programs is to improve rangeland condition and enhance sagebrush ecosystems.

Slow rates of regrowth and recovery of vegetation after disturbances (driven by low water availability and other constraints) coupled with high rates of disturbance and conversion to introduced plant cover have contributed to the accumulating displacement and degradation of the sagebrush ecosystem (Beck et al. 2009). Big sagebrush does not resprout after a fire but is replenished by wind-dispersed seed from adjacent unburned stands or seeds in the soil. Depending on the species and the size of a burn, a return to pre-burn community cover can take 13 to 100 years (Connelly et al. 2000). When management reduces wildfire frequency by suppressing natural ignitions, the indirect impact is that vegetation ages across the landscape, and early successional vegetation communities are diminished.

Fire suppression may preserve the condition and connectivity of some vegetation communities. This is particularly important in areas where fire frequency has increased as a result of weed invasion or where landscapes are highly fragmented. Fire suppression can also lead to increased fuel loads, which can lead to more damaging or larger fires in the long term. Fire also increases opportunities for invasive species such as cheatgrass to spread, so fire suppression can indirectly limit this expansion.



Controlled burning may be prescribed to treat fuel buildup and to assist in the recovery of sagebrush habitat in some vegetation types. Reseeding with native plants and long-term monitoring to ensure the production of cover and forage plants would assist vegetation recovery (NTT 2011).

Livestock grazing may have both beneficial and detrimental aspects on rangeland vegetation, depending on site-specific management (USFWS 2010). At higher levels, grazing can lead to loss of vegetative cover, degraded riparian habitats, increases in invasive weeds, decreased plant litter, increased soil erosion, and reduced habitat quality for wildlife (Belsky et al. 1999; Reisner et al. 2013; Knick 2011; Connelly et al. 2004). However, in some habitats, targeted livestock grazing may be useful for reducing fine fuels produced by annual grasses (Boyd et al. 2014). In areas meeting BLM Idaho Standards for Rangeland Health or similar Forest Service standards, grazing practices coexist with healthy vegetation communities, providing wildlife habitat.

Grazing systems that aim to protect sagebrush and riparian ecosystems would allow more plant growth and reduce trampling and introduction of exotic species. Reducing or removing grazing in habitats would also reduce these effects but could have unintended consequences of increasing fuel buildup. Range improvement projects often can be used to improve livestock distribution and set aside areas for rest from grazing, which would reduce the likelihood of impacts described above.

As described in **Section 4.3**, Vegetation, mineral extraction and development impacts sagebrush habitats directly by disturbance and removal from well pad and access construction, seismic surveys, roads, power lines, and pipeline corridors. It impacts sagebrush habitats indirectly by gaseous emissions, changes in water availability and quality, and human disturbance. The interaction and intensity of effects could cumulatively or individually lead to habitat fragmentation in the long term (Connelly et al. 2004; Holloran 2005).

The BLM uses travel management planning to designate and close routes and to balance the demands for motorized recreation and access with protection of sensitive resources. By planning at the landscape scale, the BLM would be able to retain large expanses of sagebrush and manage impacts on vegetation from motorized vehicles (discussed in **Section 4.3**, Vegetation) through route designations and closures.

Alternatives Analysis

Under Alternative A, current management would continue on BLM-administered and National Forest System lands in the planning area. There would be no PHMA, IHMA or GHMA designated, and most land use plans would not implement use restrictions (e.g., ROW exclusion and closure to mineral leasing and development) to protect GRSG habitat. Seasonal restrictions and lek buffers would continue to be applied as stipulations to oil and gas and geothermal leases, in accordance with existing land use plan direction. Grazing management would not specifically consider GRSG habitat needs, and vegetation management would not prioritize sagebrush. Prescribed fires in sagebrush communities

could be harmful to sagebrush, which is slow to regrow and susceptible to weed invasion post-fire.

Planned ROW construction could increase fragmentation of vegetation, and new mineral extraction would increase loss of sagebrush vegetation until sites are reclaimed. However, some use restrictions would be implemented, which would protect vegetation in these areas from degradation or removal. Vegetation management and noxious weed control projects would benefit sagebrush ecosystems by removing invasive plants and promoting healthy vegetation communities. Overall, Alternative A would lack the landscape-level management tools to reduce cumulative effects from past, present, and reasonably foreseeable future actions.

Under Alternative B, PHMA and GHMA would be designated and ROW exclusion and avoidance areas would be established over larger areas, compared to Alternative A. Grazing management would be improved, which would reduce impacts on sagebrush vegetation. No ACECs would be established, but land disposals and acquisitions would focus on maintaining sagebrush acreage and connectivity. ROWs, access roads, and associated infrastructure planned according to **Table 5-26** would be sited outside PHMA under Alternative B. Planned mineral exploration and development would be sited outside PHMA in unleased areas, and RDFs would be applied to post-lease actions on existing leases. The vegetation management and restoration projects mentioned above would benefit the planning area in discrete locations. Prescribed fire areas would be reseeded and monitored to prevent invasive plants from becoming established. As a result, the cumulative effects from past, present, and reasonably foreseeable future actions under Alternative B would be reduced, compared to Alternative A.

Cumulative impacts under Alternative C are similar to those described for Alternative B, though with fewer restrictions on resource uses. Under Alternative C, grazing would be removed from occupied habitat, which would allow for greater herbaceous growth but could increase fuel loading and risk of wildfire. This could degrade vegetation quality over the long term. Given the uncertain effects of removing livestock grazing, it is not known whether cumulative effects from past, present, and reasonably foreseeable future actions would be reduced, compared to Alternative A.

Alternative D is intended to preserve management flexibility and provide increased implementation guidance, while protecting GRSG habitat. Management under Alternative D would increase vegetation protection, compared to current management, but with more limited actions than Alternatives B or F. Alternative D would establish ROW avoidance but not exclusion areas, thereby reducing but not eliminating impacts from ROW development.

Restrictions on mineral leasing and development under Alternative D would be greater than under Alternative A but less stringent than Alternatives B and F. Prescribed burning and fuels management would take sagebrush vegetation into account. As under the other alternatives, the vegetation management and weed control plans listed in **Table 5-26** would benefit vegetation health. Development restrictions in occupied habitat would retain vegetation, and rangeland improvements would improve vegetation quality on sagebrush



acreage. As a result, the cumulative effects from past, present, and reasonably foreseeable future actions under Alternative D would be reduced, compared to Alternative A, but to a lesser extent than Alternatives B and F.

Cumulative impacts from Alternative E are similar to those described for Alternative D, though Alternative E would require less stringent use restrictions and would designate the least amount of CHZ (compared to PHMA) of all the action alternatives. As a result, the cumulative impacts from past, present, and reasonably foreseeable future actions would be reduced, compared to Alternative A, but to a lesser extent than the other action alternatives.

Alternative F would provide more protection to GRSG habitat on BLM-administered and National Forest System lands but would reduce management flexibility. Alternative F would establish ACECs and ZAs in occupied habitat, and occupied habitat would become ROW exclusion areas and closed to mineral development and leasing. These provisions would protect vegetation from loss, fragmentation, and disturbance associated with surface-disturbing activities. Reduced management flexibility could lead to inefficient or ineffective management at the site-specific scale, when conditions may require alterations in management. As under the other alternatives, the vegetation management and weed prevention projects listed in **Table 5-26** would benefit vegetation health.

Alternative F would impose the most stringent restrictions on development of GRSG habitat, potentially restricting the ROW and mineral developments in **Table 5-26** thereby retaining the greatest extent of sagebrush vegetation. Alternative F would result in the greatest reduction in cumulative effects from past, present, and reasonably foreseeable future actions, compared to all alternatives.

Cumulative impacts from the Proposed Plan are similar to those described for Alternative D, though the Proposed Plan would have additional measures that would afford protections to vegetation and would further reduce cumulative impacts. These include managing to attain GRSG habitat objectives; management of SFAs where restrictions on uses would be greater than in PHMA; a comprehensive mitigation strategy that would avoid, minimize and apply compensatory mitigation for GRSG habitat impacts; and specified acres of vegetation treatments. In addition, the Fire and Invasives Assessment Tool would be implemented, which would increase the effectiveness of management activities and is anticipated to maintain and improve habitat. On National Forest System lands, grazing use guidelines would be implemented that limit the amount of allowable use on perennial grass, shrubs, upland herbaceous species, and herbaceous riparian/wet meadow vegetation. These guidelines would reduce grazing impacts on vegetation over time. Together, these would reduce cumulative effects from past, present, and reasonably foreseeable future actions compared to Alternative A, but to a lesser extent than Alternatives B and F.

5.3.2 Wild Horses and Burros

The cumulative impact analysis area used to analyze cumulative impacts on wild horse management includes the planning area. This is because impacts are expected to be limited to those actions originating within the planning area.

Past, present, and reasonably foreseeable actions and conditions within the cumulative impact analysis area that have affected and will likely continue to affect wild horse management are actions that change forage and water availability, access to water sources, range conditions, and barriers to movement and population control (such as removing excess animals and repressing population).

Reasonably foreseeable projects in the project area include extensive vegetation treatment and fuels reduction projects. These could result in short-term impacts on horses, but they are likely to improve rangeland health in the long term. Population control gathers would continue in the area to keep wild horses at appropriate population levels and to support maintenance or improvement of land health in the area overall. In addition, actions that disturb wild horses are recreation and development for transmission, as well as the exploration for energy and mineral development.

Under all alternatives, no direct change would occur on areas allocated as HMAs for wild horses. Under Alternative A, AML would continue to be adjusted as needed, based on rangeland conditions. Populations would be controlled to support land health within the constraints of national priorities and budgets. Under Alternatives B, C, D, E, and the Proposed Plan there could be long-term reduction of AMLs. This would occur if management for wild horses conflicts with GRSG management objectives, resulting in a cumulative addition to the management needs and associated costs of wild horse and burro management in the planning area. Under Alternative F, a direct 25 percent reduction in AMLs is proposed, resulting in a cumulative addition to costs and time for management of the wild horse and burro program due to the need for increased gathers. This could strain available resources in the region.

In addition, should management resources be concentrated in GRSG habitat due to priorities for management under the action alternatives, HMAs outside of GRSG habitat may be allotted fewer resources. In general, actions to improve land health for GRSG are also likely to improve rangelands for wild horses, resulting in a cumulative improvement in the ability to meet AMLs.

5.3.3 Wildland Fire

Past, present, and reasonably foreseeable future actions and conditions within the cumulative impact analysis area that have affected and will likely continue to affect wildfire are fuels and vegetation management projects, ROW and energy development, projects that impact the agencies' abilities to respond to wildfire, and projects that would increase the risk of human-caused ignitions.

Wildfires in the planning area have been frequent in the past, with over 9,600 wildfire starts occurring on or threatening to spread to BLM and FS-administered lands in the planning area between 1980 and 2012. Approximately 54 percent of these wildfires were attributed to human-caused ignition. Wildfires are expected to increase in the future due to increasingly severe drought conditions caused in part by climate change. This could impact wildland fire



management through increased personnel requirements and need for fire suppression and resultant increased costs.

A variety of fuels treatments, including hazardous fuels reduction, prescribed fires, chemical and mechanical treatment, and seeding, would likely continue to be used. At least 80 reasonably foreseeable fuels and vegetation management projects have been identified within the planning area (see **Table 5-26**).

ROWs and the associated development may increase the risk of human-caused ignitions due to vehicular travel to and from the site, construction, maintenance, and operation of the facilities. The development allowed under these authorizations would result in surface disturbance, which would generally contribute to the modification of the composition and structure of vegetation communities in the vicinity of developed areas, which could then be more likely to fuel high-intensity fires.

Similarly, energy and mineral development has contributed to human-caused ignitions in the planning area and would do so in the future.

As the global effects of climate change continue, the likelihood of natural unplanned ignitions and large fires within the planning area may increase due to the irregular weather patterns, increased likelihood of storms, and drought.

Alternatives Analysis

Under Alternative A, the trends described above would continue to affect wildland fire management in the planning area.

Under Alternative B, restrictions on land uses and development may reduce new sources of ignition and decrease the risk of human-caused ignitions. However, this alternative may restrict the ability of the wildland fire management program to suppress and preventatively treat fires.

Under Alternative C, responses to wildfire or appropriate treatments to prevent wildfire may be prohibited. As a result, there may be changes in fuel levels and management options for fuels treatments and wildfire suppression. Drought may cause vegetation to be more vulnerable to wildfires. In addition, the exclusion of livestock grazing on BLM-administered lands could increase fine fuels and associated risk of wildfire. These cumulative effects would create a need for greater flexibility in fire suppression, but stringent controls on the wildland fire management program under Alternative C would inhibit responses to and preventative treatments for wildfire.

Under Alternative D, the emphasis on fire risk reduction in the GRSG habitat and efforts to coordinate with local and state governments would cumulatively reduce fire risk across all landownership types in the planning area.

Under Alternative E, impacts in Montana are the same as under Alternative A. In Idaho, guidance to reduce wildfire response time, create fuel breaks, and improve the wildfire suppression baseline would provide the wildland fire management program with the tools

necessary to manage fuel levels and decrease the risk of catastrophic wildfire in the planning area.

Alternative F places the greatest restrictions on land uses and development. It also includes the greatest restrictions on the wildland fire management program, limiting wildfire response options and fire and fuels treatments. As a result, there would be less risk of human-caused ignition, but the lack of proactive fire prevention activities (e.g., fuels treatments) may mean that wildfires would be more severe. Drought may cause vegetation to be more vulnerable to wildfires, exacerbating these effects. The management actions under Alternative F that inhibit responses to and preventative treatments for wildfire may be insufficient to meet the growing need for wildland fire management flexibility over the long term.

Under the Proposed Plan, interagency coordination and strategic deployment of resources via the GRSG Fire and Invasive Species Assessments, restrictions on anthropogenic development in GRSG habitat, and site-specific monitoring and implementation measures for fire operations and fuels management would result in improved vegetation and reduced cumulative fire risk in the sub-region.

5.3.4 Livestock Grazing

Past, present, and reasonably foreseeable future actions and conditions that have affected and will likely continue to affect livestock grazing are those that reduce available grazing acreage and the level of forage production in those areas or that inhibit livestock improvements, such as water development or fences.

In the planning area, relevant past and present actions include human-caused surface disturbances, such as those associated with minerals, transmission and energy development, recreation, and current and historic grazing practices. In addition, changes in habitat due to historic fire suppression and climate change have resulted in juniper and other trees encroaching onto grasslands, decreasing available forage.

Reasonably foreseeable future actions affecting livestock grazing are similar to the present actions and include numerous permit/lease renewals, over 75 allotment NEPA assessments, and additional AMP reviews, as detailed in **Table 5-26**. These actions could cumulatively reduce permitted AUMs or restrict management options when allotments are found to be inconsistent with land health standards due to livestock use. Furthermore, proposed fencing projects may impact ability to distribute livestock. Conversely, the development of 40 springs and associated pipelines, as well as additional water troughs, would provide additional watering sources and may allow for better distribution of livestock, resulting in decreased time and costs for permittees to manage livestock.

Cumulative projects that increase human disturbance in grazing areas could also indirectly impact grazing, by increasing weeds and the spread of invasive species. As stated above, weed invasion can reduce preferred livestock and wildlife forage and increase the chance of weeds being dispersed by roaming cattle. Cumulative projects that increase human disturbance in grazing areas could also directly impact grazing by displacing, injuring, or



killing animals. Such projects include drilling and road construction for mineral development operations.

Conversely, planned vegetation improvement and fuels reduction and restoration projects in the planning area, as described in **Table 5-26**, may exclude grazing from site-specific areas temporarily. However, these projects would generally improve rangeland conditions in the long term by reducing juniper encroaching into grasslands and, potentially, by improving vegetation condition. In addition to foreseeable actions, vegetation may change due to continued drought or climate change. While these changes are difficult to quantify, they are likely to include reduced forage availability.

Alternatives Analysis

The contribution of the project to cumulative impacts would parallel the impacts of the alternatives, as described in **Section 4.5**, Livestock Grazing/Range Management.

Under Alternative A, permitted active use would likely decline to some extent over time, following observed trends. Alternative A would allow the highest level of surface disturbance of all alternatives, with the highest cumulative contribution to decrease forage availability in the planning area.

Under Alternative B, while no direct reduction to permitted AUMs would occur, compared to Alternative A, permitted active use would decline to a greater extent over time. This is because of the implementation of grazing management changes to meet GRSG habitat objectives. These include potential grazing management changes and restrictions on structural improvements and water developments. As a result forage availability may increase in GRSG habitat, although this forage would generally not be available for livestock use.

Surface-disturbing activities would be sited in lower priority habitats and mainly in nonhabitats, increasing cumulative impacts in these areas.

The greatest impacts on livestock grazing in the planning area would be seen under Alternative C, due to the elimination of all AUMs within occupied habitat. The elimination of grazing in occupied habitat may reduce livestock grazing overall, both inside and outside the planning area. Many livestock operations that rely on BLM-administered and National Forest System lands also incorporate private and leased lands in their operations. Grazing on private lands is often limited and may not be able to absorb the grazing use that is eliminated from BLM-administered and National Forest System lands.

Eliminating grazing in occupied habitat would likely result in operations going out of business. In other cases, greater reliance on private lands could also put additional pressure on forage resources and may accelerate the conversion of private native range at a local level, potentially including GRSG habitat, to agricultural or introduced grass production.

Cumulative impacts under Alternative D are similar to those described under Alternative B. Impacts from the project would be focused on the highest quality GRSG habitat limit any

impacts of disturbance from development in these areas but may shift disturbance and related forage loss to nonhabitat on BLM-administered and other lands.

The contribution to cumulative impacts on grazing in Alternative E would be slightly decreased, compared to other action alternatives. This would be due to increased flexibility in application of restrictions to account for site-specific habitat needs.

Under Alternative F, the contribution to cumulative impacts would be similar to that described under Alternative B. In addition, prohibiting structural range improvements and new water developments under Alternative F would further decrease grazing in the area for both BLM-administered lands and in the area overall. This would increase forage availability but could lead to closures/reductions of grazing should operators go out of business.

Under the Proposed Plan, the contribution to cumulative impacts would be similar to that described under Alternative B and D. Changes to grazing management would be focused on PHMA, particularly in areas currently not meeting land health standards. On NFS lands implementation of the grazing use guidelines would have greater impacts to livestock management on allotments within nesting habitat. This could include the reduction of AUMs on these allotments over time. Management changes focused on achieving specific vegetation objectives based on site conditions would improve vegetation and forage conditions for livestock and wildlife in the long term within GRSG habitat. There would be potential for development and related forage loss to shift to non-GRSG habitat.

5.3.5 Travel and Transportation

Past, present and reasonably foreseeable future actions and conditions that have affected and will likely continue to affect travel and transportation are the result of management actions to obtain the following:

- Limit motorized travel to existing or designated routes
- Designate types of uses and seasonal restrictions for designated routes
- Limit the construction or expansion of roads in GRSG habitat

Alternatives Analysis

Under all alternatives, unauthorized cross-country motorized travel will continue to impact comprehensive travel and transportation management. Cumulative impacts from cross-country travel include the creation of new linear features and the need for additional management, such as enforcement, signs, and education. Unauthorized travel could result in seasonal or permanent closures of areas or designated routes. Staff in several BLM field offices and National Forests in the planning area are developing travel management plans to address the need for closures and designate routes. For example, the Minidoka Ranger District in the Sawtooth National Forest is decommissioning 30 miles of roads per year as part of its travel plan (see **Table 5-26**).



Under Alternative A, only travel management planning being carried out by BLM Field Offices and Forest Service Ranger Districts under separate planning efforts would impact travel management. Currently on National Forest System lands, travel is limited to designated roads and trails. Under Alternative B, the BLM would additionally limit motorized travel to existing roads and trails in PHMAs, thereby reducing cross-country access in those areas. Reducing access would be greatest under Alternative C, due to BLM management that would prohibit new road construction within 4 miles (6.4 km) of active leks and preclude upgrading of existing routes in PHMAs. Cumulative impacts on travel and transportation management as a result of the limitations under Alternative C could include congestion on the existing travel route network in and next to the planning area, particularly where routes provide access to multiple resource uses.

Impacts on travel and transportation management under Alternatives D, F and the Proposed Plan are the same as under Alternative B, while impacts under Alternative E are the same as under Alternative A.

Reasonably foreseeable trends that would result in cumulative impacts on travel and transportation are continued growth patterns in demand for OHV recreation experiences, continued and increased visitation from a growing regional population, and increased popularity of adjacent BLM-administered and National Forest System lands.

The Proposed Plan, which would implement a 3 percent disturbance cap for new surface disturbing activities, would limit new route construction in a BSU where future disturbance exceeds the cap. However, proposed RDFs would enhance the long-term condition of routes available for public and/or permitted use.

5.3.6 Lands and Realty

Past, present and reasonably foreseeable future actions and conditions that have affected and will likely continue to affect lands and realty are land use authorizations, including foreseeable demand for ROWs associated with transmission lines, roads, and expanded communication infrastructure (see **Table 5-26**). They also include land tenure adjustments and withdrawals necessary to meet various public needs.

Land use authorizations in the planning area place the largest demand on the BLM-administered and National Forest System Lands and realty programs. Past authorizations include those for linear features, such as roads, power lines, and water canals, pipelines, and site ROW features, such as communication towers and temporary permits for oil and gas facilities. There will be a steady increase in demand for ROWs to accommodate new power, water, and telecommunication lines, roadways, pipelines, and communication sites. Two major realty actions being considered in the sub-region are the Gateway West and Boardman to Hemmingway transmission line projects. These projects would add more than 1,000 miles (600 km) of new ROWs across southern Idaho. The Proposed Plan identifies the Boardman to Hemmingway line as a high-priority project and considers limited exemptions to the proposed ROW for the project. Since all but 300 acres of the proposed alignment are within a designated corridor, exemption from the avoidance designation would apply only those acres. Cumulative impacts from the development of this line would include increased ability

to accommodate electrical transmission infrastructure demand in the short-term. However, in the longer-term, placement of the large Boardman to Hemingway line in one of the few designated corridors managed as open, could exclude future development from occurring in those corridors due to technical (i.e., spacing and design) constraints. On the other hand, if technically feasible, the developed line could provide an opportunity for the co-location of future infrastructure to accommodate longer-term demand.

Land tenure and landownership adjustments allow the BLM and Forest Service to effectively manage BLM-administered and National Forest System lands over time. Exchanges may consolidate BLM-administered and National Forest System lands and improve management efficiency. Land exchanges are pending in the Bruneau and Challis BLM Field Offices. In the Bruneau Field Office, the BLM would dispose of 33,000 acres of non-GRSG habitat and would acquire 38,000 acres of mostly GRSG habitat. In the BLM Idaho Falls District, there are 235 acres of pending land sales. Management prescriptions that limit land tenure adjustments could result in cumulative impacts on lands and realty and other resources and uses.

Land withdrawals are used to preserve sensitive environmental values, protect major federal investments in facilities, support national security, and provide for public health and safety. There are several pending land withdrawals, for which jurisdiction would be transferred to the Department of Defense for military use or to Idaho Power as part of a state-wide Integrated Resource Plan for power development.

Alternatives Analysis

Impacts on lands and realty across alternatives depend largely on the number of acres where the BLM or Forest Service would exclude or avoid new ROW development. A prohibition on ROW development, particularly electrical transmission lines, over a large area would prevent the BLM and Forest Service from accommodating demand for new ROWs. Potential ROW applicants could choose to develop on land not administered by the BLM or Forest Service outside the planning area. This could increase environmental impacts on sensitive lands and permitting times and decrease the overall effectiveness of the power grid, telecommunication system, or roadway network. Development on adjacent lands could also result in indirect effects on BLM-administered and National Forest System lands via increased vehicle traffic or requests for ROW authorizations for transmission lines.

Under Alternative A, the BLM and Forest Service would continue to authorize ROW development and temporary surface disturbance on a case-by-case basis. There would continue to be 1,010,900 acres designated as ROW exclusion and 1,903,400 as ROW avoidance. Land tenure adjustments would be subject to current LUP criteria without further limitations. As a result, cumulative impacts on lands and realty would occur as new ROWs or land tenure adjustments are proposed. Alternative A would not affect the BLM's or Forest Service's ability to accommodate new ROW development or to improve management efficiency through land tenure decisions or withdrawals.

Under Alternatives B, C, D, E, F and the Proposed Plan, BLM and Forest Service management would include increased levels of ROW restrictions, when compared to



Alternative A. Designations of areas as avoidance or exclusion would not impact existing ROW authorizations. The ROW restrictions would, however, impact future ROW authorizations. Alternative C would restrict ROW development the most by designating PHMAs and GHMAs as ROW exclusion. Alternative B would exclude ROW development in PHMAs, while Alternative D would exclude electrical transmission lines greater than 50kV on 6,135,200 acres. Similar to Alternatives B, C, D, E, and F, the Proposed Plan would result in more complex project reviews and increased project costs. Management of PHMA and IHMA as avoidance, combined with GRSG net conservation gain requirements such as RDFs, buffers, and tall structure limitations, could discourage future development in PHMA and IHMA. The long-term cumulative effect would entail future ROW/SUA demand being accommodated in GHMA and non-habitat areas.

Limitations on land tenure adjustments, which allow the BLM and Forest Service to sell, exchange, withdraw, or acquire lands to increase effective management, would be the most restrictive under Alternative C and the least restrictive under Alternatives A, E, and F. Alternatives B and D would allow land sales under certain conditions. Under the Proposed Plan, the BLM and Forest Service could carry out land tenure actions where they would result in a cumulative net conservation gain to GRSG and its habitat. Land exchanges that result in a consolidated land ownership pattern would over time increase BLM and Forest Service management efficiency, including GRSG conservation.

National policies to mitigate climate change through the expansion of renewable energy production could contribute to direct and indirect long-term cumulative impacts on the lands and realty program and be affected by management under Alternatives B through F and the Proposed Plan.

As part of the 2013 Climate Action Plan, President Obama set a new energy goal of 10 new gigawatts of new renewable energy permitted on DOI lands by 2020 (The White House 2013). Despite wind energy potential in the planning area being moderate (NREL 2009) and solar resources being moderate to low (NREL 2005), the President's plan is expected to increase the demand for renewable energy ROWs.

The potential for cumulative impacts on wind energy ROW development in the planning area would be greatest under Alternative C, which would restrict renewable energy ROW development in PHMAs and GHMAs. Impacts on wind and solar ROWs under Alternatives B, D, F and the Proposed Plan would be less than under Alternative C but greater than under Alternatives A and E. Alternatives A, B, C, F and the Proposed Plan would force wind energy ROWs outside GRSG habitat, thereby increasing the potential for indirect effects to wind energy development in the planning areas, such as denial of requests for new transmission line ROWs and access roads. The Proposed Plan would redirect future wind energy development outside of PHMA and restrict wind energy development in IHMA.

GRSG conservation measures under the Proposed Plan, such as RDFs, lek buffers, tall structure limitations, mitigation, and a disturbance cap, would cumulatively increase the project costs and complexity of project reviews. Overtime, new technology could minimize cost impacts; however, for some projects, the increased costs and mitigation requirements

(**Appendix J**) could preclude development. In any BSU or proposed project analysis area, where future development results in an exceedance of the disturbance cap, future disturbance, including ROW development, would be excluded from that BSU or proposed project analysis area.

5.3.7 Leasable Minerals

Fluid Minerals

Past, present and reasonably foreseeable future actions and conditions within the sub-region that have affected and will likely continue to affect fluid minerals include existing and planned oil and gas development projects on nonfederal mineral estate within the planning area.

Alternatives Analysis

The management actions proposed under this LUPA/EIS would cumulatively impact mineral development through surface use restrictions (e.g., closures and NSO, CSU, and TL stipulations). This ultimately would decrease the amount of oil and gas development in the planning area during the planning period. Surface use restrictions, such as NSO restrictions, could also cause an operator to move to nearby private or state land with no such restrictions.

Reasonably foreseeable oil and gas activities that are anticipated to occur in the planning area over the next 20 years include offering parcels of lands in five parts of the planning area for oil and gas leasing (**Appendix O**). Expressions of Interest have been made by the public for lands in the Four Rivers Field Office near Payette; lands near Brown’s Bench/China Mountain primarily in the Jarbidge Field Office; and lands on the Bear Lake Plateau in southeast Idaho (**Appendix O**). Also included in the RFDS analysis are lands on the Caribou National Forest and in the Dillon Field Office, because the RFDSs for those land use plans forecast oil and gas activity. **Table 5-27**, Number of Wells and Permanent Disturbance Predicted, by Alternative, shows the number of exploratory and production wells forecast over the next 20 years:

Table 5-27
Number of Wells and Permanent Disturbance Predicted, by Alternative

ALTERNATIVE	# Exploratory Wells predicted	# Discovery Wells	# Step-out wells	Total Permanent Disturbance
Alternative A	25 wells	4 wells	12 wells	156 acres
Alternative B	13 wells	2 wells	6 wells	73.5 acres
Alternative C	13 wells	2 wells	6 wells	73.5 acres
Alternative D	23 wells	4 wells	12 wells	156 acres
Alternative E	19 wells	4 wells	10 wells	128.5 acres
Alternative F	13 wells	2 wells	6 wells	73.5 acres
Proposed Plan	15 wells	2 wells	6 wells	63 acres



Under Alternative A, it is predicted that up to 25 exploratory wells would be drilled over the next 20 years in the planning area, and that four well fields would be developed. Fields would be located in the Four Rivers Field Office area (one field), the Bear Lake area (one field), and in the Dillon Field Office (two fields). Under Alternatives B, C, and F, no leasing would occur on the Bear Lake Plateau or in the Jarbidge area, so wells would not be drilled there, and only half the Dillon Field Office wells would be drilled. Under Alternative D, no leasing or development would be allowed in low potential areas, including the Jarbidge area. Under Alternative E, the same number of wells would be drilled as under Alternatives B, C, and F, but wells in Montana could be drilled. Under the Proposed Plan, only wells in the Four Rivers Field Office, Caribou National Forest, and half the wells in the Dillon Field Office would be drilled.

Under Alternative A, 83,650 acres with medium development potential (8 percent of the federal oil and gas estate with medium development potential) would remain closed to oil and gas leasing, and approximately 400,600 acres of federal oil and gas estate with medium development potential (41 percent of the federal oil and gas estate with medium development potential) would remain open to leasing subject to NSO stipulations. Management under Alternatives B and F would close 344,300 acres with medium potential (35 percent of the medium potential acres in the decision area), and 330,400 acres with medium potential would be subject to NSO stipulations.

Under Alternative C, 513,700 acres (52 percent) of minerals with medium oil and gas potential would be closed, and 222,900 acres (22 percent), would be subject to NSO stipulations. Under Alternative D, 86,000 unleased acres with medium development potential (10 percent of total unleased acres with medium development potential in the oil and gas decision area) would be closed to leasing, and 421,800 acres (47 percent) of unleased areas with medium development potential would be subject to NSO stipulations.

Under Alternative E, 86,000 unleased acres with medium development potential (10 percent of total unleased acres with medium development potential in the oil and gas decision area) would be closed to leasing. Approximately 550,400 acres (62 percent) of unleased areas with medium development potential would be subject to NSO stipulations.

Under the Proposed Plan, 264,400 acres (27 percent) of minerals with medium oil and gas potential in the planning area would be closed to leasing, and 373,800 acres (38 percent) would be subject to NSO stipulations.

Of all the alternatives, Alternative C would close the most acres with medium oil and gas potential to fluid mineral leasing: a 600 percent increase over Alternatives A or E.

Geothermal Resources

Past, present and reasonably foreseeable future actions and conditions that have affected and will likely continue to affect renewable energy are the construction of existing and proposed roads and transmission lines. This would increase the routing options and possibly reduce project construction or implementation costs. GRSG conservation measures would not

contribute to cumulative impacts since the above-identified effects would benefit renewable energy development.

Alternatives Analysis

The management actions proposed under this LUPA/EIS would cumulatively impact mineral development through surface use restrictions (e.g., closures and NSO, CSU, and TL stipulations). This ultimately would decrease the amount of geothermal development in the planning area during the planning period. Surface use restrictions, such as NSO restrictions, could also cause an operator to move to nearby private or state land with no such restrictions.

Unlike for oil and gas, there are no pending geothermal lease nominations in the planning area. All the areas discussed in the geothermal RFDS have been leased, so the forecasted number of wells and acreages disturbed are the same under all the alternatives. All existing leases in GRSG habitat have stipulations including seasonal restrictions and lek buffers. While post-lease activities are currently proposed on existing leases at Raft River, they have valid existing rights. Conditions of Approval will be attached to drilling permits when they are approved. It is highly likely that COAs that mitigate sage grouse will be included, since applying COAs to a drilling permit is not a land use planning decision.

5.3.8 Locatable Minerals

Past, present, and reasonably foreseeable future actions and conditions within the cumulative impact analysis area that have affected and will likely continue to affect locatable minerals are existing and planned locatable mineral operations within the planning area but outside of the decision area. Locatable mineral resources are associated with the geological formations or units they are found within, which are typically localized and do not encompass large areas. Additionally, not all geological formations contain mineral resources, or mineral resources could be found only in a portion of a certain geological formation. To provide context for where interest in locatable mineral development is most likely within the planning area, the BLM has assessed the locatable mineral occurrence potential throughout the planning area (see **Section 3.12.1**, Conditions within the Planning Area, Locatable Minerals). Assessment of locatable mineral occurrence potential in the planning area allows impact analysis to focus on those areas withdrawn or recommended for withdrawal from locatable mineral entry that are actually likely to have locatable mineral resources and interest in their development. While areas outside of the Idaho and Southwestern Montana Sub-region may be recommended for withdrawal from locatable mineral entry as a result of decisions in other sub-regional LUPAs, expanding the cumulative impact analysis to include additional sub-regions would both dilute and inflate the impacts on locatable mineral development. Expansion of the cumulative impacts analysis area would dilute the impacts because the acres withdrawn or recommended for withdrawal across the GRSG range under the proposed plan would be minute compared to the total acreage of the range. On the other hand, expansion of the cumulative impacts analysis area would inflate the impacts because many of the acres withdrawn or recommended for withdrawal across the GRSG range do not actually have locatable mineral resources that would be impacted. While data on locatable mineral occurrence potential are available for the planning area, similar data are not



available across the GRSG range. Therefore, adding up areas withdrawn or recommended for withdrawal from locatable mineral entry beyond the planning area without accounting for where such entry is foreseeable would provide a less accurate picture of the cumulative impacts on locatable mineral development.

Alternatives Analysis

The cumulative impacts analysis area for locatable minerals is the planning area.

Less than 250 acres are forecasted to be disturbed in the planning area as a result of locatable mineral development over the next 20 years. Approximately half this disturbance is predicted to occur in Cassia County, where Oakley Stone, a micaceous quartzite prized for its durability as a building stone, is mined. Most of the proposed activity involves expanding the existing quarries. Several exploratory drilling operations are anticipated in different parts of the planning area, including on the Salmon-Challis National Forest, Dillon Field Office, and in the extreme southern part of the Burley Field Office. Alternatives A, D, and E would continue to manage 5,380,200 acres, 18 percent, of locatable mineral estate in the planning area as withdrawn from locatable mineral entry. Alternative B would withdraw or recommend for withdrawal 237,400 acres (10 percent) of minerals in the planning area with a high likelihood of interest. The increase from Alternative A would represent 8 percent of the planning area. Alternative C would withdraw or recommend for withdrawal 369,600 acres (16 percent) of minerals in the planning area with a high likelihood of interest. The increase from Alternative A to Alternative C would represent 14 percent of the planning area. The Proposed Plan would withdraw or recommend for withdrawal 94,600 acres (5 percent) of minerals in the planning area with a high likelihood of interest. The increase from Alternative A to the Proposed Plan would represent 3 percent of the planning area. Alternative C would withdraw or recommend for withdrawal more acres than any other alternative. Since all areas (250 acres) that are forecast to be disturbed in the next 20 years are on claims with valid existing rights which are exempt from the proposed withdrawals, cumulative impacts on locatable minerals are expected to be negligible.

5.3.9 Mineral Materials

Past, present and reasonably foreseeable future actions and conditions that have affected and will likely continue to affect mineral materials include existing and planned mineral material development projects on nonfederal mineral estate within the planning area. There are five planned mineral materials projects in the planning area, all of which are on federal minerals.

Alternatives Analysis

The cumulative impacts analysis area for mineral materials is the planning area. It covers 52,000,000 acres total, regardless of surface or mineral ownership. Under Alternative A, 10,707,600 acres in the planning area would remain closed to mineral material disposal (21 percent of the planning area). Under Alternative B, 18,517,500 acres would be closed to mineral material disposal (36 percent of the planning area). Under Alternative C, 21,102,200 acres (41 percent of the planning area); under Alternative D, 13,202,200 acres (25 percent); under Alternative E, 10,707,600 acres (21 percent); and under Alternative F, 18,517,500 acres (36 percent). Under the Proposed Plan, 15,529,000 acres in the sub-region would be closed to mineral material disposal (30 percent of the planning area). Alternative C would close the

most acres to mineral material disposal out of all the alternatives. The increase in closed acres from Alternative A (which would close the fewest acres) represents 20 percent of the planning area.

5.3.10 Nonenergy Leasable Minerals

Past, present and reasonably foreseeable future actions and conditions that have affected and will likely continue to affect nonenergy leasable minerals include existing and planned nonenergy leasable development projects on nonfederal mineral estate. There are three existing mines currently in operation and four proposed mines in the planning/NEPA analysis stages. Two proposed mines, at Caldwell Canyon and Trail Creek, have some GRSG habitat in the proposed disturbance area. An underground mine has been proposed a few miles west of Paris, Idaho, however the company announced in late 2014 that it was suspending its development plans for the foreseeable future.

Alternatives Analysis

The cumulative impacts analysis area for nonenergy leasable minerals is the planning area. It contains 34,000 acres of unleased known phosphate leasing areas (KPLAs). Since all the currently proposed mining would occur on existing federal leases, management actions proposing to close lands under the alternatives would not affect these operations, or any operations on existing leases, due to valid existing rights. BLM and the Forest Service have already begun requiring compensatory mitigation for newly proposed mines, and this trend is expected to continue. Under Alternative E 4,870 acres (14 percent) of unleased minerals in the planning area within KPLAs, would be closed to nonenergy solid mineral leasing.

Under Alternatives B and F, 5,350 acres (16 percent) would be closed; under Alternative C, 5,870 acres (17 percent) would be closed.

Of all the alternatives, Alternative C represents the largest closure of unleased KPLAs. However, the increase in acres closed compared with Alternatives A, D, and E and the Proposed Plan (which would have the fewest acres closed) would make up only three percent of the total KPLAs in the planning area.

5.3.11 Special Designations

Past, present and reasonably foreseeable future actions and conditions that have affected and will likely continue to affect ACECs include any action that would impact the relevant and important values for which the ACEC is established (e.g., GRSG habitat health). Such actions include surface-disturbing activities, wildfires, increased recreation demands, and climate change.

Cumulative impacts on existing ACECs under the various alternatives could result from non-BLM actions and decisions on lands next to ACECs. While protections exist within the ACECs, population growth, development, and recreation throughout the planning area could, over time, encroach on these areas. This could degrade the ACEC values, such as unauthorized off-route travel and trash dumping and increased noise and air and light pollution. Other impacts include species displacement, habitat fragmentation, and changes to



the visual landscape that could affect resources within ACECs. Impacts are greater where recreation areas or development are next to an ACEC.

There are several ROW road applications and new transmission lines pending within the planning area. If these roads, transmission lines, or facilities were to run through, or be next to, any of the ACECs, this could damage the relevant and important values for which these ACECs are designated. Future road ROW applications, transmission line construction, and energy development in the planning area could cumulatively impact existing ACECs. Examples of long-term impacts on the ACEC from these activities are noise, heavy vehicle traffic, and dust.

Climate change could also pose a long-term threat of cumulative impacts on the relevant and important values of ACECs. Cumulative impacts on GRSG habitat and, consequently, on the ACEC from climate change are vegetation regime changes (e.g., from sagebrush to grasslands) and increased wildfire potential due to drought (Connelly et al. 2004).

Alternatives Analysis

All action alternatives and the Proposed Plan would restrict such activities as ROW development, grazing, mineral entry, and new road construction, which could provide indirect protections to ACECs. However, existing and future ROWs, oil and gas development, and travel routes could result in cumulative impacts on ACECs.

ACECs for which GRSG is an important and relevant value could experience more protections and could have more restrictions on resource uses and surface-disturbing activities than ACECs that do not identify GRSG as an important and relevant value. No existing ACECs identify GRSG as an important and relevant value, and under Alternatives C and F, new ACECs (and ZAs under Alternative F) would be created for the important and relevant value of GRSG. The ACECs under Alternatives C and F (and ZAs under Alternative F) would be less likely to experience cumulative degradation to their important and relevant values due to management actions focused on GRSG conservation.

The BLM would adaptively manage to protect ACEC values and minimize impacts where applicable and feasible.

5.3.12 Lands with Wilderness Characteristics

Past, present, and reasonably foreseeable future actions and conditions that have affected and will likely continue to affect lands with wilderness characteristics are wildfires, wildland fire management, energy development, mining, noxious weed invasion, increased recreation demand, and road construction.

Many past, present, and reasonably foreseeable actions have impacted or could impact lands with wilderness characteristics. For example, continued travel management and recreation development in the planning area will likely increase visitor use on BLM-administered lands, including lands with wilderness characteristics. This could impact wilderness characteristics by reducing opportunities for solitude. Development of energy and minerals resources could introduce sights, noises, and infrastructure in or next to lands with wilderness characteristics,

which could impair the feeling of solitude and degrade naturalness. In addition, vegetation management on public and private lands could alter landscape appearance and setting in the short and long term, protecting or degrading wilderness characteristics, depending on the activity. Cumulative impacts on lands with wilderness characteristics would be mitigated where management actions governing other resources threaten wilderness characteristics.

Alternatives Analysis

Cumulative impacts would be most likely to damage lands with wilderness characteristics under Alternative A. This is because the fewest restrictions on present and future resource uses are in place under this alternative. Management under the action alternatives and the Proposed Plan would protect wilderness characteristics to some degree by restricting development and land uses that could degrade the characteristics. Such restrictions would indirectly limit cumulative impacts on wilderness characteristics. Alternatives C and F place broader and more stringent restrictions on allowable uses of resources in GRSG habitat. Consequently, these alternatives would provide more indirect protections to lands with wilderness characteristics and would be less likely to have cumulative impacts that would degrade those characteristics.

5.3.13 Social and Economic Conditions (Including Environmental Justice)

The cumulative impact analysis area used to analyze potential impacts on social and economic conditions consists of the counties identified as the primary and secondary socioeconomic study area.

Virtually every major government action has some influence on social and economic conditions, as government actions have the power to create or alter incentives for numerous individuals and businesses that make choices that affect employment, earnings, population demographics, and other variables of concern for social and economic conditions. Past, present, and reasonably foreseeable future actions and conditions have affected and will likely continue to affect social and economic conditions, including livestock grazing, recreation, lands and realty, transportation, ROWs, renewable energy development, and mineral development. Changes to social and economic conditions result when individuals, businesses, governments, and other organizations initiate actions. Over the next several decades, millions of decisions will be made by tens of thousands of residents of the counties in the socioeconomic study area and others that will affect trends in employment, income, housing, and property.

Projections published by the Idaho Department of Labor and the Montana Department of Labor and Industry account for these individual decisions in the aggregate, and provide a baseline for comparing effects of alternatives in the future. The projections represent a regional forecast taking a wide range of actions into account, including management actions by the BLM and Forest Service as well as many other government entities, private citizens, and businesses. As a result, these projections incorporate the past, present, and reasonably foreseeable future projects that will form the basis of future economic and social trends in the cumulative impact analysis area. Current and future trends in the cumulative impact



analysis area include population growth, demographic change, changes in recreational demand and availability of recreational opportunities, renewable energy development, livestock grazing, housing development policies, mining, and other activities.

The Idaho Department of Labor provides employment projections from 2010 to 2020, for six regions across the state. Four overlap with the study area:

- Southwest Idaho (includes primary study area counties of Adams, Elmore, Gem, Owyhee, Payette, and Washington; secondary study area counties of Ada, Boise, and Canyon; and also Valley County) – projected increase of 18.6 percent
- South-Central Idaho (includes primary study area counties of Blaine, Camas, Cassia, Gooding, Jerome, Lincoln, Minidoka and Twin Falls, all of which are in the primary study area) – projected increase of 19.7 percent
- Southeast Idaho (includes primary study area counties of Bear Lake, Bingham, Caribou, Oneida and Power; Bannock County in the secondary study area; and also Franklin County) – projected increase of 14.4 percent
- Eastern Idaho (includes primary study area counties of Bonneville, Butte, Clark, Custer, Fremont, Jefferson, Lemhi, and Madison counties, all of which are in the primary study area, and also Teton County) – projected increase of 15.9 percent (Idaho Department of Labor, 2013)

Similarly, the Montana Department of Labor and Industry projects employment growth in upcoming years, with the current projections reflecting forecasted conditions in 2020, for five regions in the state. The relevant region for this EIS is the Southwest Region, which contains Beaverhead and Madison (in the primary study area), Gallatin and Silver Bow (in the secondary study area), and nine other counties: Deer Lodge, Granite, Park, Powell, Lewis and Clark, Broadwater, Sweetgrass, Meagher, and Jefferson. From 2011 to 2020, the Montana Department of Labor and Industry projected employment in that region to increase about 11 percent (Montana Department of Labor and Industry 2011).

To provide information about the cumulative impacts of the alternatives in this draft LUPA/EIS, the BLM compared the projected employment differences associated with the alternatives with the forecasts of the Idaho and Montana labor agencies as described above. As described in **Section 4.15**, the only employment and income effects of the management alternatives that were quantified were those on livestock grazing, where BLM and Forest Service used IMPLAN, a regional economic model, to calculate indirect and induced impacts of these actions.

Error! Reference source not found., Projected Employment by Alternative for Primary Socioeconomic Study Area, provides an overview of how forecasted changes in employment from the alternatives would occur within the context of the ten-year trend of employment to 2020. Because Alternative A represents current management plans, employment would correspond most closely to the existing forecasts. By contrast, employment under

Alternatives C and F would be expected to change from the projections, based on anticipated impacts on livestock grazing. Error! Reference source not found. shows the estimated change in employment for these alternatives, based on modifying the projected future employment by the estimated changes for the socioeconomic study area (from IMPLAN). The table focuses on the primary socioeconomic study area because the great majority of impacts occur in that area, and adding the secondary study area would effectively dilute the magnitude of impacts by adding a large employment base (especially from more urban counties) without adding substantially to the impacts.

Changes in employment in Alternatives C and F, would have a measurable effect on future employment, according to this analysis, but reductions would be relatively small given the size of the study area and the uncertainty associated with a long-term forecast. Long-term trends including changing market conditions, consolidation supported by economies of scale, demographic change, and environmental concerns have resulted in increasingly challenging economic conditions for ranch operators, especially smaller operators. Increased costs due to restrictions on vegetation treatments, range improvements, and other management elements could exacerbate existing trends and create additional, cumulative impacts for the livestock grazing and ranching sector. This could have economic impacts over and above those identified in **Table 5-28**, Projected Employment by Alternative for Primary Socioeconomic Study Area, and could also result in social impacts since the grazing and ranching industry has been relatively influential in terms of establishing community character, identity, and social values, particularly in certain areas within the study area. In terms of geographic regions, the cumulative effects on livestock grazing operators would occur throughout the socioeconomic study area but would be most important in Cassia, Gooding, Jerome, Lincoln, and Owyhee Counties, Idaho, based on the importance of grazing within the economy of those counties.

Of the effects documented in **Section 4.15**, Social and Economic Conditions (Including Environmental Justice), the impact that most exacerbates current economic challenges is the potential for several of the management alternatives to result in increased costs for livestock grazing operators. Long-term trends including changing market conditions, consolidation supported by economies of scale, demographic change, and environmental concerns have resulted in increasingly challenging economic conditions for ranch operators, especially smaller operators.

Increased costs due to restrictions on vegetation treatments, range improvements, OHV travel, and other management elements could exacerbate existing trends and create additional, cumulative impacts for the livestock grazing and ranching sector. This could have economic impacts over and above those identified in Error! Reference source not found. and could also result in social impacts since the grazing and ranching industry has been relatively influential in terms of establishing community character, identity, and social values, particularly in certain areas within the study area.



Table 5-28
Projected Employment by Alternative for Primary Socioeconomic Study Area

Item	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt. F	Proposed Plan
Employment (2010) ¹	309,620	309,620	309,620	309,620	309,620	309,620	309,620
Average annual change in future employment related to livestock grazing ²	N/A	0	-1,420	0	0	-310	0
Projected 2020 employment ³	356,063	356,121	354,643	356,343	356,343	355,753	356,343
% change, 2010 to 2020	15.0%	15.0%	14.5%	15.1%	15.1%	14.9%	15.1%

Source: Idaho Department of Labor (2013) and Montana Department of Labor and Industry (2011) (projected employment data), modified by estimates from IMPLAN reported in Chapter 4, Section 4.15, Social and Economic Impacts (Including Environmental Justice). Changes related to livestock grazing include direct, indirect, and induced effects from IMPLAN; see Appendix R, Economic Impact Analysis Methodology, for a detailed description of this model.

N/A not applicable

¹ Employment in 2010 in the primary socioeconomic study area from Chapter 3, Section 3.22, Social and Economic Conditions (Including Environmental Justice).

² The values for livestock grazing are those shown in Chapter 4, Section 4.15, Social and Economic Impacts (Including Environmental Justice).

³ Based on the projected employment increase for the four Idaho regions and southwest Montana, a conservative (i.e., lower range) estimate for employment growth would be about a 15 percent increase from 2010 to 2020. This results in an estimate of about 356,063 jobs (for Alternative A), which is then modified based on the results of the IMPLAN analysis for each alternative.

All of the alternatives would have some degree of cumulative social and economic impact related to grazing. Although AUMs would be reduced only in Alternatives C and F, Alternatives B, D and E would also entail changes to management that could increase costs or decrease the flexibility of ranchers to manage their animals.

In terms of geographic regions, the cumulative effects on livestock grazing operators would occur throughout the socioeconomic study area but would be most important in Cassia, Gooding, Jefferson, Lincoln, and Owyhee Counties, Idaho, based on the importance of grazing within the economy of those counties.

Another effect identified in **Section 4.15** that could lead to a cumulatively considerable contribution to impacts would be impacts on recreation (in Alternatives C and F), especially in counties where recreation contributes substantially to the local economy, which are identified in **Section 4.15** as Madison County in Montana and Blaine County in Idaho.

Other effects would not be expected to contribute to cumulative effects. From a cumulative effects standpoint the economic and social impacts of these changes would be relatively minor and do not particularly exacerbate existing trends in the study area.

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Chapter 6

Consultation and Coordination



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Changes to Chapter 6 between Draft LUPA/EIS and Proposed LUPA/Final EIS

- Chapter 5 in the DEIS was renumbered to become Chapter 6 in the Proposed LUPA/FEIS.
- General corrections (e.g., typographical errors) and clarifications were included.
- A summary of the public comment period and public comments on the Draft LUPA/EIS was added in **Section 6.2.5**, Public Comment on the Draft LUPA/EIS.
- Future opportunity for public involvement was added in **Section 6.2.6**, Future Public Involvement.

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Chapter 6. Consultation and Coordination

6.1 Introduction

This chapter describes the efforts undertaken by the BLM and Forest Service throughout the process of developing the LUPA/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 state, local, and tribal governments; and determining whether the LUPA/EIS is consistent with tribal, state, local, and county plans.

The BLM and Forest Service land use planning activities are conducted in accordance with NEPA requirements, CEQ regulations, and US Departments of the Interior and Agriculture policies and procedures implementing NEPA, as well as specific BLM and Forest Service planning and NEPA policies. The NEPA and associated laws, regulations, and policies require the BLM and Forest Service to seek public involvement early in and throughout the planning process to develop a range of reasonable alternatives to proposed actions and to prepare environmental documents that disclose the potential impacts of proposed alternatives.

Public involvement and agency consultation and coordination have been at the heart of the planning process leading to this LUPA/EIS. These efforts were achieved through Federal Register notices, public and informal meetings, individual contacts, media releases, planning bulletins, and a series of GRSG planning-related Web sites. This chapter documents the outreach efforts that have occurred to date.

6.2 Public Involvement

In accordance with CEQ scoping guidance, the BLM and Forest Service provided opportunities for public involvement as an integral part of amending the LUPs and preparing the EIS. CEQ scoping guidance (1981) defines scoping as the process by which lead agencies solicit input from the public and interested agencies on the nature and extent of issues and impacts to be addressed and the methods by which they will be evaluated. The scoping comment summary report, which summarizes comments received during the scoping process, is available on the BLM's National GRSG Web site at http://www.blm.gov/wo/st/en/prog/more/sagegrouse/documents_and_resources.html.

The intent of the scoping process is to provide an opportunity for the public, tribes, other government agencies, and interest groups to learn about the project and provide input on the planning issues, impacts, and potential alternatives that will be addressed in the EIS, and the extent to which those issues will be analyzed. In general, public involvement during scoping assists the agency through the following:

- Broadening the information base for decision-making
- Informing the public about the EIS and proposed LUPAs and the potential impacts associated with various management decisions

- Ensuring public needs and viewpoints are brought to the attention of the agency
- Determining the scope and the significant issues to be analyzed in depth in the EIS

6.2.1 Scoping Period

The scoping period for the Idaho and Southwestern Montana Sub-region LUPA/EIS began with the publication of the NOI in the Federal Register on December 9, 2011, and ended on March 23, 2012. The scoping period provides an opportunity for the public to identify potential planning issues and concerns associated with the LUP amendments and EIS. Information obtained by the BLM and Forest Service during scoping is combined with issues identified by the agencies to form the scope of the EIS.

6.2.2 Public Notification of Scoping

A press release was made available on the national, Great Basin Region, and Rocky Mountain Region Web sites on December 8, 2011, announcing the scoping period for the EIS process. A similar press release was also sent out from the BLM Idaho State Office on January 5, 2012. The press releases provided information on the scoping open houses being held (see *Public Scoping Open Houses* below) and described the various methods for submitting comments. A second press release was posted on the project Web sites on February 7, 2012, announcing the extension of the public scoping period to March 23, 2012. A newsletter was also sent out to the mailing list as described below (see Newsletter and Mailing List).

In addition to news releases and other notifications from the BLM and Forest Service regarding the scoping process, some members of the public received notification from other sources. Several articles were published in local newspapers, including in the Times New on January 28, 2012, and the Idaho Mountain Express on February 29, 2012.

The national GRSG conservation Web site (see Web site below) provides background information on the project, a description of the scoping process and meeting locations, instructions on how to submit comments, and copies of public information documents such as the NOI. The Web site is one of the methods used to communicate project news and updates to the public. The Web site is available on the Internet at <http://www.blm.gov/sagegrouse.html>.

6.2.3 Public Scoping Open Houses

The BLM and Forest Service hosted six open houses throughout the Idaho and Southwestern Montana Sub-region to provide the public with opportunities to become involved, learn about the project and the planning process, meet the planning team members, and offer comments. Where possible, representatives from the USFWS and state fish and game agencies also attended. The open houses were advertised via press releases, the project newsletter, and the project Web sites. The locations of the open houses are provided in **Table 6-1**, Idaho and Southwestern Montana Sub-region Scoping Open Houses.

Table 6-1
Idaho and Southwestern Montana Sub-region Scoping Open Houses

Location	Venue	Date	Number of Attendees
Idaho			
Boise	Red Lion Boise Hotel	January 9, 2012	110
Idaho Falls	Red Lion Hotel	January 10, 2012	63
Salmon	Salmon Valley Business & Innovation Center	January 11, 2012	63
Twin Falls	Canyon Springs Red Lion Inn	January 25, 2012	87
Pocatello	The Clarion	January 26, 2012	58
<i>Idaho Total</i>			<i>381</i>
Montana			
Dillon	National Guard Armory	January 12, 2012	47
<i>Montana Total</i>			<i>47</i>
Idaho and Southwestern Montana Sub-region Total			428

Scoping meetings were held in an open house format to encourage participants to discuss concerns and questions with the BLM and Forest Service and other agency staff representatives. Copies of scoping information, as well as blank scoping comment forms, were available at the sign-in station. Resource stations displayed maps to illustrate the planning area under consideration, GRSG habitat and bird densities, resource uses (e.g., rights-of-way, energy, livestock grazing, and recreation), and resource conditions (e.g., vegetation and wildland fire). At those stations, fact sheets for various topics (e.g., planning process, purpose and need, preliminary planning issues, preliminary planning criteria, GRSG conservation, biology and habitat, and threats to GRSG) provided an overview of current management practices and issues.

6.2.4 Other Public Involvement

Newsletter and Mailing List

In December 2011, the BLM and Forest Service mailed a newsletter announcing the start of the public scoping period for the Great Basin EISs, including the Idaho and Southwestern Montana Sub-region, to more than 14,000 individuals from the public, agencies, and organizations who had participated in past BLM and Forest Service activities and had been included on past BLM and Forest Service distribution lists. The newsletter provided background information and an overview of the National GRSG Planning Strategy, the dates and venues for the scoping open houses (see Public Scoping Open Houses above), and the various methods for submitting comments, including dedicated email and postal addresses. In December 2012, the BLM and Forest Service mailed a postcard providing a notification of updates to the national Web site.

The BLM and Forest Service will publish future newsletters at major project milestones and will mail them to individuals and organizations that have requested to remain on or be added to the project mailing list. All newsletters will be made available on the national or regional

project Web sites. Participants may request to receive newsletters and other project information through electronic or postal mail.

Web Site

The BLM launched a national GRSG conservation Web site as part of the agency's efforts to maintain and restore GRSG habitat on BLM-administered lands. The site is intended to make it easy to find out about how the BLM and Forest Service are working on maintaining and restoring GRSG habitat, and includes background information related to governmental and the BLM and Forest Service roles in GRSG conservation. The Web site is available on the Internet at <http://www.blm.gov/sagegrouse.html>.

The BLM has also launched a regional Web site for the Great Basin Region. This site is regularly updated to provide the public with the latest information about the EIS processes in the region. The regional Web site provides background information about the project, a public involvement timeline, maps of the planning areas, and copies of public information documents such as the newsletter and NOI. The site also provides a description of how to submit comments about the EIS process, including a link to the scoping comment email address. The dates and locations of scoping open houses were also announced on the regional Web site. The Great Basin Region Web site is available on the Internet at <http://www.blm.gov/wo/st/en/prog/more/sagegrouse/western.html>. A link to this Web site is also provided on the National Web site.

6.2.5 Public Comment on the Draft LUPA/EIS

Public Meetings

A notice of availability (NOA) for the Draft LUPA/EIS was published in the *Federal Register* on November 1, 2013. This initiated a 90-day public comment period, which ended on January 29, 2014. The BLM and Forest Service notified the public of open house meetings via the project website and a news release to various newspapers and radio and television stations.

The BLM and Forest Service held seven public comment open houses for the Draft LUPA/EIS from January 6 through January 15, 2014, as follows:

- Murphy, Idaho, on January 6, 2014
- Idaho Falls, Idaho, on January 7, 2014
- Salmon, Idaho, on January 8, 2014
- Dillon, Montana, on January 9, 2014
- Pocatello, Idaho, on January 13, 2014
- Twin Falls, Idaho, on January 14, 2014
- Boise, Idaho, on January 15, 2014

All meetings were from 5:30 to 7:30 p.m. The goal of the open houses was to inform the public about the Draft LUPA/EIS and to obtain further public input on the alternatives that were

developed and analyzed. In addition, the BLM and Forest Service sought comments on potential impacts from the six alternatives. At the open houses, displays introduced the various resource topics and presented the six alternatives for the resource topics. Other displays explained the NEPA process and the methods for submitting comments. A slide show looped throughout the open house describing the Idaho and Southwestern Montana Sub-region Greater Sage-Grouse Draft LUPA/EIS preparation process.

Public comments were solicited at the open houses, where comment sheets were provided.

Comment Analysis Methodology

After publishing the Draft LUPA/EIS, the BLM and Forest Service held a 90-day public comment period to receive comments on the Draft LUPA/EIS. The BLM and Forest Service received written comments by mail, e-mail, and submissions at the public meetings. Comments covered a wide spectrum of thoughts, opinions, ideas, and concerns. The BLM and Forest Service recognize that commenters invested considerable time and effort to submit comments on the Draft LUPA/EIS and developed a comment analysis method to ensure that all comments were considered as directed by NEPA regulations.

According to NEPA, the BLM and Forest Service are required to identify and formally respond to all substantive public comments. The BLM and Forest Service developed a systematic process for responding to comments to ensure all substantive comments were tracked and considered. On receipt, each comment letter was assigned an identification number and logged into CommentWorks, a Web-based database that allowed the BLM and Forest Service to organize, categorize, and respond to comments. Substantive comments from each letter were coded to appropriate categories based on the content of the comment, retaining the link to the commenter. The categories generally follow the sections presented in the Draft LUPA/EIS, though some relate to the planning process or editorial concerns.

Comments similar to each other were grouped under a topic heading, and the BLM and Forest Service drafted a statement summarizing the ideas contained in the comments. The responses were crafted to respond to the comments; a response indicates whether the commenters' points resulted in a change in the document. As a result of public comments, changes were made to the Draft LUPA/DEIS and reflect consideration given to public comments. A summary of major changes between the Draft LUPA/EIS and the Proposed LUPA/FEIS precedes each chapter in the Proposed LUPA/FEIS.

Although each comment letter was diligently considered, the comment analysis process involved determining whether a comment was substantive or nonsubstantive. In performing this analysis, the BLM and Forest Service relied on the CEQ's regulations to determine what constituted a substantive comment.

A substantive comment does one or more of the following:

- Questions, with a reasonable basis, the accuracy and adequacy of the information or analysis in the EIS

- Presents reasonable alternatives other than those presented in the draft EIS that meet the purpose and need of the proposed action and addresses significant issues
- Questions, with a reasonable basis, the merits of an alternative or alternatives
- Causes changes in or revisions to the proposed action
- Questions, with a reasonable basis, the adequacy of the planning process itself

Additionally, the BLM's NEPA handbook identifies the following types of substantive comments:

- Comments on the Adequacy of the Analysis—Comments that express a professional disagreement with the conclusions of the analysis or those that assert that the analysis is inadequate are substantive but may or may not lead to changes in the Final EIS. Interpretations of analyses should be based on professional expertise. Where there is disagreement within a professional discipline, a careful review of the various interpretations is warranted. In some cases, public comments may necessitate a reevaluation of analytical conclusions. If, after reevaluation, the manager responsible for preparing the EIS (the Authorized Officer) does not think that a change is warranted, the response should provide the rationale for that conclusion.
- Comments That Identify New Impacts, Alternatives, or Mitigation Measures—Public comments on a draft EIS that identify impacts, alternatives, or mitigation measures that were not addressed in the draft are substantive. This type of comment requires the Authorized Officer to determine whether it warrants further consideration; if so, the Authorized Officer must determine whether the new impacts, new alternatives, or new mitigation measures should be analyzed in the Final EIS, a supplement to the Draft EIS, or a completely revised and recirculated Draft EIS.
- Disagreements with Significance Determinations—Comments that directly or indirectly question, with a reasonable basis, determinations on the significance or severity of impacts are substantive. A reevaluation of these determinations may be warranted and may lead to changes in the Final EIS. If, after reevaluation, the Authorized Officer does not think that a change is warranted, the response should provide the rationale for that conclusion.

Some submissions received contained substantive comments but were out of the scope of this project. These included comments on unrelated subjects, other GRSG efforts, or BLM or Forest Service laws, rules, regulations, or policy. These comments were reviewed and sent along to the appropriate party as needed but were not included in the responses to comments.

Comments that failed to meet the above description were considered nonsubstantive. Many of those who submitted comments expressed personal opinions or preferences, their comments had little relevance to the adequacy or accuracy of the Draft LUPA/EIS, or they represented commentary on resource management without any real connection to the document being reviewed. These commenters did not provide specific information to assist the planning team in making a change to the Preferred Alternative, did not suggest other alternatives, and did not take issue with methods used in the Draft LUPA/EIS. For those reasons, they were not addressed further in this document. Examples of some of these comments are the following:

- The best of the alternatives is Alternative F (or A, B, C, D or E).
- The BLM has yet to show land stewardship at or above the level currently demonstrated by the private sector.
- Your plan does not reflect balanced land management.
- Stop giving away land to the mineral companies.
- More land should be protected as wilderness.
- I want the EIS to reflect the following for this area: no grazing, no logging, no drilling, no mining, and no OHVs.
- You need to protect all ACECs/Wild and Scenic Rivers/areas with wilderness characteristics.
- Do not add any more road closures to what is now in existence.
- People need access and the roads provide revenue for local communities.
- More areas should be made available for multiple uses (drilling, OHVs, ROWs, etc.) without severe restrictions.

Opinions, feelings, and preferences for one element or one alternative over another and comments of a personal or philosophical nature were all read, analyzed, and considered. However, because such comments are not substantive, the BLM and Forest Service did not respond to them. It is also important to note that, while all comments were reviewed and considered, they were not counted as “votes.” The NEPA public comment period is neither an election nor does it result in a representative sampling of the population. Therefore, public comments are not appropriate to be used as a democratic decision-making tool or as a scientific sampling mechanism.

Comments citing editorial changes to the document were reviewed and incorporated. The Proposed RMPA/Final EIS has been edited and revised to fix typographical errors, missing references, definitions, and acronyms and to include other clarifications as needed.

Public Comments

A total of 297 unique comment letters, forms, and e-mails were received during the 90-day public comment period. These documents resulted in 1,085 substantive comments. Out of the 297 comment letters, 193 were submitted by private individuals (65 percent); 29 by

organizations, including businesses and environmental and wildlife protection groups (10 percent); 54 by associations, including user groups, recreational clubs, realty associations, industry groups, and partnerships (18 percent); 4 by federal agencies (1 percent); 3 by state governments (1 percent); 12 by local governments (4 percent); and 2 letters were submitted anonymously (1 percent).

The BLM and Forest Service singled out 1,085 substantive comments from the 297 submissions. Private individuals submitted 111 of these comments (10 percent), organizations submitted 408 (38 percent), associations submitted 382, federal agencies submitted 59 (5 percent), state agencies submitted 53 (5 percent), and local governments submitted 72 (7 percent); there were no anonymous submissions (see **Table 6-2**, Number of Unique Submissions and Comments by Affiliation).

Table 6-2
Number of Unique Submissions and Comments by Affiliation

Group	Number of Submissions	Number of Distinct Comments
Private individuals	193	111
Organizations (including businesses and environmental and wildlife protection groups)	29	408
Associations (such as user groups, recreational clubs, realty associations, industry groups, and partnerships)	54	382
Federal agencies (EPA, USFWS, USFS, and NPS)	4	59
State government (state agencies and the Governor's Office)	3	53
Local government (county commissions and departments)	12	72
Anonymous	2	0
Total	297	1,085

In addition to the unique submissions discussed above, 15,646 form letters were submitted during the public comment period. Form letters are exact or very close copies of a letter. They are submitted multiple times by different individuals, who may add additional language, but this usually does not substantially change the content of the letter. Often, form letters are created by an organization and sent to members, who in turn submit the letter themselves. For the Idaho and Southwestern Montana Draft LUPA/EIS, 6 distinct form letter masters were submitted, as follows:

- 2,930 letters from WildEarth Guardians
- 2,510 from the American Bird Conservancy
- 2,080 letters from Defenders of Wildlife
- 7,660 letters from the American Wild Horse Preservation Campaign
- 126 letters from local ranchers

- 5 letters from unknown organizations

One copy of each distinct letter was included in the comment analysis process as a master form letter. All of the form letters were reviewed for additional substantive content, which were included in the comment analysis process.

A review of the 1,085 substantive comments revealed a high level of interest about the following:

- Management of GRSG (346 comments, 32 percent)
- Compliance with NEPA, FLPMA, and other laws (NEPA: 136 comments, 13 percent; FLPMA: 28 comments, 3 percent; other laws: 15 comments, 1 percent)
- Livestock grazing (120 comments, 11 percent)
- Sagebrush vegetation (47 comments, 4 percent)
- Socioeconomics (39 comments, 4 percent)
- Lands and realty (35 comments, 3 percent)

Topics that received moderate interest were as follows:

- Fire and fuels (27 comments, 2 percent)
- Leasable minerals (26 comments, 2 percent)
- Travel management (20 comments, 2 percent)
- Wild horses and burros (18 comments, 2 percent)

The topics with the least interest were as follows:

- Lands with wilderness characteristics (10 comments, 1 percent)
- ACECs (10 comments, 1 percent)
- Riparian vegetation (7 comments, 1 percent)
- Predation (6 comments, 1 percent)
- Climate change (5 comments, 0.5 percent)
- Noxious and invasive weeds (4 comments, 0.4 percent)
- Recreation, tribal interests, and fish and wildlife (3 comments, 0.3 percent each)
- Water resources (2 comments, 0.2 percent)
- Locatable minerals, noise, and soil resources (1 comment, 0.1 percent each)

In addition to these topics, some commenters suggested editorial changes (62 comments, 6 percent), some submitted comments that were substantive but considered out of scope of this document (109 comments, 10 percent), and some commenters requested an extension

of the comment period (1 comment, 0.1 percent). These comments were reviewed and considered but were not included in the formal responses to comments (see **Table 6-3**, Number of Comments on the Draft LUPA/EIS by Category).

Table 6-3
Number of Comments on the Draft LUPA/EIS by
Category

Topic	Number of Comments
Greater sage-grouse	346
NEPA	136
Livestock grazing	120
Vegetation, sagebrush	47
Socioeconomics	39
Lands and realty	35
FLPMA	28
Fire and fuels	27
Leasable minerals	26
Travel management	20
Wild horses and burros	18
other laws	15
Lands with wilderness characteristics	10
ACECs	10
Vegetation, riparian	7
Predation	6
Climate change	5
Noxious and invasive weeds	4
Recreation	3
Tribal interests	3
Fish and wildlife	3
Water resources	2
Locatable minerals	1
Noise	1
Soil resources	1
Salable minerals	0
Edits*	62

Table 6-3
Number of Comments on the Draft LUPA/EIS by
Category

Topic	Number of Comments
Out of scope*	109
Extension requests*	1
Total	1,085
*Comments in these categories were reviewed for their content but were not included in the responses to comments.	

The comments received on the Draft LUPA/EIS were similar to the issues raised during public scoping. In many cases, commenters expressed a desire for very specific implementation level (project level) details to be included in the LUPA. As described in Chapters 1 and 2, the LUPA/EIS provides general guidance and identifies allowable uses and allocations but is not meant to address all details about individual projects. A separate environmental review will be conducted for specific projects at the implementation level to address these details. Some comments spanned several topics, included a discussion about a resource use or activity, and listed concerns about the resources that would be impacted by the use, or conversely, the impact that restrictions would have on resources.

See **Appendix T** for all substantive comments, detailed summaries, and responses organized by resource, resource use, and EIS planning regulation. An overview of these summaries and responses can be found below in **Table 6-4**, Overview of Comments by Category. Comments related to editorial changes, those that were out of scope, that requested an extension, or that were nonsubstantive were not included in the responses to comments.

Table 6-4
Overview of Comments by Category

<i>Topic</i>	<i>Overview</i>
ACECs	Commenters noted inconsistencies in the representation of ACECs under alternatives in the DEIS, wanted to see a greater range of alternatives for ACEC locations, and emphasized that protective actions in ACECs be adequate.
Climate change	Commenters wanted to see a more thorough and rigorous analysis of the cumulative effects of climate change on GRSG or GRSG habitat.
Fire and fuels	Commenters requested clarification on the potential impacts of the plan on fuel loads and fire risk and additional analysis of fire suppression impacts, suggested potential changes to alternatives or management actions, and recommended that additional references be incorporated to support the analysis.
Fish and wildlife	Commenters stated that the BLM fails to address avoiding the potential to list the GRSG under the Endangered Species Act and that the bird does not meet the criteria to be listed under that law.

**Table 6-4
Overview of Comments by Category**

<i>Topic</i>	<i>Overview</i>
FLPMA	Commenters claimed that the Draft LUPA/EIS failed to comply with the multiple use mandate required under FLPMA and the Multiple Use Sustained Yield Act required under the Forest Service. They also noted that the plan is not consistent with state, local, and tribal plans and policies and that there needs to be a consistency review with local plans in the document.
Greater sage-grouse	Commenters claimed the BER and NTT reports were inadequate to use as a primary source in the plan, found the plan to be inconsistent with COT conservation objectives, requested clarification on the range of alternatives and habitat mapping, suggested additional literature to be used for best available information on GRSG, made recommendations on how to improve the impact analysis of various resources on GRSG, found the cumulative impacts to be deficient, and requested clarification or revisions to mitigation measures.
Lands and realty	Commenters requested clarification on or recommended specific changes to proposed management, recommended additional references related to infrastructure, and found the analysis of impacts between lands and realty management and renewable energy infrastructure to be lacking.
Lands with wilderness characteristics	Commenters wanted additional lands with wilderness characteristics to be considered for the protection of GRSG, requested that these lands be analyzed more thoroughly, and requested additional baseline information be provided.
Leasable minerals	Commenters wanted certain aspects of the alternatives clarified, recommended additional literature to consider, and wanted a more complete analysis of impacts and cumulative impacts,
Livestock grazing	Commenters expressed concerns on retiring grazing permits, recommended expanding the range of alternatives for livestock grazing, recommended additional references to consider, and found the analysis of impacts to be inadequate.
Locatable minerals	Commenters stated that the DLUPA/DEIS failed to adequately analyze the cumulative impact of locatable mineral withdrawals across the GRSG range.
NEPA	Commenters asserted that the plan does not comply with the requirements of NEPA, did not adequately notify the public about the DEIS, did not coordinate with local agencies, did not provide a wide enough range of alternatives, did not use the best available data, and did not provide an adequate cumulative impacts analysis or mitigation measures.
Noise	Commenters questioned current studies used regarding noise and wanted to see additional information used to determine the impacts of noise on different parts of GRSG life cycle.
Noxious and invasive weeds	Commenters requested additional analysis be conducted, recommended literature to consider, asked for more baseline data, and suggested collaboration with private landowners.
Other laws	Commenters argued that the plan does not comply with other federal laws.

**Table 6-4
Overview of Comments by Category**

<i>Topic</i>	<i>Overview</i>
Predation	Commenters stated that the BLM does not adequately address the threat of predation or fully analyze the direct, indirect, and cumulative impacts of predation on GRSG populations.
Recreation	Commenters recommended additional management actions to limit the potential for impacts on GRSG from recreation.
Socioeconomics	Commenters claimed the analysis used was at the wrong scale to make the information meaningful and noted that the impacts analysis was inadequate.
Soil resources	One commenter noted that the DEIS lacked references to support a discussion of macrobiotic crusts.
Travel management	Commenters stated that the DEIS failed to consider a full range of travel management alternatives and suggested additional management actions and felt the DEIS did not adequately analyze the impacts of proposed management actions on travel management.
Tribal interests	Commenters requested the BLM consult with tribes regarding ACEC designations and stated that the BLM must ensure tribes maintain opportunities to access the public domain.
Vegetation, riparian	Commenters requested that the BLM and Forest Service consider additional management approaches for riparian vegetation, requested baseline data be provided, and suggested modification of current assessment methods to address GRSG needs.
Vegetation, sagebrush	Commenters recommended actions to include in the alternatives, provided additional literature to consider, stated that the DEIS inadequately analyzes impacts, including cumulative impacts, and requested clarification on mitigation and monitoring.
Water resources	Commenters stated that the DEIS fails to address impacts on the soil and watershed conditions and to provide appropriate mitigation measures.
Wild horses and burros	Commenters suggested changes in management actions, such as inclusion of the National Academy of Sciences' 2013 recommendations into the plan, requested additional baseline information, and felt the impact analysis was inadequate.

Complete responses, including rationales and any associated changes made in the Proposed LUPA/FEIS, can be found in **Appendix T**. A brief overview of changes to the document is as follows:

- The disturbance cap in the Proposed LUPA/FEIS was revised to provide additional detail, such as enhanced descriptions of what types of activities would count toward the disturbance totals, where disturbance activities would count against the cap, reclamation and habitat requirements for a disturbed area for both temporary and permanent disturbance, and how the cap would be implemented and monitored. **Appendix H** has also been added to the Proposed LUPA/FEIS, which contains preliminary disturbance inventory to more

accurately assess current disturbance levels and potential impacts across the planning area.

- A more comprehensive list of cumulative projects, past and future, has been developed and used to support a more detailed analysis of cumulative impacts. Cumulative impacts have also been reviewed for consistency with the rest of the plan.
- Language has been added to describe the adaptive management approach for the LUPA/EIS level.
- Mitigation and monitoring have been further defined as a Regional Mitigation Framework and National Monitoring Framework, detailed in **Appendices J** and **E**, respectively.
- Management objectives and actions in **Chapter 2** have been updated.
- Additional literature was reviewed and added to the baseline information in **Chapter 3**.
- **Chapter 4** has been updated with new information and analysis and was revised for consistency with **Chapter 3**.
- Clarifications have been added on specific topics commenters found confusing or deficiently described, including implementation level decisions.

All comments citing editorial changes to the document were reviewed and incorporated as appropriate. The Proposed LUPA/FEIS has been edited and revised to fix typographic errors, missing references, definitions, acronyms, calculations, and other inconsistencies.

6.2.6 Future Public Involvement

Public participation will be ongoing throughout the remainder of the LUPA/EIS process.

An NOA will be published in the *Federal Register* to notify the public of the availability of the Proposed LUPA/Final EIS. The NOA will also outline protest procedures during the 30-calendar-day protest period. The Proposed LUPA/Final EIS will be available for downloading from the project website (http://www.blm.gov/id/st/en/prog/nepa_register/sage-grouse_rmp_revision.html). The Proposed LUPA/Final EIS will also be available for review at the BLM Idaho and Montana State Offices, along with the Beaverhead-Deerlodge, Boise, Caribou-Targhee, Salmon-Challis, and Sawtooth National Forests.

The BLM and Forest Service will issue press releases to notify the public of the Proposed LUPA/Final EIS availability. All recipients of the Draft LUPA/EIS and all parties who submitted written comments on the Draft LUPA/EIS will receive the Proposed LUPA/Final EIS in either a hard copy or CD, or they will be able to download it from the website. The BLM and Forest Service will notify those who previously received the Draft RMP/EIS electronically. The BLM Idaho State Office maintains the distribution list for the Proposed LUPA/EIS, which is available on request.



The BLM and Forest Service will issue records of decision after the release of the Proposed LUPA/Final EIS, the Governor’s Consistency Review, and any resolution of protests received on the Proposed LUPA/Final EIS.

6.3 Consultation and Coordination

Various federal laws require the BLM to consult with Native American tribes, the State Historic Preservation Office, and USFWS, the US Environmental Protection Agency, and the US Department of Defense during the planning/NEPA decision-making process. This section documents the specific consultation and coordination efforts undertaken by the BLM throughout the process of developing the LUPA/EIS.

6.3.1 Cooperating Agencies

A cooperating agency is any federal, state, or local government agency or Native American tribe that enters into a formal agreement with the lead federal agency to help develop an environmental analysis. Cooperating agencies and tribes “work with the BLM, sharing knowledge and resources, to achieve desired outcomes for public lands and communities within statutory and regulatory frameworks” (BLM 2005). The Forest Service defines collaboration as, “People working together to share knowledge and resources to describe and achieve desired conditions for National Forest System lands and for associated social, ecological, and economic systems in a plan area. Collaboration applies throughout the planning process, encompasses a wide range of external and internal relationships, and entails formal and informal processes” (Forest Service 2006). The benefits of enhanced collaboration among agencies in preparing NEPA analyses are:

- Disclosing relevant information early in the analytical process
- Applying available technical expertise and staff support
- Avoiding duplication with other federal, state, tribal, and local procedures
- Establishing a mechanism for addressing intergovernmental issues

The Idaho and Southwestern Montana Sub-region invited local, state, federal, and tribal representatives to participate as cooperating agencies for this LUPA/EIS. **Table 6-5**, Idaho and Southwestern Montana Sub-region Cooperating Agency Participation, provides the list of invited and accepted cooperating agencies for the sub-region. Agencies accepting invitations to be cooperating agencies sign an MOU with the BLM. The MOU outlines the interests, expertise, and jurisdictional responsibilities of both the agency and its cooperating agency partners and also outlines their respective roles and responsibilities in the planning and NEPA processes.

Cooperating agencies have been involved throughout the planning process with monthly conference calls providing project updates. In addition, cooperating agencies were given advance review of LUPA/EIS sections. Cooperating agencies will continue to be engaged throughout the planning process.

**Table 6-5
Idaho and Southwestern Montana Sub-region Cooperating Agency
Participation**

Agencies and Tribes Invited to be Cooperators	Accepted
Adams County Commissioners	
Bannock County Commissioners	
Bear Lake County Commissioners	
Beaverhead County Commissioners	✓
Beaverhead-Deerlodge National Forest	✓
Bingham County Commissioners	✓
Blackfoot Tribe of the Blackfoot Indian Reservation of Montana	
Blaine County Commissioners	✓
Boise County Commissioners	
Boise National Forest	✓
Bonneville County Commissioners	
Bureau of Indian Affairs	
Bureau of Reclamation	
Butte County Commissioners	
Camas County Commissioners	
Canyon County Commissioners	
Caribou County Commissioner	
Caribou-Targhee National Forest	✓
Cassia County Commissioners	✓
Clark County Commissioners	✓
Coeur d'Alene Tribe	
Confederated Salish and Kootenai Tribes	
Craters of the Moon National Monument	✓
Custer County Commissioners	✓
Eastern Shoshone Tribe	
Elmore County Commissioners	
Franklin County Commissioners	
Fremont County Commissioners	✓
Gem County Commissioners	
Gooding County Commissioners	
Idaho Association of Counties	✓
Idaho Department of Agriculture	
Idaho Department of Environmental Quality	
Idaho Department of Fish and Game	✓
Idaho Department of Lands	
Idaho Department of Parks and Recreation	
Idaho Department of Transportation	
Idaho Governor's Office of Species Conservation	✓
Idaho National Guard	✓
Jefferson County Commissioners	✓
Jerome County Commissioners	
Kootenai Tribe of Idaho	

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**Table 6-5
Idaho and Southwestern Montana Sub-region Cooperating Agency
Participation**

Agencies and Tribes Invited to be Cooperators	Accepted
Lemhi County Commissioners	✓
Lincoln County Commissioners	
Madison County Commissioners	✓
Minidoka County Commissioners	
Mountain Home Air Force Base	
Montana Fish, Wildlife and Parks	✓
Natural Resources Conservation Service	✓
Nez Perce Tribe	
Oneida County Commissioners	
Owyhee County Commissioners	✓
Payette County Commissioners	
Power County Commissioners	✓
Salmon-Challis National Forest	✓
Sawtooth National Forest	✓
Shoshone-Bannock Tribes	
Shoshone-Paiute Tribes	
Teton County Commissioners	
Twin Falls County Commissioners	✓
USDA APHIS Plant Protection and Quarantine	
USDA APHIS Wildlife Services	
US Department of Defense	✓
US Department of Energy (INL)	✓
US Fish and Wildlife Service	✓
USGS (Forest and Rangeland Ecosystem Science Center)	
Washington County Commissioners	

The BLM is aware that there are specific state laws and local plans relevant to aspects of public land management that are discrete from, and independent of, federal law. However, BLM is bound by federal law. As a consequence, there may be inconsistencies that cannot be reconciled. The FLPMA and its implementing regulations require that BLM's land use plans be consistent with officially-approved state and local plans only if those plans are consistent with the purposes, policies, and programs of federal laws and regulations applicable to public lands. Where officially-approved state and local plans or policies and programs conflict with the purposes, policies, and programs of federal law applicable to public lands, there will be an inconsistency that cannot be resolved. With respect to officially-approved state and local policies and programs (as opposed to plans), this consistency provision only applies to the maximum extent practical. While county and federal planning processes, under FLPMA, are required to as integrated and consistent as practical, the federal agency planning process is not bound by or subject to state or county plans, planning processes, policies, or planning stipulations.

6.3.2 USFWS Section 7 Consultation

Consultation with USFWS is required under Section 7(c) of the ESA before the start of any BLM or Forest Service project that may affect any federally listed or endangered species or its habitat. This LUPA process is considered to be a major project, and the Proposed LUPA/Final EIS defines potential impacts on threatened and endangered species as a result of management actions proposed in the alternatives. The USFWS is a cooperating agency in this planning process. Its staff have participated in interdisciplinary team meetings and have been provided drafts of alternative decisions and analyses for discussion and input.

The BLM and Forest Service formally initiated Section 7 consultation with a letter to the USFWS on November 19, 2013, and requested concurrence on which species would require consideration during consultation. Over the ensuing months, regular meetings were held to identify the species that would be analyzed in the biological assessment, to address which actions could affect those species, and to determine whether the implementation of the Proposed Plan “may affect” the species for which this consultation occurred.

In May 2015, the BLM and Forest Service formally submitted the biological assessment to the USFWS for review (see **Appendix Y**, Biological Assessment). The USFWS will evaluate the biological assessment and either concur with the determination via memorandum or will prepare a biological opinion. The USFWS response to this consultation process will be included in the RODs.

6.3.3 Native American Tribal Consultation

In accordance with the National Historic Preservation Act and several other legal authorities (see BLM Manual 8120), and in recognition of the government-to-government relationship between individual tribes and the federal government, the BLM has initiated Native American consultation efforts related to preparation of this LUPA. In December 2011, the BLM sent letters to tribal governments providing initial notification of the LUPA and background information on the project, an invitation to be a cooperating agency, and notification of subsequent consultation efforts related to the planning process. These letters were sent to the following tribes located in Idaho or southwestern Montana or having cultural ties to areas with GRS habitat in the sub-region:

- Blackfoot Tribe of the Blackfoot Indian Reservation of Montana
- Coeur d’Alene Tribe
- Confederated Salish and Kootenai Tribes
- Eastern Shoshone Tribe
- Kootenai Tribe of Idaho
- Nez Perce Tribe
- Shoshone-Bannock Tribes
- Shoshone-Paiute Tribes



None of the tribes have agreed to become cooperating agencies. The Shoshone-Bannock and Shoshone-Paiute tribes requested regular briefings at key milestones during the planning process. Per their request, BLM staff provided early drafts of some project documents for their review and comment under the government-to-government relationship. Other tribes have requested to be kept informed as the LUPA/EIS is developed, so that they may have an opportunity to comment. The complete Proposed LUPA/FEIS was provided to the tribes concurrently with its release to the public. Government-to-government consultation will continue throughout the LUPA process to ensure that tribal groups' concerns are considered.

Under the proposed plan, all GRSG habitat would be retained under BLM and Forest Service management unless an exchange would result in a greater benefit to GRSG or their habitat. Lands would be available for exchange with no net loss of GRSG Key habitat within PHMA and IHMA; site-specific NEPA analysis would be required for any future exchanges. Additional tribal consultation would occur during this site-specific NEPA analysis to address tribal concerns and requests regarding specific parcels.

6.3.4 State Historic Preservation Officer Consultation

As part of the NEPA scoping and consultation process, BLM and the Forest Service have notified the Idaho and Montana State Historic Preservation Officers and several Tribal Historic Preservation Officers of the proposed LUPA. The proposed LUPA does not require compliance with NHPA Section 106 because the proposed management decisions regarding greater sage grouse do not authorize specific activities that have the potential to cause as effects on historic properties. BLM will comply with the requirements of NHPA Section 106 at a later stage, i.e., for implementation-level decisions such as project proposals, which will include adequate consultation with SHPOs, THPOs, Native American Tribes, and other interested parties. The BLM's compliance with NHPA Section 106 will be performed consistent with the alternative procedures BLM agreed to in a Programmatic Agreement with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers and the Idaho or Montana State Protocols agreed to between Idaho or Montana BLM and the SHPOs. Any future actions not covered by the BLM's national Programmatic Agreement or State Protocols may require compliance with either (a) the NHPA Section 106 regulations, or (b) a separate Section 106 agreement where applicable.

6.3.5 US Environmental Protection Agency

NEPA regulations require that EISs be filed with the US Environmental Protection Agency for review and comment (40 CFR 1506.9). The Idaho and Southwestern Montana Sub-region Draft LUPA/EIS was submitted to the US Environmental Protection Agency for review as required by CEQ regulations. The US Environmental Protection Agency provided comments on the Draft LUPA/EIS and rated the document as "Environmental Concerns—Insufficient Information (EC-2)."

6.4 List of Preparers

Table 6-6, List of Preparers, lists the name and project role of the individuals involved in the preparation of this document.

**Table 6-6
List of Preparers**

Name	Role/Responsibility
Bureau of Land Management	
Brent Ralston	Idaho State Office Project Lead, special designations lead
Jon Beck	Idaho State Office Project Lead, mineral resources, special designations
John Thompson	Montana State Office Project Lead
Joe Adamski	Forestry
Kelly Bocking	GRSG, vegetation, livestock grazing, recreation and visitor services, comprehensive trail and travel management, lands and realty, mineral resources
Bryce Bohn	Air quality, soil resources, water resources
Connie Breckenridge	GIS
Brandon Brown	Wildland fire management
Glen Burkhardt	Air quality, wildland fire management
Tim Carrigan	Lands and realty
Rod Collins	GIS
Natalie Cooper	Lands and realty
Lynn Danly	Vegetation
Robin Fehlau	Visual resources, lands with wilderness characteristics, recreation and visitor services, comprehensive trail and travel management, special designations
Vince Guyer	GRSG, wild horse and burro
Kirk Halford	Cultural resources, paleontological resources
Lara Hannon	Vegetation
Jon Haupt	Livestock grazing
Sara Heide	Wildland fire management
Terry Heslin	Comprehensive trail and travel management
Scott Hoefler	Special status species, fish resources
Gloria Jakovac	Lands and Realty
Steve Jirik	Vegetation, wildland fire management
Brandon Knapton	Special status species
Kevin Knauth	Wildland fire management
Michael Kuyper	Vegetation, livestock grazing, mineral resources
Stephen Leonard	Wild horse and burro
Nika Lepak	Wild horse and burro, livestock grazing
Don Major	Vegetation, wildlife resources
Paul Makela	GRSG, special status species, wildlife resources, lands and realty
Clint McCarthy	Vegetation
Diane McConaughy	GIS
Kelly Moore	Lands and realty
Karen Porter	Mineral resources
Kasey Prestwich	Lands and realty

**Table 6-6
List of Preparers**

Name	Role/Responsibility
Jesse Rawson	GRSG
Tom Rinkes	GRSG, wildlife resources
Chris Robbins	Livestock grazing
Bruce Schoeberl	Fish resources
Elena Shaw	Vegetation, livestock grazing
Steve Shaw	Wildland fire management
Dick Todd	Lands and realty
Jason Wright	Vegetation, wildland fire management
Cheryle Zwang	Cultural resources
Forest Service Nest Members	
Rob Mickelsen	Idaho Project Lead, vegetation
Dustin Bambrough	Livestock grazing
Pam Bode	NEPA/planning
Chris Colt	Special status species, wildlife
Dale Harber	Minerals specialist
Kolleen Kralick	Cultural resources, Native American tribal interests
Tim Love	GIS
Tim Metzger	Wildland fire management
Cory Norman	Wildland fire management
David Reis	Comprehensive trails and travel management
Consultant - EMPSi	
Meredith Zaccherio	Project Manager, biological resources lead
Angie Adams	Special designations, wilderness characteristics
David Batts	Project Advisor
Constance Callahan	Quality Assurance, editing
Amy Cordle	Air quality
Annie Daly	Air quality, special designations, wilderness characteristics
Andrew Gentile	Soil resources, water resources
Zoe Ghali	Forestry, livestock grazing, wild horse and burro, wildland fire management
Peter Gower	Comprehensive trails and travel management, lands and realty, recreation and visitor services, visual resources
Brandon Jensen	Fish resources, wildlife resources
Matt Kluvo	Vegetation, forestry, paleontological resources
Kate Krebs	Visual resources
Laura Long	Technical editing
Carol-Anne Murray	Cultural resources, Native American tribal interests, paleontological resources
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Chad Ricklefs	Lands and realty
Cindy Schad	Word processing
Jordan Tucker	Soil resources, water resources

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Name	Role/Responsibility
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Robert Fetter	Project Manager-Socioeconomics and Environmental Justice
Alex Uriarte	Socioeconomics and Environmental Justice Specialist
Elizabeth Kurz	Project Assistance
Alison Carey	Project Assistance

Chapter 7

References



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Chapter 7. References

References and personal communication for Chapters 1-6 (not including Section 5.1, Greater Sage-Grouse Cumulative Effects Analysis) of the Idaho and Southwestern Montana Proposed LUPA/Final EIS are listed in Section 7.1. References and personal communication for the Greater Sage-Grouse cumulative effects analysis (Section 5.1 in Chapter 5) are listed in Section 7.2.

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Chapter 8

Acronyms and Glossary



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Chapter 8. Acronyms and Glossary

8.1 Acronyms

<u>Acronym</u>	<u>Full Phrase</u>
ACEC	area of critical environmental concern
AML	appropriate management level
AMP	allotment management plan
APD	application for permit to drill
APHIS	Animal and Plant Health Inspection Service
AQRV	air quality related values
ATV	all-terrain vehicle
AUM	animal unit-month
BAER	burn area emergency response
BDNF	Beaverhead-Deerlodge National Forest
BEA	Bureau of Economic Analysis
BER	baseline environmental report
BLM	United States Department of the Interior, Bureau of Land Management
BLS	Bureau of Labor Statistics
BMP	best management practices
BSU	Biologically Significant Unit
CA	conservation area
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CHZ	core habitat zone
CO	carbon monoxide
CO ₂	carbon dioxide
COA	condition of approval
COT	Conservation Objectives Team
CSU	controlled surface use
DFO	Dillon Field Office
DOI	United States Department of the Interior
EIS	environmental impact statement
EPA	United States Environmental Protection Agency
ESA	US Endangered Species Act of 1973
ESD	Ecological Side Description
ERMA	extensive recreation management area
ERS	USDA Economic Research Service
ESR	emergency stabilization and rehabilitation
°F	degrees Fahrenheit

<u>Acronym</u>	<u>Full Phrase</u>
FERC	Federal Energy Regulatory Commission
FLPMA	Federal Land Policy and Management Act of 1976
Forest Service	United States Department of Agriculture, Forest Service
FR	<i>Federal Register</i>
FRCC	fire regime condition class
FSH	Forest Service Handbook
FSM	Forest Service Manual
FY	fiscal year
GHMA	general habitat management area
GHZ	general habitat zone
GIS	geographic information system
GOA	goals, objectives, allocations and management actions
GPS	global positioning system
GRSG	greater sage-grouse
HA	herd area
HAF	Habitat Assessment Framework
HFC	hydroflourocarbon
HFR	hazardous fuels reduction program
HMA	herd management area
HMAP	habitat management area plan
IB	BLM Information Bulletin
IDFG	Idaho Department of Fish and Game
IHMA	important habitat management area
IHZ	important habitat zone
IM	BLM Instruction Memorandum
IPCC	Intergovernmental Panel on Climate Change
KPLA	known phosphate leasing area
LRMP	land and resource management plan
LUP	land use plan
LUPA	land use plan amendment
LWG	local working group
MBF	thousand board feet
MFP	management framework plan
MFWP	Montana Fish, Wildlife, and Parks
MOU	memorandum of understanding
MZ	management zone

<u>Acronym</u>	<u>Full Phrase</u>
N ₂ O	nitrous oxide
N/A	not applicable
NAAQS	National Ambient Air Quality Standards
NCA	National Conservation Area
NEPA	National Environmental Policy Act of 1969
NF	not functioning
NFMA	National Forest Management Act of 1976
NHPA	National Historic Preservation Act
NHT	National Historic Trail
NLCS	National Landscape Conservation System
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NOI	notice of intent
NPS	National Park Service
NRCS	United States Department of Agriculture Natural Resources Conservation Service
NREL	National Renewable Energy Laboratory
NRHP	National Register of Historic Places
NSO	no surface occupancy
NTT	Greater Sage-Grouse National Technical Team
OHV	off-highway vehicle
ONRR	Department of Interior, Office of Natural Resources Revenue
OSC	Idaho Office of Species Conservation
PAC	priority areas for conservation
PDF	preferred design feature
PECE	policy for evaluation of conservation efforts when making listing decisions
PFC	proper functioning condition
PGH	preliminary general habitat
PHMA	priority habitat management area
PILT	Payment in Lieu of Taxes
PM _{2.5}	particulate matter with a diameter less than or equal to 2.5 microns
PM ₁₀	particulate matter with a diameter less than or equal to 10 microns
PPH	preliminary primary habitat
RDF	required design feature
RFDS	reasonable foreseeable development scenario
RFPA	Rangeland Fire Protection Association
RHMA	restoration habitat management area
RMP	resource management plan
ROD	record of decision
ROW	right-of-way

<u>Acronym</u>	<u>Full Phrase</u>
S&Gs	standards and guidelines
SDF	suggested design feature
SFA	Sagebrush Focal Area
SGMA	Sage-Grouse Management Area
SHPO	state historic preservation officer
SO ₂	sulfur dioxide
SRMA	special recreation management area
SRP	special recreation permit
SUA	special use authorization
TAT	technical assistance team
TCP	traditional cultural property
TL	timing limitation
TTM	travel and transportation management
UDWR	Utah Department of Wildlife Resources
US	United States
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Department of the Interior, Fish and Wildlife Service
USGS	United States Geological Survey
VDDT	Vegetation Dynamics Development Tool
VOC	volatile organic compound
VRM	visual resource management
WAFWA	Western Association of Fish and Wildlife Agencies
WGFD	Wyoming Game and Fish Department
WSA	Wilderness Study Area
WUI	wildland-urban interface
ZA	zoological area

8.2 Glossary

2008 WAFWA Sage-Grouse MOU: A memorandum of understanding among Western Association of Fish and Wildlife Agencies, US Department of Agriculture, Forest Service, US Department of the Interior, Bureau of Land Management, US Department of the Interior, Fish and Wildlife Service, US Department of the Interior, Geological Survey, US Department of Agriculture, Natural Resources Conservation Service, and the US Department of Agriculture, Farm Service Agency. The purpose of the MOU is to provide for cooperation among the participating state and federal land, wildlife management and science agencies in the conservation and management of GRSG (*Centrocercus urophasianus*) sagebrush (*Artemisia* spp.) habitats and other sagebrush-dependent wildlife throughout the

western United States and Canada and a commitment of all agencies to implement the 2006 WAFWA Conservation Strategy.

2011 Partnership MOU: An agreement among the United States Department of Agriculture Natural Resource Conservation Service, Forest Service, United State Department of the Interior, Bureau of Land Management, and Fish and Wildlife Service. This MOU is for range management, to implement NRCS practices on adjacent federal properties.

Acquired lands: Federal lands obtained by purchase, condemnation, exchange, or gift under laws other than public land laws. Legally defined as "... land obtained by the United States through purchase or transfer from a State or private individual and normally dedicated to a specific use." McKenna v. Wallis, 200 F. Supp. 468 (1961). See also Bobby Lee Moore, et al., 72 I.D. 505 (1965).

Actual use: The amount of animal unit months consumed by livestock based on the numbers of livestock and grazing dates submitted by the livestock operator and confirmed by periodic field checks by the BLM.

Additionality: The conservation benefits of compensatory mitigation are demonstrably new and would not have resulted without the compensatory mitigation project.

Adjacent: Installation of new linear improvements parallel, near, or next to existing linear improvements.

Administrative access: A term used to describe access for resource management and administrative purposes, such as fire suppression, cadastral surveys, permit compliance, law enforcement, and military in the performance of their official duty, or other access needed to administer BLM-managed or National Forest System lands or uses.

Allotment management plan: A concisely written program of livestock grazing management, including supportive measures if required, designed to attain specific, multiple-use management goals in a grazing allotment. An AMP is prepared in consultation with the permittees, lessees, and other affected interests. Livestock grazing is considered in relation to other uses of the range and to renewable resources, such as watershed, vegetation, and wildlife. An AMP establishes seasons of use, the number of livestock to be permitted, the range improvements needed, and the grazing system.

Allotment: An area of land in which one or more livestock operators graze their livestock. Allotments generally consist of BLM-administered or National Forest System lands but may include other federally managed, state-owned, or private lands. An allotment may include one or more separate pastures. Livestock numbers and periods of use are specified for each allotment.

Ambient (noise level): Sometimes called background noise level, reference sound level, or room noise level is the background sound pressure level at a given location, normally specified as a reference level to study a new intrusive sound source.

Animal unit month: The amount of forage necessary for the sustenance of one cow or its equivalent for a period of one month (approximately 800 pounds of air-dried material per AUM).

Anthropogenic disturbances: Human-created features include paved highways, graded gravel roads, transmission lines, substations, wind turbines, oil and gas wells, geothermal wells and associated facilities, pipelines, landfills, agricultural conversion, homes, and mines.

Appurtenant (minerals): A piece of equipment (e.g., pump jack, separator, storage tank, compressor station, metering equipment) necessary for production.

Area of critical environmental concern: Special area designation established through the BLM's land use planning process (43 CFR 1610.7-2), where special management attention is needed to protect and prevent irreparable damage to important historical, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes or to protect life and safety from natural hazards. The level of allowable use within an ACEC is established through the collaborative planning process. Designation of an ACEC allows for resource use limitations in order to protect identified resources or values.

Associated settings: The geographic extent of the resources, qualities, and values or landscape elements within the surrounding environment that influence the trail experience and contribute to resource protection. Settings associated with a National Scenic or Historic Trail include scenic, historic, cultural, recreation, natural (including biological, geological, and scientific), and other landscape elements (see resources, qualities, and values).

Authorized/authorized use: This is an activity (i.e., resource use) occurring on the public lands that is either explicitly or implicitly recognized and legalized by law or regulation. This term may refer to those activities occurring on the public lands for which the BLM, Forest Service, or other appropriate authority (e.g., Congress for RS 2477 rights-of-way, FERC for major interstate rights-of-way) has issued a formal authorization document (e.g., livestock grazing lease/permit, right-of-way grant, coal lease, or oil and gas permit to drill). Formally authorized uses can involve commercial and noncommercial activity, facility placement, or event. These formally authorized uses are often spatially or temporally limited. Unless constrained or bounded by statute, regulation, or an approved land use plan decision, legal activities involving public enjoyment and use of the public lands (e.g., hiking, camping, and hunting) require no formal BLM or Forest Service authorization.

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.

Avoidance mitigation: Avoiding the impact altogether by not taking a certain action or parts of an action. (40 CFR 1508.20(a)) (e.g. may also include avoiding the impact by moving the proposed action to a different time or location).

Baseline: The pre-existing condition of a defined area and/or resource that can be quantified by an appropriate metric(s). During environmental reviews, the baseline is considered the affected environment that exists at the time of the review's initiation, and is used to compare predictions of the effects of the proposed action or a reasonable range of alternatives.

Best management practices: A suite of techniques that guide or may be applied to management actions to aid 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: A geographical/spatial area within GRSG habitat that contains relevant and important habitats that is used as the basis for comparative calculations to support evaluation of changes to habitat. A biologically significant unit or subset of the unit is used in the calculation of the anthropogenic disturbance threshold and in the adaptive management habitat trigger.

The biologically significant unit is defined as:

- Idaho: All of the modeled nesting and delineated winter habitat, based on 2012 data, within priority and/or important habitat management areas within a Conservation Area.
- Montana: All of the priority and sagebrush focal management areas.

Candidate species: Species for which the US Fish and Wildlife Service has sufficient information on their status and threats to support proposing them for listing as endangered or threatened under the Endangered Species Act but for which issuance of a proposed rule is currently precluded by higher priority listing actions. Separate lists for plants, vertebrate animals, and invertebrate animals are published periodically in the *Federal Register* (from M6840, Special Status Species Manual).

Casual use: Activities ordinarily resulting in no or negligible disturbance of the public lands, resources, or improvements. For examples of rights-of-way, see 43 CFR 2801.5; for examples of locatable minerals, see 43 CFR 3809.5.

Condition of approval: Requirement under which an application for a permit to drill or sundry notice is approved.

Checkerboard: This term refers to a landownership pattern of alternating sections of federal owned lands with private or state-owned lands for 20 miles on either side of a land grant railroad (e.g., Union Pacific and Northern Pacific). On land status maps this alternating

ownership is either delineated by color coding or alphabetic code resulting in a checkerboard pattern.

Cherry-stemmed/cherry-stemming: This term refers to a narrow, linear, intrusion, or extrusion of a delineated block of federal lands resulting in what appears on a map as a boundary inlet or peninsula. Although this term may be used in any resource program, the most common use is in relation to dead-end road intrusions along WSA boundaries.

Co-locate: Installation of new linear improvements in or on existing linear improvements.

Communication tower site: Sites that include broadcast types of uses (e.g., television, AM/FM radio, cable television, broadcast translator) and non-broadcast uses (e.g., commercial or private mobile radio service, cellular telephone, microwave, local exchange network, passive reflector).

Compensatory mitigation: Compensating for the residual impact of a certain action or parts of an action by replacing or providing substitute resources or environments. (40 CFR 1508.20)

Compensatory mitigation projects: The restoration, creation, enhancement, and/or preservation of impacted resources (adopted and modified from 33 CFR 332), such as on-the-ground actions to improve and/or protect habitats (e.g. chemical vegetation treatments, land acquisitions, conservation easements).

Compensatory mitigation sites: The durable areas where compensatory mitigation projects will occur.

Condition of approval: A site-specific and enforceable requirement included in an approved application for permit to drill or sundry notice that may limit or amend the specific actions proposed by the operator. Conditions of approval minimize, mitigate, or prevent impacts on resource values or other uses of public lands.

Conservation area: Areas determined to be necessary to monitor population objectives to evaluate the disturbance density and adaptive regulatory triggers and engage adaptive management responses. Conservation Areas may contain priority, important, and general habitat management areas and sagebrush focal areas. Specifically, these areas are Mountain Valleys, Desert, West Owyhee, and Southern and Southwestern Montana.

Conservation Plan: The recorded decisions of a landowner or operator, cooperating with a conservation district, on how the landowner or operator plans, within practical limits, to use his or her land according to its capability and to treat it according to its needs for maintenance or improvement of the soil, water, animal, plant, and air resources.

Conservation measures: Undertakings to conserve, enhance, or restore GRS habitat by reducing, eliminating, or minimizing threats to that habitat.

Controlled surface use: CSU is a category of moderate constraint stipulations that allows some use and occupancy of public land, while protecting identified resources or values. and is applicable to fluid mineral leasing and all activities associated with fluid mineral leasing. (BLM and Forest Service) **Controlled surface use (BLM):** CSU areas are open to fluid mineral leasing but the stipulation allows the BLM to require special operational constraints, or the activity can be shifted more than 200 meters (656 feet) to protect the specified resource or value.

Cooperating agency: Assists the lead federal agency in developing an environmental assessment or environmental impact statement. This 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: An advisory council to the President of the United States established by the National Environmental Policy Act of 1969. It reviews federal programs to analyze and interpret environmental trends and information.

Cultural resources: Locations of human activity, occupation, or use. Cultural resources include archaeological, historic, or architectural sites, structures, or places with important public and scientific uses and locations of traditional cultural or religious importance to specified social or cultural groups.

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: Lands and federal mineral estate within the planning area that are administered by the BLM and Forest Service.

Deferred/deferred use: To set-aside, or postpone, a particular resource use or activity on the public lands to a later time. Generally when this term is used, the period of the deferral is specified. Deferments sometimes follow the sequence timeframe of associated serial actions (e.g., action B will be deferred until action A is completed).

Designated roads and trails: Specific roads and trails identified by the BLM where some type of motorized vehicle use is appropriate and allowed, either seasonally or year-long (H-1601-1, BLM Land Use Planning Handbook).

Desired condition (Forest Service): A description of specific social, economic, and/or ecological characteristics of the plan area, or a portion of the plan area, toward which management of the land and resources should be directed. Desired conditions must be described in terms that are specific enough to allow progress toward their achievement to be determined, but do not include completion dates.

Disruptive activities: Land resource uses/activities that are likely to alter the behavior, displace, or cause excessive stress to GRSG populations occurring at a specific location

and/or time. Actions that alter behavior or cause the displacement of individuals such that reproductive success is negatively affected, or an individual's physiological ability to cope with environmental stress is compromised.

Distribution line: An electrical utility line with a capacity of less than 100kV or a natural gas, hydrogen, or water pipeline less than 24" in diameter.

Diversity (species): The number, distribution, and geographic ranges of plant and animal species including focal species and species-at-risk.

Durable (protective and ecological) (Forest Service): The administrative, legal, and financial assurances that secure and protect the conservation status of a compensatory mitigation site, and the ecological benefits of a compensatory mitigation project, for at least as long as the associated impacts persist.

Durability (protective and ecological) (BLM): The maintenance of the effectiveness of a mitigation site and project for the duration of the associated impacts, which includes resource, administrative/legal, and financial considerations.

Ecological site: A distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation.

Emergency Use: These are activities occurring on the public lands outside the scope of normal resource use and operations and that require immediate attention. Emergency use activities are typically driven by imminent concerns for human health and safety or protection of property (e.g., wildfire suppression, HAZMAT response, and disease outbreaks). Emergency use is typically exempted from other land use restrictions, with the exercise of reasonable and prudent care.

Endangered species: Any species that is in danger of extinction throughout all or a significant portion of its range and is so designated by the Secretary of Interior, in accordance with the 1973 Endangered Species Act.

Enhance: The improvement of habitat by increasing missing or modifying unsatisfactory components and/or attributes of the habitat (e.g., road commissioning) to meet GRSG objectives.

Environmental impact statement: A detailed written statement required by the National Environmental Policy Act when an agency proposes a major federal action significantly affecting the quality of the human environment.

Exception (minerals): A case-by-case exemption from a lease stipulation. The stipulation continues to apply to all other sites within the leasehold to which the restrictive criteria apply. The authorized officer (i.e., any employee of the Forest Service to whom has been delegated the authority to perform the duties described in the applicable Forest Service manual or handbook) may grant an exception if an environmental record of review



determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of GRSG.

Exclusion area: An area on the public lands where a certain activity is prohibited to ensure protection of other resources on the site. The term is frequently used in reference to lands and realty actions and proposals (e.g., rights-of-way), but it is not unique to lands and realty activities. This restriction is functionally analogous to the phrase “no surface occupancy” used by the oil and gas program and is applied as an absolute condition to those affected activities. The less restrictive analogous term is avoidance area.

Exploration: Active drilling and geophysical operations to determine the presence of the mineral resource or to determine the extent of the reservoir or mineral deposit.

Feasible: See technically/economically feasible.

Federal Land Policy and Management Act of 1976 (FLPMA): Public Law 94-579, which gives the BLM legal authority to establish public land policy, to establish guidelines for administering such policy, and to provide for management, protection, development, and enhancement of the public land.

Federal mineral estate: Subsurface mineral estate owned by the United States and administered by the BLM. Federal mineral estate under BLM jurisdiction is composed of mineral estate underlying BLM-administered lands, privately owned lands, and state-owned lands

Fire suppression: All work and activities connected with fire extinguishing operations, beginning with discovery of a fire and continuing until the fire is completely out.

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

Forage: All browse and herbaceous foods that are available to grazing animals.

Forage reserve: An area that is set aside for use as needed by various permittees who might be displaced by wildfire, ESR, restoration efforts, etc. rather than having a term permit issued for grazing like a regular allotment.

Free flowing: Existing or flowing in natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway (Section 16[b] of the Wild and Scenic Rivers Act). Designation of a wild and scenic river does not depend on the river being “naturally flowing,” (i.e., flowing without any man-made upstream or downstream manipulation). The presence of impoundments above or below the segment (including those that may regulate flow regimes within the segment) and existing minor dams or diversion structures within the study area do not necessarily render a river segment noneligible. There are segments in the national system that are downstream from major dams or located between dams.

Enhance: The improvement of habitat by increasing missing or modifying unsatisfactory components or attributes of the plant community to meet GRSG objectives.

General Habitat Management Area: Occupied (seasonal or year-round) habitat outside of priority habitat management areas and sagebrush focal areas. It includes a few active leks and fragmented or marginal habitat, such as two isolated populations of GRSG in the East Idaho Uplands and West Central Idaho. These areas have been identified by the BLM and Forest Service in coordination with respective state wildlife agencies.

Grazing system: Scheduled grazing use and nonuse of an allotment to reach identified goals or objectives by improving the quality and quantity of vegetation. This includes, but is not limited to, developing pastures, utilization levels, grazing rotations, timing and duration of use periods, and necessary range improvements.

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.

Hard triggers: Thresholds indicating that immediate action is necessary to stop a severe deviation from GRSG conservation objectives set forth in the land and resources management plan.

High-voltage transmission line: An electrical power line that is 100 kilovolts or larger.

Holder: An individual or entity that holds a valid special use authorization.

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

Important Habitat Management Area: High value habitat and populations that provide a management buffer for the priority habitat management areas and sagebrush focal areas and connect patches of priority habitat management areas and sagebrush focal areas. The areas encompass areas of generally moderate to high conservation value habitat and/or populations and, in some conservation areas, include areas beyond those identified by USFWS as necessary to maintain redundant, representative, and resilient populations. The areas are typically adjacent to priority habitat management areas and sagebrush focal areas but generally reflect somewhat lower GRSG population status and/or reduced habitat value due to disturbance, habitat fragmentation, or other factors. No important habitat management areas are designated within the southwestern Montana conservation area.

Incompatible use: An activity that affects (hinders or obstructs) the nature and purposes of a designated National Trail (see substantial interference).

Indicators: Factors that describe resource condition and change and can help the BLM and the Forest Service determine trends over time.



Integrated ranch planning: A method for ranch planning that takes a holistic look at all elements of the ranching operations, including strategic and tactical planning, rather than approaching planning as several separate enterprises.

Isolated parcel: An individual parcel of land that may share a corner, but does not have a common border with another parcel.

Invasive species (invasive plant species, invasives): An alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. The species must cause, or be likely to cause, harm, and be exotic to the ecosystem it has infested before considered invasive.

Land-locked: This term refers to the situation when any parcel of private, state, or federal land has no legal access without crossing another ownership due to the existing land ownership pattern.

Landownership adjustments: Land adjustments to National Forest System lands by purchase, exchange, interchange, or conveyance under authority delegated by law to the Secretary of Agriculture.

Landscape: A distinct association of land types that exhibit a unique combination of local climate, landform, topography, geomorphic process, surficial geology, soil, biota, and human influences. Landscapes are generally of a size that the eye can comprehend in a single view.

Land tenure adjustment: This term refers to a change in landownership patterns, or legal status, to improve their administrative manageability and their usefulness to the public.

Late brood rearing area: Habitat includes mesic sagebrush and mixed shrub communities, wet meadows, and riparian habitats, as well as some agricultural lands (e.g., alfalfa fields).

Lease: A type of special use authorization (usually granted for uses other than linear rights-of-way) that is used when substantial capital investment is required and when conveyance of a conditional and transferable interest in BLM-administered or National Forest System lands is necessary or desirable to serve or facilitate authorized long-term uses, and that may be revocable and compensable according to its terms.

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.

Lessee: A person or entity authorized to use and occupy National Forest System land under a specific instrument identified as a lease. Forest special use leases are limited to authorize certain wireless communication uses. Leases are also used for certain mineral leasable activities.

Lek: A traditional courtship display area attended by male GRSG in or next to sagebrush-dominated habitat. A lek is designated based on observations of two or more male GRSG engaged in courtship displays. For management purposes, leks with less than five males observed strutting should be confirmed active for two years to meet the definition of a lek (Connelly et al. 2000; Connelly et al. 2003, 2004). Each state may have a slightly different definition of lek, active lek, inactive lek, occupied lek, and unoccupied leks. Regional planning will use the appropriate definition provided by the state of interest.

Lek complex: A lek or group of leks within 2.5 kilometers (1.5 miles) of each other between which male GRSG may interchange from one day to the next. Fidelity to leks has been well documented. Visits to multiple leks are most common among yearlings and less frequent for adult males, suggesting an age-related period of establishment (Connelly et al. 2004).

Lek, active: Any lek that has been attended by male GRSG during the strutting season.

Lek, inactive: Any lek where sufficient data suggests that there was no strutting activity throughout a strutting season. Absence of strutting GRSG during a single visit is insufficient documentation to establish that a lek is inactive. This designation requires documentation of one of the following scenarios:

- An absence of GRSG on the lek during at least two ground surveys separated by at least seven days. These surveys must be conducted under ideal conditions (April 1-May 7 or other appropriate date based on local conditions), no precipitation, light or no wind, half-hour before sunrise to one hour after sunrise).
- A ground check of the exact known lek site late in the strutting season (after April 15) that fails to find any sign (tracks, droppings, feathers) of strutting activity. Data collected by aerial surveys should not be used to designate inactive status as the aerial survey may actually disrupt activities.

Lek, occupied: A lek that has been active during at least one strutting season within the prior 10 years.

Lek, unoccupied: A lek that has either been destroyed or abandoned.

Lek, destroyed: A formerly active lek site and surrounding sagebrush habitat that has been destroyed and is no longer suitable for GRSG breeding.

Lek, abandoned: A lek in otherwise suitable habitat that has not been active for 10 consecutive years. To be designated abandoned, a lek must be inactive (see above criteria) in at least four nonconsecutive strutting seasons spanning the 10 years. The site of an abandoned lek should be surveyed at least once every 10 years to determine whether it has been reoccupied by GRSG.



Locatable minerals: Mineral disposable under the General Mining Act of 1872, as amended, that was not excepted in later legislation. They include hardrock, placer, industrial minerals, and uncommon varieties of rock found on public domain lands.

Major pipeline: A pipeline that is 24 inches or more in outside-pipe diameter (Mineral Leasing Act of 1920 30 U.S.C. § 181; 36 CFR 251.54(f)(1)).

Master development plans: A set of information common to multiple planned wells, including drilling plans, surface use plans of operations, and plans for future production.

Mineral: Any naturally formed inorganic material, solid or fluid inorganic substance that can be extracted from the earth, any of various naturally occurring homogeneous substances (as stone, coal, salt, sulfur, sand, petroleum, water, or natural gas) obtained for human use, usually from the ground. Under federal laws, considered as locatable (subject to the general mining laws), leasable (subject to the Mineral Leasing Act of 1920), and salable (subject to the Materials Act of 1947).

Mineral materials (salable minerals): Common varieties of sand, stone, pumice, gravel, and clay that are not obtainable under the mining or leasing laws but that can be acquired under the Materials Act of 1947, as amended. In accordance with regulations in 43 CFR Part 3600, the BLM sells mineral materials to the public at fair market value but gives them free to states, counties, or other government entities for public projects. Disposal of mineral materials is subject to conformance with all applicable laws and BLM policy in BLM Handbook H-3600-1.

Mining claim: A parcel of land that a miner takes and holds for mining purposes, having acquired the right of possession by complying with the Mining Law and local laws and rules. A mining claim may contain as many adjoining locations as the locator may make or buy. There are four categories of mining claims: lode, placer, mill site, and tunnel site.

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, rehabilitating, 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 (oil and gas): A fundamental change to the provisions of a lease stipulation, either temporarily or for the term of the lease. A modification may include an exemption from or alteration to a stipulated requirement. Depending on the specific modification, the stipulation may or may not apply to all other sites within the leasehold to which the restrictive criteria applied.

Monitoring (plan monitoring): The process of tracking the implementation of land use plan decisions and collecting and assessing data necessary to evaluate the effectiveness of land use planning decisions.

National Conservation Area: Area designated by Congress, generally to conserve, protect, enhance, and properly manage the resources and values for which it was designated for the benefit and enjoyment of present and future generations.

National Historic Trail: A congressionally designated trail that is an extended, long-distance trail, not necessarily managed as continuous, that follows as closely as possible and practicable the original trails or routes of travel of national historic significance. The purpose of a National Historic Trail is the identification and protection of the historic route and the historic remnants and artifacts for public use and enjoyment. A National Historic Trail is managed in a manner to protect the nationally significant resources, qualities, values, and associated settings of the areas through which such trails may pass, including the primary use or uses of the trail (BLM Manual 6250, NHT Administration).

National Monument: Area designated by the president of the United States by proclamation, in accordance with the Antiquities Act of 1906, for the protection of objects of historical or scientific interest, or by Congress for the conservation, protection, restoration, or enhancement of the resources, objects, and values for which it was designated.

Native plant species: Species that were found here before European settlement, and consequently are in balance with these ecosystems because they have well developed parasites, predators, and pollinators.

Nature and purposes: The term used to describe the character, characteristics, and congressional intent for a designated National Trail, including the resources, qualities, values, and associated settings of the areas through which such trails may pass; the primary use or uses of a National Trail; and activities promoting the preservation of, public access to, travel within, and enjoyment and appreciation of National Trails.

Net conservation gain: The actual benefit or gain above baseline conditions.

No surface occupancy: A major constraint where use or occupancy of the land surface for fluid mineral exploration or development and surface-disturbing activities is prohibited to protect identified resource values. Areas identified as NSO are open to fluid mineral leasing, but surface-disturbing activities cannot be conducted on the surface of the land. Access to fluid mineral deposits would require directional drilling from outside the boundaries of the NSO. NSO areas are treated as avoidance areas for rights-of-way; no rights-of-way would be granted in NSO areas unless there were no feasible alternatives. The NSO stipulation includes stipulations that may be worded as “No Surface Use/Occupancy,” “No Surface Disturbance,” “Conditional NSO,” or “Surface Disturbance or Surface Occupancy Restriction (by location).”



Notice-level mining activities: To qualify for a notice the mining activity must 1) constitute exploration, 2) not involve bulk sampling of more than 1,000 tons of presumed ore, 3) must not exceed five acres of surface disturbance, and 4) must not occur in one of the special category lands listed in 43 CFR 3809.11(c). The notice is to be filed in the BLM field office with jurisdiction over the land involved. The notice does not need to be on a particular form but must contain the information required by 43 CFR 3809.301(b).

Objective (Forest Service): A concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions. Objectives should be based on reasonably foreseeable budgets.

Old-growth juniper: Characterized by rounded tops and spreading canopies, often containing dead limbs and/or spike tops, large branches near the base of the tree, as well as furrowed, fibrous bark, and are typically host to arboreal lichens. Leader growth in the upper quarter of the tree is usually less than one inch. These trees are generally distributed on rock outcrop or rubble land soils, or other soils with coarse fragments in the soil-surface and/or slopes over 12-25%, where juniper vegetation type is the climax plant community (Miller et al 2005; USDI and USGS 2007).

Off-highway vehicle: Any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding (1) any nonamphibious registered motorboat, (2) any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes, (3) any vehicle whose use is expressly authorized by the authorized officer or otherwise officially approved, (4) vehicles in official use, and (5) any combat or combat support vehicle when used for national defense (H-1601-1, BLM Land Use Planning Handbook).

Off-site mitigation: Compensating for resource impacts by replacing or providing substitute resources or habitat at a different location than the project area.

Outstandingly remarkable values: Values among those listed in Section 1(b) of the Wild and Scenic Rivers Act: “scenic, recreational, geological, fish and wildlife, historical, cultural, or other similar values.” Other values that may be considered include ecological, biological or botanical, paleontological, hydrological, traditional cultural uses, water quality, and scientific values. The Wild and Scenic Rivers Act does not further define outstandingly remarkable values. Agency resource professionals develop and interpret criteria in evaluating river values (unique, rare, or exemplary) based on professional judgment on a regional, physiographic, or geographic comparative basis.

Patent: A grant made to an individual or group conveying fee simple title to selected public lands.

Permit: A special use authorization that provides permission, without conveying an interest in land, to occupy and use National Forest System land or facilities for specified purposes, and which is both revocable and terminable.

Permittee: A person or company permitted to graze livestock on public land.

Persistent woodlands: Long-lived pinyon-juniper woodlands that typically have sparse understories and occur on poor substrates in the assessment area.

Plan of operations: A Plan of Operation is required for all mining activity conducted under the General Mining Act of 1872, as amended, if the proposed operations will likely cause significant disturbance of surface resources. The Plan of Operation describes the type of operations proposed and how they would be conducted, the type and standard of existing and proposed roads or access routes, the means of transportation to be used, the period during which the proposed activity will take place, and measures to be taken to meet the requirements for environmental protection (36 CR 228.4).

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 or Forest Service. Policies are established interpretations of legislation, executive orders, regulations, or other presidential, secretarial, or management directives.

Prescribed fire: Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist and NEPA requirements, where applicable, must be met before ignition.

Primary use or uses: Authorized mode or modes of travel, or activities identified in the National Trails System Act, enabling legislation, or legislative history, through the trailwide comprehensive plan or approved resource management plan.

Primitive Road (BLM definition): A linear route managed for use by four-wheel drive or high clearance vehicles. Primitive roads do not normally meet any BLM road design standards.

Priority Habitat Management Areas: Areas that have been identified as having the highest conservation value to maintaining sustainable GRSG populations. These areas would include breeding, late brood-rearing, and winter concentration areas. The BLM and Forest Service have identified these areas in coordination with respective state wildlife agencies.

Public domain: The term applied to any or all of those areas of land ceded to the federal government by the original states and to such other lands as were later acquired by treaty, purchase, or cession and are disposed of only under the authority of Congress.

Range improvement: Any activity, structure, or program on or relating to rangelands that is designed to improve production of forage, change vegetative composition, control patterns of use, provide water, stabilize soil and water conditions, and provide habitat for livestock and wildlife. The term includes structures, treatment projects, and use of mechanical means to accomplish the desired results.



Reclamation: The suite of actions taken within an area affected by human disturbance, the outcome of which is intended to change the condition of the disturbed area to meet predetermined objectives or make it acceptable for certain defined resources (e.g., wildlife habitat, grazing, and ecosystem function).

Reclamation plans: Plans that guide the suite of actions taken within an area affected by human disturbance, the outcome of which is intended to change the condition of the disturbed area to meet pre-determined objectives and/or make it acceptable for certain defined resources (e.g., wildlife habitat, grazing, ecosystem function, etc.).

Reference state: The state where the functional capacities represented by soil/site stability, hydrologic function, and biotic integrity are performing at an optimum level under the natural disturbance regime. This state usually includes what is often referred to as the potential natural plant community.

Required design features: Required Design Features (RDFs) are required for certain activities in all GRSG habitat. RDFs establish the minimum specifications for certain activities to help mitigate adverse impacts. However, the applicability and overall effectiveness of each RDF cannot be fully assessed until the project level when the project location and design are known. Because of site-specific circumstances, some RDFs may not apply to some projects (e.g., a resource is not present on a given site) and/or may require slight variations (e.g., a larger or smaller protective area). All variations in RDFs would require that at least one of the following be demonstrated in the NEPA analysis associated with the project/activity:

- A specific RDF is documented to not be applicable to the site-specific conditions of the project/activity (e.g. due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable;
- An alternative RDF is determined to provide equal or better protection for GRSG or its habitat;
- A specific RDF will provide no additional protection to GRSG or its habitat.

Reserve common allotment: An area which is designated in the land use plan as available for livestock grazing but reserved as an area available for use as an alternative to grazing in another allotment in order to facilitate rangeland restoration treatments and recovery from natural disturbances such as drought or wildfire. The reserve common allotment would provide needed flexibility that would help the agency apply temporary rest from grazing where vegetation treatments and/or management would be most effective.

Residual impacts: Impacts from an implementation-level decision that remain after applying avoidance and minimization mitigation; also referred to as unavoidable impacts.

Resource management plan: 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.

Resources, qualities, and values: The significant scenic, historic, cultural, recreation, natural (including biological, geological, and scientific), and other landscape areas through which trails may pass, as identified in the National Trails System Act (see associated settings).

Restoration: Implementation of a set of actions that promotes plant community diversity and structure that allows plant communities to be more resilient to disturbance and invasive species over the long term. The long-term goal is to create functional high quality habitat that is occupied by GRSG. The short-term goals may be to restore the landform, soils, and hydrology and to increase the percentage of preferred vegetation, seeding of desired species, or treatment of undesired species.

Restriction/restricted use: A limitation or constraint on public land uses and operations. Restrictions can be of any kind, but most commonly apply to certain types of vehicle use, temporal or spatial constraints, or certain authorizations.

Right-of-way: Land authorized to be used or occupied for the construction, operation, maintenance, and termination of a project or facility passing over, upon, under or through such land.

Road (BLM): A linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use.

Road or trail (Forest Service): A road or trail wholly or partly within or adjacent to and serving the National Forest System that the Forest Service determines is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources.

Roadless area: Undeveloped federal land within which there are no improved roads or roads maintained for travel by means of motorized vehicles intended for highway use.

Sagebrush Focal Area: Areas identified by the USFWS that that represent recognized “strongholds” for GRSG that have been noted and referenced by the conservation community as having the highest densities of GRSG and other criteria important for the persistence of GRSG.

Season of use: The time during which livestock grazing is permitted on a given range area, as specified in the grazing lease.

Soft triggers: An intermediate threshold indicating that management changes are needed at the implementation level to address habitat or population losses.



Special recreation management area: Administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, or distinctiveness, especially compared to other areas used for recreation.

Special recreation permits: Authorizations that allow for recreation on public lands and related waters. Issued as a means to control visitor use, protect recreational and natural resources, and provide for the health and safety of visitors. Commercial special recreation permits also are issued as a mechanism to provide a fair return for the commercial use of public lands.

Special status species: Includes proposed species, listed species, and candidate species under the ESA; also, state-listed species and BLM State Director-designated sensitive species (BLM Manual 6840, Special Status Species Management).

Special use authorization: A written permit, term permit, lease, or easement that authorizes use or occupancy of National Forest System lands and specifies the terms and conditions under which the use or occupancy may occur.

Split estate: Circumstance where the surface of a particular parcel of land is owned by a different party than the minerals underlying the surface. Split estates may have any combination of surface/subsurface owners: federal/state, federal/private, state/private, or percentage ownerships. When referring to the split estate ownership on a particular parcel of land, it is generally necessary to describe the surface/subsurface ownership pattern of the parcel.

State: A state is composed of an integrated soil and vegetation unit having one or more biological communities that occur on a particular ecological site and that are functionally similar with respect to the three attributes (soil/site stability, hydrologic function, and biotic integrity) under natural disturbance regimes.

Stipulation (general): A condition of lease issuance that provides a level of protection for other resource values or land uses by restricting lease operations during certain times or locations or to avoid unacceptable impacts, to an extent greater than standard lease terms or regulations. A stipulation is an enforceable term of the lease contract, supersedes any inconsistent provisions of the standard lease form, and is attached to and made a part of the lease. Lease stipulations further implement the BLM's regulatory authority to protect resources or resource values. Lease stipulations are developed through the land use planning process.

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.

Soft trigger: An intermediate threshold indicating that management changes are needed at the implementation level to address habitat or population losses.

Stochastic: Randomly determined event, chance event, a condition determined by predictable processes and a random element.

Substantial interference: Determination that an activity or use hinders or obstructs the nature and purposes of a designated National Trail (see nature and purposes).

Surface disturbance: Suitable habitat is considered disturbed when it is removed and unavailable for immediate GRSG use.

- Long-term removal occurs when habitat is physically removed through activities that replace suitable habitat with long-term occupancy of unsuitable habitat, such as a road, power line, well pad, or active mine. Long-term removal may also result from any activities that cause soil mixing, soil removal, and exposure of the soil to erosive processes
- Short-term removal occurs when vegetation is removed in small areas but restored to suitable habitat within less than five years of disturbance, such as a successfully reclaimed pipeline or successfully reclaimed drill hole or pit
- Suitable habitat rendered unusable due to numerous anthropogenic disturbances
- Anthropogenic surface disturbance are surface disturbances meeting the above definitions and that result from human activities

Surface-disturbing and disruptive activities: Actions that alter the vegetation, surface/near surface soil resources, and/or surface geologic features, beyond natural site conditions and on a scale that affects other public land values. Examples of surface-disturbing activities are operation of heavy equipment to construct well pads, roads, pits and reservoirs; installation of pipelines and power lines; and the conduct of several types of vegetation treatments (e.g., prescribed fire). Surface-disturbing activities may be either authorized or prohibited.

Surface uses: Activities that may be present on the surface or near-surface (e.g., pipelines), of the public lands. When administered as a use restriction (e.g., no surface occupancy), this phrase prohibits all but specified resource uses and activities in a certain area to protect particular sensitive resource values and property. This designation typically applies to small acreage sensitive resource sites (e.g., plant community study enclosure), or administrative sites (e.g., government ware-yard) where only authorized agency personnel are admitted.

Tall structures: A wide array of infrastructures (e.g., poles that support lights, telephone and electrical distribution, communication towers, meteorological towers, high-tension transmission towers, and wind turbines) that have the potential to disrupt lekking or nesting birds by creating new perching/nesting opportunities and/or decreasing the use of an area. A determination as to whether something is considered a tall structure would be based on local conditions such as vegetation or topography.



Technically/economically feasible: Actions that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant. It is the BLM's and the Forest Service's sole responsibility to determine what actions are technically and economically feasible. The BLM and the Forest Service will consider whether implementation of the proposed action is likely given past and current practice and technology; this consideration does not necessarily require a cost-benefit analysis or speculation about an applicant's costs and profit.

Temporary/temporary use (BLM): relative term that must be considered in the context of the resource values affected and the nature of the resource use or activity taking place. Generally, a temporary activity is considered to be one that is not fixed in place and is of short duration.

Temporary special use permit (Forest Service) – A type of permit that terminates within 1 year or less after the approval date. All other provisions applicable to permits apply fully to temporary permits. Temporary special use permits are issued for seasonal or short-duration uses involving minimal improvement and investment.

Temporary special use permit: A type of permit that terminates within 1 year or less after the approval date. All other provisions applicable to permits apply fully to temporary permits. Temporary special use permits are issued for seasonal or short-duration uses involving minimal improvement and investment.

Term permit: An authorization to occupy and use National Forest System land, other than rights-of-way for a specified period that is both revocable and compensable according to its terms.

Timeliness: The lack of a time lag between impacts and the achievement of compensatory mitigation goals and objectives (BLM Manual Section 1794).

Timely: The conservation benefits from compensatory mitigation accruing as early as possible or before impacts have begun.

Timing limitation: Areas identified for timing limitations, a moderate constraint, are closed to fluid mineral exploration and development, surface-disturbing activities, and intensive human activity during identified time frames. This stipulation does not apply to operation and basic maintenance activities, including associated vehicle travel, unless otherwise specified. Construction, drilling, completions, and other operations considered to be intensive are not allowed. Intensive maintenance, such as workovers on wells, is not permitted. TLs can overlap spatially with NSO and CSU, as well as with areas that have no other restrictions.

Trail (BLM): A linear route managed for human-powered, stock, or off-highway vehicle forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.

Transition: A shift between two states. Transitions are not reversible by simply altering the intensity or direction of factors that produced the change. Instead, they require new inputs, such as revegetation or shrub removal. Practices such as these that accelerate succession are often expensive to apply.

Transmission line: An electrical utility line with a capacity greater than or equal to 100kV or a natural gas, hydrogen, or water pipeline greater than or equal to 24” in diameter.

Travel management areas: Polygons or delineated areas where a rational approach has been taken to classify areas as open, closed, or limited and have identified or designated a network of roads, trails, ways, and other routes that provide for public access and travel across the planning area. All designated travel routes within travel management areas should have a clearly identified need and purpose, as well as clearly defined activity types, modes of travel, and seasons or timeframes for allowable access or other limitations (BLM Manual H1601-1 Land Use Planning Handbook).

Travel management system: Planned and authorized roads, trails, and areas for motor vehicle use on National Forest System lands that are managed in a controlled, sustained manner.

Unitization: The process by which lessees may unite with each other in collectively adopting and operating under a unit plan for the development of any oil, gas, or geothermal field.

Utility-scale and/or commercial energy development: A project that is capable of producing 20 or more megawatts of electricity for distribution to customers through the electricity-transmission-grid system.

Valid existing rights. Documented, legal rights or interests in the land that allow a person or entity to use said land for a specific purpose and that are still in effect. Such rights include but are not limited to fee title ownership, mineral rights, rights-of-way, easements, permits, and licenses. Such rights may have been reserved, acquired, leased, granted, permitted, or otherwise authorized under various statutes of law.

Vegetation treatments: Management practices that are designed to maintain current vegetation structure or change the vegetation structure to a different stage of development. Vegetation treatment methods may include managed fire, prescribed fire, chemical, mechanical, and seeding.

Viability (Forest Service): For purposes of the National Forest Management Act and its enabling regulations, viability is the availability of habitat that allows a species to persist on landscapes for long-periods (multi-generational) of time. It assumes that populations are abundant (sufficient numbers) and well-distributed (sufficient redundancy of populations) to provide for long-term population persistence on a landscape.



Waiver (oil and gas): Permanent exemption from a lease stipulation. The stipulation no longer applies anywhere within the leasehold.

West Nile virus: A virus that is found in temperate and tropical regions of the world and most commonly transmitted by mosquitoes. West Nile virus can cause flu-like symptoms in humans and can be lethal to birds, including GRSG.

Wild and scenic study river: Rivers identified for study by Congress under Section 5(a) of the Wild and Scenic Rivers Act or identified for study by the Secretary of Agriculture or the Secretary of the Interior under Section 5(d)(1) of the Wild and Scenic Rivers Act. These rivers will be studied under the provisions of Section 4 of the Wild and Scenic Rivers Act.

Wildcat well: An exploratory oil well drilled in land not known to be an oil field.

Wilderness characteristics: These attributes include the area's size, its apparent naturalness, and outstanding opportunities for solitude or a primitive and unconfined type of recreation. They may also include supplemental values. Lands with wilderness characteristics are those that have been inventoried and determined by the BLM to contain wilderness characteristics, as defined in Section 2(c) of the Wilderness Act.

Wilderness Study Area: Areas with wilderness characteristics identified and designated through the inventory and study processes authorized by Section 603 of FLPMA and, prior to 2003, through the planning process authorized by Section 202 of FLPMA.

Wilderness: A congressionally designated area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, that is protected and managed to preserve its natural conditions and that (1) generally appears to have been affected mainly by the forces of nature, with human imprints substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least 5,000 acres or is large enough to make practical its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historic value. The definition is contained in Section 2(c) of the Wilderness Act of 1964 (78 Stat. 891, from H-6310-1, Wilderness Inventory and Study Procedures).

Wildfire suppression: An appropriate management response to wildfire, or prescribed fire that results in curtailment of fire spread and eliminates all identified threats from the particular fire.

Wildland Fire: An unplanned, unwanted wildland fire including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out. (National Wildfire Coordinating Group October 2014, <http://www.nwccg.gov/pms/pubs/glossary/w.htm>)

Wildland-urban interface: The line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

Winter concentration areas: GRSG winter habitats that are occupied annually by GRSG and provide sufficient sagebrush cover and food to support birds throughout the entire winter (especially periods with above average snow cover). Many of these areas support several different breeding populations of GRSG. GRSG typically show high fidelity for these areas, and loss or fragmentation can result in significant population impacts.

Withdrawal: A withholding of an area of federal land from settlement, sale, location, or entry under some or all of the general land laws to achieve the following:

- Limit activity under those laws in order to maintain other public values in the area
- Reserve the area for a particular public purpose or program
- Transfer jurisdiction of the area from one federal agency to another

Zoological area: Roughly analogous to BLM area of critical environmental concern, this area preserves GRSG habitat next to potential ACECs found to have relevance and importance. This area would be managed to ensure consistent GRSG management and conservation across the landscape.



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