



U.S. Department of the Interior

**BUREAU OF LAND
MANAGEMENT**

March 2020

Programmatic EIS for Fuel Breaks in the Great Basin

Record of Decision



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.

Executive Summary

This Record of Decision (ROD) represents a final decision for the U.S. Department of the Interior, Bureau of Land Management's (BLM) Final Programmatic Environmental Impact Statement for Fuel Breaks in the Great Basin (PEIS) which proposed use of manual, mechanical, and chemical treatments, targeted grazing, and prescribed fire to construct and maintain fuel breaks on BLM-administered lands in the Great Basin.

This project was initially scoped to the public in December 2017. The PEIS analyzed four alternatives in detail and another three alternatives were considered but not carried forward for detailed analysis. The Draft PEIS was released for public comment in June 2019 and the Final PEIS was released in February 2020.

Chapter I. Record of Decision

I.1 INTRODUCTION

Wildfires have increased in size and frequency throughout the western United States in recent years. Further, the number of areas that burn repeatedly before habitats can be re-established has increased. These large, repeated fires degrade healthy rangelands, sagebrush communities, and the general productivity of the lands. In the last decade (2009-2018), 21 fires exceeded 100,000 acres each. During this same timeframe, over 13.5 million acres of BLM-administered acres within the project area burned (BLM 2019). These wildfires destroyed private property, degraded or destroyed rangelands, diminished recreational opportunities, and led to habitat loss for a variety of plant and animal species. In some places, vegetative communities converted from native plant communities to invasive annual grasses such as cheatgrass. The conversion of rangeland habitats to invasive annual grasslands further impedes rangeland health and productivity by slowing or preventing recovery of sagebrush communities. Existing fuel breaks in the Great Basin have been utilized by firefighters to contain and control wildfires.

Systems of strategically placed fuel breaks in the Great Basin region will improve firefighter safety and provide anchor points for fire suppression activities, expand opportunities to control wildfires, and creating buffers for maintaining important habitats. Fuel breaks will also offer greater protection to human life and property, sagebrush communities, and ongoing/pending habitat restoration investments, and reduce invasive plant species expansion.

In 2015, Nevada, California, Oregon, Idaho, and Utah completed several Fire and Invasives Assessment Tool (FIAT) assessments. The FIAT assessments identified approximately 11,000 miles of potential fuel break locations along existing roads in the Great Basin region. These areas were identified and prioritized based on threats for fire operations and fuels management. The total mileage of fuel breaks, as determined in the FIAT assessments, became the starting point for the mileage of fuel breaks analyzed in this PEIS. Where FIAT assessments were not completed for areas within the project area boundary, such as Washington State, the existing road network was used as the baseline.

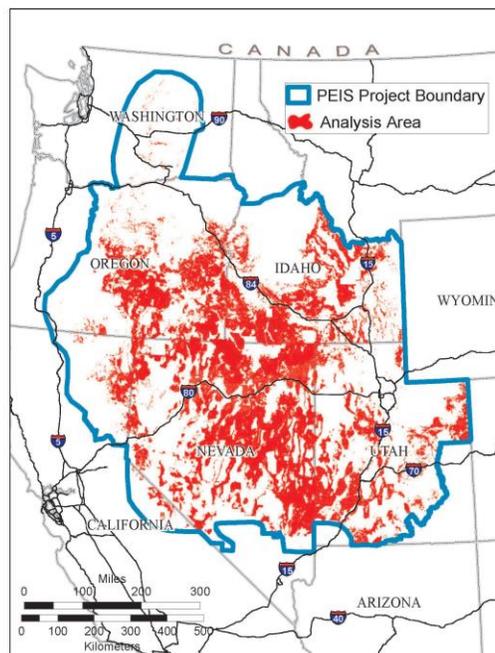
This document comprises two chapters. Chapter One contains background and introductory material, a summary of the decision, rationale for the decision, and a brief description of the NEPA process to this point. Chapter Two contains the complete text of the decision including design features and conservation measures to avoid and minimize impacts. All references to Maps, Appendices, and Tables refer to locations in the PEIS unless the map or table is embedded in the text of this document.

I.2 PROJECT AREA

The project area boundary includes portions of California, Idaho, Nevada, Oregon, Utah, and Washington. It includes all surface management and covers approximately 223 million acres; of these acres, BLM-administered lands cover approximately 90 million acres.

The analysis area is a subset of the project area boundary. It is defined by the current and historical presence of sagebrush on BLM-administered lands within the project area boundary. The analysis area was further refined by excluding areas described in **Section 2.2.1** of the Final PEIS. The analysis area covers approximately 38 million acres on BLM-administered lands within the project area boundary (**Map I**).

Map I. Project Boundary and Analysis Area



I.3 DECISION

The BLM selects Alternative D as described in the February 2020 Final PEIS. The selected alternative provides a framework under which BLM offices may work to develop on-the-ground fuel break systems within the project area. Up to 11,000 miles (667,000 acres) of fuel breaks may be constructed across the Great Basin along existing roads and along BLM-administered Rights of Ways (ROWs) in accordance with the limitations and design features identified in the PEIS. The exclusion areas, placement criteria, design features, and conservation measures included in the selected alternative avoid or minimize impacts to important resources. This decision is made acknowledging the level of impact disclosed in the

PEIS and considers the necessity of evaluating site specific avoidance measures on a project by project basis. This ROD applies only to BLM administered land within the ~38 million-acre Analysis Area. Chapter 2 of this ROD contains the complete description of the decision.

No surface disturbing activities are authorized through this ROD without additional site-specific consideration (Determination of NEPA Adequacy or focused EA) and a site-specific decision record. Where necessary, compliance with Section 106 of the National Historic Preservation Act must be completed prior to issuing a site-specific decision record.

A BLM office will propose and develop individual projects consistent with the selected alternative. For each individual project the field office will complete a Determination of NEPA Adequacy (DNA) that describes the project, ensures that it is consistent with the selected alternative from the PEIS, and that the effects of the proposed activities do not exceed the effects disclosed in the PEIS. Section 106 consultation will be completed as part of the DNA process. If the DNA determines that the effects will exceed those described in the PEIS, then a separate NEPA analysis, tiered to the PEIS where appropriate, will be required. After the completion of the DNA or additional NEPA analysis the field office will prepare a project level Decision Record and Finding of No New Significant Impact (FONNSI), if appropriate, to authorize site specific treatments. The Decision Record will be appealable under 43 C.F.R. Part 4. Coordination with Tribal, state and local governments, affected parties, and the public will still be required, but the degree of coordination and outreach will be at the discretion of the Authorized Officer.

I.4 RATIONALE

The decision provides the most flexibility for offices to strategically plan and implement effective systems of fuel breaks across the Great Basin. Fuel Breaks could be created along any existing roads or BLM-administered ROWs; giving local offices more options for selecting the most effective locations while minimizing the impacts to other resources.

The decision provides a full suite of treatment methods to effectively create and maintain fuel breaks including manual, mechanical, chemical, targeted grazing, and prescribed fire. This allows offices to select the most effective method of fuel break creation and maintenance for a specific site. The decision analyzed the impacts of all three common fuel break types (Brown Strips, Green Strips, and Mowed/grazed strips) allowing field offices to select the most appropriate fuel break type for each specific location. The decision also includes a suite of exclusion areas and design features to avoid or minimize impacts to important resources.

The flexibility provided in this decision will provide the best opportunity for effective fuel break creation and maintenance to maximize opportunities for firefighters to safely and effectively attack wildfires. Effective systems of fuel breaks should increase firefighters' ability to slow and control wildfires. Offices with effective systems of fuel breaks should have fewer acres burned on average each year.

The decision may result in up to 667,000 acres of vegetation being altered or removed within the 38 million-acre analysis area. This represents less than 2 percent of the analysis area. Fuel breaks will be sited in mostly disturbed or altered vegetation communities. This is because fuel breaks will only be placed along existing roads and rights of way where some level of disturbance or fragmentation is already occurring. Additionally, the exclusion areas and implementation of the design features will

protect the highest resource values. Placement of fuel breaks along existing disturbances reduces the fragmentation and invasive annual grass expansion risks. This decision provides a balanced approach for protecting resources within the ecoregion from wildfires.

Some recent publications have expressed concerns about fuel breaks potentially increasing fragmentation and invasive annual grasses expansion. They have also expressed concerns about the effectiveness of fuel breaks and slowing or stopping wildfire (Shinneman et al 2018 and 2019). The BLM recognized those concerns and took actions to reduce those potential impacts. First, fuel breaks are only proposed in already fragmented areas like along roads and rights of ways. Second, the fuel break placement criteria point offices towards placement options that minimize impacts to intact sagebrush communities while maximizing fuel break effectiveness. Third, the decision emphasizes the importance of maintenance and weed control in fuel breaks to improve effectiveness and reduce the spread of invasive weeds. Finally, the selected alternative does not authorize fuel breaks in many important areas like Wilderness and Areas of Critical Environmental Concern.

Some commenters during the NEPA process questioned the potential effectiveness of fuel breaks in the Great Basin. The skepticism is primarily based on a misunderstanding about the role of fuel breaks in fire suppression and the perception that they are somehow a new idea. Fuel breaks can be compared to a fire ring around a campfire. Campers put a ring of rocks around a camp fire to contain the flames; firefighters dig a fire line around wildfires. Virtually every aspect of fire suppression relies on the creation of some type of fuel break. Firefighters have controlled thousands of wildfires through the years by interrupting the fuel continuity in front of a wildfire. One of the most limiting resources in fighting a wildfire is time; in hot dry and windy conditions, firefighters rarely have the time they need to construct adequate fire line when a wildfire is headed their way. Hand digging or even bulldozing a fire line is slow when compared to a wildfire moving 30-40 miles per hour. Fuel Breaks are advance fire lines that give firefighters extra time and a safer place to start attacking a wildfire. Fuel breaks can be placed in carefully targeted locations along existing roads to minimize the effects on ecosystem processes and can aid fire suppression efforts (Chambers et al. 2017). See **Appendix K** for examples of how fuel breaks have been used within the Great Basin. This suggests that advance fuel breaks may be less impactful than dozer lines since there is more time and forethought involved in their creation.

I.5 ALTERNATIVES

I.5.1 Summary of Alternatives Evaluated in Detail in the PEIS

Alternative A - No Action Alternative

Under the No Action Alternative, BLM would implement individual fuel break projects with site-specific NEPA.

Alternative B

Alternative B analyzed up to approximately 8,700 miles of new fuel breaks along Maintenance Level 5 roads (BLM Manual MS 9113). The types of tools proposed to create fuel breaks were limited. Manual and mechanical treatments could be used, except for treating sagebrush. Prescribed fire, chemical treatments (herbicides), and targeted grazing would not be used to create or maintain fuel breaks. Fuel breaks would be planted with native plant material only. Intact vegetative communities characterized by high resistance and resilience (Chambers et al. 2014a) would not be treated but could be protected via treatment of adjacent areas.

Alternative C

Alternative C analyzed up to approximately 11,000 miles of new fuel breaks along Maintenance Levels 3 and 5 roads (BLM Manual MS 9113) and BLM-administered ROWs. Manual, mechanical, and chemical treatments, prescribed fire, and targeted grazing could be used in all areas, including sites with sagebrush. Fuel breaks would be constructed and maintained in accordance with the BLM's Integrated Vegetation Management Handbook (H-1740-2, see Chapter 8) and the National Seed Strategy for Rehabilitation and Restoration (Plant Conservation Alliance 2015). Limited treatments would occur in highly resistant/resilient vegetative communities with high fire probability or where the 2015 Approved Resource Management Plan Amendments for Sage-grouse adaptive management habitat triggers have been tripped; only native plants would be sowed in these areas.

Alternative D – Selected Alternative

Alternative D analyzed up to approximately 11,000 miles of new fuel breaks along Maintenance Levels 1, 3, and 5 roads (BLM Manual MS 9113) and BLM-administered ROWs. Management of manual, chemical, prescribed fire, reseeding, and targeted grazing would be the same as under Alternative C. However, fuel breaks could be created in highly resistant and resilient sites without the constraints included in Alternative C, but would be subject to design features to avoid or minimize adverse effects. Chapter 2 of this ROD contains the complete description of the selected alternative.

1.5.2 Alternatives Considered but Eliminated from Detailed Analysis

Use of wild horses and burros to reduce vegetation. During scoping, several commenters suggested the use of wild horses and burros to manage vegetation, noting that, since wild horses eat cheatgrass, they could remove nonnative invasive annual grasses. This alternative was dismissed because it would not meet the purpose and need for the project in its entirety and would be inconsistent with policy (BLM Handbook H-4700-1). Wild horses and burros are to be managed within existing Herd Management Areas (HMAs) and within appropriate management levels (AMLs); therefore, such an alternative would be restricted to HMAs that presently are below minimum AMLs only. According to the Wild Free-Roaming Horses and Burros Act of 1971, as amended, wild horses and burros are to be managed as free roaming and at the minimum feasible level. Managing wild horses and burros in an intensive manner to ensure only target vegetation and areas are to be grazed would also be contrary to the 1971 Act.

Creating fuel breaks solely in the Wildland Urban Interface (WUI). The BLM considered constructing fuel breaks only in the WUI; however, this PEIS is intended to construct fuel breaks in order to protect a multitude of resources and not solely the WUI areas. While fuel breaks in the WUI may assist in providing firefighter staging areas and faster response in some areas, focusing only on the WUI would not meet the purpose and need in its entirety.

Constructing fuel breaks only in areas with nonnative vegetation. Scoping comments also suggested constructing fuel breaks only in areas with nonnative vegetation, such as invasive annual grasses and crested wheatgrass. This would be overly restrictive, since there is often a need to create fuel breaks in areas of native or mixed native/nonnative vegetation communities adjacent to intact sagebrush communities. Further, while this would provide opportunities for fire suppression and protection of intact native plant communities in some areas, it would be ineffective in meeting the purpose and need across the entire project area and would unduly restrict the location of fuel breaks.

Alternatives to fuel breaks. Scoping comments suggested alternatives to fuel breaks, such as increasing suppression by locating more fire personnel closer to important habitats and increasing aerial fire detection and suppression. These actions would complement fuel breaks, but they alone would not meet the purpose and need to slow the spread of wildfires, improve firefighter safety, or create buffers for maintaining important habitats.

1.5.3 Environmentally Preferred Alternative

Alternative D, the Preferred Alternative in the Final PEIS, is the environmentally preferred alternative in this ROD. Alternative D will result in the most fuel breaks and the most short-term ground disturbance but will offer BLM the most flexibility in developing fuel-break systems to reduce the number of acres burned each year. Long-term, Alternative D has the greatest potential to protect intact sagebrush communities from wildfire and restoration investments in degraded habitats. While other alternatives may have fewer short-term impacts by restricting certain tools such as chemical treatments, Alternative D will have the fewest long-term impacts. Alternative D will provide the greatest opportunities to modify wildfire intensity and improve effective wildfire suppression, thereby providing the greatest contribution to long-term preservation and protection of sagebrush communities within the project boundary.

1.6 MANAGEMENT CONSIDERATIONS

The Selected Alternative meets the intent of Secretarial Order 3372, *Reducing Wildfire Risks on Department of the Interior Land Through Active Management*. It provides opportunities for streamlined NEPA compliance, reduced costs, and more rapid implementation of fuel breaks. Systems of fuel breaks will:

- Enhance firefighter and public safety
- Compartmentalize the landscape to reduce fire spread and number of burned acres
- Decrease wildfire risk to:
 - Emergency stabilization and rehabilitation investments
 - Private property and infrastructure
 - Grazing allotments and healthy rangelands and
 - Habitat restoration investments

This ROD conforms to the Department of the Interior's commitment to create a conservation stewardship legacy, as a regional system of interconnected or strategically placed fuel breaks of different types will increase opportunities for firefighters to safely attack wildfires by increasing potential anchor points in strategic locations. Fuel Breaks can also reduce flame lengths and disrupt the movement of a wildfire on multiple fronts as it moves across the landscape. The combined effect will be a reduced potential for fire spread and subsequent burned area. This ROD also furthers the Department of the Interior's priority to restore trust with local communities, as the regional programmatic analysis facilitates a strategic and consistent approach to planning and implementing projects within the Great Basin region. In addition, it promotes coordination and cooperation at the landscape scale, linking fuel breaks across state lines and land ownerships. Opportunities will be available to outside sources for constructing and maintaining fuel break projects, such as through contracting with local rural resources and offering the potential for stewardship efforts with stakeholders.

I.7 MITIGATION MEASURES

This ROD incorporates design features to minimize or eliminate adverse impacts of the Selected Alternative on identified resources (see Chapter 2 of this ROD). BLM district and/or field office resource specialists will determine the locations of avoidance areas and where to apply design features to protect resources during fuel break creation and maintenance.

Any subsequent site-specific NEPA compliance will also adhere to all BLM policies, plans, and programs, including applicable resource management plans; BLM Manual 9211, *Fire Planning Manual*; BLM Manual 9200, *Fire Program Management*; BLM Manual 6840, *Special Status Species Management*; BLM Manuals 8110, *Identifying and Evaluating Cultural Resources* and 8140, *Protecting Cultural Resources*; and BLM Manual 1780, *Tribal Relations* (See **Appendix C**). The BLM will also consider any applicable non-BLM policies, plans, and programs during this project as well as subsequent site-specific NEPA compliance.

I.8 PUBLIC INVOLVEMENT

I.8.1 Public Scoping

The scoping period began with the publication of the Notice of Intent to Prepare Two Great Basin-Wide Programmatic Environmental Impact Statements to Reduce the Threat of Wildfire and Support Rangeland Productivity in the *Federal Register* on December 22, 2017. During the scoping period, the BLM sought public comments to determine relevant issues that could influence the scope of the environmental analysis, including alternatives, and guide the process for developing the PEIS for Fuel Breaks in the Great Basin as well as the PEIS for Fuels Reduction and Rangeland Restoration in the Great Basin. The latter PEIS will have a separate ROD. The BLM hosted 15 public scoping meetings throughout the six-state project area in January and February of 2018. The BLM received 98 unique written submissions during the public scoping period, comprising 1,484 substantive comments. A summary of each of these comments and the BLM's consideration of those comments can be found in the scoping report located on the Project ePlanning site.

A majority of the comments received related to the following:

- The need for implementation of a monitoring program to quantify the effectiveness and maximize the success of fuel breaks
- The need to ensure the recovery of habitat components for species
- The treatment components and treatment areas to include or exclude from the PEIS alternatives in order to develop and maintain fuel breaks and prevent fires
- Evaluation of the direct and indirect costs of the project, including costs of construction, treatments, machinery, and maintenance as well as costs of the impacts on other resources and land uses as a result of proposed actions
- Evaluation of potential adverse impacts on natural, cultural, and socioeconomic resources due to fuels management on BLM-administered lands

I.8.2 Public Comment

The Draft EIS was sent out for a 45-day public comment period, from June 21, 2019, to August 5, 2019. The BLM hosted 12 public comment meetings throughout the six-state project area in July 2019. The BLM received 907 comment form letters and 138 unique comment letters. Comments were grouped by

topic and were summarized, and then the BLM responded to those comments. Comment responses can be found in the Final PEIS, **Appendix N**.

I.8.3 Native American Consultation

Various federal laws require the BLM to consult with Native American Tribes during the planning/NEPA decision-making process. This section documents the specific consultation and coordination undertaken throughout the process of developing the PEIS. The Idaho BLM sent out tribal consultation letters in December 2017, inviting the tribes listed in the table below to consult with the BLM during development of the PEIS:

Alturas Indian Rancheria, California
Bridgeport Indian Colony
Burns Paiute Tribe
California Native American Heritage Commission
Cedarville Rancheria, California
Coeur d'Alene Tribe
Confederated Salish and Kootenai Tribes of the Flathead Reservation
Confederated Tribes and Bands of the Yakama Nation
Confederated Tribes of the Colville Reservation
Confederated Tribes of the Goshute Reservation, Nevada and Utah
Confederated Tribes of the Umatilla Reservation
Confederated Tribes of the Warm Springs Reservation of Oregon
Death Valley Timbi-sha Shoshone Tribe
Duckwater Shoshone Tribe of the Duckwater Reservation, Nevada
Eastern Shoshone Tribe of the Wind River Reservation, Wyoming
Ely Shoshone Tribe of Nevada
Fort Bidwell Indian Community of the Fort Bidwell Reservation of California
Fort McDermitt Paiute and Shoshone Tribes of the Fort McDermitt Indian Reservation, Nevada and Oregon
Greenville Rancheria
Hopi Tribe of Arizona
Kaibab Band of Paiute Indians of the Kaibab Indian Reservation, Arizona
Kalispel Indian Community of the Kalispel Reservation
Klamath Tribes
Kootenai Tribe of Idaho
Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony, Nevada
Lovelock Paiute Tribe of the Lovelock Indian Colony, Nevada
Moapa Band of Paiute Indians of the Moapa River Indian Reservation, Nevada
Navajo Nation, Arizona, New Mexico & Utah
Nevada Indian Commission
Nez Perce Tribe
Northwestern Band of Shoshone Nation
Paiute Indian Tribe of Utah

Paiute Indian Tribe of Utah - Cedar Band of Paiutes
Paiute Indian Tribe of Utah - Indian Peaks Band of Paiutes
Paiute Tribe of Utah - Kanosh Band of Paiutes
Paiute Indian Tribe of Utah - Koosharem Band of Paiutes
Paiute Indian Tribe of Utah - Shivwits Band of Paiutes
Paiute-Shoshone Tribe of the Fallon Reservation and Colony, Nevada
Pit River Tribe
Pyramid Lake Paiute Tribe of the Pyramid Lake Reservation, Nevada
Reno-Sparks Indian Colony
Shoshone-Bannock Tribes of the Fort Hall Reservation
Shoshone-Paiute Tribes of the Duck Valley Reservation, Nevada
Skull Valley Band of Goshute Indians of Utah
Southern Ute Indian Tribe
Spokane Tribe of the Spokane Reservation
Summit Lake Paiute Tribe
Susanville Indian Rancheria, California
Te-Moak Tribe of Western Shoshone Indians of Nevada
Te-Moak Tribe of Western Shoshone Indians of Nevada - Battle Mountain Band
Te-Moak Tribe of Western Shoshone Indians of Nevada - Elko Band
Te-Moak Tribe of Western Shoshone Indians of Nevada - South Fork Band
Te-Moak Tribe of Western Shoshone Indians of Nevada - Wells Band
The Modoc Tribe of Oklahoma
Ute Indian Tribe of the Uintah and Ouray Reservation, Utah
Ute Mountain Ute Tribe
Walker River Paiute Tribe of the Walker River Reservation, Utah
Washoe Tribe of Nevada and California
Winnemucca Indian Colony of Nevada c/o Reno Law Group
Yerington Paiute Tribe of the Yerington Colony & Campbell Ranch, Nevada
Yomba Shoshone Tribe of the Yomba Reservation, Nevada

Of the tribes contacted, the Burns Paiute Tribe responded, stating that it would like to engage in formal consultation. In addition, the BLM has engaged in regular government-to-government consultation with the Shoshone-Paiute Tribes of Duck Valley Indian Reservation regarding this PEIS. Further consultation will be initiated with potentially affected Tribes as site-specific projects are developed and prior to chemical treatments that could affect important Tribal resources. The Shoshone-Paiute tribe expressed concerns about the maintenance of fuel breaks and the need for adequate cultural clearances on site-specific projects. The Shoshone Paiute Tribes requested Government to Government consultation on all fuel breaks using this PEIS. The BLM met with the Shoshone-Paiute Tribes of the Duck Valley Reservation on July 21, 2016, November 17, 2016, February 16, 2017, October 19, 2017, March 15, 2018, October 24, 2019 and January 16, 2020 to keep them updated on the status of the PEIS through the Wings and Roots Campfire consultation process. The BLM made changes to the PEIS based on their input.

I.8.4 Consultation with the U.S. Fish and Wildlife Service (FWS)

The BLM consulted informally with the FWS on the potential impacts of this proposal on species listed or proposed for listing under the Endangered Species Act of 1973. The BLM received a letter of concurrence from the FWS on March 19, 2020. The FWS requested that the BLM add a couple conservation measures related to Wolf and livestock interactions during targeted grazing operations. Those Conservation measures have been added to Chapter 2 of this ROD with the other conservation measures.

I.8.5 Cooperating Agencies

The cooperating agency relationships established during this project facilitated the exchange of views and expertise between BLM personnel and other government officials and staff. This form of consultation, unique to planning and the NEPA process, was crucial to shaping the PEIS. The BLM formalized cooperating agency relationships with 18 governmental parties:

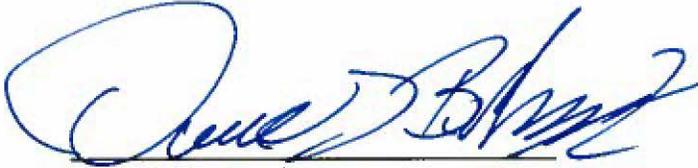
- Idaho National Guard
- Idaho Department of Lands
- Blaine County, Idaho
- Cassia County, Idaho
- Lemhi County, Idaho
- Nevada Department of Wildlife
- Elko County, Nevada
- Eureka County, Nevada
- Humboldt County, Nevada
- Lincoln County, Nevada
- Storey County, Nevada
- Carbon County, Utah
- Duchesne County, Utah
- State of Utah, Governor's Public Lands Policy Coordination Office
- Beaver County, Utah
- Natural Resources Conservation Service, Nevada, Utah, Idaho, and Oregon
- National Trails Intermountain Region, National Park Service
- US Bureau of Reclamation

I.9 AVAILABILITY OF THE SELECTED ALTERNATIVE

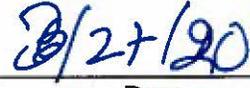
Copies of the ROD and the Selected Alternative may be obtained by viewing or downloading the document from the BLM website located at: <https://go.usa.gov/xnQcG>.

1.10 APPROVAL

I hereby approve this decision. My approval of this decision constitutes a final decision of the Department of Interior and in accordance with the regulations at 43 CFR 4.410(a)(3), is not subject to appeal under Department regulations at 43 CFR Part 4. Any challenge to this decision must be brought in Federal District Court.



David L. Bernhardt
Secretary of the Interior



Date

Chapter 2. Selected Alternative

The BLM approves Alternative D as described in the February 2020 Final PEIS. This chapter provides the describes the selected alternative in detail. References to maps and appendices in this chapter pertain to the PEIS.

2.1 ACTIONS NOT INCLUDED IN THIS DECISION

2.1.1 Permitted Grazing

This ROD does not change permitted grazing [43 CFR 4130 (2005)]. However, the BLM may work with permittees through voluntary agreements or coordination within the authorized permitted use to temporarily modify grazing to increase the success of seedings or targeted grazing within fuel breaks.

2.1.2 Road Creation and Maintenance

No new roads will be created. Improvement or maintenance of roads beyond the current definition, designation, and maintenance level will require additional site-specific analysis. Road maintenance levels 1, 3, and 5 are defined in BLM Manual MS 9113 - Roads. Maintenance level 1 roads are generally 2-tracks with little traffic that don't have a regular maintenance schedule and may be impassible for extended periods of time. Traffic is often seasonal (e.g., during hunting season). Maintenance level 3 roads are typically gravel roads with low to moderate traffic that are maintained for almost year-round use that have planned maintenance actions. Maintenance level 5 roads are typically paved, but may be gravel, with high traffic volume that are intended for year-round use with scheduled annual maintenance actions. (see Manual MS 9113 for complete definitions.)

2.1.3 Analysis Exclusion Areas

Fuel breaks are not being proposed in the following areas. If fuel breaks are proposed to be constructed in these areas, site-specific analysis will be required.

- Riparian exclusion areas
 - Perennial streams—300 feet on each side of the active channel, measured from the bank full edge of the stream, or the outer extent of riparian vegetation, whichever is greater
 - Seasonally flowing streams (including intermittent and ephemeral streams with riparian vegetation)—150 feet on each side of the active channel, measured from the bank full edge of the stream, or the outer extent of riparian vegetation, whichever is greater
 - Streams in inner gorge (defined by adjacent stream slopes greater than 70 percent gradient)—Top of inner gorge
 - Special aquatic features (including lakes, ponds, playas, seasonal wetlands, wetlands, seeps, wet meadows, vernal pools, and springs)—300 feet from the edge of feature or the outer extent of riparian vegetation, whichever width is greater
- Wilderness
- Wilderness Study Areas
- Lands with wilderness characteristics that are managed to maintain or enhance those characteristics, including natural areas managed to protect their wilderness character
- National Conservation Areas and National Monuments

- Areas designated through the John D. Dingell Jr. Conservation, Management, and Recreation Act (2019)
- Areas of Critical Environmental Concern
- Visual Resource Management Class I areas
- Areas within a quarter-mile of a Wild and Scenic River (including rivers found eligible and/or suitable)
- Within National Scenic and Historic Trails and trail ROWs/corridors as identified in the Trailwide Comprehensive Plan and applicable land use plan
- Areas within mapped Canada lynx distribution and wolverine primary habitat
- Native, sparsely vegetated areas or sparsely vegetated areas dominated by low sagebrush species

2.2 ACTIONS INCLUDED IN THIS DECISION

Up to approximately 11,000 miles (667,000 acres) of new fuel breaks may be created within the current and historic extent of sagebrush within the project area (see **Maps 1 and 8** in **Appendix A**). Fuel breaks may be created along Maintenance levels 1, 3, and 5 roads, and BLM-administered linear ROWs. The types of fuel breaks will be prioritized based on vegetation states (see **Table 2-2**).

Manual, mechanical, and chemical treatments, prescribed fire, and targeted grazing could be used in all areas, including sites with sagebrush. Chemical treatments could be used in accordance with the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statements and the Final PEIS on using Aminopyralid, Fluroxypyr, and Rimsulfuron (BLM 2007, 2016a) and existing local guidance. Fuel breaks will be constructed and maintained in accordance with the BLM's Integrated Vegetation Management Handbook (H-1740-2, see Chapter 8) and the National Seed Strategy for Rehabilitation and Restoration (Plant Conservation Alliance 2019).

2.2.1 Fuel Break Placement Criteria

All fuel breaks will be placed along existing roads or BLM-administered linear ROWs. Coordination across ownership and management boundaries is encouraged to maximize the efficacy of any fuel break system. Fuel break effectiveness potential should be maximized while minimizing, to the extent practicable, impacts to high-value resources. Site-specific conditions may necessitate deviation from the following criteria to maximize fuel break effectiveness but generally offices should:

- position fuel breaks in areas with high fire probability
- position fuel breaks where they are most effective for firefighters
- position fuel breaks to protect the most important at-risk habitats and resources
- position fuel breaks to protect existing and ongoing restoration actions
- place fuel breaks in already disturbed/degraded areas
- place fuel breaks adjacent to, rather than through, remnant patches of sagebrush
- use the minimum number of fuel breaks needed to effectively protect large intact sagebrush patches and minimize edge effects

2.2.2 Native Plant Material Policy

BLM manages for biologically diverse, resilient and productive native plant communities to sustain the health and productivity of the public lands. BLM Handbook H-1740-2, *Integrated Vegetation Management Handbook*, and the *National Seed Strategy for Rehabilitation and Restoration* (Plant Conservation Alliance 2019), requires that native plant material be used except under limited circumstances and provides necessary procedures for compliance. As a last resort, it may be necessary to introduce nonnative, non-invasive plant materials to break unnatural disturbance cycles or to prevent further site degradation by invasive plant species. Non-native seeds as part of a seeding mixture are appropriate only if: (1) suitable native species are not available, (2) the natural biological diversity of the proposed management area will not be diminished, (3) exotic and naturalized species can be confined within the proposed management area, (4) analysis of ecological site inventory information indicates that a site will not support reestablishment of a species that historically was part of the natural environment, and (5) resource management objectives cannot be met with native species. For example, nonnative plant material may be used in areas with low resistance and resilience that are invaded by invasive annual grasses.

2.2.3 Monitoring, Maintenance, and Adaptive Management

All vegetation management actions should be organized around phases of inventory, assessment, planning, implementation, monitoring and evaluation, and reassessment as described in BLM Handbook H-1740-2 *Integrated Vegetation Management Handbook; Incorporating Assessment Inventory and Monitoring (AIM) for Monitoring Fuels Project Effectiveness Guidebook* (BLM 2018a); *Measuring and Monitoring Plant Populations* (Elzinga et al. 1998); *Sampling Vegetation Attributes* (USDA and USDOJ 1999); local RMP guidance; and other applicable guidance documents or policy. *Using Resistance and Resilience Concepts to Reduce Impacts of Invasive Annual Grasses and Altered Fire Regimes on Sagebrush Ecosystem and Greater Sage-Grouse: A Strategic Multi-Scale Approach* (Chambers et al. 2014b) should be used as a decision support tool to determine priority areas for management and to identify effective management strategies at a landscape scale. *Best Management Practices for Pollinators on Western Rangelands* (Xerces 2018) will be used to incorporate pollinator conservation into management decisions; the reference also describes associated monitoring practices for pollinator populations. Updates to applicable handbooks, manuals, Resource Management Plans and the best available science should also be considered in the development and maintenance of vegetation management projects.

When constructing and maintaining fuel breaks, BLM shall consider resilience to disturbance, resistance to invasive species, and the predominant threats to the sagebrush communities. The Landscape Cover of Sagebrush and Ecosystem Resilience and Resistance Matrix can be used as a decision support tool to provide better evaluation of risks and to decide where to focus specific activities to promote desired species and ecosystem conditions (Chambers et al. 2014b, Tables 2 through 4). Contributions to vegetation management strategies should include all necessary agency program areas such as invasive plant management, fuels management, range management, and wildlife. When applicable, other land-owners, fire response partners, and agencies should be involved.

Monitoring is the key to adaptive management. Maintenance may require re-treating certain areas, using the methods described in this chapter, to maintain effectiveness, minimize the presence of invasive plants, and to prevent tall shrubs from dominating treated areas. The BLM will manage invasive, nonnative, annual plants and noxious weeds in accordance with local weed program monitoring protocol, along with any additional RMP guidance, through manual and chemical methods. The BLM will do this to keep the invasive, nonnative, annual plants and noxious weeds from invading and dominating

the fuel breaks or from spreading out of areas disturbed during fuel break construction. Noxious weeds and invasive plant monitoring and management will be incorporated into all soil disturbances, including pre-work evaluation and avoidance and post-work corrective action, where needed. When fuel breaks are not meeting objectives, modifications should be considered through adaptive management (per Chapter 5 of H-1740-2, Crist et al. 2019). Decommissioning of fuel breaks will be addressed in project objectives at the site-specific level. Monitoring will inform the need for maintenance on new fuel breaks.

2.3 FUEL BREAK TYPES AND VEGETATION STATES

Figure 2 in Appendix A depicts an effective fuel break. Effective fuel breaks reduce fuel loading and continuity or increase fuel moisture, compared with surrounding vegetation. To achieve this, vegetation will be removed, modified, or replaced using various methods depending on vegetation states. Vegetation states were derived using data from the US Geological Survey National Land Cover Database, (Homer et al. 2015) and are presented in **Appendix F** and shown on **Map 3** (shrub and grassland vegetation states) **and Map 4** (pinyon-juniper vegetation states) (**Appendix A**). Effective fuel breaks expand the circumstances where firefighters can attack a wildfire and reduce the time necessary to establish an effective fireline and stop a wildfire. Fire needs fuel and oxygen to continue burning, and since the agency can't affect oxygen levels, BLM focuses on removing or modifying the fuel or making it less flammable. All wildland fire fighting involves interrupting fuels with a line of bare ground, burned vegetation, water, or fire retardant. Fuel breaks are pre-positioned fire lines situated in or adjacent to areas where a fire is likely and designed to increase the opportunities for firefighters to catch and control a wildfire. Fuel breaks can be constructed or maintained outside of the fire season which can give firefighters what they never have enough of--more time--when confronting a wildfire. Human-caused fires typically start along busy roadways. Fires burning in the short fuels of a fuel break adjacent to the road will burn more slowly than one burning in tall, thick vegetation. This gives firefighters more time to reach the fire and control it.

Table 2-1 and **Table 2-2** provide considerations for planning and creating three fuel breaks types to achieve desired functions. Methods and tools are included in the table. The different fuel break types may be combined to increase their effectiveness in some situations. Method and tool selection will be based on site-specific conditions and project objectives. Strategic fuel breaks will be constructed and maintained using the tools or methods described below.

**Table 2-1
Fuel Break Types, Functions, and Considerations**

**Brown Strips: Removal/Unvegetated
Width¹: 0-50 feet**



Function: Limit fire starts and spread along highly traveled corridors.

Potential Locations: Treatment areas will be along interstates, state highways, and highly traveled corridors (roads with Maintenance Level 5).

Considerations:

- Preferred use is along interstates and highly traveled routes.
- Brown strips will require more intensive maintenance than other fuel break types and must be regularly maintained due to the higher likelihood of invasion by nonnative annual grasses compared to other fuel break types. Their effectiveness is short-lived without regular maintenance.
- Brown strips are the simplest of the linear fuel breaks with respect to potential fire behavior, because they are devoid of vegetation and thus cannot burn, however due to their narrow width, there is a higher potential for breaching, or breaking through, during higher intensity fires, where flame length or spotting distance exceed the width of the fuel break.

¹ Total maximum width of brown strip (This includes both sides of the road).

**Mowed Fuel Breaks or Targeted Grazing Fuel Breaks:
Modification
Width ¹: 0-500 feet**



Function: Reduce or compact the vertical extent of the fuel bed to lower flame lengths and possibly reduce rates of spread.

Potential Locations: Could occur in all vegetative states along any types of roads or BLM-administered linear ROW's.

Considerations:

- Mowed fuel breaks are the preferred method of treatment in patches of intact sagebrush, because they are relatively easy to implement and, if wide enough, can help to disrupt wind-driven fires and limit wildfire spread; however, reducing the canopy cover can increase herbaceous plants in the short term, necessitating further intervention (Shinneman et al. 2018).
- Native perennial grasses, as the target vegetation state, may not be removed. Other native vegetation may be retained.
- Follow-up pre-emergent treatments may be used in low resistance/resilience areas with less than 20 percent pretreatment perennial grass and forb cover.
- Treatments in certain vegetation states such as invasive annual grasses may need to occur every year. Treatments in sagebrush would be less frequent.
- Targeted grazing may be used to remove, reduce, or alter vegetation in the identified fuel break and may be used as a maintenance tool.

¹ Total maximum width of fuel break (This includes both sides of the road).

**Green Strips: Replacement
Width¹: 0-500 feet**



Function: Replace more flammable and contiguous plant communities (particularly those dominated by invasive annual grasses such as cheatgrass) with perennial plants that retain moisture later into the growing season, often by using plants that grow as widely spaced, low-statured individuals resulting in large, bare interspaces to reduce flame lengths and rate of spread of wildfires.

Potential Locations: Could occur in all vegetative states along any types of roads or BLM-administered linear ROW's.

Considerations:

- Preferred fuel break in areas that have undergone conversion to invasive annual grasses or areas highly susceptible to invasion by annual grasses or affected by repeated fire.
- If established under ideal conditions, may require relatively little maintenance, especially if planted species are drought resistant, tolerant of grazing, or able to survive fire or if they have competitive advantages over more fire-prone species.
- May require multiple mechanical, chemical, and prescribed fire treatments or targeted grazing to reach desired objectives.
- If not maintained, the ability of a green strip to alter fire behavior generally diminishes over time, due to the potential for reinvasion by invasive annual plant species and the risk of maladaptation.
- Targeted grazing could be used as a maintenance tool to remove or reduce cheatgrass, thereby decreasing fuel continuity and lowering competition with seeded species, helping to maintain the longevity of the fuel break. Targeted grazing could also be used as a tool for seedbed preparation in combination with other techniques.

¹ Total maximum width of fuel break (This includes both sides of the road).

**Table 2-2
Fuel Break Type by Vegetation State**

Vegetation State (Miles of Roads and ROWs with each Vegetation State) ³	Preferred Fuel Break Type¹	Methods and Tools By Fuel Break Type
<p>Invasive Annual Grasses</p> <p><i>Maintenance Level 1 Roads:</i> 617 miles</p> <p><i>Maintenance Level 3 Roads:</i> 988 miles</p> <p><i>Maintenance Level 5 Roads:</i> 2,533 miles</p> <p><i>ROWs:</i> 548 miles</p>	<p>1a: Brown Strip Fuel Break: Method of treatment along interstates and state highways or highly traveled corridors (roads with Maintenance Level 5).</p> <p>1b: Green Strip Fuel Break: Method of treatment in areas that have undergone conversion to invasive annual grasses outside of interstates and state highways or highly traveled corridors, or affected by repeated fire.</p> <p>2: Mowed Fuel Break: Method of treatment is relatively easy to implement in reducing the vegetation height and can be used in areas that have undergone conversion to invasive annual grasses or affected by repeated fire.</p> <p>3: Targeted Grazing Fuel Break: Could be implemented in any areas where there are invasive annual grasses or areas where mechanical mowing is inaccessible or other methods are not cost effective.</p>	<p>Brown Strip Fuel Break: Removal of vegetation by mechanical and chemical treatment.</p> <p>Green Strip Fuel Break: Initially removing vegetation through tilling, chemical, or prescribed fire or modifying vegetation via targeted grazing, followed by drill, aerial, or ground broadcast seeding (follow-up cover treatment using chaining, harrowing, or imprinting may follow broadcast reseeding).</p> <p>Mowed Fuel Break: Manipulation of vegetation through the use of a mowing implement.</p> <p>Targeted Grazing Fuel Break: Manipulation of vegetation through the use of cattle, goats, or sheep.</p>
<p>Invasive Annual Grasses and Shrubs</p> <p><i>Maintenance Level 1 Roads:</i> 635 miles</p> <p><i>Maintenance Level 3 Roads:</i> 1,181 miles</p> <p><i>Maintenance Level 5 Roads:</i> 2,650 miles</p> <p><i>ROWs:</i> 537 miles</p>	<p>1a: Brown Strip Fuel Break: Can be used along interstates and state highways or highly traveled corridors (roads with Maintenance Level 5).</p> <p>1b: Green Strip Fuel Break: Method of treatment in areas that have undergone conversion to invasive annual grasses or affected by repeated fire.</p> <p>2: Targeted Grazing Fuel Break: Could be implemented in any areas with a sparse shrub layer, where there are invasive annual grasses.</p> <p>3: Mowed Fuel Break: Method of treatment is relatively easy to implement in reducing the vegetation height and can be used in areas that have undergone conversion to invasive annual grasses or affected by repeated fire.</p>	<p>Brown Strip Fuel Break: Removal of vegetation through the use of chemical treatment and mechanical treatment.</p> <p>Green Strip Fuel Break: Removal of vegetation using prescribed fire or a combination of chemical, mechanical treatments and targeted grazing. A broadleaf chemical treatment may be used to further reduce shrub cover, if needed. Followed by drill, aerial, or ground broadcast seeding (follow-up cover treatment using chaining, harrowing, or imprinting may follow broadcast reseeding). Follow up seeding treatments may be required to ensure success.</p> <p>Targeted Grazing Fuel Break: Manipulation of vegetation through the use of cattle, goats, or sheep.</p> <p>Mowed Fuel Break: The manipulation of vegetation through the use of a mowing implement.</p>

¹ See **Appendix H, Section H.4** for a description of the methodology used to rank the fuel break types.

Vegetation State (Miles of Roads and ROWs with each Vegetation State) ³	Preferred Fuel Break Type¹	Methods and Tools By Fuel Break Type
<p>Perennial Grasses and Forbs</p> <p><i>Maintenance Level 1 Roads:</i> 471 miles</p> <p><i>Maintenance Level 3 Roads:</i> 601 miles</p> <p><i>Maintenance Level 5 Roads:</i> 1,461 miles</p> <p><i>ROWs:</i> 262 miles</p>	<p>1a: Brown Strip Fuel Break: Can be used along interstates and state highways or highly traveled corridors (roads with Maintenance Level 5).</p> <p>1b: Mowed Fuel Break: Method of treatment that is relatively easy to implement in reducing the vegetation height and can be used along all roads where mechanized equipment can be utilized.</p> <p>2: Targeted Grazing Fuel Break: Could be implemented in any areas to reduce the vegetation height.</p> <p>3: Green Strip Fuel Break: These types of fuel breaks may be limited to areas with nonnative perennial seedings, where fire risk remains, or in areas with vegetation that is more resistant to invasive plant species introduction.</p>	<p>Brown Strip Fuel Break: Removal of vegetation through the use of chemical treatment and mechanical treatment.</p> <p>Mowed Fuel Break: Manipulation of vegetation through the use of a mowing implement.</p> <p>Targeted Grazing Fuel Break: Manipulation of vegetation through the use of cattle, goats, or sheep.</p> <p>Green Strip Fuel Break: Removal of vegetation using prescribed fire or a combination of chemical and mechanical treatments. Followed by drill, aerial, or ground broadcast seeding (follow-up cover treatment using chaining, harrowing, or imprinting may follow broadcast reseeding). Follow up seeding treatments may be required to ensure success.</p>
<p>Perennial Grasses, Forbs, and Shrubs</p> <p><i>Maintenance Level 1 Roads:</i> 2,219 miles</p> <p><i>Maintenance Level 3 Roads:</i> 2,856 miles</p> <p><i>Maintenance Level 5 Roads:</i> 6,326 miles</p> <p><i>ROWs:</i> 858 miles</p>	<p>1a: Brown Strip Fuel Break: Can be used along interstates and state highways or highly traveled corridors (roads with Maintenance Level 5).</p> <p>1b: Mowed Fuel Break: Method of treatment that is relatively easy to implement in reducing the vegetation height and can be used along all roads where mechanized equipment can be utilized.</p> <p>2: Targeted Grazing Fuel Break: Could be implemented in any areas with sparse shrub layer, where grasses and forbs are present to reduce the understory vegetation height.</p> <p>3: Green Strip Fuel Break: These types of fuel breaks may remove shrubs within the fuel break and retain the native understory. In areas with nonnative perennial seedings, where fire risk remains, or in areas with vegetation that is more resistant to invasive plant species introduction.</p>	<p>Brown Strip Fuel Break: Removal of vegetation through the use of chemical treatment and mechanical treatment.</p> <p>Mowed Fuel Break: Manipulation of vegetation through the use of a mowing implement or other mechanical treatments such as chaining, Dixie harrowing, or land imprinting, or through manual treatments utilizing handsaw or chainsaws, grubbing, or hoeing, or broadleaf chemical application.</p> <p>Targeted Grazing Fuel Break: Manipulation of vegetation through the use of cattle, goats, or sheep.</p> <p>Green Strip Fuel Break: Removal of vegetation using prescribed fire or a combination of chemical and mechanical treatments. A broadleaf chemical treatment may be used to further reduce shrub cover, if needed. Followed by drill, aerial, or ground broadcast seeding (follow-up cover treatment using chaining, harrowing, or imprinting may follow broadcast reseeding). Follow up seeding treatments may be required to ensure success.</p>

Vegetation State (Miles of Roads and ROWs with each Vegetation State) ³	Preferred Fuel Break Type¹	Methods and Tools By Fuel Break Type
Perennial Grasses, Forbs, and Invasive Annual Grasses	1a: Brown Strip Fuel Break: Can be used along interstates and state highways or highly traveled corridors (roads with Maintenance Level 5).	Brown Strip Fuel Break: Removal of vegetation through the use of chemical treatment and mechanical treatment.
Maintenance Level 1 Roads: 792 miles	1b: Targeted Grazing Fuel Break: Could be implemented in any areas to reduce the vegetation height.	Targeted Grazing Fuel Break: Manipulation of vegetation through the use of cattle, goats, or sheep.
Maintenance Level 3 Roads: 1,600 miles	2: Mowed Fuel Break: Method of treatment that is relatively easy to implement in reducing the vegetation height and can be used in areas that have undergone conversion to invasive annual grasses or affected by repeated fire.	Mowed Fuel Break: Manipulation of vegetation through the use of a mowing implement.
Maintenance Level 5 Roads: 3,501 miles	3: Green Strip Fuel Break: These types of fuel breaks may be limited to areas with nonnative perennial seedings, where fire risk remains, or in areas with vegetation that is more resistant to invasive plant species introduction.	Green Strip Fuel Break: Removal of vegetation using prescribed fire or a combination of chemical and mechanical treatments. Followed by drill, aerial, or ground broadcast seeding (follow-up cover treatment using chaining, harrowing, or imprinting may follow broadcast reseeding). Follow up seeding treatments may be required to ensure success.
ROWs: 810 miles		
Shrubs, Perennial Grasses, Forbs, and Invasive Annual Grasses	1a: Brown Strip Fuel Break: Can be used along interstates and state highways or highly traveled corridors (roads with Maintenance Level 5).	Brown Strip Fuel Break: Removal of vegetation through the use of chemical treatment and mechanical treatment.
Maintenance Level 1 Roads: 2,247 miles	1b: Mowed Fuel Break: Method of treatment that is relatively easy to implement and reduces vegetation height and can be used along all roads where mechanized equipment can be utilized.	Mowed Fuel Break: Manipulation of vegetation through the use of a mowing implement or other mechanical treatments such as chaining, Dixie harrowing, or land imprinting or through manual treatments utilizing handsaw or chainsaws, grubbing, or hoeing, or broadleaf chemical application.
Maintenance Level 3 Roads: 4,269 miles	2: Targeted Grazing Fuel Break: Could be implemented in any areas with sparse shrub layer, where grasses and forbs are present to reduce the understory vegetation height.	Targeted Grazing Fuel Break: Manipulation of vegetation through the use of cattle, goats, or sheep.
Maintenance Level 5 Roads: 8,312 miles	3: Green Strip Fuel Break: These types of fuel breaks may remove shrubs and invasive annual grasses from within the fuel break.	Green Strip Fuel Break: Removal of vegetation using prescribed fire or a combination of chemical and mechanical treatments. A broadleaf chemical treatment may be used to further reduce shrub cover if needed. Followed by drill, aerial, or ground broadcast seeding (follow-up cover treatment using chaining, harrowing, or imprinting may follow). Follow up seeding treatments may be required to ensure success.
ROWs: 1,270 miles		

Vegetation State (Miles of Roads and ROWs with each Vegetation State) ³	Preferred Fuel Break Type¹	Methods and Tools By Fuel Break Type
<p>Shrubs with Depleted Understory</p> <p>Maintenance Level 1 Roads: 586 miles</p> <p>Maintenance Level 3 Roads: 1,511 miles</p> <p>Maintenance Level 5 Roads: 3,678 miles</p> <p>ROWs: 845 miles</p>	<p>1a: Brown Strip Fuel Break: Can be used along interstates and state highways or highly traveled corridors (roads with Maintenance Level 5).</p> <p>1b: Mowed Fuel Break: Method of treatment that is relatively easy to implement and reduces vegetation height and can be used along all roads where mechanized equipment can be utilized.</p> <p>2: Green Strip Fuel Break: Method of treatment involving multiple stages.</p>	<p>Brown Strip Fuel Break: Removal of vegetation through the use of chemical treatment and mechanical treatment.</p> <p>Mowed Fuel Break: Method of manipulating vegetation through the use of a mowing implement or other mechanical treatments such as chaining, Dixie harrowing, or land imprinting, or through manual treatments utilizing handsaw or chainsaws, grubbing, or hoeing, or broadleaf chemical application.</p> <p>Green Strip Fuel Break: Removal of vegetation using prescribed fire or a combination of chemical and mechanical treatments. A broadleaf chemical treatment may be used to further reduce shrub cover, if needed. Followed by drill, aerial, or ground broadcast seeding (follow-up cover treatment using chaining, harrowing, or imprinting may follow broadcast reseeding). Follow up chemical and seeding treatments may be required to ensure success.</p>
<p>Sites with Pinyon or Juniper</p> <p>Maintenance Level 1 Roads: 6,362 miles</p> <p>Maintenance Level 3 Roads: 12,808 miles</p> <p>Maintenance Level 5 Roads: 2,783 miles</p> <p>ROWs: 4,130 miles</p>	<p>Phase I²: Due to the low tree cover, fuel break establishment may depend on the dominant vegetation state as described above. Limbing of trees may be required to eliminate ladder fuel component.</p> <p>Phase II or III²: Fuel break establishment within these vegetation states may require treatment of both the overstory and understory. Overstory treatments may increase spacing between trees to reduce the canopy closure to reduce crown fire potential. Limbing remaining trees may be required to eliminate ladder fuel component. Understory treatments would be determined by vegetation states described above.</p>	<p>Phase I: Identify dominant vegetation state to determine preferred fuel break type and reference treatment methods described above.</p> <p>Phase II or III: Identify dominant vegetation state to determine preferred fuel break type and reference treatment methods described above.</p> <p>Mastication in phase II or III pinyon-juniper areas (Miller et al. 2008) will include aerial seeding before treatment, as needed on a site-specific basis, unless additional seedbed preparation occurs. Burn piles or other intensely burned areas, as found in jackpot burning, may also be seeded following burning as needed on a site-specific basis. Trees left in fuel breaks may require limbing to reduce ladder fuels.</p>

² Phases refer to successional phases of pinyon-juniper. See glossary in **Appendix B, Section B.3** for definitions of the successional phases.

³ Miles of roads are estimates based on existing road data, which may not be complete.

2.4 METHODS FOR FUEL BREAK CREATION AND MAINTENANCE

Fuel breaks will be constructed along a variety of road types including interstates, state highways, county roads, BLM-administered roads, and primitive roads, as well as along developed, linear ROWs such as

transmission line routes. Cross-country fuel breaks will not be constructed. Fuel breaks may be constructed using a variety of widths, depending on site conditions, but they will be limited to a maximum of 500 feet; this includes both sides of the road but does not include the width of a roadway. If additional width is needed, additional analysis can be completed.

Methods described in *Restoring Western Ranges and Wildlands* ([Monsen et al. 2004, pages 57-294](#)) may be used for fuel break construction and maintenance and are incorporated by reference. Additional tools not described in Monsen et al. (2004) are manual methods and targeted grazing; these are described below. BLM-approved chemical treatments (herbicides), application methods, and conditions of use are incorporated by reference in this document from the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statements* and the *Final PEIS on using Aminopyralid, Fluroxypyr, and Rimsulfuron* (BLM 2007 pages 4-1 to 4-11, BLM 2016a, pages 4-1 to 4-6), including all standard operating procedures contained therein. These include the following chemical treatments: 2,4-D, bromacil, chlorsulfuron, clopyralid, dicamba, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, sulfometuron methyl, tebuthiuron, triclopyr, imazapic, diquat, diflufenzopyr (in formulation with dicamba), fluridone, aminopyralid, fluroxypyr, and rimsulfuron. Chemical treatment application methods can be applied on the ground with vehicles or manual application devices or aerially with helicopters or fixed-wing aircraft (BLM 2007, pages 2-13 to 2-14). The success of any method or tool is subject to a wide variety of environmental factors; given this complexity, it is sometimes necessary to treat an area multiple times to achieve the desired objectives.

The BLM would follow the *National Seed Strategy for Rehabilitation and Restoration* (Plant Conservation Alliance 2015), which guides the development, availability, and use of seed needed for timely and effective restoration.

2.4.1 Manual Treatment Methods

Manual treatment involves the use of hand tools and hand-operated power tools to cut, clear, remove, or prune herbaceous and woody species to reduce fuel continuity. Potential hand tools that could be used include the handsaw, axe, shovel, rake, machete, grubbing hoe, mattock (combination of cutting edge and grubbing hoe), Pulaski (combination of axe and grubbing hoe), brush hook, and hand clippers. In addition, hand held power tools, such as chainsaws and power brush saws, may be used.

2.4.2 Mechanical Treatment Methods

Mechanical treatments may be used where manual treatments are impractical or too expensive. Mechanical treatment methods are for vegetation reduction or removal, seedbed preparation, seeding, and special uses and are described in detail in Monsen et al. (2004, pp. 65–88). Vegetation removal equipment includes agricultural mowers and masticators. An agricultural mower can be used to reduce the height of herbaceous vegetation. Masticators can also be used to cut and chop or grind vegetation which is usually left in place as mulch. Debris will be removed from the road surface to allow for access through the treatment area. A common type of masticator uses a rotary drum equipped with steel chipper tools to cut, grind, and clear vegetation. In addition, an air curtain burner can be used in wildland-urban interface (WUI) areas to remove vegetation, due to its low environmental impact from smoke. Seedbed preparation equipment includes disks and plows, chains and cables, pipe harrows, rails and drags, land imprinters, and root plows. Equipment used for seeding includes drills, broadcast seeders, seed dribblers, billion seeders, surface seeders, interseeders, and hydro seeders. Finally, mechanical tools for special uses includes transplanters, roller choppers, dozers and blades, trenchers, scalpers and gougers, fire igniters, chemical sprayers, and steep-slope scarifier seeders. The selection of

a particular mechanical method will be based on the characteristics of the vegetation, seedbed preparation or re-vegetation needs, topography and terrain, soil characteristics, and climatic conditions.

2.4.3 Prescribed Fire Methods

Prescribed fire can be used to reduce or modify existing fuel loads or prepare the ground for seeding. Qualified personnel will implement prescribed fire under specific weather and wind conditions. Implementation will comply with direction from the Departmental Manual 620, the BLM Manual 9214 Fuels Management and Community Assistance Manual, and the 9214 Manual and Handbook direction.

Examples of prescribed fire are broadcast, jackpot, and pile burning. Prior to broadcast burning, a fireline may be constructed via digging, wet line, or other means around the perimeter to assist in containment. The need for a fireline, how it is constructed, width, and length are based on site-specific conditions. The BLM will develop a prescribed fire burn plan in accordance with guidance in the PMS-484 *Interagency Prescribed Fire Planning and Implementation Procedures Guide* (NWCG 2017). For a detailed description of prescribed fire treatments and techniques, see Monsen et al. (2004, pp. 101-120).

2.4.4 Targeted Grazing Methods

Targeted grazing uses livestock (goats, sheep, and/or cattle), intensively managed by a grazing operator, to reduce or modify vegetation within a specific area. Targeted grazing may be implemented through agreement or contract, including coordination with affected permittees. This will be determined by the local field office on a project basis. Land managers will decide on a site-specific basis when and where to apply targeted grazing. This will be based on a number of factors, including vegetation state, desired vegetation objective, terrain, and current year growing conditions. A targeted grazing plan will be used to achieve objectives, while avoiding damaging nontarget species (see Design Features 21 through 24 below).

Targeted grazing may be used to maintain established fuel breaks in certain vegetation states (**Table 2-1** and **Table 2-2**). Timing of the treatment will be dependent on current year growing conditions and the type of fuel break being maintained. Repeated treatments may be required to accomplish the objective of the fuel break and will be dependent on current year growing conditions.

Temporary fencing may be used to limit the grazing to the fuel break footprint. Where temporary fencing is not used, the grazing operator will follow a graduated-use plan to limit grazing impacts outside the fuel break footprint. (See **Appendix D, Section D.1** for a complete description of the graduated-use plan.)

2.4.5 Design Features

The BLM developed design features to minimize or eliminate adverse impacts of the action on identified resources (see **Design features below**). BLM district and/or field office resource specialists will determine the locations of avoidance areas and where to apply design features to protect resources during fuel break creation and maintenance. Additional design features may be relevant to a given project on a site-specific basis, such as design features included in land use plans. The impact analysis in the PEIS assumed that the Design Features and Conservation Measures below are followed when applicable to reduce or avoid impacts. See below for a complete list of Design Features and Conservation Measures. As part of adaptive management, Design Features may be modified in the future to reduce environmental effects, incorporate new information, achieve new regulatory requirements, as long as the effects do not exceed those disclosed in the PEIS.

Chapter 3. Design Features

**Table 3-1
Fuel Breaks PEIS
Design Features**

#	Design Feature	Applicable Resources ¹
1.	Where feasible, place equipment (e.g., vehicles and mechanical treatment equipment) in previously disturbed areas.	GEN
2.	When applicable, monitor to determine if objectives are being met for any affected resources.	GEN
3.	Consider the maintenance or rehabilitation of existing fuel breaks before new fuel breaks are constructed.	GEN
4.	Apply restrictions and design features in applicable land use plans and land use plan amendments. Develop resource-specific buffer distances and apply seasonal restrictions based on site-specific conditions, best available science, applicable land use plan guidance, and professional judgement. If any design features in this PEIS conflict with state or local BLM guidance, defer to state or local guidance.	GEN
5.	Use best available science when designing and implementing fuel breaks.	GEN
6.	As feasible to achieve objectives, keep disturbance commensurate with the scope of the fuel break.	GEN
7.	Where feasible, fuel breaks will be constructed where vegetation disturbance by wildland fire or surface-disturbing activities has already occurred.	GEN
8.	Fuel breaks will be constructed in locations determined through interdisciplinary dialogue (including consultation and coordination with adjacent landowners), to best meet the goals of the local fire management plan, and can be effectively monitored and maintained. They will be placed in a way that is strategically appropriate for fire suppression, while minimizing short- and long-term impacts on other resources.	GEN
9.	All project personnel will be required to attend an environmental training prior to initiating Project construction. The training will address environmental concerns and stipulations and requirements for compliance with the project.	GEN
10.	Signs will be installed in treatment areas during activities for public safety.	AIR, REC, TM
11.	During times of high fire danger, all equipment will be equipped with a functional spark arrestor. Operators will be required to have, at a minimum, a shovel and a working fire extinguisher on hand.	FF
12.	During fuel break design and implementation, the location, such as topography for project screening, minimal disturbance, and consideration of visual contrasts with the surrounding landscapes, will be considered. For example, vegetation may be drill seeded in a serpentine pattern or using drill modifications, such as minimum-or-no-till drills, slick discs, and drag chains, so that drill rows are not apparent.	SD, VIS
13.	Fuel breaks in a ROW must be compatible with the ROW holder's grant prior to construction of the fuel break.	TM

#	Design Feature	Applicable Resources ¹
14.	Applicable Standard Operating Procedures and Mitigation Measures from the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement and Record of Decision (BLM 2007, PEIS Table 2-8 and Record of Decision Appendix B) and the Final PEIS on using Aminopyralid, Fluroxypyr, and Rimsulfuron (BLM 2016, Table 2-5) will be required.	GEN
15.	Prescribed fire operations will be conducted by qualified personnel when prescription parameters as defined in the burn plans are met.	GEN
16.	Debris piles created during fuel break implementation will be ignited when prescription burn conditions are appropriate—that is, when soils are either wet or frozen.	AIR, SD
17.	Through site-specific smoke analysis, the BLM will comply with their respective state department of environmental quality or other state air monitoring group to ensure that smoke emissions from treatments remain below the National Ambient Air Quality Standard for PM _{2.5} . The BLM will identify smoke-sensitive receptors at the site-specific project level.	AIR, SD
18.	Signs will be posted on primary roads accessing the area being burned to alert drivers of the potential for reduced visibility due to smoke.	AIR
19.	Ensure atmospheric conditions are within prescriptions when a prescribed burn is ignited and monitor smoke throughout the fire.	AIR
20.	If smoke threatens unacceptable impacts on transportation safety or communities, ignition should cease, provided control of the burn is not compromised.	AIR
21.	<p>Before targeted grazing begins, complete a targeted grazing plan that optimizes successful reduction of the target species, while avoiding damaging desired plants. The plan will include the following:</p> <ol style="list-style-type: none"> 1. Objectives that specify target species, grazing duration, intensity, stocking level, type of livestock, and measurable outcomes 2. A monitoring plan 3. Stipulations, including the following: <ul style="list-style-type: none"> • To minimize the risk of introducing or spreading invasive plant species through livestock manure, a quarantine period may be needed before livestock are turned out into an area for targeted grazing and when they are removed from such an area. • Coordinate with applicable permittees, state agencies, or other landowners in advance of targeted grazing treatment. This is to identify and minimize any potential conflicts of targeted grazing with regularly permitted livestock grazing. In case-specific situations, rest from regularly permitted grazing may be necessary in order to accomplish targeted grazing objectives (Hendrickson and Olson 2006). • Construct all fencing using proper wildlife specifications contained in BLM handbook 1741-1 Fencing and applicable approved land use plans. • Consider on a project-by-project basis potential impacts on cultural resources from targeted grazing, including fences, corrals, and watering sites, per Section 106 of the NHPA and other cultural resource authorities. Compliance may include tribal and SHPO 	FW, LG, SD, SOIL, SSS, VEG

#	Design Feature	Applicable Resources ¹
	<p>consultations, an archaeological inventory, and mitigation.</p> <ul style="list-style-type: none"> ● Use of domestic sheep or goats for targeted grazing will not occur within 30 miles of Sierra Nevada bighorn sheep critical habitat. ● Use of domestic sheep or goats for targeted grazing will be avoided within 30 miles of bighorn sheep habitat. If targeted grazing is desired within this area, BLM will prepare a separation and response plan, included in the targeted grazing plan, coordinated with the appropriate state agency to provide sufficient separation to minimize the risk of contact and disease transmission of domestic sheep or goats from bighorn sheep (Does not apply to Sierra Nevada bighorn sheep). USFWS will be consulted if listed bighorn sheep may be affected. ● Annually target-graze sites that are dominated by invasive annual grasses. Where there are substantial areas of desirable perennial herbaceous species, consider targeted grazing strategies that will maintain perennial plant vigor. ● Carefully consider using supplements for livestock during targeted grazing during site-specific planning. Supplements will be nontoxic to wildlife and will be placed to minimize impacts on wildlife or native vegetation. ● Install wildlife escape ramps in temporary tanks to facilitate the use of and escape from livestock watering troughs by greater sage-grouse and other wildlife. ● Placement and use of temporary watering facilities will be placed to meet site specific conditions and treatment objectives. They will be removed following the targeted grazing treatment. 	
22.	<p>Provide adequate rest from livestock grazing: to allow desired vegetation to recover naturally; in suitable habitat for threatened and endangered plants; and for seeded species in treated areas to successfully become established. All new seedlings of grasses and forbs should not be grazed until, at least, after the end of the second growing season, or when fuel break objectives are met to allow plants to mature and develop robust root systems. This will stabilize the site, compete effectively against cheatgrass and other invasive annuals, and remain sustainable under long-term grazing management. Adjust other management activities to meet project objectives.</p>	FW, LG, SD, SOIL, SSS, VEG
23.	<p>Manage targeted grazing to conserve suitable habitat conditions for special status species outside the treatment footprint.</p>	SSS
24.	<p>A Graduated Use Plan is included after this table.</p>	FW, LG, SD, SOIL, SSS, VEG
25.	<p>All prescribed soil disturbance will need to incorporate noxious and invasive weed management, including pre-work evaluation or avoidance.</p>	CULT, FW, SD, SSS, LG, VEG
26.	<p>Noxious weeds and invasive plants will be monitored to track changes in populations over time, and corrective action will be prescribed where needed, in accordance with local weed programs. Thresholds and responses for noxious weeds and invasive plants (particularly invasive annual grasses) will be included in fuel break implementation and monitoring plans.</p>	CULT, FW, SD, SSS, LG, VEG

#	Design Feature	Applicable Resources ¹
27.	Mowed fuel breaks will be re-mowed when grass has reached a height between 1 and 2 feet or exceeds the Tons Per Acre of the Grass Fuel Model 2 (GR2), as described in Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model (Scott and Burgan 2005).	FF
28.	Locally adapted or genetically appropriate perennial forbs and grasses will be applied at jackpot and pile burn sites when appropriate to facilitate establishment of vegetation.	SD, VEG, VIS
29.	Power wash all vehicles and equipment prior to allowing them to enter the project area and between sites where invasive and noxious weed species are different to minimize the introduction and spread of invasive plant species.	CULT, FW, SD, SSS, VEG
30.	Cultural and paleontological inventories and consultations appropriate to the scale and level of disturbance will occur in advance of project activities; the results will be used early in project planning to determine the need for project redesign or other mitigation.	CULT
31.	Potential adverse effects on historic properties ² will be avoided during ground-disturbing activities. A cultural resource specialist will identify avoidance areas before treatment begins, including subsequent retreatments. If protection of resources compromises the effectiveness of a given treatment and life, safety, or other resources are threatened, flexibility will be maintained to allow for project redesign, while protecting cultural resources. If historic properties could not be avoided without significantly compromising the success of a treatment, the effects will be minimized, in consultation with SHPO, ACHP, tribes, or interested members of the public.	CULT
32.	Archaeological inventories and assessments of potential significance under the National Historic Preservation Act (NHPA) will be conducted in accordance with the National Programmatic Agreement between the Advisory Council of Historic Preservation (ACHP) and BLM, state protocol agreements with respective State Historic Preservation Offices (SHPOs), guidelines set forth in the BLM 8110 and 8040 Manuals, and according to other relevant authorities listed in the above documents, including Section 106 of the NHPA.	CULT
33.	Potentially affected tribes will be consulted according to guidance set forth in BLM Manual and Handbook 1780, Department of Interior Manual 512 DM 3, and relevant authorities listed therein, before herbicide spraying or other treatments begin that are likely to affect the access or availability of resources or locations important to traditional lifeways, including subsistence, economy, ritual, and religion.	CULT, VEG
34.	The need for a paleontological inventory will be determined based on criteria set forth in BLM Instruction Memorandum (IM) 2016-124, using potential fossil yield classification, if available, or geologic characteristics and previous study data, if not. Ground-disturbing and chemical treatments in areas with paleontological resources will be addressed on a site-by-site basis. Project activities at significant paleontological sites will be coordinated with the regional BLM paleontologist to determine mitigation or monitoring needs in areas with a high potential for fossil resources. This will be done to minimize adverse effects.	GEN

#	Design Feature	Applicable Resources ¹
35.	If cultural or paleontological resources are encountered during project implementation, all ground-disturbing activity in the vicinity of the find must cease until the resource is evaluated by an appropriate BLM resource specialist. The BLM will follow the procedures outlined in 36 CFR 800. If human remains or objects covered by the Native American Graves Protection and Repatriation Act are encountered, all work will cease and the BLM Authorized Officer will be contacted immediately by phone, with written follow-up, and other guidelines set forth in 43 CFR 10 will be followed.	CULT
36.	Minimize ground-disturbing treatments in areas with highly erosive soils (see Chapter 3 for highly erosive soil criteria).	FW, SD, SOIL, SSS, VEG, WR
37.	Avoid or minimize ground-disturbing activities when soils are saturated.	SSS
38.	Use best management practices and soil conservation practices during project design and implementation to minimize sediment discharge into streams, lands, and wetlands from such treatments as mowing, disking, and seeding. This is to protect designated beneficial uses.	FW, SSS
39.	Soils, site factors, and timing of application must be suitable for any ground-based equipment used for creating a fuel break. This is to avoid excessive compaction, rutting, or damage to the soil surface layer. Equipment will be used on the contour, where feasible.	SD, SOIL, VIS
40.	For safety and to protect site resources, treatment methods involving equipment generally will not be applied on slopes exceeding 35 percent.	SD, SOIL
41.	Bare soil (disked) portions of fuel breaks adjacent to roadways will not exceed 25 feet on either side of the roadway.	SSS
42.	If special status plant or animal populations and their habitats occur in a proposed treatment area, assess the area for habitat quality and base the need for treatment on special status species present. Conduct appropriately timed surveys within suitable or potential habitats for federally listed, proposed, and BLM special status species prior to treatment. Federally listed species and BLM special status species with the potential to occur in the project area are presented in Appendix J .	SSS
43.	Implement restrictions and conservation strategies for special status species, including federally listed, proposed, candidate, and BLM sensitive species, as contained in approved recovery and conservation plans, cooperative agreements, and other instruments in whose development the BLM has participated. If none are available, coordinate with the USFWS and/or state wildlife agencies to develop appropriate restrictions.	SSS
44.	Avoid creating new barriers to big game movement in migratory corridors.	FW
45.	Aerial herbicide treatments will be designed to avoid chemical drift into the riparian exclusion area or other aquatic species-specific buffers.	FW, SSS
46.	Prohibit fuel break construction and maintenance in sage-grouse breeding habitat during the breeding season.	SSS
47.	In sage-grouse Biologically Significant Units occurring within Priority and Important Habitat Management Areas, ensure that sagebrush treatments do not lead to a soft or hard habitat trigger trip.	SSS

#	Design Feature	Applicable Resources ¹
48.	Restrict activities in big game habitat during the following periods, unless short-term exemption is granted by the BLM field office manager, in coordination with the appropriate state wildlife agency (dates may be determined based on local conditions): big game wintering; elk/deer calving/fawning; pronghorn calving/fawning; and bighorn sheep lambing.	FW
49.	Manage domestic sheep grazing to minimize contact between domestic sheep and bighorn sheep, using the currently accepted peer-reviewed modeling techniques and best available data, such as the Bighorn/Domestic Sheep Risk of Contact Model, in accordance with BLM Manual 1730, Management of Domestic Sheep and Goats to Sustain Wild Sheep.	FW, SSS
50.	Treatments in mule deer winter range will not reduce the total area having shrub cover suitable for browse below 70% of site-specific winter range areas (Cox et al. 2009).	FW
51.	Complete surveys for migratory bird and raptor nesting activity and establish a seasonal buffer around raptor nests. Avoid fuel break construction and maintenance during the peak of the local nesting season in the project area for priority migratory land bird species (e.g., Birds of Conservation Concern, BLM sensitive species). Specific dates and buffer distances for the seasonal restrictions may be determined in coordination with the USFWS Migratory Bird Division and/or state wildlife management agency, and should be based on species, variations in nesting chronology of particular species locally, topographic considerations, such as an intervening ridge between the treatment activities and a nest, or other factors that are biologically reasonable.	FW, SSS
52.	Aerial seeding treatments and aerial application of herbicides will be avoided within one mile of active American bald and ½ mile of active golden eagle nests during the nesting season. Avoidance distances will be determined by the amount of screening provided by vegetation or topographic features.	SSS
53.	Avoid disturbance within 0.5 mile of communal bald eagle winter concentration sites during the winter roosting season.	SSS
54.	Aerial treatment applications will be avoided within 0.5 mile of bald eagle winter concentration sites during the winter roosting season.	SSS
55.	Surveys will take place in potential known pygmy rabbit habitats (non-listed populations). Select fuel break routes with the least density of active burrows.	SSS
56.	Design projects so facilitating practices (e.g. staging areas or travel routes) avoid affecting USFWS listed Threatened, Endangered or Proposed species.	SSS
57.	Comply with any additional conservation measures developed during ESA Section 7 consultation for this PEIS (see Section D.2 below).	SSS
58.	Avoid removal or disturbance to old growth trees, such as old growth pinyon-juniper.	VEG
59.	No activities will occur in Sierra Nevada bighorn sheep critical habitat during lambing periods (April – July).	-

Source: BLM interdisciplinary team input

¹ Resource codes

GEN: General design feature that is not resource-specific

AIR: Air quality

CULT: Cultural, Tribal, and paleontological resources

FF: Fire and fuels
 FW: Fish and wildlife
 LG: Livestock grazing
 REC: Recreation
 SD: Special designations
 SOC: Socioeconomics
 SOIL: Soil resources
 SSS: Special status species
 TM: Travel management
 VEG: Vegetation resources
 VIS: Visual resources
 WR: Water resources
 WHB: Wild horses and burros

² Historic properties are cultural resources that are archaeological sites, districts, or traditional cultural properties (TCPs) that are eligible for the National Register of Historic Places, as defined in 36 CFR 63; TCPs are defined in National Register Bulletin 38. Other significant cultural resources are those important historic or traditional places, landscapes, or resources with significance to Native American tribes and other cultural groups, according to authorities and guidance discussed in BLM Manual Series 8100 and 1780.

3.1 CONSERVATION MEASURES FROM THE FUEL BREAKS BIOLOGICAL ASSESSMENT

**Table 3-2
Conservation Measures from the Fuel Breaks Biological Assessment**

Conservation Measure Number	Conservation Measure Text
Conservation Measure Listed Species 1	Report to the appropriate USFWS office or state agency within 48 hours of the sighting any positive identification or sightings of federally or state-listed species during any phase of fuel break treatment activities, such as species surveys and pretreatment surveys, and during treatment activities and monitoring. cease treatment until a qualified biologist determines that treatments will result in no potential for harm to a federally listed species.
Conservation Measure Listed Species 2	All staff, contractors, and practitioners involved in implementing on-the-ground fuel break treatments will be trained on and provided information on (e.g., maps, photo...) listed, proposed species and critical habitat that may occur in the project area
Conservation Measure Listed Fish 1	Avoid all treatments within 400 meters from the edge of the 100 year floodplain in bonytail chub, Colorado pikeminnow, humpback chub, razorback sucker, June sucker critical habitat or occupied habitat and Lahontan cutthroat trout occupied habitat.
Conservation Measure Prairie Dog 1	Proposed treatments in suitable Utah prairie dog habitat will be surveyed by certified individuals in accordance with USFWS protocols and in coordination with BLM and USFWS before implementation.
Conservation Measure Prairie Dog 2	All staging areas for vehicles, trailers, and materials will be outside of a 350-foot disturbance buffer of Utah prairie dog habitat.
Conservation Measure Prairie Dog 3	Project related vehicles will not exceed a speed of 15 miles per hour in occupied Utah prairie dog habitat.

Conservation Measure Number	Conservation Measure Text
Conservation Measure Prairie Dog 4	A qualified Utah prairie dog biologist, approved by the BLM and USFWS, will be required to be on-site during all work in occupied Utah prairie dog habitat. The biologist will document compliance with design features and any take that may occur and will have the authority to halt activities that may be in violation of these stipulations.
Conservation Measure Prairie Dog 5	All vehicles will be maintained in maintenance facilities or, in the event of emergency, at least 350 feet from mapped Utah prairie dog habitat in previously disturbed areas. Precautions will be taken to ensure that contamination of maintenance sites by fuels, motor oils, and grease does not occur and that such materials are contained and properly disposed of off-site. Inadvertent spills of petroleum-based or other toxic materials will be cleaned up and removed immediately or on completion of the project. In coordination with USFWS and Utah Division of Wildlife Resources, habitat treatments in occupied Utah prairie dog habitat will occur during the extended active season (April 1 to September 30).
Conservation Measure Prairie Dog 6	All project employees will be informed of any Utah prairie dogs in the general area and the threatened status of the species. Employees will be advised of the definition of take and the potential penalties (up to \$200,000 in fines and 1 year in prison) for taking a species listed under the ESA. Project personnel will not be permitted to have firearms or pets in their possession while on the project site. The rules on firearms and pets will be explained to all personnel involved with the project.
Conservation Measure Prairie Dog 7	If a dead or injured Utah prairie dog is located, initial notification must be made to the USFWS Division of Law Enforcement, Salt Lake City, Utah, at (801) 975-3330; to the Utah Division of Wildlife Resources at (435) 865-6100; and to the BLM Authorized Officer at (435) 865-3000. Instruction for proper handling and disposition of such specimens will be issued by the Division of Law Enforcement. Care must be taken in handling sick or injured animals to ensure effective treatment and care and in handling dead specimens to preserve biological material in the best possible state.
Conservation Measure Prairie Dog 8	Spot applications will be used to apply herbicides in Utah prairie dog habitat, where possible, to limit the probability of contaminating nontarget food and water sources and the elimination of vegetation necessary to support the species, especially vegetation over large areas.
Conservation Measure Desert Tortoise 1	No treatments will occur in occupied or potential desert tortoise habitat.
Conservation Measure Carson Wandering Skipper 1	No treatments will occur within 10 mi of known occupied Carson wandering skipper population sites during the adult flight season (late May to mid-July).
Conservation Measure Carson Wandering Skipper 2	No treatments will occur within 5 mi of known Carson wandering skipper population sites at any time of year

Conservation Measure Number	Conservation Measure Text
Conservation Measure Carson Wandering Skipper 3	<p>Conservation Measures for Carson Wandering Skipper identified in Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Biological Assessment (BLM 2005, 6-15 to 6-16):</p> <p>Use an integrated pest management approach when designing programs for managing pest outbreaks.</p> <p>Survey treatment areas for threatened, endangered, or proposed (TEP) butterflies/moths and their host/nectar plants (suitable habitat) at the appropriate times of year.</p> <p>Minimize the disturbance area with a pre-treatment survey to determine the best access routes. Areas with butterfly/moth host plants and/or nectar plants should be avoided.</p> <p>Minimize mechanical treatments and OHV activities on sites that support host and/or nectar plants.</p> <p>In TEP butterfly/moth habitat, burn while butterflies and/or moths of concern are in the larval stage, when the organisms will receive some thermal protection.</p> <p>Wash equipment before it is brought into the treatment area.</p> <p>Use a seed mix that contains host and/or nectar plant seeds for road/site reclamation.</p> <p>To protect host and nectar plants from herbicide treatments, follow recommended buffer zones and other conservation measures for TEP plants species when conducting herbicide treatments in areas where populations of host and nectar plants occur.</p> <p>Do not broadcast spray herbicides in habitats occupied by TEP butterflies or moths; do not broadcast spray herbicides in areas adjacent to TEP butterfly/moth habitat under conditions when spray drift onto the habitat is likely.</p> <p>Do not use 2,4-D in TEP butterfly/moth habitat.</p> <p>When conducting herbicide treatments in or near habitat used by TEP butterflies or moths, avoid use of the following herbicides, where feasible: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, picloram, tebuthiuron, and triclopyr.</p> <p>If conducting manual spot applications of diquat, diuron, glyphosate, hexazinone, tebuthiuron, or triclopyr to vegetation in TEP butterfly or moth habitat, utilize the typical, rather than the maximum, application rate.</p>
Conservation Measure Columbia Basin Pygmy Rabbit 1	<p>Survey all potential Columbia Basin pygmy rabbit habitat in areas considered for fuel break routes. Surveys will follow state survey protocols for establishing presence of pygmy rabbits and will be coordinated with the Washington Department of Fish and Wildlife (WDFW). No fuel breaks will be located within Recovery Areas (REAs plus a 5-mile buffer). Surveys will be conducted by a qualified biologist.</p>
Conservation Measure Columbia Basin Pygmy Rabbit 2	<p>Use of prescribed fire will not occur within 1 mile of RAs or occupied pygmy rabbit habitat outside of RAs</p>

Conservation Measure Number	Conservation Measure Text
Conservation Measure Columbia Basin Pygmy Rabbit 3	Do not create fuel breaks within Columbia Basin pygmy rabbit Recovery Areas (REA buffered by 5 mi)
Conservation Measure Columbia Basin Pygmy Rabbit 4	Have a qualified biologist conduct pre-treatment surveys for burrows within 14 days of treatment within potentially occupied habitat and in the range of Columbia Basin pygmy rabbits. If a burrow is discovered, an avoidance buffer of 1 mile will be established around the burrow.
Conservation Measure Columbia Basin Pygmy Rabbit 5	Solicit and consider expertise and ideas from local landowners, working groups, and other federal, state, county, and private organizations during development of fuel break projects
Conservation Measure Pygmy Rabbit 6	Where applicable, incorporate roads and natural fuel breaks into fuel break design to minimize loss of or impacts on shrub steppe habitat
Conservation Measure Columbia Basin Pygmy Rabbit 7	Incorporate key habitats or important restoration areas (such as where investments in habitat restoration have already been made or protection of the Columbia Basin pygmy rabbit Recovery Emphasis Area) into fuel break project design
Conservation Measure Columbia Basin Pygmy Rabbit 8	Where applicable, design fuel break treatment objectives to protect sagebrush ecosystems, modify fire behavior, restore/maintain native plants, and create landscape patterns that most benefit pygmy rabbits
Conservation Measure Columbia Basin Pygmy Rabbit 9	Protect pygmy rabbit RAs, restoration areas, and previously restored areas by strategically placing and maintaining treated strips/areas by mowing and herbicide treatments
Conservation Measure Columbia Basin Pygmy Rabbit 10	Do not create fuel breaks within 1 mile of occupied burrows
Conservation Measure Columbia Basin Pygmy Rabbit 11	Locate on-site work/project camps and staging areas 0.25 miles away from REAs and occupied burrows. Establish a temporary “no entry” zone to protect rabbits from human disturbance. Do not allow dogs in the camps. Monitor workers on-site to keep them out of occupied habitat
Conservation Measure Columbia Basin Pygmy Rabbit 12	Power wash all vehicles and equipment, including dozers, discs, engines, water tenders, personnel vehicles, and all-terrain vehicles (ATVs) before deploying them in or near pygmy rabbit habitat areas, to minimize spread of noxious weeds
Conservation Measure Columbia Basin Pygmy Rabbit 13	Use vegetation management prescriptions in fuel breaks that minimize undesirable effects on vegetation or soils; for example. minimize destruction of desirable perennial plant species and reduce risk of annual grass invasion by retaining biological crusts
Conservation Measure Columbia Basin Pygmy Rabbit 14	In restoration projects, emphasize the use of native plant species

Conservation Measure Number	Conservation Measure Text
Conservation Measure Columbia Basin Pygmy Rabbit 15	Use post-treatment control of annual grass and other invasive species
Conservation Measure Columbia Basin Pygmy Rabbit 16	<p>Conservation Measures for pygmy rabbits adapted from the Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Biological Assessment (BLM 2005, 2007):</p> <p>Address pygmy rabbits in all management plans prepared for treatments within the range of the species' historical habitat</p> <p>Do not burn, graze, or conduct mechanical treatments within 1 mile of occupied Columbia Basin pygmy rabbit habitat</p> <p>Do not use 2,4-D, diquat, or diuron in occupied pygmy rabbit habitats; do not broadcast-spray these herbicides within a quarter-mile of occupied Columbia Basin pygmy rabbit habitat</p> <p>Where feasible, avoid use of the following herbicides in occupied pygmy rabbit habitat: bromacil, clopyralid, fluoridone, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, tebuthiuron, and triclopyr</p> <p>Where feasible, spot treat vegetation in occupied Columbia Basin pygmy rabbit habitat, rather than broadcast-spraying</p> <p>Do not broadcast-spray clopyralid, glyphosate, hexazinone, picloram, or triclopyr in occupied Columbia Basin pygmy rabbit habitat; do not broadcast-spray these herbicides within 0.25 miles of occupied habitat</p> <p>If broadcast-spraying bromacil, imazapyr, fluoridone, metsulfuron methyl, or tebuthiuron in or within 0.25 mi of occupied Columbia Basin pygmy rabbit habitat, apply at the typical, rather than the maximum, rate</p> <p>If conducting manual spot applications of bromacil, glyphosate, hexazinone, tebuthiuron, or triclopyr to vegetation in occupied Columbia Basin pygmy rabbit habitat, use the typical, rather than the maximum, application rate</p>
Conservation Measure Gray Wolf 1	Vegetation treatments will be designed and implemented to minimize noise disturbance or habitat modifications within one mile of wolf dens or rendezvous sites from mid-April until the end of June.
Conservation Measure Gray Wolf 2	<p>Conservation measures for gray wolves adapted from the Vegetation Treatments BA (BLM 2005, some conservation measures have been adjusted to fit the needs of the proposed project).</p> <p>Avoid human disturbance or associated activities within 1 mile of a den site during the breeding period (as determined by a qualified biologist or by know den site information from state agencies and USFWS)</p> <p>Avoid human disturbance or associated activities within 1 mile of a rendezvous site during the breeding period (as determined by a qualified biologist or by know den site information from state agencies and USFWS)</p> <p>Do not use 2,4-D in dens and rendezvous sites; do not broadcast-spray within a quarter-mile of dens and rendezvous sites</p> <p>Where feasible, avoid use of the following herbicides in dens and rendezvous sites: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, and triclopyr</p> <p>Do not broadcast-spray clopyralid, diuron, glyphosate, hexazinone, picloram, or triclopyr in dens and rendezvous sites; do not broadcast-spray these herbicides</p>

Conservation Measure Number	Conservation Measure Text
	<p>next to dens and rendezvous sites under conditions when spray drift into the habitat is likely</p> <p>If broadcast-spraying bromacil, diquat, imazapyr, or metsulfuron methyl in or near dens and rendezvous sites, apply at the typical, rather than the maximum rate</p> <p>If conducting manual spot applications of glyphosate, hexazinone, or triclopyr to vegetation in dens and rendezvous sites, use the typical, rather than the maximum, application rate</p>
Conservation Measure Grizzly Bear 1	No targeted grazing will be allowed within grizzly bear habitat
Conservation Measure Grizzly Bear 2	<p>Conservation measures specific to grizzly bears as identified in the Vegetation Treatments BA (BLM 2005):</p> <p>Ensure that all treatment activities adhere to interagency grizzly bear guidelines or local interagency grizzly bear standards for sanitation measures and storage of potential attractants</p> <p>Do not plant or seed highly palatable forage species near roads or facilities used by humans</p> <p>Take the following measures in recovery zones to minimize the likelihood that grizzly bears will suffer adverse health effects as a result of exposure to herbicides:</p> <p>Do not use 2,4-D in the zone, and do not broadcast-spray 2,4-D within a quarter-mile of the zone</p> <p>Where feasible, avoid use of bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, Overdrive, picloram, tebuthiuron, and triclopyr</p> <p>Do not broadcast-spray bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, Overdrive, picloram, or triclopyr in the recovery zone; do not broadcast-spray these herbicides in areas next to the recovery zone under conditions when spray drift into zone is likely</p> <p>If broadcast-spraying imazapyr, metsulfuron methyl, or tebuthiuron in or near the recovery zone, apply at the typical, rather than the maximum, application rate</p> <p>If conducting manual spot applications of glyphosate, hexazinone, imazapyr, metsulfuron methyl, tebuthiuron, or triclopyr to vegetation in the recovery zone, use the typical, rather than the maximum, application rate</p>
Conservation Measure Spotted Owl 1	Within 0.5 mile of project activity, habitat suitability will be assessed for nesting and foraging using accepted habitat models in conjunction with field reviews.
Conservation Measure Spotted Owl 2	Protocol level surveys will be required prior to activity unless species occupancy and distribution information is complete and available. All surveys must be conducted by qualified individual(s).
Conservation Measure Spotted Owl 3	Activities will be monitored for compliance with conservation measures throughout the duration of the project.
Conservation Measure Spotted Owl 4	All Mexican spotted owl final critical habitat will be avoided and buffered as determined by local conditions, a qualified biologist, and treatment method.

Conservation Measure Number	Conservation Measure Text
Conservation Measure Spotted Owl 5	Activity will not occur within 0.5 mile of an identified nest site or within a designated Protected Activity Center (PAC).
Conservation Measure Spotted Owl 6	Avoid noise-generating activity and permanent structures within 0.5 mi of suitable habitat unless surveyed and not occupied
Conservation Measure Spotted Owl 7	Reduce noise emissions (e.g., use hospital-grade mufflers, electric pump motors) to 45 dBA at 0.5 mile from suitable habitat, including canyon rims. Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon a 0.5 mile buffer for suitable habitat, including canyon rims.
Conservation Measure Spotted Owl 8	Limit disturbances to suitable habitat by staying on approved routes.
Conservation Measure Spotted Owl 9	Limit new access routes created by the project.
Conservation Measure Spotted Owl 10	Limit habitat loss by locating new facilities within existing rights of way.
Conservation Measure Spotted Owl 11	Additional measures to avoid or minimize effects to the Mexican spotted owl may be developed and implemented in consultation with the U.S. Fish and Wildlife Service.
Conservation Measure Bighorn Sheep I	<p>Conservation measures specific to bighorn sheep (and also applicable to Sierra Nevada bighorn sheep) as identified in the Vegetation Treatments BA (BLM 2005):</p> <p>Before treatment, survey suitable habitat for evidence of use by bighorn sheep</p> <p>Do not use domestic animals as a vegetation treatment in bighorn sheep habitat</p> <p>When planning vegetation treatments, minimize the creation of linear openings that could result in permanent travel ways for competitors and humans</p> <p>Obliterate any linear openings constructed in bighorn sheep habitat in order to deter uses by humans and competitive species</p> <p>Where feasible, time vegetation treatments such that they do not coincide with seasonal use of the treatment area by bighorn sheep</p> <p>Do not broadcast-spray herbicides in key bighorn sheep foraging habitats</p> <p>Do not use 2,4-D in bighorn sheep habitat; do not broadcast-spray 2,4-D within a quarter-mile of bighorn sheep habitat</p> <p>Where feasible, avoid use of the following herbicides in bighorn sheep habitat: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, Overdrive, picloram, and tebuthiuron, and triclopyr</p> <p>Do not broadcast-spray bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, Overdrive, picloram, or triclopyr in bighorn sheep habitat; do not broadcast-spray these herbicides in areas next to bighorn sheep habitat under conditions when spray is likely to drift onto the habitat</p> <p>If broadcast-spraying imazapyr, metsulfuron methyl, or tebuthiuron in or near bighorn sheep habitat, apply at the typical, rather than the maximum, application rate</p> <p>If conducting manual spot applications of glyphosate, hexazinone, imazapyr,</p>

Conservation Measure Number	Conservation Measure Text
	metsulfuron methyl, tebuthiuron, or triclopyr to vegetation in bighorn sheep habitat, use the typical, rather than the maximum, application rate
Conservation Measure Cuckoo 1	No treatments will occur within 0.5 mile of proposed yellow-billed cuckoo critical habitat.
Conservation Measure Cuckoo 2	Mechanical, chemical, or manual treatments will not occur during the yellow-billed cuckoo nesting season (June 1 - August 31) within 0.5 mile of occupied suitable yellow-billed cuckoo habitat. Specific dates and buffer distances for the seasonal restrictions may be determined in coordination with the local USFWS Ecological Field Services Office, and should be based on species, variations in nesting chronology of particular species locally, topographic considerations, such as an intervening ridge between the treatment activities and a nest, or other factors that are biologically reasonable. Further, occupied suitable yellow-billed cuckoo habitat will be determined using the Utah Field Office August 2017 Guidelines for the identification and evaluation of suitable habitat for the western yellow-billed cuckoo.
Conservation Measure Cuckoo 3	Prescribed fire will not be used within 0.5 miles of suitable or proposed critical yellow-billed cuckoo habitat; suitable yellow-billed cuckoo habitat will be determined using the Utah Field Office August 2017 Guidelines for the identification and evaluation of suitable habitat for the western yellow-billed cuckoo.
Conservation Measure Cuckoo 4	<p>Conservation measures specific to yellow-billed cuckoos adapted from conservation measures for riparian bird species identified in the Vegetation Treatments BA (BLM 2005):</p> <p>Closely follow all application instructions and use restrictions on herbicide labels. Do not use 2,4-D adjacent to yellow-billed cuckoo habitat; do not broadcast spray 2,4-D within ¼ mile of suitable yellow-billed cuckoo habitat. Avoid use of the following herbicides adjacent to suitable yellow-billed cuckoo habitat: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, tebuthiuron, and triclopyr. Do not broadcast spray clopyralid, diquat, diuron, glyphosate, hexazinone, picloram, or triclopyr adjacent to suitable yellow-billed cuckoo habitat. If broadcast spraying imazapyr or metsulfuron methyl adjacent to suitable yellow-billed cuckoo habitat, apply at the typical, rather than the maximum, application rate. If conducting manual spot applications of glyphosate, hexazinone, or triclopyr to vegetation adjacent to suitable yellow-billed cuckoo habitat, utilize the typical, rather than the maximum, application rate.</p>
Conservation Measure Flycatcher 1	Aerial application of chemicals will not occur during the southwestern willow flycatcher breeding season (April 15 to August 15) within 0.5 mile of suitable southwestern willow flycatcher habitat
Conservation Measure Flycatcher 2	Mechanical treatments, ground-based broadcast application of herbicides, or cutting of noxious or invasive woody species will not occur during the southwestern willow flycatcher breeding season within 0.5 mile of suitable habitat southwestern willow flycatcher habitat.
Conservation Measure Flycatcher 3	Prescribed fire will not be used within 0.5 mile of suitable southwestern willow flycatcher habitat.

Conservation Measure Number	Conservation Measure Text
Conservation Measure Flycatcher 4	No targeted grazing will be implemented within 12 mi of suitable southwestern willow flycatcher habitat or final critical habitat during the southwestern willow flycatcher breeding season.
Conservation Measure Flycatcher 5	Avoid treatments in more than 25 percent of a suitable habitat patches for southwestern willow-flycatchers in any given year.
Conservation Measure Flycatcher 6	<p>Conservation measures specific to southwestern willow flycatchers adapted from conservation measures for riparian bird species identified in the Vegetation Treatments BA (BLM 2005).</p> <p>Closely follow all application instructions and use restrictions on herbicide labels. Do not use 2,4-D in southwestern willow flycatcher habitat; do not broadcast spray 2,4-D within ¼ mile of southwestern willow flycatcher habitat.</p> <p>Avoid use of the following herbicides in or adjacent to southwestern willow flycatcher habitat: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, tebuthiuron, and triclopyr.</p> <p>Do not broadcast spray clopyralid, diquat, diuron, glyphosate, hexazinone, picloram, or triclopyr in southwestern willow flycatcher habitat; do not broadcast spray these herbicides in areas adjacent to southwestern willow flycatcher habitat under conditions when spray drift onto the habitat is likely.</p> <p>If broadcast spraying imazapyr or metsulfuron methyl in or adjacent to southwestern willow flycatcher habitat, apply at the typical, rather than the maximum, application rate.</p> <p>If conducting manual spot applications of glyphosate, hexazinone, or triclopyr to vegetation in or adjacent to southwestern willow flycatcher habitat, utilize the typical, rather than the maximum, application rate.</p>
Conservation Measure Listed Plants I	<p>Conservation measures for listed plants contained in the biological assessments for Vegetation Treatments using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (BLM 2007, pp. 4-129 to 4-130) and the 2016 Final PEIS for Vegetation Treatments Using Aminopyralid, Fluroxypyr, and Rimsulfuron on BLM Lands in 17 Western States (BLM 2015, Appendix B-2):</p> <p>Herbicide treatments should not be conducted in areas where TEP plant species may be subject to direct spray by herbicides during treatments.</p> <p>Applicators should review, understand, and conform to the “Environmental Hazards” section on herbicide labels (this section warns of known pesticide risks and provides practical ways to avoid harm to organisms or the environment).</p> <p>To avoid negative effects to TEP plant species from off-site drift, surface runoff, and/or wind erosion, suitable buffer zones[1] should be established between treatment sites and populations (confirmed or suspected) of TEP plant species, and site-specific precautions should be taken (refer to the guidance provided below).</p> <p>Follow all instructions and SOPs to avoid spill and direct spray scenarios into aquatic habitats that support TEP plant species.</p> <p>Follow all BLM operating procedures for avoiding herbicide treatments during climatic conditions that will increase the likelihood of spray drift or surface runoff.</p> <p>Additional, formulation-specific conservation measures are included in the biological assessments described above (BLM 2007, pp. 4-130 to 4-134; BLM 2015, pp. 15-16):</p>

Conservation Measure Number	Conservation Measure Text
	<p>2,4-D Because the risks associated with this herbicide were not assessed, do not spray within ½ mile of terrestrial plant species or aquatic habitats where TEP aquatic plant species occur. Do not use aquatic formulations in aquatic habitats where TEP aquatic plant species occur. Assess local site conditions when evaluating the risks from surface water runoff to TEP plants located within ½ mile downgradient from the treatment area. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p> <p>Aminopyralid Ground Application If using a low boom at the typical application rate, do not apply within 100 feet of TEP terrestrial plants[2]. If using a low boom at the maximum application rate or a high boom at the typical application rate, do not apply within 400 feet of TEP terrestrial plants. If using a high boom at the maximum application rate, do not apply within 600 feet of TEP terrestrial plants.</p> <p>Aerial Application Over Non-Forested Land Do not apply by airplane at the typical application rate within 1,800 feet of TEP terrestrial plants. Do not apply by airplane at the maximum application rate within 2,000 feet of TEP terrestrial plants. Do not apply by helicopter at the typical application rate within 1,640 feet of TEP terrestrial plants. Do not apply by helicopter at the maximum application rate within 1,700 feet of TEP terrestrial plants.</p> <p>General In areas where wind erosion is likely, do not apply within 1.2 miles of TEP plant species (an alternative suitable buffer may be developed at the local level based on an analysis of site conditions).</p> <p>Bromacil Do not apply within 1,200 feet of terrestrial TEP plant species. If using a low boom at the typical application rate, do not apply within 100 feet of an aquatic habitat in which TEP plant species occur. If using a low boom at the maximum application rate or a high boom, do not apply within 900 feet of an aquatic habitat in which TEP plant species occur. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p> <p>Chlorsulfuron Do not apply by ground methods within 1,200 feet of terrestrial TEP species. Do not apply by aerial methods within 1,500 feet of terrestrial TEP species. Do not apply by ground methods within 25 feet of aquatic habitats where TEP plant species occur. Do not apply by aerial methods at the maximum application rate within 300 feet of aquatic habitats where TEP plant species occur. Do not apply by aerial methods at the typical application rate within 100 feet of</p>

Conservation Measure Number	Conservation Measure Text
	<p>aquatic habitats where TEP plant species occur. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p> <p>Clopyralid Since the risks associated with using a high boom are unknown, use only a low boom during ground applications of this herbicide within ½ mile of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur. Do not apply by ground methods at the typical application rate within 900 of [sic] terrestrial TEP species. Do not apply by ground methods at the typical application rate within ½ mile of terrestrial TEP species. Do not apply by aerial methods within ½ mile of terrestrial TEP species. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p> <p>Dicamba If using a low boom at the typical application rate, do not apply within 1,050 feet [sic] of terrestrial TEP plant species. If using a low boom at the maximum application rate, do not apply within 1,050 feet [sic] of terrestrial TEP plant species. If using a high boom, do not apply within 1,050 feet of terrestrial TEP plant species. Do not apply within 25 feet of aquatic habitats where TEP plant species occur. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p> <p>Diflufenzopyr If using a low boom at the typical application rate, do not apply within 100 feet of terrestrial TEP plant species. If using a high boom, or a low boom at the maximum application rate, do not apply within 900 feet of terrestrial TEP plant species. If using a high boom, do not apply within 500 feet of terrestrial TEP plant species. Do not apply within 25 feet of aquatic habitats where TEP plant species occur. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p> <p>Diquat Do not use in aquatic habitats where TEP aquatic plant species occur. Do not apply by ground methods within 1,000 feet of terrestrial TEP species at the maximum application rate. Do not apply by ground methods within 900 feet of terrestrial TEP species at the typical application rate. Do not apply by aerial methods within 1,200 feet of terrestrial TEP species.</p> <p>Diuron Do not apply within 1,100 feet of terrestrial TEP species. If using a low boom at the typical application rate, do not apply within 900 feet of aquatic habitats where TEP aquatic plant species occur. If using a high boom, or a low boom at the maximum application rate, do not apply within 1,100 feet of aquatic habitats where TEP aquatic plant species occur.</p>

Conservation Measure Number	Conservation Measure Text
	<p>In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p> <p>Fluridone Since effects on terrestrial TEP plant species are unknown, do not apply within ½ mile of terrestrial TEP species.</p> <p>Fluroxypyr Ground Application If using a low boom at the typical application rate, do not apply within 100 feet of TEP terrestrial plants. If using a low boom at the maximum application rate, do not apply within 600 feet of TEP terrestrial plants. If using a high boom at the typical application rate, do not apply within 400 feet of TEP terrestrial plants. If using a high boom at the maximum application rate, do not apply within 700 feet of TEP terrestrial plants. Aerial Application Over Non-Forested Land Do not apply by airplane at the typical application rate within 1,100 feet of TEP terrestrial plants. Do not apply by helicopter at the typical application rate within 900 feet of TEP terrestrial plants. Do not apply by airplane or helicopter at the maximum application rate within 1,500 feet of TEP terrestrial plants.</p> <p>General In areas where wind erosion is likely, do not apply within 1.2 miles of TEP plant species (an alternative suitable buffer may be developed at the local level based on an analysis of site conditions).</p> <p>Glyphosate Since the risks associated with using a high boom are unknown, use only a low boom during ground applications of this herbicide within ½ mile of terrestrial TEP plant species. Do not apply by ground methods at the typical application rate within 50 feet of terrestrial TEP plant species. Do not apply by ground methods at the maximum application rate within 300 feet of terrestrial TEP plant species. Do not apply by aerial methods within 300 feet of terrestrial TEP plant species.</p> <p>Hexazinone the risks associated with using a high boom or an aerial application are unknown, only apply this herbicide by ground methods using a low boom within ½ mile of terrestrial TEP plant species and aquatic habitats that support aquatic TEP species. Do not apply by ground methods at the typical application rate within 300 feet of terrestrial TEP plant species or aquatic habitats that support aquatic TEP plant species. Do not apply by ground methods at the maximum application rate within 900 feet of terrestrial TEP plant species or aquatic habitats that support aquatic TEP plant species. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p>

Conservation Measure Number	Conservation Measure Text
	<p>Imazapic</p> <p>Do not apply by ground methods within 25 feet of terrestrial TEP species or aquatic habitats where TEP plant species occur.</p> <p>Do not apply by helicopter at the typical application rate within 25 feet of terrestrial TEP plant species.</p> <p>Do not apply by helicopter at the maximum application rate, or by plane at the typical application rate, within 300 feet of terrestrial TEP plant species.</p> <p>Do not apply by plane at the maximum application rate within 900 feet of terrestrial TEP species.</p> <p>Do not apply by aerial methods at the maximum application rate within 300 feet of aquatic TEP species.</p> <p>Do not apply by aerial methods at the typical application rate within 100 feet of aquatic TEP species.</p> <p>In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p> <p>Imazapyr</p> <p>Since the risks associated with using a high boom are unknown, use only a low boom for ground applications of this herbicide within ½ mile of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur.</p> <p>Do not apply at the typical application rate, by ground or aerial methods, within 900 feet of terrestrial TEP plant species or aquatic habitats in which aquatic TEP species occur.</p> <p>Do not apply at the maximum application rate, by ground or aerial methods, within ½ mile of terrestrial TEP plant species or aquatic habitats in which aquatic TEP species occur.</p> <p>Do not use aquatic formulations in aquatic habitats where TEP aquatic plant species occur.</p> <p>In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p> <p>Metsulfuron Methyl</p> <p>Since the risks associated with using a high boom are unknown, use only a low boom for ground applications of this herbicide within ½ mile of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur.</p> <p>Do not apply at the typical application rate, by ground or aerial methods, within 900 feet of terrestrial TEP plant species or aquatic habitats in which aquatic TEP species occur.</p> <p>Do not apply at the maximum application rate, by ground or aerial methods, within ½ mile of terrestrial TEP plant species or aquatic habitats in which aquatic TEP species occur.</p> <p>In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p> <p>Overdrive®</p> <p>If using a low boom at the typical application rate, do not apply within 100 feet of terrestrial TEP plant species.</p> <p>If using a low boom at the maximum application rate, do not apply within 900 feet of terrestrial TEP plant species.</p> <p>If using a high boom, do not apply within 900 feet of terrestrial TEP plant species.</p>

Conservation Measure Number	Conservation Measure Text
	<p>Do not apply within 25 feet of aquatic habitats where TEP plant species occur. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p> <p>Picloram Do not apply by ground or aerial methods, at any application rate, within ½ mile of terrestrial TEP plant species. Assess local site conditions when evaluating the risks from surface water runoff to TEP plants located within ½ mile downgradient from the treatment area. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p> <p>Rimsulfuron Ground Application If using a low boom at the typical application rate, do not apply within 200 feet of TEP terrestrial plants. If using a low boom at the maximum application rate or a high boom at the typical application rate, do not apply within 400 feet of TEP terrestrial plants. If using a high boom at the maximum application rate, do not apply within 700 feet of TEP terrestrial plants. Aerial Application Over Non-Forested Land Do not apply by airplane at the typical application rate within 1,600 feet of TEP terrestrial plants. Do not apply by airplane at the maximum application rate within 1,900 feet of TEP terrestrial plants. Do not apply by helicopter at the typical application rate within 1,400 feet of TEP terrestrial plants. Do not apply by airplane or helicopter at the maximum application rate within 1,600 feet of TEP terrestrial plants.</p> <p>General In areas where wind erosion is likely, do not apply within 1.2 miles of TEP plant species (an alternative suitable buffer may be developed at the local level based on an analysis of site conditions). Do not use in watersheds where annual precipitation exceeds 50 inches. In watersheds where annual precipitation exceeds 10 inches, prior to use of rimsulfuron conduct a local-level analysis of site conditions and develop suitable conservation measures for protection of TEP plant species from surface runoff.</p> <p>Sulfometuron Methyl Do not apply by ground or aerial methods within 1,500 feet of terrestrial TEP species. Do not apply by ground methods within 900 feet of aquatic habitats where TEP plant species occur, or by aerial methods within 1,500 feet of aquatic habitats where TEP plant species occur. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p> <p>Tebuthiuron If using a low boom at the typical application rate, do not apply within 25 feet of terrestrial TEP plant species. If using a low boom at the maximum application rate or a high boom at the typical</p>

Conservation Measure Number	Conservation Measure Text
	<p>application rate, do not apply within 50 feet of terrestrial TEP plant species. If using a high boom at the maximum application rate, do not apply within 900 feet of terrestrial TEP plant species. Do not apply within 25 feet of aquatic habitats where TEP plant species occur. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p> <p>Triclopyr Acid</p> <p>Since the risks associated with using a high boom are unknown, use only a low boom during ground applications of this herbicide within ½ mile of terrestrial TEP plant species. Since the risks associated with using a high boom are unknown, use only a low boom during ground applications at the maximum application rate of this herbicide within ½ mile of aquatic habitats in which TEP plant species occur. Do not apply by ground methods at the typical application rate within 300 feet of terrestrial TEP plant species. Do not apply by aerial methods at the typical application rate within 500 feet of terrestrial TEP plant species. Do not apply by ground or aerial methods at the maximum application rate within ½ mile of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur. If applying to aquatic habitats in which aquatic TEP plant species occur, do not exceed the targeted water concentration on the product label. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p> <p>Triclopyr BEE</p> <p>Since the risks associated with using a high boom are unknown, use only a low boom for ground applications of this herbicide within ½ mile of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur. Do not apply by ground methods at the typical application rate within 300 feet of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur. Do not apply by aerial methods at the typical application rate within 500 feet of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur. Do not apply by ground or aerial methods at the maximum application rate within ½ mile of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur. Do not use aquatic formulations in aquatic habitats where TEP aquatic plant species occur. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.</p>
Conservation Measure Barneby Reed-Mustard I	Establish a treatment avoidance buffer around individuals or populations to protect pollinator habitat. Individuals or populations will be avoided with a treatment buffer of 1,640 feet (Dawson 2012).
Conservation Measure Clay Phacelia I	Establish a treatment avoidance buffer around individuals or populations to protect pollinator habitat. Individuals or populations will be avoided with a treatment buffer of 1,640 feet (Dawson 2012).

Conservation Measure Number	Conservation Measure Text
Conservation Measure Clay Phacelia 2	To protect this species from adverse effects from livestock grazing, temporary fencing to prevent livestock entry will be placed 1640 ft from individuals or populations within the graduated use area for targeted grazing treatment areas
Conservation Measure Clay Reed-Mustard 1	Site inventories will be conducted within suitable habitat to determine occupancy. Where standard surveys are technically infeasible and otherwise hazardous due to topography, slope, etc., suitable habitat will be assessed and mapped for avoidance; in such cases, 300-foot avoidance buffers will be maintained between surface disturbance and avoidance areas. However, site specific distances will be approved by USFWS and BLM when disturbance will occur upslope of habitat. To avoid water flow and/or sedimentation into occupied habitat and avoidance areas, silt fences, hay bales, and similar structures or practices will be incorporated into the project design.
Conservation Measure Clay Reed-Mustard 2	Establish a treatment avoidance buffer around individuals or populations to protect pollinator habitat. Individuals or populations will be avoided with a treatment buffer of 1,640 feet (Dawson 2012).
Conservation Measure Jones Cycladenia 1	Establish a treatment avoidance buffer around individuals or populations to protect pollinator habitat. Individuals or populations will be avoided with a treatment buffer of 1,640 feet (Dawson 2012).
Conservation Measure Kodachrome Bladderpod 1	Establish a treatment avoidance buffer around individuals or populations to protect pollinator habitat. Individuals or populations will be avoided with a treatment buffer of 1,640 feet (Dawson 2012).
Conservation Measure Kodachrome Bladderpod 2	To protect this species from adverse effects from livestock grazing, temporary fencing to prevent livestock entry will be placed 1640 ft from individuals or populations within the graduated use area for targeted grazing treatment areas
Conservation Measure Last Chance Townsendia 1	Establish a treatment avoidance buffer around individuals or populations to protect pollinator habitat. Individuals or populations will be avoided with a treatment buffer of 1,640 feet (Dawson 2012).
Conservation Measure Last Chance Townsendia 2	To protect this species from adverse effects from livestock grazing, temporary fencing to prevent livestock entry will be placed 1640 ft from individuals or populations within the graduated use area for targeted grazing treatment areas.
Conservation Measure Pariette Cactus 1	Establish a treatment avoidance buffer around individuals or populations to protect pollinator habitat. Individuals or populations will be avoided with a treatment buffer of 1,640 feet (Dawson 2012).
Conservation Measure Pariette Cactus 2	To protect this species from adverse effects from livestock grazing, temporary fencing to prevent livestock entry will be placed 1640 ft from individuals or populations within the graduated use area for targeted grazing treatment areas.
Conservation Measure San Rafael Cactus 1	Establish a treatment avoidance buffer around individuals or populations to protect pollinator habitat. Individuals or populations will be avoided with a treatment buffer of 1,640 feet (Dawson 2012).
Conservation Measure San Rafael Cactus 2	To protect this species from adverse effects from livestock grazing, temporary fencing to prevent livestock entry will be placed 1640 ft from individuals or populations within the graduated use area for targeted grazing treatment areas.

Conservation Measure Number	Conservation Measure Text
Conservation Measure Shrubby Reed-Mustard 1	Establish a treatment avoidance buffer around individuals or populations to protect pollinator habitat. Individuals or populations will be avoided with a treatment buffer of 1,640 feet (Dawson 2012).
Conservation Measure Shrubby Reed-Mustard 2	To protect this species from adverse effects from livestock grazing, temporary fencing to prevent livestock entry will be placed 1640 ft from individuals or populations within the graduated use area for targeted grazing treatment areas.
Conservation Measure Slickspot Peppergrass 1	A qualified biologist will conduct pretreatment slickspot habitat surveys in accordance with slickspot peppergrass inventory guidelines (BLM 2010). If suitable or occupied slickspot habitat is identified, a treatment avoidance buffer of 1,640 feet, will be established to protect the microhabitat and potential seed bank. Fencing, flagging, signs or other methods to denote or exclude the avoidance buffer will be implemented. No treatments or actions will occur within the avoidance buffer.
Conservation Measure Slickspot Peppergrass 2	Within the potential range of slickspot peppergrass only native plant material will be used for revegetation.
Conservation Measure Slickspot Peppergrass 3	If prescribed fire treatments occur within the potential range of slickspot peppergrass, follow-up native seeding or revegetation will be implemented to suppress nonnative, invasive species occupancy.
Conservation Measure Slickspot Peppergrass 4	All slickspot peppergrass proposed critical habitat will be avoided and buffered as per Conservation Measure Slickspot Peppergrass 1.
Conservation Measure Slickspot Peppergrass 5	Establish a treatment avoidance buffer around individuals or populations to protect pollinator habitat. Individuals or populations will be avoided with a treatment buffer of 1,640 feet (Dawson 2012).
Conservation Measure Slickspot Peppergrass 6	To protect this species from adverse effects from livestock grazing, temporary fencing to prevent livestock entry will be placed 1640 ft from suitable and occupied habitat within the graduated use area for targeted grazing treatment areas.
Conservation Measure Spalding's Catchfly 1	Establish a treatment avoidance buffer around individuals or populations to protect pollinator habitat. Individuals or populations will be avoided with a treatment buffer of 1,640 feet (Dawson 2012).
Conservation Measure Spalding's Catchfly 2	To protect this species from adverse effects from livestock grazing, temporary fencing to prevent livestock entry will be placed 1640 ft from individuals or populations within the graduated use area for targeted grazing treatment areas.

Conservation Measure Number	Conservation Measure Text
Conservation Measure Spalding's Catchfly 3	Where prescribed fire treatments are proposed in suitable habitat in the species range, treatments should mimic historical fire behavior to the extent that this is known. Prescribed burning should occur during times when Spalding's catchfly is typically dormant to prevent adverse effects on reproduction. Where invasive annual grasses are present in a prescribed fire treatment area in the species range, revegetation, weed control, and monitoring should be conducted to prevent invasive annual grass germination to the extent possible.
Conservation Measure Uinta Basin Hookless Cactus 1	Establish a treatment avoidance buffer around individuals or populations to protect pollinator habitat. Individuals or populations will be avoided with a treatment buffer of 1,640 feet (Dawson 2012).
Conservation Measure Uinta Basin Hookless Cactus 2	To protect this species from adverse effects from livestock grazing, temporary fencing to prevent livestock entry will be placed 1640 ft from individuals or populations within the graduated use area for targeted grazing treatment areas.
Conservation Measure Webber's Ivesia 1	Establish a treatment avoidance buffer around individuals or populations to protect pollinator habitat. Individuals or populations will be avoided with a treatment buffer of 1,640 feet (Dawson 2012).
Conservation Measure Webber's Ivesia 2	To protect this species from adverse effects from livestock grazing, temporary fencing to prevent livestock entry will be placed 1640 ft from individuals or populations within the graduated use area for targeted grazing treatment areas.
Conservation Measure Webber's Ivesia 3	All Webber's ivesia designated critical habitat will be avoided and buffered with an avoidance buffer of 1,640 feet, to protect the PCEs. Fencing, flagging, signs or other methods to denote or exclude the avoidance buffer will be implemented. No treatments or actions will occur within the avoidance buffer.
Conservation Measure Wright Fishhook Cactus 1	Establish a treatment avoidance buffer around individuals or populations to protect pollinator habitat. Individuals or populations will be avoided with a treatment buffer of 1,640 feet (Dawson 2012).
Conservation Measure Wright Fishhook Cactus 2	To protect this species from adverse effects from livestock grazing, temporary fencing to prevent livestock entry will be placed 1640 ft from individuals or populations within the graduated use area for targeted grazing treatment areas.
Conservation Measure Sage Grouse 1	—No chemical, mechanical, prescribed fire, or targeted grazing treatments will be conducted within 0.8 mi of suitable Bi-State DPS breeding or nesting/ early brood-rearing habitat (areas with >10% sagebrush within the Bi-State DPS range) during the breeding (March 1–May 15) or nesting/early brood-rearing (mid-May–late June) seasons. When implementing targeted grazing outside of areas suitable for nesting, use temporary fencing to minimize livestock use in sage-grouse habitat.
Conservation Measure Sage Grouse 2	When working in areas within 3.1 miles of Bi State DPS leks during the lekking season, avoid noise-generating activities during times when noise exposure is most likely to affect greater sage-grouse—nights and mornings (i.e., 6 pm – 9 am; Patricelli et al. 2012). Avoid or minimize any disturbance within 6 miles of known lek and nest sites during the breeding (March 1–May 15) or nesting/early brood-rearing (mid-May–late June) seasons.

Conservation Measure Number	Conservation Measure Text
Conservation Measure Sage-Grouse 3	No mechanical treatment of sagebrush will be conducted within Bi-State DPS winter range during winter (November 1 to March 1).
Conservation Measure Sage-Grouse 4	Do not conduct treatments in proposed critical habitat that will destroy or adversely modify critical habitat PCEs.
Conservation Measure Ferret 1	Within the range of the black-footed ferret, proposed treatments in prairie dog habitat will be surveyed in accordance with USFWS protocols. Avoid activities in prairie dog habitat whenever possible. Otherwise, design activities to impact the smallest area possible and/or those areas with the lowest prairie dog densities.
Conservation Measure Ferret 2	Prohibit fuel break treatments within 1/8 mile of known home ranges of female ferrets during the "critical" period from May 1 through July 15. The home ranges will be determined from data obtained from radio-collared animals.
Conservation Measure Condor 1	Within the range of the California condor, survey potential habitat within 2 weeks prior to treatments and establish a buffer of 1/2 mile around roosting habitat and 1 mile around nesting habitat. This applies to Endangered and non-essential experimental populations.
Conservation Measures Wolves and Livestock	<p data-bbox="418 884 1195 915">Conservation Measures for Targeted Livestock Grazing Activities</p> <p data-bbox="418 947 1349 1052">The following measures apply to grazing treatment areas that overlap with designated Areas of Known Wolf Activity (AKWA) in areas where wolves are protected under the endangered species act (1973 as amended).</p> <ol data-bbox="418 1083 1422 1619" style="list-style-type: none"> <li data-bbox="418 1083 1422 1220">1. Livestock carcasses found in grazing treatment areas where they would attract wolves to a potential conflict situation with other livestock (such as a salting ground, water source, or holding corral), will be removed, buried, or otherwise disposed of to reduce depredation risk. <li data-bbox="418 1220 1422 1283">2. Sick or injured livestock must be removed from the grazing treatment area so they are not targeted by wolves. <li data-bbox="418 1283 1422 1482">3. Limit grazing treatment area management activities by humans near active gray wolf den sites during the denning and early rearing period (March 15 to June 30) to avoid human disturbance. The distance is determined on a site-specific basis and depends on topography around the den site. Generally, at a minimum, this PDC would restrict activities within one mile of the den or rendezvous site from March 15 to June 30 to avoid disturbance to wolves during the denning season. <li data-bbox="418 1482 1422 1619">4. Salt or other livestock attractants will not knowingly be placed near active gray wolf dens or rendezvous sites, to minimize cattle use in these areas. If a den or rendezvous site is discovered, any previously established salt or attractant locations will be relocated. <p data-bbox="418 1661 1357 1724">The following measures, although not considered PDC, are designed to reduce livestock-wolf interactions:</p> <ul data-bbox="440 1734 1422 1860" style="list-style-type: none"> <li data-bbox="440 1734 1422 1829">• The action agency, state wildlife agency, and the Service will work together with the grazing operator if a den or AKWA becomes established in or near a grazing treatment area. <li data-bbox="440 1829 1422 1860">• treatment area.

Conservation Measure Number	Conservation Measure Text
	<ul style="list-style-type: none"> • The action agency will work with the grazing operator to adjust the treatment plan. • Grazing operators will report any interactions with wolves to the action agency, state wildlife agency, or the Service. • Other measures available to grazing operators for reducing livestock/wolf interaction, depending on the situation and coordination with state wildlife agencies and Service personnel, may include: <ul style="list-style-type: none"> – Fladry – Electric fencing – Guard dogs – Radio-activated Guard System (RAG box) for areas with known radio-collared wolves – Other non-lethal, non-injurious scare tactics (cracker and whistle shells)

[1] Treatment avoidance buffers are described in **Table 3-14** of the Biological Assessment, under Effects from Fuel Break Construction and Maintenance.

[2] Note that buffers for terrestrial plants may be appropriate for plant species that root in water but have foliage extending above the surface of the water (BLM 2015).