PRELIMINARY ENVIRONMENTAL ASSESSMENT

DOI-BLM-NV-WO10-2014-0004-EA

Programmatic Normal Year Fire Rehabilitation and District-Wide Vegetation Management Plan

July 2015

Prepared by:

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BLM

Winnemucca District Office / Nevada

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

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Applicant Name - Bureau of Land Management

1.0 INTRODUCTION

Land management issues are often addressed by multiple resource disciplines that are interconnected and utilize the same or similar management tools and strategies to accomplish desired objectives. The Bureau of Land Management's (BLM) Winnemucca District (WD) Vegetation Management Program encompasses the following disciplines and programs:

- Hazardous Fuels Management
- Weed Management and Invasive Species Program
- Emergency Stabilization (ES) and Burned Area Rehabilitation (BAR), collectively referred to as ES&R
- Forestry and Special Products Program
- Wildlife and Fisheries restoration projects involving vegetation (e.g., Healthy Landscapes)

<u>Hazardous Fuels Management</u>
Fuels management on rangelands is concerned primarily in limiting the size and intensity of wildfires by directly modifying the structure of vegetation and indirectly by facilitating more direct fire suppression (Pellant 1994). Fire can be beneficial to certain wildlife (e.g., Lewis's woodpecker) by providing nesting and foraging opportunities through an increase in snags and insect populations (Saab *et al.* 2007). However, the WD exhibits a fire regime greatly altered by the introduction of invasive annual grasses (Baker 2006). Infestations of invasive annuals within the Great Basin, particularly cheatgrass and Medusahead rye, have resulted in higher frequency of wildfire (Balch *et al.* 2013, Bukowski & Baker 2013). These changes have resulted in a net loss of fire-intolerant sagebrush cover and associated habitat value. Sagebrush stands, which are infested with cheatgrass and have few perennial plants, are at risk from conversion to invasive annual grasslands, or at a minimum, severely delayed recovery following disturbances (Chambers *et al.* 2013). Sagebrush habitat is critical for meeting the life history requirements of several sensitive and special status sagebrush obligate species (e.g., Greater sage-grouse, Brewer's sparrow, and pygmy rabbits). Likewise, woodland, wetland, and riparian vegetation is important as nesting and foraging habitat for other sensitive and special status species (e.g., several species of bats, small mammals, and northern goshawks). Because of the increased risk for wildfire, protecting intact sagebrush, woodland, wetland, and riparian habitat is a high priority for the WD fuels program.

<u>Weed Management and Invasive Species Program</u>
Noxious weeds and non-native invasive plants provide competition for soil and water resources with native vegetation. Non-native invasive plants have detrimentally affected public lands in

Nevada by spreading into and infesting sensitive riparian ecosystems, rangelands, wildfire areas, land developments, public travel corridors, and public recreational areas. Threats from invasive plants include: reduced biodiversity, a higher propensity for soil erosion, increased frequency of wildfire events, a reduction in available high-quality forage and cover for both terrestrial and aquatic wildlife species, and continued fragmentation of intact habitats. Further, non-native invasive plant infestations result in increased competition and a subsequent reduction in fitness of native plant and animal species, and an overall reduction of ecosystem productivity, ability to resist further invasion by non-native invasive species, and ability to recover following disturbance by wildfires. In addition to undesirable environmental effects, unmanaged invasive plant populations on public lands are a potential source of economic risk to stakeholders whose livelihoods depend on the health and integrity of public lands.

The objectives of the noxious weeds program are to protect native plant ecosystems which have not yet been affected or are minimally affected by invasive species. These objectives are accomplished through various efforts such as early-detection rapid-response, eliminating and mitigating the effects of established infestations through active control efforts, and managing affected ecosystems towards native plant communities or other desirable plant communities.

Emergency Stabilization and Burned Area Rehabilitation (ES&R)

Wildfire is one of the most common disturbance mechanisms for native ecosystems in the Great Basin (Baker 2006). While fire can be beneficial, altered fire regimes, combined with drought and invasive plants, can have negative consequences (Chambers *et al.* 2013). Under certain conditions, wildfires can result in an increase in soil loss due to wind and water erosion and provide competitive advantages for noxious weeds and other invasive plants. These effects can result in the collapse of the native perennial ecosystems and a new system can emerge, whereby, the ecological processes are primarily driven by invasive plants.

In affected sagebrush-dominant ecosystems where noxious weeds exert no or minor influence, habitat for Greater sage-grouse and other wildlife species are significantly diminished in the years immediately following the burn event. Wildfire impacts can also adversely affect water quality in burned watersheds, resulting in direct or indirect impacts to fish and other aquatic organisms. While wildfire impacts provide opportunity for invasive species populations to expand, the same disturbance provides opportunity for land managers to successfully manage the landscape for sustained or increased presence of native or other desirable perennial plants.

The Winnemucca BLM ES&R program has the following principle objectives:

- To promptly stabilize and prevent further degradation to affected resources on lands within a fire perimeter.
- To repair damages caused by fire suppression operations in accordance with approved land management plans, regulations, policies, and all relevant federal, state, and local laws.
- Prevent losses of private structures and property on public lands.
- To prescribe cost effective post-fire stabilization measures necessary to protect human life, property, and critical cultural and natural resources.

- To repair or improve lands damaged directly by the wildland fire and unlikely to recover naturally from severe fire damage by emulating historic or pre-fire ecosystem structure, function, diversity, and dynamics.
- To restore or establish healthy, stable ecosystems in the burned area, even if these ecosystems cannot fully emulate historic or pre-fire condition.
- To restore sagebrush habitat that falls within Greater sage-grouse habitat or any other sagebrush-obligate species use areas.
- Deter the establishment and spread of noxious and invasive species.

Forestry, Special Forest and Natural Resources Products

The WD forestry program is responsible for managing forested ecosystems and natural resource commodities available to the public through special use permits. The purpose of the program is to provide public access to natural resource commodities, maintain the availability of those natural resource commodities at current or in increased quantities through time, and manage those resources to minimize or eliminate any adverse impacts to other critical ecological resources caused by excessive or careless use. Special forest products include, but are not limited to: commercial and non-commercial seed collection, and fuel-wood, boughs, posts, Christmas trees, transplants, pinyon nuts, and general plant materials for personal use. The forestry program may also manage forested habitats for long term ecological health and protection or enhancement of non-commercial forest resources through: stand thinning to decrease tree density and competition, planting to increase density or establish new stands, manipulation of fuels to mitigate risk of wildfire, pruning, thinning, or use of prescribed fire to remove and/or limit the spread of disease. Dwarf mistletoe (*Arceuthobium divaricatum*), mountain pine beetle (*Dendroctonus ponderosae*), and pinyon ips beetle (*Ips confusus*) are all known to occur within stands of pinyon pine (*Pinus monophylla*) on the WD and have resulted in poor tree and stand health within select areas. In the limited areas where pinyon pine occurs with Utah juniper (*Juniperus osteosperma*) in mixed stands, changing climate has begun to trend stand composition towards Utah juniper monoculture. The management objectives for juniper woodland communities are complicated by the needs of wildlife species that rely on woodlands for their life-cycle requirements (e.g., several sensitive bat species, mule deer, big horn sheep, several sensitive and non-sensitive migratory bird species, and raptors such as Ferruginous Hawks).

Wildlife and Fisheries Habitat Restoration

The Wildlife and Fisheries program is responsible for maintaining and restoring habitat for a variety of sensitive, non-sensitive, and special status wildlife species across the WD. This includes migratory birds, game animals, small mammals, and pollinator species such as bats and insects. The wildlife and fisheries program have historically engaged in vegetation management and other soil-disturbing actions such as stream bank stabilization, riparian and upland planting and seeding, fencing of sensitive meadows, springs, or riparian areas, or other vegetation manipulations which enhance and restore habitat for target wildlife species.

1.1 Plan Goals

BLM developed goals based on interdisciplinary team input and public input received from comments.

PVMP Goals Are as Follows:

- Reduce or eliminate non-native invasive species influence within riparian areas.
- Improve riparian habitats through native-species restoration projects accomplished in concert with noxious weed and non-native invasive species control efforts.
- Reduce and eliminate populations and spread potential of noxious weeds across the WD.
- Restore areas subject to non-native invasive plant control efforts to native or other desirable perennial plant communities.
- Plant species such as pinyon pine, mountain mahogany, antelope bitterbrush, whitebark pine, limber pine, Jeffrey pine, aspen, cottonwood, and other native plants to expand unique habitats and diverse resources across the WD.
- Manage areas affected by wildfire to reduce probability of conversion to non-native invasive plant dominated plant communities.
- Manage areas affected by wildfire to reduce long-term impacts to fish bearing streams and other aquatic and riparian resources.
- Manage areas affected by wildfire to accelerate recovery of lost shrub communities and accelerate recovery of critical habitat values for a variety of wildlife species.
- Manage sagebrush plant communities for maximum benefit to sagebrush obligate species, such as Greater sage-grouse.
- Manage select juniper stands to reduce the probability of stand-replacement fire, improve habitat conditions for mule deer, provide a fuel-wood resource for local communities, and allow for the persistence of the juniper resource over time.
- Manage select juniper stands, through removal, to reduce seed rain and juniper recruitment within sagebrush ecological sites to maintain sagebrush habitat and connectivity between sagebrush habitats over time.
- Allow the non-commercial harvest of dead and downed pinyon pine and juniper for fuelwood.
- Manage existing stands of pinyon pine in response to pests and disease with the intent of maintaining or increasing the resource with support from local tribal communities.
- Protect wildand-ubran interface (WUI) areas, important wildlife habitat, and rangelands by implementing vegetation management treatments to reduce the size of wildfire.

1.2 Purpose and Need

The purpose of the PVMP is to provide a comprehensive vegetation management plan to be implemented across the WD that uses the best available tools and methods to manage vegetative communities to accomplish multiple-use objectives. The need for the PVMP comes from the requirement of the BLM to respond to mandates under FLPMA, the Healthy Forests Restoration Act of 2003, the Taylor Grazing Act, the Federal Noxious Weed Act, and through implementation of the actions identified in WD Land Use Plans.

1.3 Decisions to Be Made

The authorized officer will decide whether or not to implement the proposed action, one of the action alternatives, the no action alternative, or any combination or portions of the alternatives.

There are several outcomes under the proposed actions which include:

A. Emergency actions; no authorization required (e.g., fire suppression).

   Fire-suppression ES&R activities require no decision for implementation unless non-native seed is to be utilized.

B. Actions that are currently authorized WD-wide, but were incorporated and analyzed into this document to develop a comprehensive vegetation management plan. There were no unresolved resource conflicts concerning these actions. Therefore, these actions did not require the development of any Environmental Protection Measures.

   - Actions under "Weed Management and Invasive-Species Program"
     - Early detection-rapid response (treatment area < 5 acres)
     - Non-surface disturbing manual control of weeds

   - Actions under "Forestry and Special Products"
     - Casual or incidental use of dead and down wood products districtwide (i.e., onsite, non-commercial recreation purposes such as camping)
     - Pinyon Christmas-tree permits in areas open to harvest in the Stillwater Range
     - Non-commercial collection of pinyon pine nuts
     - Plant-seed collection outside of specially designated areas

C. Actions that could be authorized based on this EA with no additional consultation and/or surveys beyond those conducted during the development of the PVMP. Environmental Protection Measure (Section 2.2.1) apply to these actions:

   - Actions under "Weed Management and Invasive Species Program"
     - Biological control (except experimental release)

   - Actions under "Forestry and Specialty Products"
     - District-wide harvest of dead fuelwood
     - Establishment of fuelwood cutting areas
     - Juniper Christmas-tree permits in fuelwood cutting areas
     - Installation of cone cages on whitebark pine for propagation and scientific purposes in Wilderness

   - Actions under "Wildlife and Fisheries Habitat Restoration"
     - Native-species seed-broadcasting
     - Live staking of shrubs and trees

D. Actions that could be authorized based on this EA but, at a minimum, require an assessment of the need to conduct additional surveys and/or consultation.

- Actions under all programs
  - Native-species hand-planting
  - Actions identified under sections A-D, that occur along or adjacent to occupied Lahontan cutthroat trout streams or identified desert dace habitat

E. Further evaluation by IDT to determine what level of additional National Environmental Policy Act (NEPA) documentation including consultation, if any, is necessary.

- Actions under "Hazardous Fuels Management"
  - Construction and maintenance of fuelbreaks
  - Fuels reduction projects
  - Removal of hazardous trees when there is time to plan or the risk to public safety is not immediate

- Actions under "Weed Management and Invasive Species Program"
  - Control of noxious weeds
    - Using heavy equipment
    - Using chemicals on areas greater than 5 acres
    - Using biological agents for experimental treatments
    - Using prescribed grazing and browsing
    - Using prescribed fire
    - Apply mulch aerially or using heavy equipment

- Actions under "Emergency Stabilization and Rehabilitation", not considered emergency actions for fire suppression

- Actions under "Forestry and Specialty Products"
  - Management of juniper
  - Management of pinyon pine
  - Establishment of fuelwood and Christmas-tree cutting areas not identified in the EA
  - Seed collection using vehicle or heavy-equipment methods

- Actions under "Wildlife and Fisheries Habitat Restoration"
  - Drill seeding
  - Application of soil amendments

- Actions in Wilderness. With the exception of emergency actions, all other actions (Actions listed under B-E above) would require the completion of a Minimum Requirements Decision Guide (MRDG) worksheet.

The decisions to be made would be similar under all alternatives except for those activities excluded under each of the action alternatives. For the no-action alternative, there would be no change in current management and the decisions in this section would not apply.

The initial and any subsequent decisions would be issued under applicable authorities and regulations under Federal Land Management and Policy Act (FLPMA), Forest Management authorities per regulations 43 Code of Federal Regulation (CFR) 5000 and Rangeland Management under 43 CFR 4100 regulations and "full force and effect" regulations applicable to the Healthy Forest Restoration Act of 2003.

This plan would be reviewed by an interdisciplinary team (IDT) team every five years to determine if actions are meeting the purpose and need based on new information and policies that develop over the 15 year period.

1.4 Potential Issues

An interested party letter was sent out on March 28, 2011 informing known interested parties that the Bureau of Land Management (BLM) was proposing to implement a variety of weeds, fuels, forestry, and habitat restoration treatments across the Winnemucca District. The BLM has also held multiple IDT meetings. The following issues were identified through internal and external scoping:

- What are the potential health and safety hazards associated with restricted-use herbicides?
- What would the impact be to non-target plant species from contact with herbicides through direct application or contact with "drift"?
- What are the potential public safety and health concerns from use of herbicides?
- Can biological control insects be contained or limited to the analysis area?
- What would the impact be to areas of Native American concern including the Stillwater Range and Traditional Cultural Properties (TCP) located within this range as well as in the East Range from permitted forestry product management?

2.0 PROPOSED ACTION AND ALTERNATIVES

Four alternatives were developed to evaluate a vegetation management plan for the WD. The no-action alternative would mean continuation of actions through multiple activity-level plans varying in scope from limited to mid-level. The proposed action was developed by the BLM to bring together vegetation management planning in a comprehensive district-wide plan that would ultimately streamline project development and implementation. Two actions were developed to address concerns raised during scoping. Those alternatives are 1) no use of biological control and 2) no application of herbicides with aircraft. The following subsections describe in detail the proposed action, the action alternatives and the no-action alternative.

2.1 Information Common to all Alternatives

The WD manages approximately 8.3 million acres of public land across 11.1 million acres in northern Nevada. This total includes lands designated as Wilderness Study Areas, Wilderness Areas, Areas of Critical Environmental Concern, Instant Study Areas and the Black Rock Desert High Rock Canyon Emigrant Trails National Conservation Area. The Winnemucca PVMP provides analysis for vegetation management on public lands administered by the BLM throughout the Winnemucca District, and limited action on adjacent private landholdings with landowner consent under the Watershed Restoration and Enhancement Agreements Act (i.e., "Wyden Authority") during the life of the PVMP, which is expected to be approximately 15 years.

Outcomes and Assumptions

The proposed Winnemucca District PVMP would replace or compliment the following activity-level plans:

Replaces:

- Winnemucca District Normal Year Fire Rehabilitation Plan
- Winnemucca District Integrated Weed Management

Compliments:

- Winnemucca District Office Forestry Plan Amendment
- Winnemucca Field Office Green Stripping
- Black Rock Desert – High Rock Canyon Emigrant Trails National Conservation Area Wilderness Management Plan

There are several outcomes under the proposed actions which include (refer also to "Decision to be Made" section):

A. Emergency actions; no authorization required (e.g., fire suppression)
B. Actions authorized by previous decisions with no additional consultation and/or survey needs. These actions were incorporated into this document to develop a comprehensive vegetation management document
C. Actions that would be authorized based on this EA with no additional consultation and/or surveys
D. Actions that would be authorized based on this EA but require consultation and/or surveys
E. Further evaluation by IDT to determine what level or if any additional NEPA documentation is necessary

For the purposes of this analysis:

- Further evaluation under NEPA should be interpreted as additional evaluation of treatments to determine level of NEPA compliance necessary.
- An interdisciplinary team (IDT) would include those specialists whose resource may be impacted. Due to the spatial and temporal scope of this programmatic document and the environmental protection measures, it is important to ensure an adequate level of interdisciplinary discussion.

2.2 Alternative A: Proposed Action

The BLM WD is proposing various vegetation management treatments for resource and habitat maintenance, improvement and restoration. Projects include treatments in all riparian and upland vegetation communities across the Winnemucca District. Projects and treatments would be performed by the BLM or under BLM direction throughout the year, as appropriate, and according to all laws, regulations, and the PVMP Environmental Protection Measures, or any combination of these entities.

Treatments authorized under the PVMP would be implemented to achieve the goals of the PVMP. Treatment types (see list below) would be used individually or in combination within project or treatment areas.

Treatments authorized under the PVMP would also include, where necessary, plans for continued maintenance during the life of the PVMP. Implementation of all herbicide treatments would be subject to Best Management Practices (BMP) and Standard Operating Practices (SOP) identified in Appendix I.

Treatment Types and Descriptions

Hazardous Fuels Management Actions

Construction and Maintenance of Fuelbreaks
Fuelbreaks would be created in strategic locations to better enable the Winnemucca District to successfully contain and control wildfires, thereby minimizing impacts of wildfire to unburned habitats. Fuelbreaks would be constructed and maintained through the coordinated use of mowing, disking, application of BLM-approved herbicides, biological control, use of prescribed fire, application of soil amendments, and seeding or planting. Fuelbreaks would be constructed within or adjacent to areas where the existing shrub communities have been disturbed by wildfire or surface-disturbing activities. These areas would include roads and road rights-of-way, construction disturbance such as that created by mining operations, pipeline or power-line rights-of-way, and areas which have been dominated by invasive annual plants as a result of wildfire or past surface-disturbing activities.

Fuelbreaks would be constructed in locations determined through interdisciplinary dialogue. Fuelbreaks would be placed in a way that is logistically appropriate for the purpose of fire suppression while minimizing short- or long-term impacts to other resources from the construction of the fuelbreak. All BLM-approved herbicides would be available for use as part of fuelbreak construction or maintenance. However it is anticipated that Imazapic, 2, 4-D, and Glyphosate would be used with the greatest frequency. All herbicide use would follow the protection measures in outlined in Section 2.2.1. Approximately 75,000 acres of new fuelbreaks are proposed to be constructed during the life of the plan, with an average of 5,000 acres being constructed annually.

Proposed fuelbreaks would generally be constructed adjacent to roadways, and would not exceed 150 feet on either side of the roadway or a total of 300' width (not including the road prism). Fuelbreak construction not adjacent to roads would occur where the existing shrub community has already been removed through past wildfire or surface disturbing activities wherever possible. Vegetation removal within the active roadbed of existing roads may also occur across the district in order to reduce fuels in roadways and improve access and response time for fire suppression personnel. Proposed fuelbreaks would avoid perennial stream reach with a minimum buffer of 300 feet, and would avoid any ephemeral stream reach with a minimum buffer of 50 feet. Fuelbreaks would also avoid meadows and springs, and lentic wetland areas. Exceptions for these buffers may be necessary based on site conditions (e.g., topography), but would require coordination and/or consultation with the Nevada Department of Wildlife (NDOW) and/or the United States Fish and Wildlife Service (USFWS).

Fuels Reduction Projects

Selective removal of hazard trees, dead and downed woody material, and/or hand thinning of dense brush to reduce fuel loading would occur to increase public safety and improve safe access for personnel involved in fire suppression. Fuel reduction would occur in riparian areas and adjacent to roadways. Approximately 15,000 acres would be treated by hand to reduce fuel loading during the lifetime of the PVMP with approximately 1000 acres implemented annually. Fuels reduction projects would not occur within 50 feet from fish-bearing streams, with measurement of fifty feet occurring from the edge of riparian vegetation (e.g., obligate wetland vegetation).

<u>Noxious Weed and Invasive Plant Management Actions</u>

Invasive plant control would be coordinated with other projects evaluated in the proposed action. In project locations where removal of invasive species is the primary objective, seeding and planting projects and associated treatments, such as mulch application would be coordinated with invasive species removal efforts as part of an Integrated Weed Management program. Control of non-native, invasive annual plants done in coordination with ES&R seeding treatments would occur, but would not be included in the estimated acres of invasive plants treatment described below, since the total number of acres potentially treated by the ES&R program cannot accurately be estimated.

Early-Detection & Rapid-Response (EDRR)

EDRR treatments would be chemical treatments, less than five acres in size per treatment (i.e., five acres of complete coverage with herbicide product). EDRR treatments would occur district-wide, wherever noxious weeds require control. Where saltcedar or Russian olive are targeted by EDRR treatments, plants may be cut with loppers, hand-saws, or chainsaws to reduce the amount of herbicide needed and increase treatment efficacy. Most EDRR treatments occur in areas of previous vegetative or soil disturbance, and would be transient in nature, as infestations are usually small and scattered. EDRR treatments, once initiated, would continue until the infestation is removed; subsequent maintenance treatments should require less work and herbicide. The amount of land area treated with EDRR tactics is

included in the total acres proposed for chemical treatment (see Chemical Control section below).

Manual Control
Manual control would consist of hand pulling or the use of hand tools for grubbing, pulling, digging, or chopping. Manual control would also include the use of geotextile fabrics or other similar barriers to control noxious weeds. Manual control methods could occur both independently and in coordination with mechanical or chemical treatments. Approximately 4,000 acres of manual control would occur during the life of the PVMP.

Mechanical Control
Mowing would be the most widely applied mechanical treatment. Soil-disturbance treatments would also be implemented; these treatments be implemented utilizing plows, disk harrows, or other implements and would disturb the soil to a depth of approximately 12 inches or less. Machine-mounted mowers would commonly be utilized in coordination with herbicide application and/or seeding projects within areas dominated by non-native invasive annual species. Machine-mounted mowing would not occur within 50 feet of fish-bearing streams. Approximately 40,000 acres of large mechanical-mowing treatments, 6,000 acres of mowing treatments utilizing hand-held mowers (e.g., grass trimmers), and 1,500 acres of soil-disturbing treatments (cultural control) would occur during the life of the PVMP.

Chemical Control
Chemical control of invasive plants would be accomplished with BLM-approved herbicide products utilizing a variety of methods including: swabs, stem-injectors, spray bottles, backpack sprayers, off highway vehicle (OHV), truck, and tractor-mount sprayers, and aircraft as appropriate based on objectives and additional resource needs. Approximately 375,000 total acres of all combined chemical treatments of invasive plants would occur during the life of the PVMP. Approximately 75,000 acres would be treatments of small, scattered infestations (e.g., EDRR spot treatments), with approximately 15,000 acres of spot treatments occurring within riparian areas.

Spot treatments would typically be implemented with OHV, backpack or hand-pump although stem-injection and swabs may be utilized as well. Spot treatments could utilize all BLM-approved herbicides according to label directions, SOPs, and the Environmental Protection Measures (EPM) listed in section 2.2.1. Approximately 300,000 acres of application would target non-native invasive annual plants in general, of which approximately 200,000 acres would be broadcast treatments to control invasive annual plants (e.g., cheatgrass) in coordination with ground-seeding operations. These combined treatments (i.e., herbicide and seeding) would occur as part of restoration projects on lands which are dominated by invasive annual plants or which have been affected by stand failures of invasive annual plants (i.e., cheatgrass die-offs).

Some chemical treatments would occur within stands of sagebrush where an IDT recommends that control of invasive annuals is desirable in order to advantage existing perennial plants or reduce fine fuels. Projects done to control non-native invasive annuals would most frequently utilize the herbicides Imazapic or Glyphosate; however other BLM-

approved herbicides may be utilized as well. Approximately 150,000 acres of chemical control would specifically target Medusahead rye. Imazapic would likely account for approximately 125,000 acres of the total 150,000 acres of Medusahead chemical control treatments during the life of the plan. Glyphosate and other BLM-approved herbicides would potentially be utilized in smaller applications.

Imazapic would typically be applied during the fall or winter, within an approximate window of September 15 to February 28. Acreage estimates for chemical control of invasive plants described in this section do not include chemical application as part of construction or maintenance of fuelbreaks. Project location for control of invasive annuals, Medusahead rye, and coordinated seedings would be identified by an IDT with input from USFWS and/or NDOW as appropriate. No more than 2% of the WD would receive chemical control treatments to control invasive plants or noxious weeds during any given year. Chemical control actions would include the treatment of infestations with no prior history of treatment, and would also include repeat treatments to sites with prior history of herbicide or other treatment.

Approved herbicides are listed in Appendix III. Herbicide application would comply with all laws, procedures and instructions on the product labels pertaining to the transport, handling and application of all chemicals used on the WD. Standard operating procedures and Best Management Practices (BMPs) for the use of BLM approved herbicides can be found in Appendices B & D of, *Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States PEIS and Record of Decision, 2007.* All herbicide products analyzed and approved for use in *Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States PEIS and Record of Decision (2007)* would be available for use across the WD.

Use of herbicides within 10 feet of open water would be restricted to herbicides authorized by the Environmental Protection Agency (EPA) for aquatic use (aquatic-label herbicides).
Use of herbicides within 10 feet of fish bearing streams or bodies of water would be restricted to aquatic-label Imazapyr or Glyphosate based herbicides. Control of aquatic plants using herbicides is not proposed under the PVMP. Generally, Imazapyr would be utilized to conduct spot weed treatments adjacent to fish-bearing streams. Weed treatments along streams would be implemented using a backpack sprayer, stem injector, or swab application. Imazapyr is known to have very low toxicity to fish and provides effective control of both broadleaf plants and grasses.

Biological Control
Biological control treatments would be implemented by releasing insects or pathogens in an attempt to control or reduce competitive advantage of invasive weeds. These organisms are usually endemic to the invasive plant's native region. In their native habitats, invasive plants are subjected to predation or infection by insects or pathogens, which limit their ability to spread rapidly or to produce monoculture stands. Natural biological processes can provide control with minimal environmental impact, and often at low cost.

Supplemental treatments may be necessary to achieve greater results. The approval for use of all biological control agents must meet or exceed stringent testing by U.S. Department of

Agriculture-Animal and Plant Health Inspection Service (USDA-APHIS) to ensure that their release in a specific ecosystem will not cause undo harm to non-target plants or other organisms. Any use of biological control agents would be within federal, state, and agency laws and regulations. Winnemucca BLM would release only biological control agents approved by the Nevada Department of Agriculture (NDA) listed in Appendix III and any organisms approved for use in northern Nevada by NDA in the future. Small experimental field releases approved by APHIS and the NDA would also occur but would require further NEPA evaluation.

Prescribed Grazing and Browsing

Treatments with domestic animals would be utilized to both remove Nevada State-listed noxious weeds and other invasive species and for hazardous fuels reduction treatments. Prescribed grazing would be coordinated with prescribed burning to reduce fuel pockets and increase project safety and success. Use of domestic animals would require the use of removable or temporary fencing or herding techniques to target specific invasive plant species in specific project locations. Approximately 5,000 acres of prescribed grazing or browsing would occur during the life of the PVMP. Prescribed grazing or browsing would be performed according to the limits or stipulations within a use area, such as a pasture or allotment as described in the existing Biological Opinions (BO's) for those use areas which include Occupied or Recovery Lahontan cutthroat trout (LCT) streams. Prescribed grazing or browsing would not occur within pastures which contain desert dace habitat. If a project prescribes grazing or browsing which is not compliant with all existing BO's, new Section 7 consultation under the Endangered Species Act (ESA) with USFWS would occur prior to implementation of that project.

Prescribed Fire

Prescribed-fire treatments would be utilized to remove thatch cover in areas dominated by non-native annual invasive species, such as cheatgrass or Medusahead rye. This treatment would be coordinated with the use of approved herbicides, and seeding treatments. Up to 100,000 acres would be treated with fire in coordination with herbicide and/or seeding treatments during the life of the PVMP, with an estimated annual application of 3,000 acres. Prescribed fire would not occur within 300 feet of perennial stream reaches.

Mulching

Mulching, in general, is the application of organic material (e.g., wood chips, straw) to the soil surface. Mulching would occur where groundcover is required to reduce erosion of soil by water (e.g., overland flow) or to create favorable microsite conditions for seed germination. Mulching would be applied to the ground through aerial, mechanical, and manual methods. Mulches would include hydromulch products, wood chips or other shredded wood-fiber, and straw products. In general, mulching would be coordinated with approximately 5 percent of seeding projects, and with approximately 5 percent of seedling planting projects. Fertilizer, tackifier, or dye products would not be added to hydromulch or other mulch products within 300 feet of fish-bearing streams.

Emergency Stabilization and Burned Area Rehabilitation Actions

Interdisciplinary team (IDT) review of the burned area and need for Emergency Stabilization and Rehabilitation (ES&R) program action would occur after all fires. If the IDT determines a need for action, an ES&R plan would be created and further evaluation under NEPA would occur.

Dozer-Line Stabilization
Dozer-line stabilization would occur as part of the fire suppression effort and is considered to be an emergency response activity. It generally occurs at the end of fire-control activities and should occur within the first year after the fire event. Dozer-line stabilization would typically include pullback of material which was removed during fire line construction, levelling of any created berms or piles, and construction of water bars on slopes which are conducive to water erosion. Dozer lines would be seeded to accelerate vegetative recovery. Emergency consultation with USFWS would occur if a dozer line and associated rehab crossed an occupied LCT stream or desert dace stream.

Repair of Existing Roads
Repair of existing roads would occur to restore safe access and conditions that existed prior to ES&R activities. This would include, but not be limited to, the repair of potholes, gullies, replacement of culverts, and areas of ponding. Damaged roads would often require re-establishment of the road prisms (the area of ground containing the road-bed, cut-slope, and cut and fill). Road repairs would be completed to BLM specifications. Road repair of BLM system roads would primarily occur to address public safety and would not alter the class of road that existed prior to ES&R activities. If identified road repairs are to occur where the road prism crosses a stream which is identified as an Occupied LCT or desert dace stream, emergency consultation with USFWS would occur. Roads would also be repaired as needed in response to wildland fire or fire-suppression activities, which are considered emergency response actions.

Construction of Temporary Upland Erosion or Sediment-Control Structures
These treatments would be implemented within or downslope of burned areas where fire-associated erosion has a high potential to impact water quality or damage private property. Structures would be designed to be removed when no longer needed or made of biodegradable material. Types of erosion or sediment-control structures may include mulch fabrics, straw bale check dams, straw wattles, coir logs, or similar products. All structures would be inspected annually up to three years following the fire to determine their condition and evaluate effectiveness. Structures that would not biodegrade would be removed or require additional evaluation. Sediment-control structures may be placed in-stream or immediately adjacent to streams. Interdisciplinary coordination, including with NDOW, would occur for any sediment-control projects occurring in or adjacent to fish bearing streams. Emergency consultation with USFWS would occur if sediment-control activities are associated with occupied LCT or desert dace streams.

Repair or Replacement of Existing Range-Improvement Projects or BLM Facilities
Improvements which are damaged as a result of wildfire would be repaired or replaced

according to BLM specifications. Range-improvement structures projects include troughs and guzzlers, fences, gates, cattle guards, pipelines, or similar structures. Facilities would include, but not be limited to picnic tables, buildings, kiosks, or any other structure located on public land. Repair or replacement of existing range improvement projects or BLM facilities damaged by fire-suppression activities, such as cutting a fence to allow access for suppression resources, are emergency response actions.

Natural Recovery
This action would be implemented for burned areas which have a high probability of recovering to a desirable condition without active management due to the presence of surviving perennial plants or a sufficient seed source. The use of natural recovery would be determined through interdisciplinary evaluation.

Seeding and Planting
Treatments would be implemented to accelerate vegetative recovery following wildfire. Tactics would be the same as those utilized in other degraded lands or habitat restoration projects described in the "Seeding and Planting for Habitat Restoration or Improvement" section of the PVMP.

Land Closure for Stabilization Actions
This action would be implemented to allow existing vegetation, seeded and planted vegetation, or any combination to recover or establish after natural events such as wildfire, drought, flood, or disease. Closure may be administrative, or may involve the construction of temporary fence to exclude livestock, wild horses, and burros from the affected area, or a temporary closure of burned lands and dozer lines to OHV or vehicle access. Temporary fences would be removed when the closure is lifted or removed. When temporary fences are necessary, access to water and forage for wild horse and burro (WH&B) would be assessed. Livestock grazing closures would be lifted or removed according to the stipulations or conditions identified in an allotment or pasture-specific grazing decision. In instances where recovering fire-affected lands are dominated by invasive annuals, livestock utilization may be permitted after seed maturation of perennial grasses and forbs, and prior to the growing season (no use after February 28) in order to reduce biomass of invasive annual plants. A minimum of 100 pounds per acre of annual vegetation (i.e., cheatgrass) must be present to consider livestock use. Quantitative and qualitative monitoring of all ES&R seeding (except dozer line), planting, natural recovery, and closure implementations would occur in order to evaluate treatment effectiveness and provide data to be used in decision-making regarding release of closure.

<u>Forestry and Specialty Products Actions</u>

Management of Juniper
Scattered Utah juniper (*Juniperus osteosperma*) and western juniper (*Juniperus occidentalis*) would be removed in areas of sagebrush steppe where juniper expansion has occurred and is still in an introductory stage, in order to reduce or eliminate juniper seed dispersal and maintain sagebrush habitat and connectivity between sagebrush-habitat patches over time. Projects would remove juniper from areas which are within Greater sage-grouse PPH, PGH,

or new definitions of critical habitat as directed and where juniper cover is approximately 10 percent or less. Project areas would be prioritized by considering distance to Greater sage-grouse lekking areas, meadows, and riparian habitats. Removal would occur primarily by hand crews with chainsaw, but mechanized equipment removal may also occur where feasible and appropriate. Mechanical removal may include mastication or mowing with a flail-head mower or other devices. Hand-removal may include subsequent chipping or shredding of cut material, or hand-piling and burning. In some instances, removal would occur through the establishment of fuelwood cutting areas which are in addition to those identified in the "Establishment of Fuelwood Harvest Areas" section. Juniper removal projects would be located within Greater sage-grouse habitat (e.g., PPH, PGH) where establishment of young trees and associated seed rain are reducing sagebrush habitat quality for sagebrush obligates. Juniper may be removed where juniper competition is detrimentally affecting the health of pinyon pine stands. Juniper may be thinned for the benefit of other wildlife species, such as mule deer. Approximately 45,000 acres would be treated to remove juniper with the specific intent of maintaining sagebrush habitat identified as Greater sage-grouse habitat, and up to 5,000 acres managed for the benefit of pinyon pine within the Stillwater Range, and approximately 20,000 acres managed for the benefit of mule deer or other wildlife species during the life of the PVMP.

Management of Pinyon Pine

Where unhealthy stands of pinyon pine have been identified by forestry staff, interdisciplinary dialogue would occur to discuss needed management actions. Diseased or drought-affected trees or stands could be managed through the use of prescribed fire, mastication, cut and pile, or fuelwood sales. Native American consultation regarding specific actions and locations would occur for any projects which would take place in existing stands of pinyon pine to protect traditional use trees, pinyon camps, Traditional Cultural Properties (TCP) and other Native American values in the Stillwater Range. In areas where pinyon is removed to control disease, planting of pinyon seedlings would occur to ensure persistence of the species within those areas. Planting of pinyon seedlings would also occur both within and outside of established stands in order to generate new stands which are separated from disease affected areas and to ensure long term persistence of the species and the pine-nut resource on the WD. Removal of live pinyon to manage the spread of disease within established stands would be dependent upon the extent and potential for spread of disease. It is estimated that approximately 10,000 acres would be treated for pinyon disease management and other stand health issues during the life of the PVMP.

Establishment of Woodland Product Harvest Areas

Dead juniper and pinyon pine would be sold through permits as fuelwood for noncommercial personal use on a district-wide basis. On-site incidental use, at no cost, of dead, downed wood of any species for recreational use (e.g. campfires) would be allowed on public lands administered by the BLM. In addition to the sale of dead and downed wood across the district, harvest of live juniper for noncommercial fuelwood use by the general public through permits would occur within the identified fuelwood cutting areas: East Range -West Herschel Road, Kennedy Canyon, McKinney Pass, Willow Creek Summit, McClure, Kyle Hot Springs Area, Orofino Canyon Area, and Natchez Canyon Area and in Dry Canyon and Sonoma Canyon in the Sonoma Range (Table 1, Map 2). Other fuelwood cutting areas would

be established as appropriate and would receive further evaluation under NEPA. All leave trees would be marked as such.

Christmas trees would continue to be sold under permit for noncommercial use within all of the identified fuelwood cutting areas in the East Range and in Sonoma Canyon. Only juniper would be allowed for Christmas tree harvest within these identified areas. A Christmas tree is defined as being between 3 to 8 feet tall, with a diameter (measured 12 inches above ground) of 6 inches or less. Individual trees would be cut as low to the ground as possible. Lopped branches would be scattered at the site. The practice of topping large trees to obtain a small Christmas tree would not be allowed. Cutting of trees posted "SEED TREE DO NOT FALL" or "WILDLIFE TREE DO NOT DISTURB" would not be allowed. Pinyon Christmas trees would continue to be sold under the permit process throughout the Stillwater range except in areas where overharvesting requires rest from Christmas tree harvest. Gamble Basin and Fencemaker Pass are currently closed to Christmas tree harvest, and would remain closed.

Overharvest of Christmas trees or fuelwood would result in closure of harvest areas in order to allow the affected resource to recover. Closure of overharvested areas would remain in place until the resource has recovered. The closure might be expected to last 20 years for Christmas tree harvesting areas and potentially longer in fuelwood harvesting areas. Planting of pinyon pine seedlings would occur in areas where overharvesting of Christmas trees has occurred, in order to accelerate recovery of the resource.

Harvesting of green pinyon pine in all areas would continue to be prohibited unless trees are identified for selective removal as permitted as Christmas trees or to meet resource objectives (e.g. insect and disease control).

Table 1. Proposed Fuelwood Cutting Area

Currently Identified Proposed Fuelwood Cutting Area	Acres Proposed	Fuelwood Type
Dry Canyon	314	Juniper: Dead with some live
West Herschell Road	632	Juniper: Live
Sonoma Canyon	6282	Juniper: Approximately 60% live, 40% dead
McKinney (Dago) Pass	2435	Juniper: Live
Kennedy Canyon	4616	Juniper: Live
Willow Creek Summit	1132	Juniper: Live
McClure	1802	Juniper: Live
Kyle Hot Springs	3354	Juniper: Live
Orofino Canyon Area	641	Juniper: Live
Natchez	1117	Juniper: Live

Pinyon Pine Nut Collection

The harvest of pine nuts would not be restricted to any particular location. There would be no charge for the first 25 pounds harvested per household. A charge for amounts over 25 pounds of harvested pine nuts would be established by Nevada State Office appraisal. Commercial harvest of pine nuts would not be permitted.

Seed Collection

Both commercial and non-commercial seed collection would be permitted across the WD. Commercial permits would not be sold for collection within Wilderness Areas, Wilderness Study Areas, or Areas of Critical Environmental Concern (ACEC). Prices for permitted seed collection are established by the BLM Boise Seed Warehouse. The WD would also collect native seed as part of a Native Species Materials program with the intent of increasing the availability of local genetic plant materials for use on WD restoration projects. Seed collection would not result in more than 70 percent of available seed being removed at any given collection site. Where live canes, stakes, or softwood cuttings are harvested, collection efforts would not remove more than 30 percent of any given shrub or tree. Hand collections of seed would be subject to all Resource Protection Measures. Seed collection using vehicle or heavy equipment would require further evaluation under NEPA. Sites subjected to commercial seed collection would not be harvested for more than two consecutive years, with a minimum rest of one year if harvest occurs for two consecutive years. Within 5 km of a Greater sage-grouse lek, harvest of sagebrush seed using mechanized equipment (e.g., seed brushes) would not occur more frequently than once every five years at a given location, and mechanized collection of sagebrush seed would not occur within 5 km of a lek whenever possible.

Installation of protective cages for whitebark pine seed collection is proposed in both the Pine Forest and Pahute Peak Wildernesses for scientific and propagation purposes. Within the WD, whitebark pine is only found within these two wilderness areas. These populations are unique because they are geographically isolated from other whitebark pine stands and appear resistant to white-pine blister rust. A Minimum Required Decision Guide worksheet (MRDG) has been completed and it has been determined that the action would be necessary to take place in wilderness due to the uniqueness of these populations (Appendix IV). A crew of two BLM staff members would hike to collection sites and carry in supplies. The protective cages would be comprised of wire mesh and duct tape. Selected pine cones for protection would be reached with the use of an orchard ladder or peavey tool (or similar long-handled hook). Collection times would be generally occurring between April and October depending on availability of cones and environmental conditions. Collection efforts may occur over several years but are unlikely to occur every year over the life of the plan. Approximately 100 cones would be collected per collection year in the Pine Forest Wilderness and 25 cones in the Pahute Peak Wilderness.

<u>Fish and Wildlife Habitat Restoration</u>

These treatments aim to establish a desirable plant species or plant community which competes with and reduces undesirable plant species or otherwise provides a needed ecological function. These treatments would likely be implemented following the application of any combination of the previously described treatments, but may be implemented separately where existing conditions would allow for success.

Seeding
Treatments would be implemented by methods such as: hydromulch application, broadcast seeding, broadcast and harrowing, broadcast and chaining, drill seeding or aerial seeding. Direct seeding projects would occur primarily in coordination with noxious weed or invasive-plant species control efforts but may occur in any area requiring revegetation. Approximately 200,000 acres would be seeded during the life of the PVMP, with acknowledgement that post-fire (ES&R) seeding acres cannot be well defined or anticipated. Actual seeding treatments may be much greater than the estimated proposed acres if large fires occur repeatedly on the WD during the life of the PVMP. Seeding treatments may include the use of mycorrhizal inoculum, and seed-coating technology to enhance germination and establishment. Seed coatings may include mycorrhizae, water-absorbing polymers, clay compounds, charcoal, or fertilizer products. Mycorrhizae are single-celled or multi-celled fungi which form symbiotic relationships with plants and improve plant establishment and long-term survival.

ES&R Drill seeding or broadcast seeding with concurrent machine disturbance would generally be utilized on slopes of 0 to 25%. Drills would be run perpendicular to slopes to prevent the formation of rills and gullies. Depth bands would be utilized to reduce soil disturbance. Drill seeding or seeding with associated soil disturbance would not occur within 50' of perennial or ephemeral streams. Aerial seeding would be considered for areas greater than 25% slope or areas otherwise unsuitable for seeding with drills or other ground-based broadcast methods.

Chaining may occur in concert with aerial seeding in projects where a desirable perennial plant community has been lost due to wildfire or other management disturbance, and the site is evaluated to be dominated by non-native invasive annual plants or at risk from converting to dominance by non-native invasive annual plants. Chaining would not occur on slopes above any fish-bearing streams.

Seedling Planting
Seedling planting would be accomplished by manual methods or a combination of manual and mechanical methods, including use of a ripper tooth or winged sub-soiler to enhance manual planting efficiency or seedling survival in dense or compacted soils. Mechanical methods such as power augers, hand held or vehicle mounted implements may also be employed. In areas where the vegetative community has not been previously disturbed or where recovering vegetation would be detrimentally affected by machine plantings, plant installment would occur with the use of hand-tools or hand-held augers. Decompaction may occur where soils have been detrimentally affected by past land use or management action, even if some natural recovery had occurred. Decompaction would typically occur on flat or nearly level areas, and would not occur within 25 feet of water. Coordination with USFWS or NDOW, as appropriate, would occur if decompaction is prescribed within 150 feet of fish-bearing streams. Planting in areas which have not been previously disturbed would include areas where noxious weeds have established and are being controlled, areas where an increase in shrub component in an upland plant community is desirable, or to introduce desirable vegetation elements to riparian areas. Seedling planting consists of planting individual plants which have been previously cultivated off site. Approximately 80,000 acres would be planted with seedlings during the life of the PVMP, with the acknowledgement that post-fire planted acreage cannot be well defined or anticipated. Fertilizer tablets may be used while installing seedlings, and would not be utilized within 50 feet

of water. Approximately 5,000,000 to 15,000,000 seedlings would be installed over the life of the PVMP.

Live Staking
Treatments include staking of woody riparian species (e.g., willow - *Salix spp*., cottonwood - *Populus spp*., red-osier dogwood -*Cornus sericea*) would occur in wetlands or riparian zones where a woody component of the vegetative community is absent, but is known to or expected to have once existed, or in areas with the potential for successful riparian woody species establishment exists and is determined to be desirable. Material to be staked would be collected from vigorous, nearby riparian communities. No more than 30 percent of the live material of any individual tree would be removed for staking material. In general, live stakes would be pushed or hammered directly into the soil. Some rockier sites may require a hole be created using a metal bar.

Application of Soil Amendments
Soil amendments would be applied to improve efficacy of seed germination, seedling survival, or long term health of plantings. Examples of soil amendments would include charcoal, compost, organic-material amendments such as woodchips or straw products, and chemical-based fertilizers, application of mycorrhizal inoculum, and the use of commercially available fertilizer products. Application of soil amendments would occur in upland areas more than 300 feet from water.

Monitoring

Monitoring would be conducted both as a quality control measure at the implementation phase of a treatment and as a means to evaluate the treatment effectiveness. Monitoring would determine the need for additional treatments, or to determine maintenance needs at a later time.

2.2.1 Proposed Environmental Protection Measures

The following environmental protection measures (EPMs) are components of the proposed action and would be implemented:

Evaluation EPM

This plan would be reviewed by an interdisciplinary team (IDT) team every five years to determine if actions are meeting the purpose and need based on new information and policies that develop over the 15 year period.

Wildlife and Special Status Species EPMs

1. With the exception of EDRR and manual control methods of invasive plants, further coordination with USFWS and/or NDOW would occur for treatments occurring within Greater sage-grouse habitat (e.g., PPH, PGH, or definition as determined by policy if different), and within any known habitat for Threatened or Endangered species.

2. All treatments would be in accordance with:
    - IM-WO-2012-043 Greater Sage-Grouse Interim Management Policies and Procedures
    - IM-WO-2012-044 BLM National Greater Sage-grouse Land Use Planning Strategy
    - IM-WO-2014-114 Sage Grouse Habitat and Wildfire Management
    - IM-NV-2015-017 Revised Direction for Proposed Activities within Greater sage-grouse Habitat
    - Fuels Management BMPs for Greater sage-grouse Conservation (BLM Sage-grouse National Technical Team 2011)
    - Subsequent policy

3. For treatments that would disturb sagebrush, including fuelbreaks, no treatments would occur in Greater sage-grouse PPH or PGH habitat (or habitat as identified in subsequent policy) during lekking, nesting, and brood-rearing seasons, from March 1 through August 31.

4. For treatments implemented during the migratory bird breeding season (March 1 – August 31), a migratory bird nesting survey would be conducted using BLM approved protocols in the project area (including a 260 feet buffer around the project area). The survey would occur no more than 10 days and no less than 3 days prior to initiation of disturbance. If active nests are located, a minimum 260 feet protective buffer would be established around the nest or treatments delayed until the birds have completed nesting and brood-rearing activities. Treatments that are exempt from this protection measure would include: EDRR, native species hand-broadcast seeding, native species hand-planting, and maintenance of existing disked highway fuelbreaks.

5. Treatments with the potential to disturb nesting and fledging raptors would not occur within buffered distances (specified below) around known nest sites during nesting seasons. Nesting seasons are defined using information from USFWS and Cornell Lab of Ornithology. These timing restrictions and buffer distances may be updated with subsequent policy.
    - Bald Eagles nesting January 1 – August 31
        - 1000 feet buffer for aircraft treatments (USFWS Bald Eagle Management Guidelines 2014)
        - 660 feet buffer for ground treatments
    - Golden Eagles from February 15 – August 31
        - 2,640 feet buffer (USFWS Utah Raptor Guidelines 2002)
    - Other Raptors from March 1 – August 31
        - As determined by species (USFWS Utah Raptor Guidelines 2002)

    Treatments that are exempt from this protection measure include: EDRR, native species hand broadcast-seeding, aerial seeding for ES&R activities, and native species hand-planting.

6. Avoid tree-control treatments within a 1-mile radius of documented active ferruginous hawk nests.

7. Prior to implementation of treatments with the potential to affect pygmy rabbits, surveys for rabbits would be conducted in areas of suitable habitat. No removal or manipulation of sagebrush or other shrub species would occur within 400 feet of known pygmy rabbit burrows or complexes. Treatments that are exempt from this protection measure include: EDRR noxious weed control treatments, hand-broadcasting of native-species seed, and hand-planting of native species.

8. For proposed treatments performed during the burrowing owl breeding season (March 1 – August 31), a burrowing owl survey would be conducted in potential habitat areas no more than 10 days and no less than 3 days prior to initiation of disturbance. If active burrows are located, a minimum 260 feet protective buffer would be established or activities delayed until the birds have completed nesting and brood-rearing activities. Treatments that are exempt from this protection measure include: EDRR noxious weed control treatments, hand-broadcasting of native-species seed, and hand-planting of native species.

9. Existing, documented populations of BLM special status plants that occur in proposed treatment areas would be flagged and avoided. All projects would be evaluated by the BLM to determine if potential habitat for BLM special status plants is present. A survey will be conducted as needed if the BLM determines that suitable habitat is present. In the event that a BLM special status plant species is located within the area of a proposed project, the plant or population will be flagged and avoided. All surveys would be performed during the appropriate season to locate the targeted species. Treatments that are exempt from this protection measure include: EDRR noxious weed control treatments, hand-broadcasting of native-species seed, and hand-planting of native species.

10. Site-specific treatments would be evaluated for the presence of special status butterflies. Measures to reduce or eliminate impacts to special status butterflies would be incorporated as site-specific project design features. Treatments that are exempt from this protection measure include: EDRR noxious weed control treatments, hand-broadcasting of native-species seed, and hand-planting of native species.

11. Known populations of Humboldt serican scarab would be identified and avoided, unless the project is determined by the BLM to pose no risk to, or to be beneficial to this species. Treatments that are exempt from this protection measure include: EDRR noxious weed control treatments, hand-broadcasting of native-species seed, and hand-planting of native species.

12. In areas where proposed projects could disturb bighorn sheep (defined for this Environmental Protection Measure as the use of mechanized equipment), projects would not occur within known lambing areas between the dates of April 1 through June 30. Treatments that are exempt from this protection measure include: EDRR noxious weed

control treatments, hand-broadcasting of native-species seed, and hand-planting of native species.

13. All actions, which would be evaluated further under NEPA, would be evaluated for the presence of and potential to affect threatened or endangered species. Consultation with USFWS on site specific actions would occur if habitat for or potential adverse effects to threatened or endangered species exist.

Cultural, Paleontology, and Native American Consultation EPMs

1. Maps or shapefiles summarizing all EDRR treatments for the year and known infestations of noxious weeds would be shared with the Fort McDermitt Paiute and Shoshone Tribe annually.

2. All National Register of Historic Places (NRHP) listed, eligible or unevaluated cultural resource sites would be avoided during project implementation. Avoidance buffers of at least 30 meters (33 yards) from National Register eligible or unevaluated sites would be observed during project implementation. If these sites are avoided by less than 30 meters an archeological monitor would be required during project implementation. An archaeologist would be involved as detailed plans are developed for each phase of the implementation to ensure avoidance is factored into the detailed project designs. An archaeologist would review plans for each phase of the project's implementation to ensure avoidance of NRHP listed, eligible or unevaluated sites.

3. A Cultural Resources Inventory Needs Assessment (CRINA) would be prepared by the project lead for each proposed action, except EDRR noxious weed treatments, non-surface disturbing manual control of weeds, non-experimental biological control of weeds, native-species seed broadcasting which would not disturb soils, district-wide harvest of dead or down fuelwood, the green-tree fuelwood cutting areas specifically identified in the proposed action, live-staking of native plants, fire-suppression ES&R activities, pinyon Christmas-tree permits in areas open to harvest in the Stillwater Range, non-commercial collection of pinyon pine nuts, seed collection outside of specially designated areas, green juniper Christmas tree permits, and installation of cone cages on whitebark pine.

   The CRINA would be submitted to the assigned archaeologist who would assess and make recommendations regarding the need for and appropriate level of cultural resource inventory and determine whether there are known National Register listed, eligible or unevaluated sites in the project area which need to be avoided. Following review and signature of the CRINA by a BLM Manager, the CRINA would be submitted to SHPO. If BLM determines that a cultural resource inventory is not needed and that all National Register listed, eligible and unevaluated sites would be avoided and SHPO concurs, the project could proceed. If it is determined that a cultural resource inventory is required, the inventory would be completed prior to treatment implementation.

4. Any cultural resource discovered during the course of activities would be immediately reported to the project archaeologist. All operations in the immediate area of such discovery would be suspended and the discovery would be protected until an evaluation of the discovery can be made by an archaeologist. This evaluation would determine the significance of the discovery and what mitigation measures would be necessary to allow activities to proceed. Operations may resume only upon written authorization to proceed from the authorized officer.

5. Additionally, personnel involved in project implementation would not knowingly remove, disturb, alter, or destroy any scientifically important cultural resources such as a historical or archaeological site, structure, building, object or artifact that qualify for listing on the National Register of Historic Places (NRHP) or have not been evaluated for listing on the National Register.

6. National Historic Trails (Classes I-IV) will be protected from alteration (grading or widening) and heavy vehicle traffic (more than a one ton pickup truck) will avoid travel on high quality segments (Class 1 and II) of National Historic Trails (California Trail, Applegate Trail, Nobles Trail).

7. Indirect impacts to the settings of historic sites and trails eligible to the National Register under Criteria A would be avoided through project redesign or other mitigation.

8. Project areas with surface disturbing treatments would be evaluated using potential fossil yield categories and known fossil locations. Once the specific location of a proposed soil-disturbing project has been identified, the WD paleontological database would be checked by the project archaeologist. All known vertebrate paleontological localities would be avoided.

9. If any significant paleontological resources are found during operations, impacts would be mitigated through avoidance and/or data recovery. Any unanticipated fossil discovery on public lands will be reported immediately to the BLM archaeologist.

10. Further Native American consultation may be necessary for those activities requiring additional evaluation under NEPA.

11. Pursuant to 43 CFR 10.4(g) the holder of this authorization must notify the authorized officer, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the immediate vicinity of the discovery and protect it from your activities for 30 days or until notified to proceed by the authorized officer.

<u>Fisheries and Riparian EPMs</u>

1. With the exception of EDRR and manual control methods of invasive plants, coordination and/or consultation with USFWS and/or NDOW would occur for:

- All treatments within 25 feet of fish-bearing streams
- All treatments within 150 feet of perennial streams within habitat for any Threatened or Endangered species
- Mechanical treatments within 300 feet of any fish-bearing streams

2. With the exception of EDRR and manual control methods of invasive plants, further consultation with US Fish and Wildlife Service would occur for site specific actions if habitat for or potential adverse effects to Threatened or Endangered species exist.

3. Fuelbreaks would avoid:
   - perennial stream reaches with a minimum buffer of 300 feet
   - ephemeral stream reaches with a minimum buffer of 50 feet
   - meadows, springs, and lentic wetland areas

   Exceptions for these buffers may be necessary based on site conditions (e.g., topography), but would require coordination and/or consultation with NDOW and/or USFWS.

4. Fuels reduction treatments would not occur within 50 feet from fish-bearing streams, with measurement of 50 feet occurring from the edge of riparian vegetation (i.e., obligate wetland vegetation).

5. For mechanical control of invasive species, machine-mounted mowing would not occur within 50 feet of fish-bearing streams.

6. Prescribed fire would not occur within 300 feet of perennial stream reaches.

7. Fertilizer, tackifier, or dye products would not be added to hydromulch or other mulch products within 300 feet of fish-bearing streams.

8. Drill seeding or seeding with associated soil disturbance would not occur within 50 feet of perennial or ephemeral streams.

9. Chaining would not occur on slopes above any fish-bearing streams.

10. Decompaction would typically occur on flat or nearly level areas, and would not occur within 25 feet of water. Coordination with USFWS and/or NDOW, as appropriate, would occur if decompaction is prescribed within 150 feet of fish-bearing streams.

11. Application of soil amendments would not occur within 300 feet from water.

<u>Wild Horse and Burro EPMs</u>

1. When temporary fences are necessary, access to water and forage for WH&B would be assessed.

2. Aerial treatments in areas with WH&B would require a minimum air-to-ground height of 500 feet to avoid harm to foals during the foaling period of March 1 through June 30.

Invasive and Noxious Weeds EPMs

1. All terrestrial equipment (e.g. vehicles, OHV's, tractors, etc.) to be used in treatments would be washed prior to being brought to the project site, to avoid spreading noxious weed seeds. Washing will be required between project sites as needed, depending upon presence or absence of noxious weeds at work locations and presence or absence of environmental conditions which are conducive to seed transport, such as wetted soils. Compressed air could be utilized as an alternative to washing with water during the dry season if water is unavailable.

2. Maps or shapefiles summarizing all EDRR treatments for the year and known infestations of noxious weeds would be shared with the McDermitt Paiute Tribe annually.

3. All personnel engaged in EDRR noxious weed control would be required to attend training in the recognition of BLM special status plants which are known to occur on the WD.

Specially Designated Areas EPMs

1. In the Black Rock Desert-High Rock Canyon Emigrant Trails National Conservation Area (NCA), travel off of existing roads would not be allowed except in the case of emergencies. Only equipment necessary for treatments (e.g., tractor, rangeland drill) would be used off-road.

2. All projects occurring within Wilderness or Wilderness Study Areas (WSA) would be subject to all guidance presented within the BLM Manual 6340 (Management of Designated Wilderness Areas) and BLM Manual 6330 (Management of Wilderness Study Areas).

Use of Non-natives Species EPMs

A decision to apply non-native species would be subject to documentation of the decision-making process through use of BLM's non-native plant worksheet.

Hazardous Materials EPM

All activities that have a potential for petroleum hydrocarbons or hazardous materials to be spilled or released to the environment would follow the WD Hazardous Materials Contingency Plan. That plan describes the methods for spill prevention, cleanup, and abatement of spilled materials. Any contaminated soil should be secured and disposed of according to state and federal regulations. For work performed by contract, contractors

would also follow the WD Materials Contingency Plan. All spills would be reported to the BLM hazardous Materials lead; spills would be reported to NDEP as required.

Rangeland Management and Fencing EPMs

1. Any temporary fences constructed in association with ES&R activities would be flagged to increase visibility for wildlife, and wild horses and burros, unless visual resource management dictates otherwise. Temporary fences constructed in Greater sage-grouse habitat would be marked using reflective materials in order to increase visibility.

2. Temporary fences constructed, or existing fences repaired would adhere to BLM wildlife-species specific fence specifications. Fences requiring four wires would be built with a smooth bottom wire to allow for wildlife movement.

3. Livestock grazing permittees would be contacted prior to the initiation of any activities requiring further evaluation under NEPA.

Herbicide Application EPMs

1. Herbicide application rates and applications would be subject to label restrictions, standard operating procedures, and mitigation measures as described in Table 2-8 of the Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States PEIS and Record of Decision (2007).

2. Non-aquatic label herbicide applications will observe the following buffers: Application of non-aquatic label herbicides by backpack or similar sprayer would not occur within 10 feet from any existing open water sources (e.g., creeks, springs, fens, cattle troughs, lakes and ponds). Application of herbicides by truck, tractor, or utility task vehicle (UTV) broadcast sprayers would not occur within 25 feet of existing open water sources. UTV mounted hand sprayers would be utilized up to 25 feet from water. No aerial application would occur within 100 feet of any existing open water sources.

3. No aerial application of herbicides would occur within 300 feet of fish bearing streams. Application of herbicides by truck, tractor, or UTV sprayers would not occur within 10 feet of fish bearing streams.

4. For treatment of noxious weed species within 10 feet of open water sources, only herbicides registered for aquatic use would be utilized. Application would occur by utilizing backpack sprayer, hand-pump sprayer, swab, or stem-injection. Mixing of aquatic-label herbicides would occur more than 50 feet from open water.

5. For treatment of noxious weed species within 10 feet of fish-bearing streams, only aquatic-label herbicide products, such as Imazapyr or Glyphosate, would be utilized for control of terrestrial noxious weeds occurring within the riparian area, and not for control of aquatic plants. Mixing of aquatic-label products would occur more than 50 feet from open water.

6. For treatment of noxious weed species within Soldier Meadows ACEC, consultation with USFWS would occur annually before project implementation occurs.

7. All ground-applied herbicides would be colored with an indicator dye to increase operator efficiency, minimize overspray, and increase visibility and public awareness of herbicide application areas.

8. All herbicide EDRR noxious weed treatments would be marked with lath or flagging identifying the site as a chemical application site and the date of application.

9. At least two weeks before herbicides are applied, excepting EDRR noxious weed treatment, the tribal council of the Fort McDermitt Paiute and Shoshone Reservation would be notified of when, where, and how herbicides would be applied. The tribes would annually receive retroactive notification of EDRR activities in the form of maps summarizing past season EDRR treatment sites, and all inventoried noxious weed populations occurring on the WD. EDRR and Noxious Weed inventory maps would be available to interested agencies and/or the interested public upon request.

10. Excepting EDRR noxious weed treatments, affected livestock grazing permittees would be contacted prior to any application of herbicides.

<u>Environmental Protection Measures for Fuelwood, Christmas Tree Harvest, and other Actions Occurring in Juniper or Pinyon Woodlands</u>

1. Within the fuelwood cutting areas identified and analyzed within the PVMP, and any subsequent projects (fuelwood and otherwise) all green juniper trees exceeding 16 inches diameter at stump height, with measurement occurring 12 inches above ground level, will be excluded from fuelwood harvest or any other form of removal. Trees designated as leave trees, including those exceeding 16 inches diameter will be marked in a way that is clearly visible to the public, and in a way that allows for identification by law enforcement personnel after harvest, such as painting a vertical stripe on the trunk of the tree utilizing government timber-marking paint.

2. Fuelwood cutting areas would maintain a minimum mean basal area of 40 square feet per acre in order to maintain the fuelwood resource over time.

3. For fuelwood cutting, no vehicle traffic will be allowed outside of existing roads.

4. Fuelwood cutting would not be permitted within 300 feet of any fish-bearing streams, and would not be permitted within 100 feet of ephemeral streams, springs, or riparian areas.

5. Fuelwood permits would include a written stipulation reminding wood harvesters that collecting or vandalizing cultural resources is unlawful. The stipulation would also prohibit the cutting of arborglyphs such as Basque aspen carvings.

6. If chipping or shredding is prescribed and mulched material left on-site, depth of mulched material would not exceed 3 inches depth at any location.

2.3 Alternative B: No Use of Biological Control Agents

This alternative would be identical to the proposed action, except that USDA-APHIS and NDA-approved biocontrol insects would not be released on the WD.

2.4 Alternative C: No Aerial Application of Herbicides

This alternative would be identical to the proposed action, except that aircraft would not be used to apply herbicide products.

2.5 Alternative D: No-Action Alternative

Under the no-action alternative, invasive species would continue to be controlled per existing analyses and decisions. Imazapic would continue to be unavailable for landscape-level treatments at the district level. Biological-control insects would not be available. Aerial and ground application of herbicides to control noxious weeds and other non-native invasive plant species would continue. Noxious weeds occurring within 10 feet of streams or other water sources would not be treated, and subsequent restoration of invasive plant control sites with native or other desirable plants would not occur in either riparian or upland settings. Improvement of degraded upland and riparian habitats, except following wildfire, through the use of planting or seeding and associated activities (such as soils restoration) would not occur. Fuelwood, pine nut, and Christmas tree harvest would continue in the Stillwater Range but improved public access to these resources through the creation of new harvest areas would not occur. Landscape-level forestry manipulations to maintain sagebrush habitat, maintain the pinyon pine resource, or to enhance juniper tree health or improve forested wildlife habitat opportunities would not occur. Fuels reduction projects would occur, but would be much more limited in size and scope, and would result in fewer acres being protected from the effects of wildfire, and fewer acres would be moved from fire regime condition class (FRCC) III to FRCC I or II.

2.6 Alternatives Considered but Eliminated from Detailed Analysis

There are no unresolved resource conflicts that require further alternative development.

2.7 Land Use Plan Conformance

The proposed action and alternatives described are in conformance with the *Winnemucca District Resource Management Plan* (WDRMP), May 2015 and the *Black Rock Desert-High Rock Canyon Emigrant Trails National Conservation Area (NCA) and Associated Wilderness, and other Contiguous Lands in Nevada Resource Management Plan* (BRRMP), July 2004.

The following actions are specifically addressed in the WDRMP:

Construction and maintenance of fuelbreaks or other fuels management treatments:

Action Air Quality (AQ) 2.4: Reduce emissions from wildland fires by implementing strategically placed fuel treatments (e.g., prescribed fire, thinning, fuel breaks) to reduce fire size and smoke emissions.

Action Vegetation – Range (VR) 6.2: Protect healthy and recovering sagebrush stands by prioritizing fire suppression and constructing strategically placed fuel breaks.

Action VR 8.1: Use mechanical, chemical, and biological treatments, including fuel breaks, to improve or protect salt desert shrub habitats.

Action WFM 3.3: Identify, prioritize, and implement wildland fire protection plans and community assistance strategies.

Action WFM 3.4: Implement interagency and other partnership fire planning process for landscape-scale fire management planning.

Action Wildfire Management (WFM) 4.1: As practical, implement new approaches for fuels management activities and new science for fuels and suppression management on a case-by-case basis.

Action WFM 5.1: Implement hazardous fuels reduction projects and treatments in the wildland urban interface and within areas containing high resource values, based on national, state, and district office priorities, Community/County Risk Assessment Data, and the Healthy Forests Restoration Act and Healthy Forests Initiative.

Action WFM 5.2: Use management tools, such as prescribed fire and vegetation manipulation (mechanical, biological, prescriptive grazing, and chemical treatments), to construct fuel break or green strips.

Action Vegetation - Forestry (VF) 2.6: Where feasible and practical, use fencing, mechanical, biological, or chemical treatments, and planting and seeding to achieve stand health and structure objectives, including temporary wood product harvesting areas.

Action VF 5.3: Prohibit harvesting of green pinyon unless trees are identified for selective removal to meet resource objectives (e.g., hazardous fuels and insect and disease control).

Action Vegetation – Weeds (VW) 3.1: Implement and monitor treatments to control or eradicate invasive annual plants using ES&R treatments, use restrictions, seeding, chemical or biological control, prescriptive grazing, and other integrated weed management approaches.

Action VR 1.3: Restore and improve degraded rangelands and habitat and/or achieve vegetation management objectives by initiating land treatments. Use management tools, such as prescribed fire, prescribed grazing and fire for multiple objectives including for resource benefit, vegetation manipulation (mechanical, biological, and chemical treatments), fencing, seed and use restrictions. Allow natural recovery due to the presence of surviving perennial plants or a sufficient seed source.

Forest/Woodland management and forest/rangeland products harvesting:

Action VF 1.1: Monitor forest health and establish early warning systems to respond to climate change or for insect or disease outbreaks within woodland communities.

Action VF 2.1: Authorize the collection of seed from public lands.

Action VF 2.2: On a case-by-case basis permit short term harvesting of plant materials (including shrubs and forbs) for Native American ceremonial use.

Action VF 2.3: Permit noncommercial harvest of woodland and special forest products for firewood, posts, native plant material, pinyon nut, and Christmas tree harvesting within designated harvest areas. Permit commercial harvest on a case-by-case basis to achieve resource objectives.

Action VF 2.5: Use prescribed fire and allow conditional fire suppression management for a benefit as a management tool to enhance or to protect woodland sites.

Action VF 2.6: Where feasible and practical, use fencing, mechanical, biological, or chemical treatments, and planting and seeding to achieve stand health and structure objectives, including temporary wood product harvesting areas

Action VF 3.2: Use prescribed fire and fire for multiple objectives including for resource benefit as management tools to enhance woodland stands to achieve stand health and structure objectives.

Action VF 5.1: Expand juniper harvest areas to include removal of juniper from encroached sites as determined by the Natural Resources Conservation Service soil surveys, ecological site descriptions, or other data. Control juniper on invaded sites using other appropriate treatments.

Action VF 5.1.1: Meet resource objectives by allowing salvage harvesting of burned stands.

Action VF 5.2: Prohibit harvesting of pinyon and juniper trees within 100 feet of springs and water sources unless trees are identified for selective removal to meet resource objectives.

Action VF 5.3: Prohibit harvesting of green pinyon unless trees are identified for selective removal to meet resource objectives (e.g., hazardous fuels and insect and disease control).

Action VF 5.4: Permit Christmas tree cutting in portions of the Stillwater Range. Continue to evaluate and close areas to Christmas tree harvesting to maintain stand health.

Action VF 5.5: Allow short-term wood harvest in temporary harvest areas throughout the district. Designate additional harvest areas as needed to meet resource objectives.

Action VF 6.3.1: Use management tools such as prescribed fire, prescribed grazing, vegetation manipulation, seeding, planting, fencing, and use restrictions to maintain old growth stands and watershed health. Any vegetation management activity within the Pine Forest Range Wilderness will be in conformance with the Wilderness Act, designating legislation, and BLM policies for wilderness management outlined in BLM Manual 6340 or subsequent revision thereof.

Action VF 6.3.2: Allow natural recovery of old growth stands when surviving perennial plants are capable of providing sufficient seed sources.

Action Special Status Species (SSS) 4.1: Inventory whitebark pine stands to determine stand characteristics such as, stage class distribution, health/disease, reproductive success/failure, habitat condition and threats.

Action SSS 4.2: Inventory whitebark pine stands to identify individuals which are resistant to white pine blister rust. Collect seeds from resistant trees for future out planting.

Invasive and Noxious Weed Control

Action Vegetation – Weeds (VW) 1.1: Use appropriate integrated vegetation treatments (e.g., chemical, mechanical, prescribed fire, prescribed grazing, cultural, and biological) for the control of invasive and noxious plants.

Action VW 1.2: Coordinate with federal, state, tribal, and local agencies and other partners (e.g., weed control organizations, permittees, and OHV groups) in conducting measures for early detection, prevention, eradication to prevent, eradicate, suppress, control, or retard the spread of any invasive or noxious plants.

Action VW 1.2.2: Working with local, state, tribal, and federal agencies and other partners, develop a WD-wide implementation plan to identify, monitor, then prioritize treatments to control, and eradicate invasive or noxious plants

Action VW 1.4: Seek out and apply new ideas and techniques for slowing the movement of noxious and invasive plants, reducing the seed bank of noxious and invasive plants and reseeding these areas to adaptive species capable of achieving land health objectives, including sustaining the diversity of native plant communities.

Action VW 1.5: Working with local, state, tribal, and federal agencies, weed control organizations, and other partners, inventory and map areas for weed infestations. Inventories should prioritize management areas to include but are not limited to disturbed areas, along roadways, recreational sites, hunter camps, and burned areas and identify areas containing sensitive species plants.

Action VW 3.1: Implement and monitor treatments to control or eradicate invasive annual plants using ES&R treatments, use restrictions, seeding, chemical or biological control, prescriptive grazing, and other integrated weed management approaches. Rely on other state, local, and federal agencies for development of new biological controls.

Action PE 1.3: Use various integrated pest management techniques (e.g., BLM-approved pesticides [herbicides], prescribed grazing, and mechanical and biological treatments) for the control of pests.

Action VR 4.2: Treat monocultures of cheatgrass and other non-native invasive and noxious plant communities by chemical, biological, prescribed grazing, prescribed fire, or mechanical methods. Treatment areas will be seeded to reestablish desired vegetation and stabilize soils. Prioritize restoration efforts on important habitat for wildlife and special status species.

Action Fish and Wildlife (FW) 7.2: As allowed under federal law, permit the use of registered or BLM-approved chemicals or pesticide treatments to protect or re-establish indigenous fish species habitat, protect or recover federally listed T&E species, enhance sport fisheries, remove undesirable non-native species or to correct undesirable habitat conditions.

Action SSS 4.7: Monitor invasive noxious weeds within whitebark pine stands. Eradicate or control noxious weeds following an ecologically-based invasive plant management approach.

Action Transportation and Travel Management (TA) 1.7: Minimize the spread of invasive and noxious plants along all roads in the WD through active weed abatement programs. Require mitigation measures to prevent the spread of invasive and noxious plants.

<u>Emergency Stabilization and Rehabilitation, and Habitat Restoration and Protection Activities:</u>

Action Soils (S) 1.4.2: If appropriate, improve soils by applying soil amendments (fertilizers, mulch).

Action VW 1.1: Use appropriate integrated vegetation treatments (e.g., chemical, mechanical, prescribed fire, prescribed grazing, cultural, and biological) for the control of invasive and noxious plants.

Action VF 6.3.2: Allow natural recovery of old growth stands when surviving perennial plants are capable of providing sufficient seed sources.

Action VW 3.1: Implement and monitor treatments to control or eradicate invasive annual plants using ES&R treatments, use restrictions, seeding, chemical or biological control, prescriptive grazing, and other integrated weed management approaches.

Action VR 1.1: Prioritize management of native forbs within sage-grouse habitat areas to achieve management objectives.

Action VR 1.3: Restore and improve degraded rangelands and habitat and/or achieve vegetation management objectives by initiating land treatments. Use management tools, such as prescribed fire, prescribed grazing and fire for multiple objectives including for resource benefit, vegetation manipulation (mechanical, biological, and chemical treatments), fencing, seed and use restrictions. Allow natural recovery due to the presence of surviving perennial plants or a sufficient seed source.

Action VR 1.4: Seed burned areas, as appropriate.

Action VR 3.1: Close burned areas, new seedings, or reseeded areas to permitted livestock use, WH&B grazing, or other uses until monitoring objectives are achieved or until rehabilitation efforts are determined to have failed.

Action VR 3.1.1: On a case-by-case basis, authorize short term livestock prescribed grazing within closed areas to achieve Standards for Rangeland Health and objectives relative to Rehabilitation, Reclamation, and Restoration.

Action VR 4.1: Seed disturbed areas with an appropriate mixture of grasses, forbs, and shrubs. Use a combination of native seed collections and desirable adapted species for rehabilitation and reclamation. Priority for use of seeds, where effective and available, is as follows:

1. Locally collected native seed;
2. Native seeds; then
3. Non-native seeds (desirable adapted species).

Action VR 4.2: Treat monocultures of cheatgrass and other non-native invasive and noxious plant communities by chemical, biological, prescribed grazing, prescribed fire, or mechanical methods. Treatment areas will be seeded to reestablish desired vegetation and stabilize soils. Prioritize restoration efforts on important habitat for wildlife and special status species.

Action VR 5.1: Native and introduced species will be seeded in areas lacking potential for natural recovery (see VR 4.1).

Action VR 5.2: Establish vegetation release criteria on a case-by-case basis for non-mining reclamation.

Action VR 6.1: Develop and implement Emergency Stabilization or Burned Area Rehabilitation Plans to successfully seed burned areas into less flammable, desired, perennial herbaceous vegetation to allow sagebrush to reoccupy the site.

Action VR 6.3: Manage for multi-age stands exhibiting various maturity classes by using tools, such as vegetation manipulation (mechanical, biological, prescribed grazing, prescribed fire, and chemical treatments) to maintain or improve sagebrush vegetation communities.

Action VR 6.4: Mitigate habitat fragmentation within the sagebrush landscapes on a case-by-case basis.

Action VR 6.5: Apply SOPs, BMPs, and sage-grouse guidance to maintain, protect, restore, or improve sagebrush so that potential adverse impacts to sagebrush plant communities are reduced or eliminated.

Action VR 7.1: Seed or plant young sagebrush plants within perennial grass communities to reestablish sagebrush. Allow natural recovery if sufficient surviving sagebrush are present.

Action VR 7.2: Use management tools, such as vegetation manipulation (mechanical, biological, prescribed fire, prescribed grazing, and chemical treatments), to improve sagebrush vegetation communities.

Action VR 8.2: In areas lacking sufficient seed source, seed native and introduced plants including shrubs, grasses, and forbs to reestablish vegetation. Allow natural recovery in areas having sufficient seed sources (see VR 4.1).

Action FW 1.10: Improve, protect, and restore wildlife habitat using a combination of use restrictions and initiating land treatments. Use management tools, such as prescribed fire, prescribed grazing, vegetation manipulation (mechanical, biological, and chemical treatments), seeding, and fencing.

Action FW 5.1: Establish shrubs within mule deer habitat.

Action SSS 2.3: Implement habitat restoration treatments to facilitate delisting.

Action SSS 5.2: Protect sage-grouse habitat and achieve land health standards by implementing use restrictions (avoidance and exclusion areas and seasonal restrictions), stipulations and mitigation measures. In accordance with instruction memorandums WO IM 2012-043, IM 2012-039 and applicable updates, manage and protect greater sage-grouse habitat by incorporating the following principles:

1. Protection of un-fragmented habitats;
2. Minimization of habitat loss and fragmentation; and
3. Maintain, enhance or restore habitat conditions

Action WFM 6.1: Rehabilitate degraded rangeland by determining and implementing suitable land treatments to achieve ES&R objectives, based on the National Fire Rehabilitation Plan or applicable updates, existing land use plans, and ES&R program guidance (See Objective VR 3).

<u>The Following Actions are specifically addressed in the Black Rock-High Rock RMP.</u>
<u>Construction and maintenance of fuelbreaks or other fuels management treatments</u>

VEG-2: Rangeland vegetation communities at risk of stand conversion from native species to introduced annuals because of wildfire may be protected through the establishment of green stripping or other techniques using appropriate seed mixes and project layouts consistent with the objective of maintaining a natural landscape.

VEG-4: Management will maintain or establish diversity mosaics and connectivity of upland communities at multiple scales across the landscape. Management will include a variety of methods to increase or decrease sagebrush over-stories to meet site-specific resource objectives.

VEG-9: Mature sagebrush cover will be retained on sage-grouse habitats unless an evaluation conducted as part of an adaptive management process shows that alteration of shrub cover will increase habitat values for sage-grouse and other sagebrush-dependent wildlife species.

VEG-10: Vegetation treatments, including prescribed fire, will be allowed in all Wilderness Areas, consistent with a site-specific minimum required/ tool analysis, to restore the naturalness of areas that have been impacted by human activities.

FIRE-3: Prescribed fire treatment of vegetation may be used in both Category A and Category B lands to achieve vegetation and other objectives consistent with the intent of the NCA Act and protection of private property

Forest/Woodland management and forest/rangeland products harvesting:

VEG-3: Seed collection will be allowed by permit within the planning area to support restoration of native plant communities.

VEG-7: Site-specific prescriptions will be created for restoration and maintenance of individual aspen stands to achieve the objectives.

Invasive and Noxious Weed Control:

VEG-11: Control of noxious weeds will be conducted using the best combination of treatment practices developed specifically for the target species and infested site, consistent with Nevada Revised Statute 555.010. Such treatments will include Best Management Practices consistent with Integrated Weed Management principles.

Note: Practices will include prevention of disturbing activities to maintain competitive vegetation cover and reduce the distribution and introduction of noxious weed seed; use of mechanical methods to physically remove noxious weeds; performance of management actions that limit the spread of noxious weeds by natural means; and application of herbicides and biological controls.

VEG-12: Weed infestations in the Wilderness Zone will be controlled by methods consistent with a minimum required/tool analysis and Integrated Weed Management principles. Noxious weeds in the Wilderness Zone will be controlled using hand tools and, where manual treatments alone will not eradicate weed populations, with chemical and biological methods.

Emergency Stabilization and Rehabilitation, and Habitat Restoration and Protection Activities

VEG-1: Rehabilitation and restoration efforts will be conducted in areas that have been burned by wildland fires or invaded by invasive species. Seed mixes will be used that have a high probability of successful establishment of species that provide for site stabilization and recovery. Native shrub and herbaceous species will be emphasized, but nonnative species may be used in restoration or rehabilitation where natives are not likely to be successful.

VEG-5: Vegetation manipulation projects will be implemented primarily to move plant communities toward desired conditions, improve structural and species diversity, and protect soil and water resources.

VEG-8: On portions of rangelands that are dominated by monoculture stands of annual grasses, where the likelihood of restoration is high, habitat complexity and structure will be restored through seeding.

VEG-9: Mature sagebrush cover will be retained on sage-grouse habitats unless an evaluation conducted as part of an adaptive management process shows that alteration of shrub cover will increase habitat values for sage-grouse and other sagebrush-dependent wildlife species.

FIRE-1: Rehabilitation and restoration efforts will be conducted in areas burned by wildland fires and subject to invasion by invasive species (see Vegetation section).

FW-2: Habitats for sage-grouse and other sagebrush obligate species will be managed to retain the vegetation and other attributes necessary for the long-term sustainability of sage-grouse and other sagebrush-dependent wildlife species.

FW-7: Habitat rehabilitation and restoration projects and activities within Wilderness must be consistent with a site-specific minimum required/tool analysis. Examples of such activities and projects include changes in authorized uses; seeding following fires to enhance recovery of wildlife habitats and to prevent establishment and dominance of invasive, exotic plant species; and construction of protective fencing to recover, establish or enhance riparian systems.

2.8 Relationship to Laws, Regulations, and other Plans

The proposed actions and alternatives described are consistent with other Federal agency, state, and local plans to the maximum extent consistent with Federal law and FLPMA provisions. The Council of Environmental Quality regulations at 40 CFR 1508.28, provides for tiering this EA to a broader Environmental Impact Statement (EIS). This EA tiers to the 2007 *Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States, Programmatic Environmental Impact Statement*. This EA also incorporates by reference, the environmental analysis with respect to herbicides as presented in EIS Chapter 4, pages 4-1 to 4-253.

The following documents provide support or guidance for the proposed actions within this EA:

Environmental Assessments

- Winnemucca Field Office Green Stripping Environmental Assessment No. 020-02-24, August 2002, Finding of No Significant Impact (FONSI)/Decision Record signed August 23, 2002
- Integrated Weed Management Environmental Assessment No. NV-020-02-19, Winnemucca, NV, August 2002, FONSI/Decision Record signed August 27, 2002
- Winnemucca District Office Forestry Plan Amendment and Environmental Assessment, NV-020-02-05, December 2003, FONSI/Decision Record signed December 16, 2003
- Winnemucca Normal Year Fire Rehabilitation Plan Environmental Assessment, NV-020-04-21 August 2004, FONSI/Decision Record signed August 19, 2004
- Black Rock Desert – High Rock Canyon Emigrant Trails National Conservation Area Wilderness Management Plan Environmental Assessment December 2012, FONSI/Decision Record signed December 21, 2012

Environmental Impact Statement

- Vegetation Treatments on BLM lands in 13 Western States EIS, Record of Decision August 14, 1991.
- Vegetation Treatment Using Herbicide on Bureau of Land Management Lands in Seventeen Western States Programmatic EIS (Record of Decision September 29, 2007)

BLM Manuals

- BLM Manual 6340-Management of BLM Wilderness, July 2012
- BLM Manual 6330-Management of BLM Wilderness Study Areas, July 2012
- BLM Manual 6840 – Special Status Species Management, December 2008

BLM Instruction Memoranda

- IM 2012-043 Greater sage-grouse Interim Management Policies and Procedures (December 2011)
- IM 2012-044 BLM National Greater sage-grouse Land Use Plan Strategy: A Report on National Greater sage-grouse Conservation Measures. (December 2011)

3.0 AFFECTED ENVIRONMENT

3.1 Supplemental Authorities

Supplemental Authorities are statutes or executive orders that require specific elements be considered in the BLM NEPA analysis process. Table 2 lists the elements and their status as well as the rationale to determine whether an element present would be affected by the components of the proposed action. Supplemental authorities that may be affected by the proposed action are discussed in this chapter and potential impacts to these elements are analyzed in Chapter 4. Those elements listed under the Supplemental Authorities that do not occur in the Project Area and would not be affected by the proposed action are not discussed or analyzed further in this EA. The elimination of nonrelevant issues follows the Council on Environmental Quality regulations as stated in 40 CFR 1500.4.

Table 2 Supplemental Authorities

Critical Element	*Present?*		*Potentially Affected?*		*Rationale*
	Yes	No	Yes	No	
Air Quality	X		X		
ACECs	X			X	The types of impacts to resources in the ACEC would be the same as those analyzed outside of the ACEC and are adequately analyzed in other sections. <u>Winnemucca District ACECs</u> High Rock Canyon Soldier Meadow Raised Bog Pine Forest Osgood Mountains Stillwater There are no potential impacts that are unique or special to ACECs and not addressed elsewhere in the PVMP. Further, the special management restrictions that apply to these ACECs to protect their specific values do not preclude the implementation of the vegetation management treatments proposed in this document.
Cultural Resources	X		X		
Environmental Justice	X			X	The proposed action does not demonstrate any environmental discrimination with regards to minority groups or pose disproportional environmental risk to any group or community.
Floodplains	X			X	While floodplains, mapped and unmapped, occur within the planning area, none of the proposed actions are alternatives would include development (i.e., the building of structures) in these areas.
Invasive, Non-native Species	X		X		
Migratory Birds	X		X		
Native American Religious Concerns	X		X		
Prime or Unique Farmlands		X		X	
Public Health and Safety	X		X		BLM approved herbicides were evaluated in the 2007 Final Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States, EIS. The evaluation included effects to human health and safety and that analysis is incorporated by reference here. SOPs and BMPs specified in the EIS are incorporated as standards in this document.
Threatened and Endangered Species	X		X		
Wastes, Hazardous or Solid	X			X	Federal hazardous material and waste laws

Critical Element	*Present?*		*Potentially Affected?*		*Rationale*
					and regulations are applicable to hazardous substances used, stored, or generated by the proposed action. Applicable federal laws include the following: Hazardous and Solid Waste Amendments, Comprehensive Environmental Response, Compensation, and Liability Act, Toxic Substances Control Act, Superfund Amendments and Reauthorizations Act), and Resource Conservation and Recovery Act of 1976 (RCRA), Pursuant to regulations promulgated under Section 102 of CERCLA, as amended, release of a reportable quantity of a hazardous substance to the environment in a 24-hour period must be reported to the National Response Center (40 CFR Part 302). A release of reportable quantity on public land must also be reported to the BLM WDO hazardous material lead. WDO maintains a Hazardous Material Emergency Contingency Plan and a Spill Prevention, Control and Countermeasures (SPCC) Plan to establish measures designed to prevent petroleum-related products and hazardous materials from spilling and affecting the environment. Hazardous and solid wastes should not result from the proposed action. All non-hazardous and/or solid waste would be properly disposed of in an approved landfill. Based on the above discussion, this resource has not been carried forward for analysis in this EA.
Water Quality (Surface and Ground)	X		X		
Wetlands and Riparian Zones	X		X		
Wild and Scenic Rivers	X			X	Three river segments within the WDRMP planning area were found to be eligible for inclusion in to the National Wild and Scenic River System. All three were found to be non-suitable for designation during the WDRMP process. There were 16 river segments within the BRRMP planning area which were considered eligible for Wild and Scenic River designation. It was determined through that process that designating these streams would not provide additional protection for their outstandingly remarkable values.
Wilderness	X		X		

3.1.1 Air Quality

Meteorological data from Winnemucca, Valmy and mines in northern Nevada indicate average winds of 8 to 10 miles per hour, with wind directions showing a general bimodal distribution. The primary mode is south-southwesterly during the summer months. The secondary mode is north-northeasterly during the winter. The ground level wind directions in Nevada are locally modified by the north/south trending mountain ranges and valleys of the Basin and Range topography of the region.

Presently, the air quality on lands administered by the WD is good except for periods during late spring, summer, and early fall when particulate concentrations (dust) become excessive. Windborne dust from west-southwesterly winds blowing across the Black rock Desert in late spring, summer and early fall causes a degradation of air quality in the region. Dust generated in the Black Rock Desert is carried across the state, reaching as far east as Elko during severe low-pressure disturbances.

During winter, stagnating air masses called anticyclones often remain over the region for two or more days preventing vertical atmosphere movement and thus causing atmospheric mixing depths to remain shallow. This condition is prevalent over Nevada from November through January. These conditions, coupled with generally light winds, tend to allow air pollution to accumulate. However, because the area is virtually undeveloped and has few sources of pollution, these meteorological conditions cause little impact on the air quality in the area. In future years, other pollutant sources may become important particularly if industrialization or population increases occur within the area. There is also the possibility of outside emission sources affecting the ambient air quality of the area. Periodic wild fires emit particulate matter (smoke) into the air, producing noticeable deterioration of air quality within the area. Burned areas are exposed to wind erosion, which suspends ash and soil particles that decrease air quality.

3.1.2 Cultural Resources

At present, approximately 1.8 million acres or about 21 percent of the lands administered by the WD have been surveyed for cultural resources. These surveys have resulted in the documentation of over 12,000 archaeological sites. Prehistoric archaeological resources documented on lands administered by the WD vary widely in size, location, and degrees of complexity. Amongst these resources are base camps, temporary camps, rock shelters, hunting blinds, toolstone quarries, lithic scatters, petroglyph and pictograph sites that represent the remains of human habitation dating from perhaps 10,000 to 12,000 years ago to approximately 150 years ago. In addition to the vast depth of time represented by these resources, a wide breadth of behaviors are also indicated, including hunting and gathering, tool manufacture, trade and exchange and spirituality.

Similarly, historic-period sites indicate a considerable amount of variation reflective of activities that attracted people to the region. Represented in the area managed by the WD are mining and mining-related sites, transportation features (including historic trails, freight and stage roads, and

railroads), ranches and ranching-related features, homesteads, military sites, arbor glyphs and towns. Some historic sites are related to ethnic groups including the Chinese, Basque, Cornish, and Italian.

While archaeologists have studied some aspects of these activities, many more are not well understood. The evaluation of these sites indicates that many contain information that can be used to address questions that can aid in our understanding of these lesser-known aspects of past human behavior. Further inventory will undoubtedly reveal the existence of many more properties of important research value. In most cases, they are the only sources of information available to archaeologists in their efforts to understand the past and are, thus, valuable non-renewable resources.

Wildland fire is likely to degrade these resources. During a fire, wooden and other perishable artifacts are consumed, petroglyphs can become smudged or spalled, and datable materials, such as charcoal and obsidian, can become altered.

The construction of dozer and hand lines, the clearing of safety zones and base camps, and the movement of personnel and equipment can create a large amount of ground disturbance that has the potential to destroy or displace artifacts and features, disrupt intact and datable deposits and, in its most severe form, completely obliterate the resource.

In addition, bare ground created by the consumption of vegetation greatly increases ground surface visibility making archaeological resources susceptible to unauthorized collection, and increases their vulnerability to wind and water erosion.

3.1.3 Invasive, Non-native Species

Several laws authorize control of noxious weeds on public land under the BLM's administrative jurisdiction (e.g., The Federal Insecticide, Fungicide and Rodenticide Act of 1972, Federal Noxious Weed Act of 1974, FLPMA (1976), and the Public Rangelands Improvement Act of 1978). Nevada Revised Statutes, Chapter 555.05 defines "noxious weeds" and mandates land owners and land management agencies to include control of noxious weeds on lands under their jurisdiction.

Nevada has listed 47 non-native invasive plant species that require control. Of these 47 species, 17 species have been identified on the WD (Appendix II). Invasive non-native species which are not listed as noxious weeds by the state of Nevada include, but are not limited to cheatgrass (*Bromus tectorum*), Russian thistle (*Salsola spp.*), and tumble-mustard (*Sisymbrium altissimum*). These plants are widespread on the WD, particularly in areas which receives less than 8 inches of precipitation annually, and in areas where perennial grasses have been affected by landscape-level disturbances, such as spring livestock grazing without rest and wildfire. Cheatgrass, in particular is highly competitive with native perennial grasses, forbs, and shrubs during seed germination and seedling establishment phases of the perennial life-cycle.

Species which commonly occur in riparian areas on the WD and have the highest potential of ecological risk to these areas include Canada thistle (*Cirsium arvense*), saltcedar (*Tamarix spp.),*

perennial pepperweed (*Lepidium latifolium*), Russian knapweed (*Acroptilon repens*), leafy spurge (*Euphorbia esula*), Russian olive (*Eleagnus angustifolia*), and hoary cress (*Cardaria draba*). Species which commonly occur in upland habitats and present the highest potential of ecological risk to these areas include Scotch thistle (*Onopardum acanthium*), Medusahead rye *(Tainiantherum caput-medusae*), hoary cress, Russian knapweed, and perennial pepperweed.

Species which have been located on the WD but at present represent very few locations and infested acres, or have been documented and subsequently extirpated include spotted knapweed (*Centaurea maculosa*), squarrose knapweed (*Centaurea virgata*), purple starthistle (*Centaurea calcitrapa*), yellow starthistle (*Centaurea solsitalis*), dyers woad (*Isactis tinctoria*), and St. John's wort (*Hypericum perforatum*). When located, these species are immediately prioritized for control efforts due to their extremely limited distribution on the WD and because of their high potential to become widespread and cost-prohibitive to remove in future years.

3.1.4 Migratory Birds

"Migratory bird" means any bird listed in 50 CFR 10.13. All native birds commonly found in the United States, with the exception of native resident game birds, are protected under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 et seq.). The MBTA prohibits taking of migratory birds, their parts, nests, eggs, and nestlings without a permit. Executive Order 13186 signed January 10, 2001, directs federal agencies to protect migratory birds by integrating bird conservation principles, measures, and practices.

Additional direction comes from the Memorandum of Understanding (MOU) between the BLM and the USFWS signed April 12, 2010. The purpose of this MOU is to strengthen migratory bird conservation through enhanced collaboration between the BLM and USFWS in coordination with state, tribal, and local governments. The MOU identifies management practices that impact populations of high priority migratory bird species including nesting, migration, or over-wintering habitats on public lands, and develops management objectives or recommendations that avoid or minimize these impacts.

Because of the varied habitat and resources found in the WD, a variety of migratory birds including passerines, raptors, shorebirds can be found throughout the district, some being year round residents. A representative, but not all-inclusive list of migratory birds occurring within the WD can be found in Appendix IV.

Neo-tropical migrant birds are species that migrate from the temperate portions of the continent to winter in the tropics of North and South America. Neo-tropical migrants are most commonly associated with habitats with a strong vertical component of wood shrubs and trees.

Within the WD, the most important habitats are associated with riparian communities. Riparian habitats comprise a small portion of the district, but the values of these habitats far exceed their limited geographic extent. It is estimated that over half of the bird species considered potential breeders in the district are dependent upon riparian communities (Knopf *et al.* 1988). Migratory birds that pass through the district in the fall and spring make disproportional use of riparian habitats. Migratory species are found in virtually all habitats in the District.

Any events which result in loss of vegetation or a change in vegetative structure or composition affect Migratory birds. Whether those effects are adverse or beneficial depends upon the needs of the species affected, and the nature of the vegetation change. Generally, habitats with a high diversity of native plants and shrubs provide the greatest habitat opportunities for migratory birds.

3.1.5 Native American Religious Concerns

The WD lies within the traditional territory of Northern Paiute, and to a lesser extent, Western Shoshone peoples. At the present time only a handful of properties within the district are known to be places of traditional or religious importance to these groups. These properties range from topographic features such as mountains, vistas, hot springs and traditional use areas to more specific locations such as burial grounds, prayer rocks, and vision quest sites. These locations are the embodiment of the beliefs and traditions of local and regional native cultural groups and, thus, merit consideration and respect with regard to vegetation treatment planning.

It is difficult to estimate the potential consequences of invasive weeds on places of Native American traditional or religious importance since the term can potentially encompass a wide range of property types.

3.1.6 Threatened and Endangered Species

BLM is required by the Endangered Species Act of 1973, as amended to ensure that no federal action jeopardizes a threatened, endangered, or proposed species. A species list was requested from the United States Fish and Wildlife Service (USFWS) for the proposed project area, per their online version (8-12-2014; http://ecos.fws.gov/ipac/). The USFWS from three states (Nevada, Oregon, and Idaho) provided an official species list.

The Nevada USFWS responded on August 12, 2014 with an electronic version of an official species list. The species list showed the following listed, proposed and candidate species which may occur within the project area:

Cui-ui (*Chasmistes cujus*) an endangered species,
Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*) a threatened species,
Desert dace (*Eremichthys acros*) a threatened species and critical habitat designated,
Greater sage-grouse (*Centrocercus urophasianus*) a candidate species,
Columbia spotted frog (*Rana luteivertris*) a candidate species and,
Whitebark pine (*Pinus albicaulis*) a candidate species.

Although these species may occur near the project area in Nevada, some of these species have not been documented within the project area. Using information provided on the USFWS website and NNHP, only five of the six listed, proposed and candidate species occur or are likely to occur within the project area. The five species that will be discussed are Lahontan cutthroat trout, Desert dace, Greater sage-grouse, Columbia spotted frog, and Whitebark pine. The Cui-ui has been dismissed from further analysis as they do not occur on the WD. In addition, the

Western yellow-billed cuckoo (*Coccyzus americanus*) is listed as a threatened species, but the WD does not contain critical habitat as designated within the Federal Register (79 FR 5991 60038) and has been dismissed from further analysis.

The Oregon USFWS responded on August 12, 2014 with an electronic version of an official species list. The species list showed the following listed, proposed and candidate species which may occur within the project area:

Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*) a threatened species,
Greater sage-grouse (*Centrocercus urophasianus*) a candidate species,
Yellow-billed cuckoo (*Coccyzus americanus*) a proposed threatened species, and
Columbia spotted frog (*Rana luteivertris*) a candidate species.

These species may occur within the Harney and Malheur counties in Oregon and some have not been documented within the project area. The project area contains only a small southern portion of both counties. Using information provided on the USFWS website, only three of the four listed, proposed and candidate species occur or are likely to occur within the project area. The three species that will be discussed are Lahontan cutthroat trout, Greater sage-grouse, and Columbia spotted frog. The Western yellow-billed cuckoo has been dismissed from further analysis as the WD does not contain critical habitat as designated within the Federal Register (79 FR 5991 60038).

The Idaho USFWS responded on August 12, 2014 with an electronic version of an official species list. The species list showed the following listed, proposed and candidate species which may occur within the project area:

Greater sage-grouse (*Centrocercus urophasianus*) a candidate species and,
Whitebark pine (*Pinus albicaulis*) a candidate species.

These species occur within the project area and because they are candidate species, they are addressed in the Special Status Species section 3.1.17.

USFWS have identified several threatened and candidate species that may occur in northern Nevada. It is Bureau policy to manage public lands to recover, protect and preserve these species and their habitat. Various aspects of these species are described below.

Threatened species that could occur in the project area are listed in Table 4.

Table 4. Threatened Species Occurring within Potential Project Areas

Threatened Species		
Fishes	Common Name	*Scientific Name*
Desert dace		*Eremichthys acros*
Lahontan cutthroat trout		*Oncorhynchus clarkii henshawi*

Desert dace (Threatened)

Desert dace, *Eremichthys acros*, a federally listed threatened fish species since 1985 (50 Federal Register 50304), is the only member of the *Eremichthys* genus and is endemic to the Soldier Meadows area of the planning area. Desert dace occupy a variety of habitats in Soldier Meadows, including spring pools, spring outflow streams, alkali marsh areas, and earthen irrigation ditches. They have the highest temperature tolerance of any minnow in western North America (Nyquist 1963) and occupy habitats that vary in temperature from 64 ºF to 104 ºF. Water temperature is a determining factor in desert dace distribution within a spring system. Cooler habitats (73 ºF to 84 ºF) downstream of springheads generally have the highest fish densities. Within the outflow streams, desert dace occur predominantly in upstream sites with higher velocities, but also occupy lower velocity reaches where water temperatures are relatively high (Vinyard 1988). Desert dace habitat is found within the Soldier Meadows Area of Critical Environmental Concern (ACEC). The Soldier Meadows ACEC is an area of 2,077 acres designed to protect the habitat of the desert dace. The ACEC protects portions of the area important for the desert dace, but not the full extent of the species occupied habitat within the planning area. The occupied desert dace habitat on public land was fenced in 2005 to protect them from livestock and wild horse grazing.

Lahontan Cutthroat Trout (Threatened)

Lahontan cutthroat trout is a threatened fish species native to lakes and streams throughout the physiographic Lahontan Basin of northern Nevada, eastern California, and southern Oregon. Current populations exist in approximately 155 streams and six lakes in the Lahontan Basin. However, the current populations within the WD exist in approximately 23 streams and one lake. Potential LCT habitat has been identified within the LCT Recovery Plan (USFWS 1995), and more potential LCT habitat may be identified in the future. The principal threats to the subspecies include livestock grazing, urban and mining development, water diversions, poor water quality, hybridization with nonnative trout, and competition with other species of nonnative trout.

The population recovery strategy for LCT includes managing populations for genetic variation, establishing metapopulations, and increasing distribution and abundance through reproduction and reintroductions. The strategy also includes habitat management that involves many BLM land uses and management strategies. Habitat provision strategies include providing adequate water, water quality, and cover for spawning and rearing through streamside management, monitoring, and research.

3.1.7 Water Quality (Surface and Ground)

Water quality within the planning area varies greatly. There is no comprehensive source of data to describe each and every natural and manmade water source within this area. Water quality is typically considered “good” if the temperature and dissolved solids are relatively low, pH is near neutral, and dissolved oxygen is relatively high. These parameters typically allow for the greatest biodiversity and can provide the most beneficial uses for humans. Within the planning area, water quality is best in mountain streams and springs, very near to where the water falls as rain and snow, and decreases as you move away from high mountain areas. This is due to increased time of contact between water and soil/ bed rock as well as concentration of dissolved solids due

to evaporation and transpiration. Water found on playas and water found in hot or warm springs typically have the worst water quality. Natural processes, including episodic erosion events, as well as human activities can lead to localized or widespread changes in water quality for short of long durations. Generally, these changes include increases in sediment, nutrients, dissolved solids, and temperature.

The Nevada Department of Environmental Protection maintains a list of water bodies that are considered impaired relative to defined beneficial uses. Table 5 shows all water bodies within the planning area that are considered impaired.

Table 5. Impaired Water Bodies in the Winnemucca District

303(d) Streams	303(d) Lakes
Cove Creek (Humboldt Co.)	Squaw Creek Reservoir (Washoe Co.)
Soldier meadows Hot Springs (Creek) (Humboldt Co.)	Bilk Creek Reservoir (Humboldt Co.)
Quinn River, East Fork (Humboldt Co.)	Rye Patch Reservoir (Pershing Co.)
Buffalo Creek (Washoe Co.)	Chimney Reservoir (Humboldt Co.)
Humboldt River (Humboldt and Pershing Co.)	
Little Humboldt River (Including N. and S. Fork) (Humboldt Co.)	
Cabin Creek (Humboldt Co.)	

3.1.8 Wetland and Riparian Zones

Wetlands and riparian zones are portions of the landscape where groundwater or surface water exhibits a major influence on soil characteristics, landform, and/ or plant communities. Within the WD, these areas represent an extreme minority by acreage, but are very important habitats for many species of wildlife. These areas include wet meadows, hot and cold springs, stream banks, banks of ponds and reservoirs, and the edges of seasonally wet playas. Wetlands and riparian zones that are managed by the WD are typically not physically impacted by buildings or other development with the exception of roads and occasional historic ditches. Water use may lead to contraction of riparian areas. Erosion and incision impact wetlands and riparian zones to varying degrees throughout the planning area. Causes of erosion and incision in the WD vary and can include natural factors (drought, long term climate shifts, fire, thunderstorms, etc.), human caused landform changes (roads, culverts, ditches, etc.), or soil alteration and vegetative stress caused by livestock or wild horses and burros. Proper Functioning Condition is a method of assessment used by the BLM to provide a qualitative assessment of wetlands and riparian zones. In general, these assessments indicate that approximately 55 percent of lotic and 38 percent of lentic wetlands and riparian zones within the WD are or are trending toward being properly functioning.

3.1.9 Wilderness

The Wilderness Act of 1964 (Wilderness Act) defines wilderness as an area of undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable.

In 1979 the BLM issued its Initial Inventory Decisions identifying areas that were suitable for further intensive inventory and review for wilderness character, known as Wilderness Study Areas (WSAs). Of the areas selected for further intensive studies, the following were formally designated as wilderness.

The Black Rock Desert-High Rock Canyon Emigrant Trails Conservation Area Act of 2000 (NCA Act) designated the following (Table 6):

Table 6. Wilderness Areas and Acreage Designated from the NCA Act

Wilderness Name	Acres
Black Rock Desert	314,835
Calico Mountains	64,968
East Fork High Rock Canyon	52,618
High Rock Canyon	46,465
High Rock Lake	59,107
Little High Rock Canyon	48,395*
North Black Rock Range	30,648
North Jackson Mountains	23,439
Pahute Peak	56,890
South Jackson Mountains	54,536
Total	**751,901**
* The Act designated 48,345 acres for Little High Rock Canyon. In 2010 the BLM acquired 40 acres. The updated acreage is reflected in this table.	

3.2 Additional Affected Resources

In addition to the elements listed under Supplemental Authorities, the BLM considers other important resources and uses in which impacts may occur from implementation of the proposed action. Other resources or uses of the human environment that have been considered for this EA are listed in Table 3. The existing conditions of the resources that may be affected by the proposed action are discussed in this chapter and potential impacts are analyzed in Chapter 4.

Table 3. Additional Affected Resources

Additional Affected Resources	Not Present	Present/ Not Affected	Present/ May Be Affected	Analysis Rationale and Referenced Sections
Fisheries			X	Section 3.2.1
Fire and Fuels Management			X	Section 3.2.2
Lands with Wilderness Characteristics			X	Section 3.2.3
Mineral Resources		X		
Paleontology			X	Section 3.2.4
Rangeland Management			X	Section 3.2.5
Recreation			X	Section 3.2.6

Additional Affected Resources	Not Present	Present/ Not Affected	Present/ May Be Affected	Analysis Rationale and Referenced Sections
Soils			X	Section 3.2.7
Special Status Species (Plants and Wildlife)			X	Section 3.2.8
Vegetation			X	Section 3.2.9
Visual Resources			X	Section 3.2.10
Wild Horses and Burros			X	Section 3.2.11
Wildlife			X	Section 3.2.12
Wilderness Study Areas			X	Section 3.2.13

3.2.1 Fisheries

The characteristics of a water body, in a large part, determine what species of fish inhabit it. Habitat suitability factors such as water temperature, clarity, flow-rate, oxygen level, streambank and aquatic vegetation, determine what species the water body can support. Any variation among these factors can change the dynamics of the ecosystem and make the water inhabitable by those animals typically associated with it.

The WD environment is not conducive to supporting many native fish species. Most "sport" fish found within streams and reservoirs in the project area were and continue to be introduced into the systems for recreational purposes. Table 8 lists some of the native and introduced fish species found in the WD.

Table 8. Native and Introduced Fish in the WD

Common Name	Scientific Name	Common Name	Scientific Name
Black bullhead	*Ictalurus melas*	Lahontan speckled dace	*Rhinichthys robustus*
Black crappie	*Pomoxis nigromaculatus*	Largemouth bass	*Micropterus salmoides*
Bluegill	*Lepomis macrochirus*	Rainbow trout	*Oncorhynchus mykiss*
Brook trout	*Salvelinus confluentus*	Red-ear sunfish	*Lepomis microlophus*
Brown bullhead	*Ictalurus nebulous*	Sacramento perch	*Archoplites interruptus*
Brown trout	*Salmo trutta*	Smallmouth bass	*Micropterus dolomieui*
Channel catfish	*Ictalurus punctatus*	Speckled dace	*Rhinichthys osculus*
Common carp	*Cyprinus carpio*	Walleye	*Stizostedion vitreum*
Green sunfish	*Lepomis cynellus*	White catfish	*Ictalurus catus*
Lahontan mountain sucker	*Catostomus platyrhynchus*	White crappie	*Pomoxis annularis*
Lahontan redside	*Richardsonius egregius*	Yellow perch	*Perca flavescens*

3.2.2 Fire and Fuels Management

Fire Management within the WDO is guided by the Federal Wildland Fire Management Policy established in 1995 and updated in 2001 with additional guidance in 2009. This policy has established guiding principles for managing wildland fires on public lands. From 1980 through 2012 (33 years), approximately 3,505 wildfires, which ignited within the district, have burned 3,327,989 acres (USGS 2014). The average fire size was 949 acres and the median size was 1 acre. Approximately 43%, 35%, and 22% of fires were human caused, natural or fires of unknown origin, respectively. However, naturally-caused fires accounted for 85.1% of the acres, while human-caused fires were 14.8% and unknown were 0.1%. Protecting Greater sage-grouse habitat is now identified as the number one resource priority for fire suppression resources (IM# WO IM-2014-114). It is estimated that 182,354 acres of PGH and 306,163 acres of PPH have burned in the WD since 1995.

The Emergency Stabilization and Rehabilitation (ES&R) program takes action during and immediately following a wildfire to reduce the effects of floods, landslides, and erosion by stabilizing stream banks and soils to reduce further resource damage. The Burned Area Rehabilitation program protects resources by maintaining proper function in watersheds and landscapes, and by beginning the recovery of fire-damaged lands. These objectives are achieved by such actions as reseeding to control invasive species, maintaining soil productivity and repairing wildlife habitat. Since 1985, the ES&R program has treated approximately 642,178 acres of land within the WD that were subject to wildfire.

The WD utilizes an integrated vegetation management strategy to achieve hazardous fuels reduction objectives. Removal of hazardous fuels is performed by constructing fuelbreaks where vegetation is removed or reduced in order to change or slow potential wildfire behavior and spread. Fuelbreaks also serve to aid and support suppression operations. The priorities for placement of fuelbreaks are in wildland-urban interface areas or areas containing important wildlife habitat. The fuels program has treated approximately 44,000 of fuelbreaks and other fuels projects since 2000. Some of these acres include maintenance of existing fuelbreaks. Fuelbreaks in the WD are documented to be some of the most successful in the Bureau of Land Management (USDA 2014). In 2012, the US Highway 95 Fuelbreak completely stopped or aided in suppression of six wildfires.

The tool by which fire managers evaluate the departure of ecosystems from the historical range of natural variability (HRV) with respect to fire regimes and vegetation structure is the Fire Regime/Condition Class Assessment (FRCC). Fire suppression, ES&R and fuels management actions all impact FRCC. The fire regime condition class for the WD shows that 56.7% has a high departure from HRV and poor ecological integrity. Additionally, 20.6% has moderate departure or declining integrity and 13.6% has low departure or good ecological integrity. Remaining areas within the district are barren (e.g., Black Rock playa), urban or otherwise developed. In general, those areas with high departure have been converted from sagebrush and perennial bunchgrasses to annual grassland with scattered native plants; in some cases, these areas may have experienced multiple entries of fire in the past 25 years.

3.2.3 Lands with Wilderness Characteristics

Section 201 of FLPMA requires the BLM to maintain on a continuing basis an inventory of all public lands and their resources and other values, which includes wilderness characteristics. Initial wilderness inventories were conducted in the late 1970's. Areas that were determined to be suitable as wilderness were designated. Areas that had a potential suitability for wilderness designation were identified as Wilderness Study Areas (WSAs), addressed in section 3.2.13 below. Continuing inventories for the remainder of the planning area ensures the presence or absence of wilderness characteristics and whether these conditions have changed over time. In order for an area to be considered as having wilderness characteristics, it must be of sufficient size (roadless areas of over 5,000 contiguous BLM acres); must demonstrate naturalness; and must provide outstanding opportunities for solitude or a primitive and unconfined type of recreation. Supplemental values (i.e., ecological, geological, or other features of scientific, educational, scenic, or historic value) may also be considered in the evaluation.

A district wide inventory for lands with wilderness characteristics has not been conducted. Wilderness characteristic inventories are updated under the following circumstances:

1. The public or the BLM identifies wilderness characteristics as an issue during the NEPA process.
2. The BLM is undertaking a land use planning process.
3. The BLM has new information concerning resource conditions
4. A project that may impact wilderness characteristics is undergoing NEPA analysis.
5. The BLM acquires additional lands.

Through the process of developing WD Resource Management Plan (RMP), several areas as having wilderness characteristics: Bluewing Mountains; North Sahwave Mountains; Fencemaker area of the East Range; a portion of the Tobin Range (between the China Mountain WSA and the Mount Tobin WSA); Granite Peak; Buckhorn Peak; and Warm Springs (RMP 2015).

The BLM will continue to inventory the planning area for the presence or absence of wilderness characteristics in accordance with FLPMA and agency policy.

These areas are included in the descriptions for vegetation and other components of naturalness provided within this chapter.

3.2.4 Paleontology

There has been no systematic field inventory of the paleontological resources of the WD. The most recent review of the paleontological resources of the WD apparently occurred over 30 years ago (Lawler 1978 and Lawler and Roney 1978). Nonetheless, 87 known paleontological localities are present on the WD's public lands representing points on the geological time scale from the Permian to the Pleistocene and yielding evidence of the presence of creatures ranging from the ichthyosaur, a large aquatic reptile of the Triassic, Jurassic, and Cretaceous Periods to camels and horses from the end of the last Ice Age. The WD also has a major locale for plant fossils in the Lund Petrified Forest. These sites, in addition to their macrofossil, content also have important information on past climates of the region.

The probability that the WD may yet provide even more locales with important fossil assemblages is supported by the Potential Fossil Yield Classification (PFYC) which gives us a model of likely and less likely areas for fossil locales. Table 9 breaks out the six classes present in the WD in terms of their mapped area and the percentage they represent of the WD's surface. The classes present in the WD are:

Class 1 (Very Low) - Geologic units not likely to contain recognizable fossil remains.

Class 2 (Low) - Sedimentary geologic units not likely to contain vertebrate fossils or scientifically significant non-vertebrate fossils.

Class 3 (Moderate or Unknown) - Fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence; or sedimentary units of unknown fossil potential.

Class 3b (Unknown Potential) - Units exhibit geologic features and preservation conditions that suggest significant fossils could be present, but little information about the paleontological resources of the unit or the area is known. This may indicate the unit or area is poorly studied, and field surveys may uncover significant finds. The units in this Class may eventually be placed in another Class when sufficient survey and research is performed. The unknown potential of the units in this Class should be carefully considered when developing any mitigation or management actions.

Class 4 (High) - Geologic units containing a high occurrence of significant fossils. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known to occur and have been documented, but may vary in occurrence and predictability. Surface disturbing activities may adversely affect paleontological resources in many cases.

Class 4a – Unit is exposed with little or no soil or vegetative cover. Outcrop areas are extensive with exposed bedrock areas often larger than two acres. Paleontological resources may be susceptible to adverse impacts from surface disturbing actions. Illegal collecting activities may impact some areas.

Class 5 (Very High) - Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientifically significant invertebrate or plant fossils, and that are at risk of human caused adverse impacts or natural degradation.

Class 5a – Unit is exposed with little or no soil or vegetative cover. Outcrop areas are extensive with exposed bedrock areas often larger than two contiguous acres. Paleontological resources are highly susceptible to adverse impacts from surface disturbing actions. Unit is frequently the focus of illegal collecting activities.

Table 9. Potential Fossil Yield Classification for the Winnemucca District

Potential Fossil Yield Classes of the WD PFYC	Class Acreage (GIS)	% of WD
Class 1	3,779,240	33.4
Class 2	1,051,663	9.3

Potential Fossil Yield Classes of the WD PFYC	Class Acreage (GIS)	% of WD
Class 3	5,006,883	44.2
Class 3b	671,163	5.9
Class 4a	763,987	6.7
Class 5a	52,614	0.5
Totals	11,325,551	100

3.2.5 Rangeland Management

The primary laws that govern grazing on public lands are the Taylor Grazing Act of 1934, the Federal Land Policy and Management Act of 1976, and the Public Rangelands Improvement Act of 1978. The BLM manages grazing lands under 43 CFR Part 4100 and BLM Handbooks 4100-4180, and it conducts grazing management practices through BLM Manual H-4120-1 (BLM 1984). In addition, the BLM must meet or ensure progress is being made toward meeting the Sierra Front-Northwestern Great Basin RAC Standards and Guidelines for Rangeland Health for each allotment.

The WD manages livestock grazing on public lands administered by the BLM in Churchill, Storey, Washoe, Pershing, and Humboldt Counties. There are 102 allotments, consisting of over 7,221,769 acres of BLM land, with the largest allotment over one million acres and the smallest allotments averaging 1,500 acres.

Most of the permittees are licensed to graze cattle with a few authorized to graze sheep and horses. Some grazing allotments are considered to be "common" allotments, meaning that there is more than one permittee authorized to run livestock. The grazing year begins March 1 and runs through February 28, with an average of 334,952 animal unit months (AUMs) harvested annually. Grazing usually begins in spring in the valleys and lower foothills and progresses to higher elevations in early summer. About half the permittees are authorized to graze livestock during the winter. Hay and private pasture provide forage for the remaining livestock through the winter. Most permittees adjacent to the Humboldt-Toiyabe Forest Service lands graze BLM lands in the spring and summer on the National Forest, and then return to BLM or private lands in the fall.

Two large land areas within the WD, Smoke Creek Desert and the Old Gunnery Range, are not allocated to grazing. These two areas are not allocated because the range suitability criteria (Sonoma-Gerlach and Paradise-Denio Grazing EIS) considered land unsuitable for grazing because of inadequate vegetation production if the land was unable to produce one AUM of usable perennial vegetation per 32 acres. In order for land to be considered available for grazing use, it must produce 25 pounds or more of usable vegetation per acre annually, to provide one AUM on 32 acres. Since these areas are playas and do not produce 25 pounds or more of usable vegetation per acre annually, they were not allocated for livestock grazing.

3.2.6 Recreation

The WD maintains primitive campgrounds in Water Canyon, at Soldier Meadows and at Onion Reservoir. In addition to these campgrounds, the WD also maintains a short hiking trail to Blue

Lake, an interpretive trail in Water Canyon and hike/bike trails on Winnemucca Mountain and the Bloody Shins Trail system adjacent to the city of Winnemucca. In addition to these recreational opportunities, an average of one hundred Special Recreation Permits (SRPs) are issued each year. A majority of these permits are associated with the Burning Man event and supporting vendors. Approximately thirty SRPs per year are issued for hunting outfitters/guides, amateur rocket launches and motorcycle races, but the vast amount of recreation in the District is considered to be dispersed recreation. That is recreational activities that are self-directed, taking place on public lands and in areas with no developed sites.

Because of the nature of dispersed recreation and the size of the district very little visitation data is available, although evidence of visitation supports the notion that this area of northern Nevada is popular. Primary recreational activities include sightseeing, visiting historic sites, bird and wildlife viewing, hunting, rock and mineral collection, off-road vehicle use and exploration using the numerous primitive roads and trails found in the area.

3.2.7 Soils

The overall resource condition for soils is good, with some areas demonstrating diminished, unstable, or eroded soils due to rangeland wildfires, overgrazing, and commercial operations.
Soil surveys in the region began in the Fallon area in 1909. By the 1940s the field surveys were supplemented with aerial photography. These surveys were known as Physical Surveys and Surveys for Better Land Use. Between 1950 and 1970, the surveys became more detailed, with soil taxonomy information and better aerial photography. The surveys concentrated on agricultural areas and uses. In the 1970s the surveys for key agricultural areas were completed as well as those for urban areas.

Between 1970 and 1978, a new relationship was forged between the United States (US) Department of the Interior (USDI)'s BLM and the Soil Conservation Service. This relationship paved the way for the rapid acceleration of the soil survey program, with major input of both time and money from the BLM. Since then, the number of soil surveys, their quality, and their use by the government and the public has greatly increased.

<u>Soil Orders</u>
The dominate soil orders found within the area administered by the WDO are Aridisols, Entisols, and Mollisols. These soils are mineral soils; layers are highly variable in thickness, texture, rock fragment content, and physical and chemical properties. Elevation, geology, climate, vegetation, and landform position have a strong influence on the distribution of the soils in the region.

Aridisols
Soils that formed in dry environments. These soils may have one or more pedogenic horizons that formed under the present climate conditions or may be relicts of formation during former climate regimes. Aridisols are light-colored, low in organic matter and have accumulations of calcium carbonates and soluble salts. Older Aridisol have substantial accumulation of calcium carbonate and reddened clay horizons. The properties of older Aridisols can make them less pervious to precipitation and, therefore, more likely to generate surface runoff. Aridisols form on lake-plain terraces, fan piedmonts, and low-mountain slopes.

Entisols
These are soils that have little to no evidence of pedogenic horizons. Entisols have formed on deposits of very young material. They typically consist of relatively unconsolidated deposits of sand and gravel. Entisols are very low in organic matter. Entisols are found on lake plains, stream terraces, sand dunes and sheets.

Mollisols
These are soils that are found at the higher elevations of mountain ranges. They are dark-colored and high in organic carbon. Mollisols developed under grass-dominated soils.

Biological Soil Crust
There are over a hundred different soils in the WD area. Special soils that require attention for management purposes include prime and unique farmlands and the presence of biological crusts. There are many soils in WD that are designated as potential prime farmlands but that would require irrigation or reclamation of excess salts and sodium.

Biological crusts grow on or just below the surface of the soil. They can also be known as microbiotic, cryptogamic, cryptobiotic, microphytic, or microfloral crusts or soils. The biological crusts are composed of a community of algae, cyanobacteria (blue-green algae), bacteria, lichens, mosses, liverworts, and fungi and their byproducts. They commonly occur in arid and semiarid environments. Biological crusts are important for:

- Stabilizing soil;
- Increasing soil's fertility, making nutrients more available to grasses, forbs, and shrubs;
- Helping the soil retain more moisture; and
- Keeping out unwanted plants, such as invasive non-native annuals and exotic weeds.

Because of their functions in rangeland systems, biological soil crusts can be an indicator of rangeland health. Crusts are well adapted to severe growing conditions, but are extremely susceptible to physical disturbances. Domestic livestock grazing and recreational activities (such as hiking, biking, and off-road driving) disturb the integrity of the crusts. Crust disruption brings decreased organism diversity, soil nutrients, stability, and organic matter. Another indirect physical disturbance occurs through crust burial. When the integrity of the crust is broken, the soil is more susceptible to wind and water erosion.

Erosion Hazard
The susceptibility to erosion, or the erosion hazard, for a soil varies with geology, parent material, elevation, slope, aspect, vegetation cover, microclimate, land use, and landscape history. Because of the large number and complex spatial distribution of soil units, it is only possible to make a general assessment of water and wind erosion hazards. Soil parameters available in the NRCS-SSURGO database allow development of erosion hazard groupings. A soil erodibility factor (K factor), slope (S), wind erodibility index (I), and climate (C factor) were obtained from the SSURGO database. This information allows for a general guide for estimating erosion hazard for bare soil.

The water erosion hazard for a given soil is estimated by using the formula, soil erodibility factor (K) x slope. The relative water erosion hazard is divided into three classes: slight = less than four, moderate = four to eight and high = greater than eight.

Slight water erosion hazard (WAEH=<4)
This class includes soils of all soil texture classes formed on slopes of less than four percent. It also includes soils formed on slopes of up to 15% for the following soil textures: sand, fine sand, loamy sand, and coarse sandy loam.

Moderate water erosion hazard (WAEH=4-8)
Soils formed on slopes from 4 to 15% for loams, silt loams, fine sandy loams, sandy clay loams, and clays and on slopes from 15 to 30% for fine sands, loamy fine sands, and coarse sandy loams constitute a moderate water erosion hazard.

High water erosion hazard (WAEH=>8)
Loams, silt loams, very fine sandy loams, sandy loams, sandy clay loams, and clays formed on slopes from 15 to 30% and all soils formed on slopes of greater than 30% are considered to constitute a high water erosion hazard.

Wind Erosion Hazard
The erosion hazard is estimated by the formula, wind erodibility index (I) x climate factor (C). The wind erosion hazards are divided into three classes: slight= =less than 40, moderate= 40 to 80, and high=greater than 80 (Map 10.4).

Slight wind erosion hazard (WIEH=<40)
Soils of all textures with greater than 35% rock fragments that are formed on greater than 30% slopes are considered to have slight wind erosion potential.

Moderate wind erosion hazard (WIEH=40-80)
Soils having textures of clay, silty clay, silty clay loam, silt loam, loam, very fine sandy loam, and sandy loam with less than 15% rock fragments and formed on slopes from 15 to 30% slope are considered to have moderate wind erosion potential.

High wind erosion hazard (WIEH=>80)
Soils having textures of loamy fine sand, fine sand, and sand containing less than 15% rock fragments and formed slopes of less than 15% are considered to have high wind erosion potential.

Soil Erosion Related to Landform
The general erosion hazard classes above can be grouped within broad classes of landforms (Table 10). This provides an additional means to predict the potential for soil erosion after a wild fire. These landforms represent the major types found in the District.

Table 10. Erosion Hazard by Landform

Landforms	Water Erosion Hazard	Wind Erosion Hazard
Playa/lake plain	Slight	Moderate
Beach plain (lake bars)	Slight to moderate	Slight to moderate
Sand sheet	Slight	High
Fan piedmont	Moderate	Slight
Mountains	High	Slight

As indicated in Table 10, the relative degrees of erosion potential are generally inversely related, that is, the higher the water erosion potential, the less the wind erosion potential and visa-versa.

3.2.8 Special Status Species

Federal and state agencies have identified threatened, candidate and sensitive species that may occur in northern Nevada (USFWS; Nevada Natural Heritage Program, January 2003). It is Bureau policy to manage public lands to recover, protect and preserve these species and their habitat. Various aspects of these species are described below. This section includes taxa that are not previously discussed above as federally listed species. These species include State of Nevada listed species and Nevada BLM sensitive species, migratory birds, and other wildlife species. BLM policy is to provide these species with the same level of protection as provided for candidate species in BLM Manual 6840.06C, that is to "ensure that actions authorized, funded, or carried out do not contribute to the need for the species to become listed".

Winnemucca BLM Special Status Species occur in a wide variety of habitats, and exhibit different sensitivities to environmental impacts or disturbance, depending upon the nature of the habitat or the organism itself. Species viability may be affected by loss vegetation utilized for nesting, cover, or foraging. Changes in vegetation may alter local abiotic habitat variables such as structure, temperature, or hydrology. Changes in vegetation may result in the loss or gain of food resources for wildlife either directly from the vegetation itself, or indirectly as populations of invertebrates or other prey organisms increase or decrease depending upon the type and quantity of vegetation present.

Loss or change of vegetation on the WD most frequently occurs on a landscape level as a result of wildfire impacts. Wildfire removes shrub habitat, which recovers very slowly in the sagebrush steppe. Indirect impacts from wildfire are often more dramatic, since non-native invasive annual plant species often exploit fire disturbance and result in a delayed recovery of shrub species, and a greatly lowered diversity of native grasses and forbs, which results in an overall degradation of habitat values for a number of Special Status Species.

Special Status plant species are often found in unique habitat conditions, and many are tolerant of wildfire impacts. Special Status plant species may be sensitive to direct removal, alterations of hydrology or soil chemistry, the effects of herbicides, or competition with non-native invasive plants.

Special Status plant and wildlife species which occur in subalpine or alpine environments are typically not directly affected by wildfire or other mechanisms of local disturbance since those habitats have been (and are expected to remain) typically less affected by human influence, are not usually prone to wildfire impacts, and tend to have intact native-plant communities resulting from substantial precipitation.

Table 11. Special Status Species

Common Name	Scientific Name	Documented on District	Preferred Habitat	Project Potential to Affect
PLANTS				
Margaret rushy milkvetch	*Astragalus convallarius var. margaretiae*	Y	Rocky slopes and flats among sagebrush in the pinyon-juniper and sagebrush zones. Elevation: 1400-2400 meters.	Y-Chemical Impact, Vegetation Change, Habitat Disturbance
Tonopah milkvetch	*Astragalus pseudiodanthus*	Y	Deep loose sandy soils of stabilized and active dune margins, old beaches, valley floors, or drainages, with Sarcobatus vermiculatus and other salt desert shrub taxa. Dependent on sand dunes or deep sand in Nevada. Elevation: 1350-1850 meters.	Y-Chemical Impact, Vegetation Change, Habitat Disturbance
Lonesome milkvetch	*Astragalus solitarius*	Y	Washes and banks of shallow soils on volcanic flat-rock with Artemisia arbuscula, A. tridentata, Tetradymia glabrata, Poa sandbergii, Atriplex confertifolia, Chrysothamnus nauseosus, etc. Elevation: 1400-1600 meters.	Y-Chemical Impact, Vegetation Change, Habitat Disturbance
Tiehm milkvetch	*Astragalus tiehmii*	Y	Whitish fluviolacustrine volcanic ash deposits weathering to deep clay soils, generally on gentle slopes of any aspect, with Chrysothamnus, Sphaeralcea, Stanleya viridiflora, etc., and frequently with Cryptantha schoolcraftii and/or Eriogonum crosbyae. Elevation: 1600-1800 meters.	Y-Chemical Impact, Vegetation Change, Habitat Disturbance
Whitebark Pine (candidate species)	*Pinus albicaulis*	Y	Grows in dry, windy, and cold sites characterized by rocky, poorly developed soils and snowy, wind-swept exposures, it pioneers many harsh subalpine and alpine sites. Elevation: 1300-3700 meters. Two known populations of whitebark pine within the WD, found in the Black Rock Range and the Pine Forest Range. The population in the Black Rock Range is protected in the Paiute Peak Wilderness and the population in the Pine Forest Range is protected in the Pine Forest Wilderness.	Y-Habitat and cone projection,
Osgood Mountains milkvetch	*Astragalus yoder-williamsii*	Y	Dry, open, coarse decomposed granodiorite soils among boulders on flats and gentle slopes (recently also found in loose silty soils on a moderate south slope) in healthy sagebrush steppe vegetation with Artemisia arbuscula, A. tridentata ssp. vaseyana, Chrysothamnus nauseosus, Poa secunda var. secunda, Agropyron spicatum, Stipa thurberiana, Stipa comata, Festuca idahoensis, Elymus cinereus, etc. Elevation: 1700-2250 meters	Y-Chemical Impact, Vegetation Change, Habitat Disturbance
Dainty moonwort	*Botrychium crenulatum*	N	Aquatic or wetland-dependent in Nevada. Elevation: 2500-3400 meters.	Y-Chemical Impact, Vegetation Change, Habitat Disturbance
Schoolcraft catseye	*Cryptantha schoolcraftii*	Y	Whitish fluviolacustrine volcanic ash deposits weathering to deep clay soils, on gentle to steep slopes of mostly east, south, and west aspects, in the sagebrush steppe zone with Chrysothamnus, Sphaeralcea, Stanleya viridiflora, etc., and frequently with Astragalus tiehmii and/or Eriogonum crosbyae. Elevation: 1450-1800 meters.	Y-Chemical Impact, Vegetation Change, Habitat Disturbance
Goodrich biscuitroot	*Cymopterus goodrichii*	Y	Moderate to steep scree and talus slopes of dark angular slate or limestone in the upper subalpine and lower alpine zones. Elevation: 2200-3400 meters.	N-Projects unlikely to occur in habitat.
Windloving buckwheat	*Eriogonum anemophilum*	Y	At high elevations on dry, exposed, relatively barren and undisturbed, gravelly, limestone or volcanic ridges and ridgeline knolls, on outcrops or shallow rocky soils over bedrock, with Artemisia arbuscula, Ericameria viscidiflora, Poa secunda,	Y-Chemical Impact, Vegetation Change, Habitat Disturbance

Common Name	Scientific Name	Documented on District	Preferred Habitat	Project Potential to Affect
			Elymus elymoides, Arenaria kingii, etc. At low elevations on dry, relatively barren and undisturbed knolls and slopes of light-colored, platy volcanic tuff weathered to form stiff clay soils, on all aspects, with Tetradymia canescens, Ericameria nauseosa, E. viscidiflora, Atriplex confertifolia, Elymus elymoides, Elymus cinereus, Astragalus calycosus, etc. Elevation: 1400-3000 meters.	
Crosby buckwheat	*Eriogonum crosbyae*	Y	Outcrops of rhyolite or whitish fluviolacustrine volcanic ash deposits, and derived shallow sandy to clay soils, on gentle to steep slopes of all aspects, with Chrysothamnus nauseosus, Tetradymia glabrata, Artemisia spp., Elymus cinereus, Stanleya viridiflora, Sphaeralcea, Ipomopsis congesta, etc., and frequently with Astragalus tiehmii. Elevation: 1400-2150 meters.	N-Projects unlikely to occur in habitat.
Schoolcraft buckwheat	*Eriogonum microthecum var. schoolcraftii*	N	Found in Lassen and Plumas County, CA; and Washoe County Nevada on Seven Lakes Mountain. Associated with *Juniperus* and *Artemisia* on a north-facing slope at 5675 ft elevation. Generally found in sagebrush communities of *Artemisia tridentata, Tetradymia canescens, Ericameria nauseosa, Ribes velutinum, Ephedra viridis,* and *Quercus kelloggii*.	Y-Chemical Impact, Vegetation Change, Habitat Disturbance
Sand cholla	*Grusonia pulchella*	Y	Sand of dunes, dry-lake borders, river bottoms, washes, valleys, and plains in the desert. Dependent on sand dunes or deep sand in Nevada. Elevation: 1200-1950 meters.	Y-Chemical Impact, Vegetation Change, Habitat Disturbance
Grimy mousetails	*Ivesia rhypara var. rhypara*	Y	Mostly on dry, relatively barren, yellowish or light-colored outcrops or badlands of welded, sometimes hydrothermally altered and re-cemented, ash-fall tuff, and on shallow gravel grus derived therefrom, in one case on unsorted cobbly riverbed deposits mixed with underlying volcanic ash, on gentle to steep side, shoulder, or toe slopes with east to south to west aspects, with few and sparse associated species such as Trifolium andersonii, Poa secunda, Ericameria nauseosa, and Achnatherum hymenoides. Elevation: 1600-1900 meters.	Y-Chemical Impact, Vegetation Change, Habitat Disturbance
Davis peppercress	*Lepidium davisii*	Y	Hard-bottomed clay playas on volcanic plains in the sagebrush zone with sparse associated Atriplex confertifolia and Artemisia cana, surrounded by Artemisia tridentata vegetation. During spring, the playas are usually inundated up to a foot deep. Aquatic or wetland-dependent in Nevada. Elevation: 1550-1600 meters.	N-Projects unlikely to occur in habitat
Pueblo Valley peppercress	*Lepidium montanum var. nevadense*	Y	Dependent on sand dunes or deep sand in Nevada. Elevation: 1250-1350 meters.	Y-Chemical Impact, Vegetation Change, Habitat Disturbance
Owyhee prickly phlox	*Leptodactylon glabrum*	Y	Crevices in steep to vertical, coarse-crumbling volcanic canyon walls. Intolerant of water paths or seeps that may form in the rock crevices. Elevation: 1400-4000 meters.	Y-Chemical Impact, Vegetation Change, Habitat Disturbance
Succor Creek parsley	*Lomatium packardiae*	Y	Dry, open, rocky clay soils derived from rhyolite or volcanic ash deposits in the sagebrush zone. Elevation: 1300-2350 meters.	Y-Chemical Impact, Vegetation Change
Smooth stickleaf	*Mentzelia mollis*	Y	Dry, open, nearly barren, eroding shoulder and side slopes of brightly colored shrink-swell clay badlands formed by hydrothermal alteration and weathering of air-fall volcanic ash deposits, on all aspects with a very sparse cover of other annuals such as Monolepis pusilla, Mentzelia albicaulis, Cleomella macbrideana, and Phacelia humilis. Elevation: 1300-1600 meters.	Y-Chemical Impact, vegetation change
Oryctes	*Oryctes nevadensis*	Y	Deep loose sand of stabilized dunes, washes, and valley flats, on various slopes and aspects, variously associated with Psorothamnus polydenius, Tetradymia tetrameres, T. glabrata, Sarcobatus vermiculatus, S. baileyi, Atriplex canescens, A.	Y-Chemical Impact, Vegetation Change,

Common Name	Scientific Name	Documented on District	Preferred Habitat	Project Potential to Affect
			confertifolia, Krascheninnikovia lanata, Grayia spinosa, Eriogonum nummulare, Achnatherum hymenoides, Hesperostipa comata, Oenothera deltoides, Cymopterus corrugatus, Penstemon arenarius, Gilia micromeria, Astragalus geyeri, Phacelia bicolor, Nama densum, N. aretioides, etc. Dependent on sand dunes or deep sand in Nevada. Elevation: 1150-1850 meters.	
Nevada dune beardtongue	*Penstemon arenarius*	Y	Deep loose sandy soils of valley bottoms, aeolian deposits, and dune skirts, often in alkaline areas, sometimes on road banks and other recovering disturbances crossing such soils, in the shadscale zone with Psorothamnus polydenius, Achnatherum hymenoides, Astragalus geyeri var. geyeri, Atriplex canescens, A. confertifolia, Tetradymia glabrata, Gilia leptomeria, Tiquilia nuttallii, Sarcobatus baileyi, Chrysothamnus, Ephedra nevadensis, etc. Dependent on sand dunes or deep sand. Elevation: 1150-1850 meters.	Y-Chemical Impact, Vegetation Change,
Cordelia beardtongue	*Penstemon floribundus*	Y	Dry, open, mostly dark-colored volcanic talus, very rocky slopes, or alluvium derived therefrom, on all aspects but predominantly westerly, variously associated with Juniperus osteosperma, Atriplex confertifolia, Sarcobatus vermiculatus, Artemisia spinescens, A. tridentata, Grayia spinosa, Ephedra nevadensis, Penstemon deustus, P. speciosus, Lewisia rediviva, etc. Also reported but not confirmed on carbonate materials. Elevation: 1250-2300 meters.	Y-Chemical Impact, Vegetation Change, Habitat Disturbance
Lahontan beardtongue	*Penstemon palmeri var. macranthus*	Y	Along washes, roadsides and canyon floors, particularly on carbonate-containing substrates, usually where subsurface moisture is available throughout most of the summer. Unknown if restricted to calcareous substrates. Elevation: 1000-1400 meters.	Y-Chemical Impact, Vegetation Change, Habitat Disturbance
Susanville beardtongue	*Penstemon sudans*	Y	Open, sagebrush- or woodland-dominated, rocky slopes on volcanic or other igneous substrates. 1200-1700 m elevation.	Y-Chemical Impact, Vegetation Change
Obscure scorpionflower	*Phacelia inconspicua*	Y	Relatively deep, undisturbed, organic-rich soils on fairly steep, concave, N- to NE-facing slopes where snow drifts persist well into spring, on small, otherwise barren soil terraces in small clearings in shrub fields dominated by Artemisia tridentata vaseyana in association with Holodiscus microphyllus, Symphoricarpos rotundifolius, and Leymus cinereus. Elevation: 1500-2550 meters.	Y-Chemical Impact, Vegetation Change,
Playa phacelia	*Phacelia inundata*	Y	Grows in alkali playas and seasonally inundated areas with clay soils. Aquatic or wetland-dependent in Nevada. Elevation: 1500-1750 meters.	N-Projects unlikely to occur in habitat
Holmgren smelowskia	*Smelowskia holmgrenii*	Y	Crevices, ledges, rubble, or small soils pockets on rock outcrops and cliffs, from high-elevation ridges to northfacing walls at lower elevations, on various rock types in the lower alpine, subalpine conifer, mountain sagebrush, and upper piñon-juniper zones. Elevation: 1950-3500 meters.	Y-Chemical Impact from Aerial Spray Operations
AMPHIBIANS				
Columbia spotted frog (Candidate Species)	*Rana luteivertris*	Y	Highly aquatic; rarely found far from permanent quiet water; usually occurs at the grassy/sedgy margins of streams, lakes, ponds, springs, and marshes. May disperse into forest, grassland, and brushland during wet weather, and may traverse uplands to reach wintering sites. Uses stream-side small mammal burrows as shelter. Overwintering sites in the Great Basin include undercut stream banks and spring heads. Wintering sites in central Idaho included deep lakes. Breeds usually in shallow water in ponds or other quiet waters.	Y-Chemical Impact, Vegetation Change
Northern leopard frog	*Rana pipiens*	Y	Northern leopard frogs live in the vicinity of springs, slow streams, marshes, bogs, ponds, canals, flood plains, reservoirs, and lakes; usually they are in or near	Y-Chemical Impact, Vegetation Change

Common Name	Scientific Name	Documented on District	Preferred Habitat	Project Potential to Affect
			permanent water with rooted aquatic vegetation. In summer, they commonly inhabit wet meadows and fields. Wintering sites are usually underwater, though some may overwinter underground.	
BIRDS				
Greater Sage-Grouse (Candidate Species)	*Centrocercus urophasianus*	Y	Associated with sagebrush steppe habitats that include bunchgrass and forb components. Also requires sparsely vegetated sites within the sagebrush matrix for lekking, as well as riparian areas, wet meadows, springs, and seeps for brood foraging. Will move substantial distances to use seasonally appropriate microhabitats. See below table for detailed description of Greater Sage-Grouse habitat and life history requirements.	Y-Chemical Impact, Vegetation Change
Northern goshawk	*Accipiter gentilis*	Y	Nests in various forest types with a preference for taller, mature stands with significant canopy cover. In Nevada, they commonly nest in aspen "stringers" that trace mountain streams and ephemeral drainages. Also occur in shrub-dominated habitats likely used for foraging.	Y-Chemical Impact, Vegetation Change
Golden eagle	*Aquila chrysaetos*	Y	Nests in rugged crags, canyons, cliffs, and mountains. Forages in areas surrounding nest sites and can be found in any habitat type. Most common habitat use reported for foraging in Nevada are sagebrush scrub and sagebrush steppe.	Y-Chemical Impact, Vegetation Change
Western burrowing owl	*Athene cunicularia hypugaea*	Y	Uses a variety of habitats that are open, arid, and treeless with low vegetation. Most common where mammal burrows are available for nesting. Will often breed near agricultural lands, golf courses, and roadsides, but will not tolerate highly disturbed areas.	Y-Chemical Impact, Vegetation Change
Ferruginous hawk	*Buteo regalis*	Y	Inhabits open country including grasslands and shrublands, while avoiding forests, steep terrain, and high elevations. Most likely to be found in sagebrush scrub, but may also occur in salt desert scrub and sagebrush steppe. May also be associated with piñon-juniper blocks.	Y-Chemical Impact, Vegetation Change
Swainson's hawk	*Buteo swainsoni*	Y	Uses open grasslands and shrublands, and is well adapted to agricultural areas. Typically nests in scattered trees near open areas for foraging. Usually nests in junipers in the Great Basin.	Y-Chemical Impact, Vegetation Change
Western snowy plover	*Charadrius alexandrinus nivosus*	Y	Nests on the ground on broad open beaches or salt or dry mud flats, where vegetation is sparse or absent. In Nevada, they generally require hypersaline playas with minimum vegetation.	N-Projects unlikely to occur in habitat
Peregrine falcon	*Falco peregrinus*	Y	May be found in a variety of habitat types. Known nest sites in Nevada have occurred on cliff ledges or high buildings. Nests in Nevada generally occur near lakes, wetlands, or river systems.	Y-Chemical Impact, Vegetation Change
Pinyonjay	*Gymnorhinus cyanocephalus*	N	Nests and forages in piñon-juniper woodland and may forage in other habitats such as sagebrush shrublands. Strongly associated with occurrence of Pinyonpine.	Y-Chemical Impact, Vegetation Change
Loggerhead shrike	*Lanius ludovicianus*	Y	Nests in arid, open country with just a few perches or lookouts. Found throughout most habitat types in Nevada with lower probability of occurrence in forests, higher mountains, barren zones, and urban areas.	Y-Chemical Impact, Vegetation Change
Black rosy-finch	*Leucosticte atrata*	N	Barren, rocky or grassy areas and cliffs in alpine tundra atop high mountains. Usually nests in rock crevices or holes in cliffs about snow fields.	N-Projects unlikely to occur in habitat
Lewis' woodpecker	*Melanerpes lewis*	Y	Nests in open forest and woodland, often logged or burned, including oak, coniferous forest, riparian woodland, orchards, and piñon-juniper. Primary habitat consists of burned coniferous woodlands and open riparian woodlands with a relatively intact grass or shrub understory.	Y-Habitat Structure Change

Common Name	Scientific Name	Documented on District	Preferred Habitat	Project Potential to Affect
Sage Thrasher	*Oreoscoptes montanus*	Y	Associated with intact, dense stands of sagebrush. Primarily uses sagebrush scrub and sagebrush steppe habitat, but may also occur in other Great Basin shrublands.	Y-Chemical Impact, Vegetation Change
Brewer's sparrow	*Spizella breweri*	Y	Strongly associated with sagebrush habitat including sagebrush scrub and sagebrush steppe. Also commonly found in salt desert scrub. May occur in most habitat types in Nevada.	Y-Chemical Impact, Vegetation Change
Bald eagle	*Haliaeetus leucocephalus*	Y	Usually nests in forests or tall trees near large water bodies.	Y-Chemical Impact
MAMMALS				
Pallid bat	*Antrozous pallidus*	Y	Arid deserts and grasslands, often near rocky outcrops and water. Less abundant in evergreen and mixed conifer woodland. Usually roosts in rock crevice or building, less often in cave, tree hollow, mine, etc. Prefers narrow crevices in caves as hibernation sites.	Y-Chemical Impact, Vegetation Change
Townsend's big-eared bat	*Corynorhinus townsendii*	Y	Maternity and hibernation colonies typically are in caves and mine tunnels. Prefers relatively cold places for hibernation, often near entrances and in well ventilated areas. Uses caves, buildings, and tree cavities for night roosts. Throughout much of the known range, commonly occurs in mesic habitats characterized by coniferous and deciduous forests, but occupies a broad range of habitats.	Y-Chemical Impact, Vegetation Change
Big brown bat	*Eptesicus fuscus*	Y	Various wooded and semi-open habitats, including cities. Much more abundant in regions dominated by deciduous forest than in coniferous forest areas. Summer roosts generally are in buildings; also hollow trees, rock crevices, tunnels, and cliff swallow nests; prefers sites that do not get hot. Typically roosts in twilight part of cave. Maternity colonies form in attics, barns and occasionally tree cavities. Caves, mines, and especially buildings and manmade structures are used for hibernation.	Y-Chemical Impact, Vegetation Change
Spotted bat	*Euderma maculatum*	Y	Found in various habitats from desert to montane coniferous stands, including open ponderosa pine, piñon-juniper woodland, canyon bottoms, open pasture, and hayfields. Roosts in caves and in cracks and crevices in cliffs and canyons. Winter habits poorly known.	Y-Chemical Impact, Vegetation Change
Silver-haired bat	*Lasionycteris noctivagans*	Y	Prefers forested (frequently coniferous) areas adjacent to lakes, ponds, and streams. During migration, sometimes occurs in xeric areas. Summer roosts and nursery sites are in tree foliage, cavities, or under loose bark, sometimes in buildings.	Y-Chemical Impact, Vegetation Change
Hoary bat	*Lasiurus cinereus*	Y	Prefers deciduous and coniferous forests and woodlands. Roosts usually in tree foliage 3-5 m above ground, with dense foliage above and open flying room below, often at the edge of a clearing and commonly in hedgerow trees. Sometimes roosts in rock crevices, rarely uses caves in most of range. Hibernating individuals have been found on tree trunks, in a tree cavity, in a squirrel's nest, and in a clump of Spanish-moss. Solitary females with young roost among tree foliage.	Y-Chemical Impact, Vegetation Change
California myotis	*Myotis californicus*	Y	Western lowlands; sea coast to desert, oak-juniper, canyons, riparian woodlands, desert scrub, and grasslands. Often uses man-made structures for night roosts. Uses crevices of various kinds, including those in buildings, for summer day roosts. May roost also on small desert shrubs or on the ground. Hibernates in caves, mines, tunnels, or buildings. May form small maternity colonies in rock crevices, under bark, or under eaves of buildings.	Y-Chemical Impact, Vegetation Change
Western small-footed myotis	*Myotis ciliolabrum*	Y	Generally inhabits desert, badland, and semiarid habitats; more mesic habitats in southern part of range. Roosts in summer in rock crevices, caves, tunnels, under boulders, beneath loose bark, or in buildings. Hibernates in caves and mines. Maternity colonies often are in abandoned houses, barns, or similar structures.	Y-Chemical Impact, Vegetation Change

Common Name	Scientific Name	Documented on District	Preferred Habitat	Project Potential to Affect
Long-eared myotis	*Myotis evotis*	Y	Mostly forested areas, especially those with broken rock outcrops; also shrubland, over meadows near tall timber, along wooded streams, over reservoirs. Often roosts in buildings, also in hollow trees, mines, caves, fissures, etc.	Y-Chemical Impact, Vegetation Change
Little brown myotis	*Myotis lucifugus*	Y	Has adapted to using human-made structures for resting and maternity sites; also uses caves and hollow trees. Foraging habitat requirements are generalized; usually forages in woodlands near water. In winter, a relatively constant temperature of about 40 F and 80% relative humidity is required; uses caves, tunnels, abandoned mines, and similar sites. Maternity colonies commonly are in warm sites in buildings and other structures; also infrequently in hollow trees. Narrow microclimate is suitable for raising young, and availability of suitable maternity sites may limit abundance and distribution.	Y-Chemical Impact, Vegetation Change
Fringed myotis	*Myotis thysanodes*	N	Primarily at middle elevations of 1,200-2,150 m in desert, grassland, and woodland habitats. Roosts in caves, mines, rock crevices, buildings, and other protected sites. Nursery colonies occur in caves, mines, and sometimes buildings.	Y-Chemical Impact, Vegetation Change
Long-legged myotis	*Myotis volans*	Y	Primarily in montane coniferous forests, in the south most often at 2000-3000 m; also riparian and desert habitats. May change habitats seasonally. Uses caves and mines as hibernacula, but winter habits are poorly known. Roosts in abandoned buildings, rock crevices, under bark, etc. In summer, apparently does not use caves as daytime roost site. In some areas hollow trees are the most common nursery sites, but buildings and rock crevices are also used.	Y-Chemical Impact, Vegetation Change
Yuma myotis	*Myotis yumanensis*	Y	More closely associated with water than most other North American bats. Found in a wide variety of upland and lowland habitats, including riparian, desert scrub, moist woodlands and forests, but usually found near open water. Flys low. Nursery colonies usually are in buildings, caves and mines, and under bridges.	Y-Chemical Impact, Vegetation Change
Brazilian free-tailed bat	*Tadarida brasiliensis*	Y	Roosts primarily in caves in the southwestern U.S. May use rock crevice, bridge, sign, or cliff swallow nest as roost druing migration. Generally roosts high (at least 3 m) above ground to allow free fall required to attain flight. Large maternity colonies inhabitat buildings and caves; also uses culverts and bridges.	Y-Chemical Impact, Vegetation Change
Western pipistrelle	*Pipistrellus hesperus*	Y	Deserts and lowlands, desert mountain ranges, desert scrub flats, and rocky canyons. Day and night roosts include rock crevices, under rocks, burrows and sometimes buildings or mines. May hibernate in cave, mine, or rock crevice. Typically visits water and drinks immediately after emergence each evening. Young are born in rock crevices or in buildings.	Y-Chemical Impact, Vegetation Change
Pygmy rabbit	*Brachylagus idahoensis*	Y	Generally use burrows found in the taller and denser big sagebrush in an area. May be found in broad valley floors, drainage bottoms, alluvial fans, and other areas with friable soils. May also occur in areas of large dense rabbitbrush and greasewood. Understory can vary from none to dense grasses and forbs.	Y-Chemical Impact, Vegetation Change
Dark kangaroo mouse	*Microdipodops megacephalus*	Y	In loose sands and gravel. Found in Shadscale Scrub, Sagebrush Scrub, and Alkali Sink plant communities. May occur in sand dunes near margins of range. Underground when inactive.	Y-Chemical Impact, Vegetation Change
Pale kangaroo mouse	*Microdipodops pallidus*	Y	Habitat is nearly restricted to fine sands in alkali sink and desert scrub dominated by Atriplex confertifolia (shadscale) or Artemisia tridentata (big sagebrush). This mouse often burrows in areas of soft, windblown sand piled at the bases of shrubs.	Y-Chemical Impact, Vegetation Change
Bighorn sheep	*Ovis canadensis*	Y	Occur in mesic to xeric, alpine to desert grasslands or shrub-steppe in mountains, foothills, or river canyons. Many of these grasslands are fire-maintained . Suitable escape terrain (cliffs, talus slopes, etc.) is an important feature of the habitat.	Y-Chemical Impact, Vegetation Change

Common Name	Scientific Name	Documented on District	Preferred Habitat	Project Potential to Affect
Preble's shrew	*Sorex preblei*	N	Recorded habitats include arid and semiarid shrub-grass associations, openings in montane coniferous forests dominated by sagebrush, willow-fringed creeks, marshes, bunchgrass associations, sagebrush-aspen associations, sagebrush-grass associations, and alkaline shrubland.	Y-Chemical Impact, Vegetation Change
Pika	*Ochotona princeps*	N	Restricted to rocky talus slopes, primarily the talus-meadow interface. Often above treeline up to limit of vegetation. Also found at lower elevations in rocky areas within forests or near lakes. Occasionally on mine tailings, or piles of lumber or scrap metal. Does not dig burrows but may enlarge den or nest site under rock.	N: Habitat unlikely to interface with projects except post-fire native-seeding.
REPTILES				
No known species listed				
INSECTS				
Mattoni's blue	*Euphilotes pallescens mattonii*	N	Arid areas such as desert flats and edges of sand dunes, associated with buckwheat species.	Y-Chemical impact, Vegetation Change
Rice's blue	*Euphilotes pallescens ricei*	Y	Dependent on dune or deep sand habitats. Caterpillars associated with buckwheat species.	Y-Chemical impact, Vegetation Change
Great Basin small blue	*Philotiella speciosa septentrionalis*	N	Deserts, edges of dry desert lakes, stream edges in foothills, associated with buckwheat species.	Y-Chemical impact, Vegetation Change
Bleached sandhill skipper	*Polites sabuleti sinemaculata*	Y	Baltazor Hots Springs Denio, NV	Y-Chemical impact, Vegetation Change
Humboldt serican scarab	*Serica humboldti*	Y	Dependent on dune or deep sand habitats.	Y-Chemical impact
MOLLUSCS				
Dixie Valley Pyrg	*Pyrgulopsis dixensis*	Y	Endemic to springs near Hot Springs, Dixie Valley, Pershing County, NV.	Y-Chemical impact, Vegetation Change
Squat Mud meadows pyrg	*Pyrgulopsis limaria*	Y	Endemic to spring brook in Mud Meadow drainage, Humboldt County, NV.	Y-Chemical impact, Vegetation Change
Northern Soldier meadow pyrg	*Pyrgulopsis militaris*	Y	Endemic to springs in the Soldier Meadow area, Humboldt County, NV.	Y-Chemical impact, Vegetation Change
Northern Steptoe Pyrg	*Pyrgulopsis serrata*	Y	Known from Steptoe Valley, White Pine County, NV	Y-Chemical impact, Vegetation Change
Southern Soldier meadow pyrg	*Pyrgulopsis umbilicata*	Y	Endemic to spring near Warm Springs Canyon in Soldier Meadow, Humboldt County, NV.	Y-Chemical impact, Vegetation Change
Wongs pyrg	*Pyrgulopsis wongi*	N	Found in springs in CA - Mono County; NV - Douglas, Esmeralda, and Mineral County.	Y-Chemical impact, Vegetation Change

Greater Sage-Grouse (Candidate)

The Greater sage-grouse is a granivore, herbivore and insectivore and is associated with both tall and short sagebrush types. In the autumn and winter it forages almost exclusively on sagebrush leaves. Greater sage-grouse are a species that requires large blocks of contiguous sagebrush habitats. Male and female Greater sage-grouse gather into flocks in the winter, as do broodless hens in early summer. Female Greater sage-grouse mature in one year though they may not nest until their second year. Breeding typically occurs in the fall when male and female flocks come together. Breeding habitat is generally located within 3 km of a historic strutting ground established by the male birds. However, some hens will move long distances from the strutting grounds to nest. Greater sage-grouse breed in areas known as leks, where numerous males perform mating displays to attract females. Eggs are incubated for 25 to 27 days by the female Greater sage-grouse. Female Greater sage-grouse tend the newly hatched young, who are able to fly within 7 to 14 days (North Central Nevada Greater sage-grouse Working Group 2002, Sibley 2000).

Greater sage-grouse are found in foothills, plains and mountain slopes where sagebrush is present, or where a mixture of sagebrush and meadow occur in close proximity. This species is highly dependent on the presence of large stands of sagebrush, notably Wyoming, mountain and Great Basin sagebrush. Nesting habitats, which tend to occur at mid-elevations, are typically associated with big sage/low sagebrush habitat complexes. Successful nests are associated with dense sagebrush canopies, residual herbaceous vegetation and a diversity of forbs and insects. Spring, summer and fall ranges are associated with productive Greater sage-grouse habitat. During the winter, Greater sage-grouse forage almost exclusively on either big sagebrush or low sagebrush depending on severity of snowfall and migratory habitats of populations (North Central Nevada Greater sage-grouse Working Group 2002).

Mountain meadows, riparian areas and moist upland range sites all provide sources of succulent green forage and insects that are important food for Greater sage-grouse during the spring, summer and fall. Access to meadow habitats is important for young birds for forbs and insects (BLM National Sage-grouse Habitat Conservation Strategy 2004). The species requires extensive sagebrush cover for forage and shelter, healthy meadows for succulent forage and insect food sources, and herbaceous cover in sagebrush stands for nesting.

Historical records maintained by NDOW indicate that the current population of Greater sage-grouse in the project area is in decline. On February 5, 2015, the BLM Nevada State Office issued IM 2015-017, Revised Direction for Proposed Activities within Greater Sage-Grouse Habitat which updated the greater sage-grouse habitat map for BLM Nevada administered lands. The greater sage-grouse habitat map is based on the greater sage-grouse habitat suitability modeling by the U.S. Geological Survey (USGS 2014). The greater sage-grouse habitat map identifies Core/Preliminary Priority Habitat (PPH), Priority/Preliminary General Habitat (PGH), and General/Mapped Habitat. PGH are areas of relatively intact sagebrush communities which provide certain habitat requirements for Greater sage-grouse. PPH are areas offering the highest quality Greater sage-grouse habitat based upon bird density, lek location, community composition, intactness, or other variables. There are approximately 1,823,141 acres of PPH, 1,223,284 acres of PGH, and 1,889,098 acres of General Habitat. Of those acres, documented wildfires from 1900 to present have burned approximately 385,883 of PPH, 350,643 of PGH,

and 573,207 General Habitat. This equates to 21.2 % PPH, 28.7% PGH, and 30.3% General Habitat being burned by wildfires documented from 1900 to present.

3.2.9 Vegetation

The planning area includes portions of the Northern Great Basin and Columbia Basin floristic provinces. In these provinces, precipitation and other climatic factors, availability of water, soils, elevation, and exposure all contribute to the diversity of vegetation. Nine primary plant communities/associations have been described in the planning area: sagebrush scrub, salt desert scrub, desert sink scrub, invasive annual grasslands, woodland, perennial grasslands, riparian and wetland, and altered/disturbed/agriculture (USGS National Gap Analysis Program 2004).

Table 12. Plant Communities/Associations in the Decision Area

Plant Community/ Association	Acres on BLM Land
A. Sagebrush scrub	3,146,214
D. Salt desert scrub	1,858,725
B. Desert sink scrub	629,587
D. Invasive annual grasslands	446,056
E. Woodland	413,356
F. Perennial grasslands	103,998
G. Riparian and Wetland	11,952
H. Altered/Disturbed/Agriculture	25,423
I. Barren Lands, Non-specific	9,716

Sources: SWReGAP 2004, BLM 2012a

Sagebrush scrub

Sagebrush scrub covers 3,146,214 acres of BLM land in the planning area, based on vegetation geographic information system (GIS) coverage (SWReGAP 2004). There are three primary species of sagebrush, distributed according to elevation, precipitation, slope, and salinity. Kuchler (1970) divided areas supporting sagebrush into two major vegetation types: sagebrush steppe, where sagebrush can co-dominate with native bunchgrasses, and Great Basin sagebrush, where sagebrush can be the sole dominant. These two major types come into contact with each other in the planning area, with sagebrush steppe predominant in the north and Great Basin sagebrush predominant in the south.

Salt desert scrub

Salt desert scrub covers 1,858,725 acres of BLM land (SWReGAP 2004). Salt desert scrubs occur in soils that are less salty than those of alkali sinks. Dominant species can include shadscale (Atriplex confertifolia), hop-sage (Grayia spinosa), and mixed saltbush (Atriplex spp.). This habitat type may be found in valleys, washes, lower slopes, and moderately drained flats.

Desert sink scrub

Desert sink scrub covers 629,587 acres of BLM land (SWReGAP 2004). In the planning area, this habitat type is dominated by greasewood (Sarcobatus vermiculatus), with other species such

as iodine bush (Allenrolfea occidentalis), yellow rabbitbrush (Chrysothamnus viscidiflorus), big sagebrush (Artemisia tridentate spp.), and shadscale (Atriplex confertifolia).

Invasive annual grasslands

Invasive annual grasslands cover approximately 446,056 acres of BLM land (SWReGAP 2004). These are typically areas that have converted from dry site sagebrush scrub or saltbush scrub communities to cheatgrass (*Bromus tectorum*) monocultures from multiple, repeat disturbances such as excessive grazing pressure, drought and wildfires. Other annual species such as tansy mustard (*Descurainia pinnata*), tumble mustard (*Sisymbrium altissimum L.*) and Russian thistle species (*Salsoa sp. L.*) also cycle through these grasslands. Woodlands cover approximately 413,356 acres of BLM land (SWReGAP 2004, BLM 2012).

Woodlands

Woodlands cover approximately 413,356 acres of BLM land (SWReGAP 2004). Forest and woodland types in the planning area consist of pinyon-juniper woodland (330,491 acres), mountain mahogany woodland and shrubland (50,818 acres), limber and whitebark pine forest (5,060 acres), and aspen forest and woodland (26,987 acres).

Perennial grasslands

Perennial grasslands, also called dry meadows, cover 103,998 acres of BLM land (SWReGAP 2004). These communities/associations are difficult to quantify as they are often an understory component of several plant communities, such as sagebrush scrub and riparian communities. Grasslands are wet for a short period of the year and become increasingly drier as the growing season progresses. Species such as Baltic rush (*Juncus balticus*), perennial bunchgrasses, asters (*Aster* spp.), groundsel (*Packera* spp.), onions (*Allium* spp.), and hawksbeard (*Crepis* spp.) are commonly found in these communities. Rabbitbrush (*Chrysothamnus spp.*) and sagebrush (*Artemisia* spp.) may be at the meadow's edge.

Riparian areas and wet meadows

Riparian areas and wet meadows cover 11,952 acres of BLM land (SWReGAP 2004). Riparian communities occur along the watercourses of the planning area and in association with streams. In the Great Basin, riparian communities are dominated by various mixtures of cottonwood, aspen, and willow species. Although riparian zones account for a very small proportion of the total acreage of the planning area, they play a critical role as habitat for wildlife. More than 75% of the wildlife species of the Great Basin are strongly associated with riparian areas (Dobkin *et al.* 1998). Riparian areas are highly favored by livestock, which has led to disturbance of this habitat type in many areas. Where site potential allows, vegetation may develop multiple canopies, including trees, shrubs, grasses, forbs, sedges, and rushes. This complex vegetation structure is the goal of riparian management, and it can provide exceptionally valuable habitat for a wide array of wildlife species.

Disturbed/Agriculture

Disturbed/Agriculture covers 25,423 acres of BLM land (SWReGAP 2004). These are lands where vegetation has been removed or altered by the introduction, past or present, of agricultural activities, construction of homesteads and supporting structures, airstrips, travel routes, and similar.

Barren Lands, Non-specific

Barren Lands, Non-specific cover 9,716 acres of BLM land (SWReGAP 2004). These are typically lands devoid of vegetation due to naturally existing edaphic (soil related) effects.

3.2.10 Visual Resource Management

Scenic quality is a measure of the visual appeal of a parcel of land. Section 102(a)(8) of FLPMA placed an emphasis on the protection of the quality of scenic resources on public lands. Section101 (b) of the NEPA of 1969 required that measures be taken to ensure that aesthetically pleasing surroundings be retained for all Americans.

To ensure that these objectives are met, the BLM devised the Visual Resource Management System (VRM). The VRM system provides a means to identify visual values, establish objectives for managing these values, and provide information to evaluate the visual effects of proposed projects. The inventory of visual values combines evaluations of scenic quality, sensitivity levels, and distance zones to establish visual resource inventory classes, which are "informational in nature and provide the basis for considering visual values in the land use planning process. They do not establish management direction and should not be used as a basis for constraining or limiting surface disturbing activities" (BLM Manual 8431, 1986).

VRM classes are typically assigned to public land units through the use of the visual resource inventory classes in the BLM's land use planning process. One of four VRM classes is assigned to each unit of public lands. The specific objectives of each VRM class are presented in

Class Description

Class I

The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

Class II

The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any change must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Class III

The objective of this class is to partially retain the existing character of the landscape. The level of change to the character should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Class IV
The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements (BLM 1986).

3.2.11 Wild Horses and Burros

The Bureau of Land Management protects and manages wild horses and burros under the authority of the Wild Free-Roaming Horses and Burros Act of 1971 (as amended by Congress in 1976, 1978, 1996, and 2004) to ensure that healthy herds thrive on healthy rangelands. The BLM manages these living symbols of the Western spirit as part of its multiple-use mission under the 1976 Federal Land Policy and Management Act. In addition, the BLM must meet or ensure progress is being made toward meeting the Sierra Front-Northwestern Great Basin RAC Standards and Guidelines for Wild Horse and Management.

Wild horse and burro populations are managed within HMAs. Following passage of the Wild Free-Roaming Horses and Burros Act of 1971 (PL 92-195, as amended), thirty-five HAs were originally delineated on the WD. Subsequent land management plan decisions identified the removal of wild horses and burros from checkerboard HAs (alternating sections of privately owned lands and BLM lands) unless affected private landowners executed a cooperative agreement providing for their retention and protection. Wild horses and burros were gathered and removed from 15 checkerboard HAs in the early 1990s. HAs are not managed for wild horse or burro populations, but animals that migrate from HMAs are occasionally removed from these areas. Appropriate management levels (AMLs) for wild horses and burros are established through multiple use decisions. AML is the population range of wild horses and burros to be managed within an HMA. AMLs are established based on "an intensive monitoring program involving studies of grazing utilization, trend in range condition, actual use, and climatic factors" (109 IBLA 120) (Interior Board of Land Appeals, no date). Annual monitoring data are collected to evaluate progress toward meeting management objectives established in multiple use decisions. Wild horses and burros that establish home ranges outside the boundaries of an HMA are removed. Wild horses and burros are removed from private lands at the request of the landowner. The WD manages 20 HMAs (Table 13) with an AML range of 1,974 – 3,233 wild horses and 94-155 wild burros. Table 13 lists HMAs and HAs that may include portions of other BLM District Office lands, but they are administered by the WD and are included in their entirety here.

Table 13. Characteristics of HMAs and HAs HMA or HA

HMA/HA	Total BLM Acres	Population Estimate FY 2014	Appropriate Management Level
Antelope Range HA	131,600	14 H	0
Augusta Mountains HMA	182,900	464 H	185-308 H

HMA/HA	Total BLM Acres	Population Estimate FY 2014	Appropriate Management Level
Black Rock Range East HMA	93,400	110 H	56-93 H
Black Rock Range West HMA	93,200	113 H	56-93 H
Blue Wing Mountains HMA	17,900	94 H & 40 B	22-36 H & 17-28 B
Buffalo Hills HMA	132,400	432 H	188-314 H
Calico Mountains HMA	157,200	395 H	200-333 H
East Range HA	451,900	59 H	0
Fox & Lake Range HMA	177,300	407 H	122-204 H
Granite Range HMA	101,700	301 H	155-258 H
Humboldt HA	431,600	194 H	0
Jackson Mountains HMA	283,000	368 H	130-217 H
Kamma Mountains HMA	57,400	216 H	46-77 H
Lava Beds HMA	233,000	502 H & 37 B	89-148 H; 10-16 B
Little Owyhee HMA	460,100	347 H	194-298 H
Mc Gee Mountain HMA	41,100	56 B	25-41 B
Nightingale Mountains HMA	76,000	186 H & 21 B	38-63 H& 0B
North Stillwater HMA	178,900	364 H & 1 B	138-205 H& 0B
Selenite Range HA	125,300	0 H& 1 B	0 H& 0B
Seven Troughs Range HMA	147,900	439 H & 98 B	94-156 H & 28-46 B
Shawave Mountains HMA	107,100	206 H	44-73 H
Snowstorm Mountains HMA	117,100	645 H	90-140 H
Sonoma Range HA	212,600	48 H	0
Tobin Range HMA	195,100	48 H	22-42 H
Trinity Range HA	161,500	11 H	0
Warm Springs Canyon HMA	91,700	202 H & 42 B	105-175 H & 14-24 B
TOTALS	5,186,300	6,173 & 307 B	1,974-3,233 H & 94-155 B

Although these HMAs and HAs are dispersed throughout the District, some of them are in close proximity to one another and the animals move freely between them. Wild horses typically inhabit higher mountain areas during the summer months and can usually be found on valley floors and lower-mountain slopes during the winter. Their habitat ranges from pinyon-juniper woodlands, sagebrush steppe and salt desert scrub communities.

Periodically, wild horses and burros are gathered and some are removed in order to keep their population numbers at or below AML. This provides for the health of the herds, prevents degradation of the resources, encourages a thriving natural ecological balance, and allows for multiple use of the range.

3.2.12 Wildlife

A wide variety of terrestrial and aquatic wildlife species are represented on lands administered by the WFO. Habitat types and associated species are presented below.

Terrestrial Wildlife Habitat

The habitat and wildlife within the WD are representative of northern Great Basin flora and fauna. Sagebrush, with patchy grasslands, provides year-long habitat for mule deer, sage grouse, and pronghorn antelope. Aspen, juniper and curl-leaf mountain mahogany woodlands provide nesting sites for a variety of bird species commonly found in more heavily timbered areas. Large and small rim rock complexes in canyons and along mountain ridges provide cliff and rock slope habitats that are primary nesting sites for swallows, swifts, golden eagles, falcons, turkey vultures, and numerous species of hawks. These rim rocks also provide escape cover for bighorn sheep, denning sites for mountain lions and bobcats, and year round homes for many small mammals including ground squirrels, wood rats, rabbits and marmots.

Water sources are important to the location and survival of plants and animals. Seeps and springs provide water and meadow habitats of green lush vegetation to various wildlife species, including sage grouse. Riparian and wetland habitats are used extensively by wildlife, such as neo-tropical migrant birds in the spring and fall months, including hummingbirds, finches, warblers, thrushes, and orioles. Small, shallow depressions and playa areas which are inundated following precipitation events provide seasonal habitat for resident and migrant waterfowl and shorebirds. The small streams and spring outlets provide wet meadow and stream-side riparian habitats used by a great variety of species.

Wildlife habitat needs vary substantially by species. It is generally true that healthy and sustainable wildlife populations can be supported where there is a diverse mix of multi-canopied plant communities to supply structure, forage, cover, and other specific habitat requirements. Broadly grouped wildlife habitats are described under the headings that follow.

Sagebrush Scrub

Sagebrush Scrub or sagebrush steppe includes a number of upland vegetation communities with a shrubland aspect and a variable understory of grass and forbs. Examples of generally short shrub species include varieties of big sagebrush (*Artemisia tridentata*), low sagebrush (*A. arbuscula*), and rabbit brush (*Chrysothamnus spp.*). Curl-leaf mountain mahogany (*Cercocarpus ledifolius*), snowberry (*Symphoricarpos oreophilus*), and antelope bitterbrush (*Purshia tridentata*) are examples of taller steppe species which typically occur in mountainous areas of the WD. The shrubby plants within sagebrush scrub communities are important to most small and large wildlife because they supply food (directly or indirectly), nesting opportunities, and concealment. The thermal relief provided by shrub cover helps wildlife to survive the rigors of summer heat and winter cold. The presence of a sagebrush overstory is strongly associated with wildlife community diversity. An understory of grasses and forbs also provide food and cover for wildlife. Habitats providing a predominantly native mixture of grasses and forbs meet the needs of a wide range of wildlife species.

Sagebrush habitats are a dominant type across the WD, so the condition of this important western shrub community greatly influences the health and populations of numerous wildlife species. Populations of sagebrush-obligate species such as Greater sage-grouse and pygmy rabbit are in decline as a result of deterioration and loss of sagebrush habitat. Many sagebrush communities

have departed from their natural state due to the combined influence of historic management, presence of invasive plant species, and the impacts of wildfires.

Salt Desert Scrub and Salt Desert Sink

Saltbush desert vegetation communities support a wide range of wildlife species with substantial overlap with the sagebrush communities. Dominant plant species may include fourwing saltbush (*Atriplex canescens*), spiny hopsage (*Grayia spinosa*) and shadscale (*Atriplex confertifolia*), Greasewood (*Sarcobatus vermiculatus*) and iodine bush (*Allenrolfea occidentalis*). Salt desert scrub habitats are substantially drier than sagebrush scrub and the abundance and diversity of wildlife is also typically lower. Notable salt desert wildlife species include kit fox and antelope ground squirrel. Reptiles are well represented in salt desert scrub because of the lower elevations and warmer conditions.

Woodlands

Upland woodlands on the WD are mostly composed of Utah juniper (*Juniperus osteosperma*) which intergrades with pinyon pine (*Pinus monophylla*) in the Stillwater Range. Whitebark pine (*Pinus albicaulis*) forms extensive stands within the Pine Forest Range. These stands vary greatly in their value as habitat depending upon site-specific factors, such as height, stocking density, age of trees, and understory composition. Juniper, pinyon pine, and whitebark pine provide cavities and dense foliage which are utilized by nesting birds. Bats utilize these cavities and other structural features for roosting. Juniper berries are a source of food for many passerines and rodents. Pinyon pine and whitebark pine are a source of pine-nuts, which are also heavily utilized by wildlife species such as jays and Clark's nutcracker. Many animals benefit from the thermal cover provided by juniper, pinyon pine, and whitebark pine. Dead juniper and pine logs and snags provide cavities for nesting, and often a food resource in the form of invertebrates such as grubs or ants. Mule deer utilize woodland sites for fawning grounds, concealment, and thermal cover. During severe winters, Utah juniper cover may be critical to deer survival.

Aspen, cottonwood and mountain-mahogany woodlands occur in riparian areas or at higher elevations. Cavity-dependent species of forest-dwelling birds and mammals require snags for their reproduction. The size, age classes, and stocking levels of trees influence their value as wildlife habitat. Snags and downed logs provide nesting and foraging habitat.

Riparian Areas

Riparian areas consist of plant communities associated with springs, wet meadows, streams, and rivers. The structure, food, and water provided in riparian areas make them the most diverse and productive habitat for wildlife species. Where site-potential allows, multi-canopied riparian areas with trees, shrubs, grasses, forbs, sedges, and rushes are exceptionally valuable as habitat for a wide array of wildlife species, including neo-tropical migratory birds. Riparian areas dominated by herbaceous communities and with low potential for multi-canopy structure are nevertheless important as water and palatable food sources for wildlife. Molluscs (slugs, snails) and amphibians (frogs, toads) are strongly associated with riparian habitats on the WD. Riparian habitats or wetlands which have been degraded due to erosion, lowered water table, or the effects on non-native invasive plant infestations generally provide decreased wildlife habitat values.

Invasive Annual Grasslands
Invasive annual grasslands are most prevalent in areas which would, historically, have been salt desert scrub or low-precipitation sagebrush scrub habitats. Invasive annual grasslands are formed when the existing native plant community has been infested with non-native invasive annual plants (such as cheatgrass, Medusahead rye, tumble-mustard, or clasping pepperweed), and then burned by wildfire. Invasive annual grasslands typically have a low diversity of native plants, and are generally lack one or more important habitat components for most wildlife species (i.e., lack of thermal cover, concealment opportunities, foraging opportunities, or nesting opportunities which would normally be present in unaltered habitats).

Rock Outcrops
Rock outcrops provide unique habitat opportunities for wildlife which include roosting and nesting sites for a variety of raptors and songbirds. Rock outcrops also provide important cover for large mammals such as bighorn sheep, mountain lions, bobcats, and for small mammals such as ground squirrels, wood rats, rabbits, pika, bats, and marmots. It is also common for rock outcrops to host plant species which are unique to rocky habitats.

Wildlife living in the Great Basin are an integral part of varied habitats and ecosystems. It is the responsibility of the BLM to manage habitats for the sustainability of all wildlife objectively and without judgment as to the "value" of that species (special status species and a few species with special habitat considerations aside).

<u>Wildlife Species Common to the WD</u>

Insects
The presence or absence of specific aquatic insects can give an indication of the condition of a stream system. For example, caddisfly larvae survive in cool, clean, well oxygenated water whereas mosquito larvae can thrive in stagnant pools of poorly oxygenated water. Aquatic insect larvae and adult morphs provide food to fish, crustaceans, and other aquatic invertebrates as well as terrestrial insectivores.

Terrestrial insects are potentially the most numerous of the primary consumers of plants, both in the larval or adult form. Although many insects are generalists, numerous species require specific plants during all or portions of their life cycle. Loss of vegetation may result in reduced populations of insects which in turn results in a decreased food resource for insectivores and omnivores which may reduce populations of those organisms, and in turn reduce their availability as prey items to other predators or omnivores.

The insect species that occupy the Great Basin are too numerous and diverse to list in this document. Discussion of special status insects can be found in section 3.2.8, BLM special status species.

Amphibians and Molluscs
As with insects, the characteristics of a water body determine what species of amphibians and molluscs inhabit it. Habitat suitability factors such as water temperature, clarity, flow-rate, oxygen level, and present vegetation determine what species a water body can support. Any

variation among these factors can change the dynamics of the system and make the environment more or less favorable for amphibian and mollusk species associated with it.

Because of the unique environment created by thermal springs, wildlife species found in them have often evolved with, and are often endemic to a single, specific spring or spring-complex.

Table 14. Amphibians known from the WD.

Common Name	Scientific Name
Boreal toad	*Bufo boreas boreas*
Bullfrog	*Rana catesbeiana*
Columbia spotted frog	*Rana luteventris*
Great Basin spadefoot toad	*Scaphiopus intermontanus*
Northern leopard frog	*Rana pipiens*
Pacific treefrog	*Hyla regilla*
Spotted frog	*Rana pretiosa*

Reptiles

Reptiles are typically ore abundant in the drier, lower elevations of the WD although some species can be found throughout. Reptiles play an important role in balancing the Great Basin ecosystems, both as predators and prey. Table 15 lists some of the more common reptiles found in the WD.

Table 15. Reptiles Known on the WD.

Common Name	Scientific Name	Common Name	Scientific Name
California king snake	*Lampropelitis getulus californiae*	Northern side-blotched lizard	*Uta stansburiana stansburiana*
Desert night snake	*Hypsiglena torquata deserticola*	Pygmy short-horned lizard	*Phrynosoma douglassi*
Great Basin collared lizard	*Crotaphytus bicinctores*	Red racer	*Masticophis flaggellum piceus*
Great Basin fence lizard	*Sceloporus occidentatlis biseriatus*	Rubber boa	*Charina bottae*
Great Basin gopher snake	*Pituophis melanoleucaus deserticola*	Striped whipsnake	*Masticophis taeniatus*
Great Basin rattlesnake	*Crotalus viridis lutosus*	Wandering garter snake	*Thamnophis elegans vagrans*
Great Basin skink	*Eumeces skiltonianus utahensis*	Western long-nosed snake	*Rhinocheilus lecontei lecontei*
Great Basin whiptail	*Cnemidophorus trigris tigris*	Western patch-nose snake	*Salvadora hexalepis*
Western ground snake	*Sonora semiannulata*	Western skink	*Eumeces skiltonianus*

Common Name	Scientific Name	Common Name	Scientific Name
Long-nosed leopard lizard	*Gambelia wislizenii*	Western yellow-bellied racer	*Coluber constrictor mormon*
Desert short-horned lizard	*Phrynosoma platyrhinos*	Yellow-backed spiny lizard	*Sceloporus magister uniformis*
Northern sagebrush lizard	*Sceloporus graciosus*	Zebra-tailed lizard	*Callisouris draconides*

Birds

Numerous species of birds utilize habitats on the WD. Migratory birds are discussed in the Migratory Birds section of this EA. Appendix IV lists some birds (some of which are also migratory) generally categorized as waterfowl, gallinaceous birds (game-birds and relatives), and shorebirds. Some of these birds are year-round residents while others utilize select habitats seasonally.

Terrestrial Species and Habitat Interactions

There is a limited amount of systematic survey data on record for many species and wildlife habitats. Therefore, the primary emphasis in this section is placed on generalized vertebrate species and habitat relationships as described in Wildlife Habitats in Managed Rangelands—The Great Basin of Southeastern Oregon (Maser, Thomas and Anderson 1984). Maser, Thomas and Anderson (1984) classified over 300 species of terrestrial wildlife species into 16 life-form categories based on where each species feed and reproduce. This categorization was designed for broad-scale planning efforts where site-specific information about project size and location is only approximately known. The 16 life-form categories are further divided into major vegetation communities and structural stages that correspond well with the major vegetation communities found in the WD. Using the applicable vegetation communities within the WD, 273 species of terrestrial wildlife were evaluated for their feeding and reproduction habits. Table 16 summarizes the life-form description, the number of species and representative species for each group.

Table 16. Life Form Summary

Life Form		# of Species	Representative Species	
#	Description			
1	Reproduces in Water Feeds in Water	2	bull frog	
2	Reproduces in Water Feeds on ground, in shrubs or trees	3	Pacific treefrog Western toad	
3	Reproduces on ground near water or on floating vegetation Feeds in water, on ground, in shrubs and trees	33	common garter snake ducks	wading birds yellow-headed blackbird
4	Reproduces in cliffs, caves, rims Feeds on ground or in the air	44	western fence lizard prairie falcon	bats bobcat
5	Reproduces on ground Feeds on ground	45	gopher snake Greater sage-	mule deer pronghorn

			grouse antelope pygmy rabbit bighorn sheep
6	Reproduces on ground Feeds in shrubs, trees or air	4	common nighthawk Townsend's solitaire
7	Reproduces in shrubs Feeds on ground, in water or air	29	scrub jay Brewer's sparrow
8	Reproduces in shrubs Feeds in shrubs, trees or air	5	yellow warbler American goldfinch
9	Reproduces primarily in deciduous trees Feeds in shrubs, trees or air	7	house finch cedar waxwing
10	Reproduces primarily in conifers Feeds in shrubs, trees or air	7	western flycatcher pinyon jay
11	Reproduces in trees Feeds on ground, in shrubs, trees or air	13	Cooper's hawk mourning dove Steller's jay
12	Reproduces on very thick branches Feeds on ground or in water	6	great blue heron great horned owl
13	Reproduces- excavates own hole in tree Feeds on ground, in shrubs, trees or air	9	woodpeckers
14	Reproduces in found hole Feeds on ground, in shrubs, trees or air	25	American western bluebird kestrel raccoon
15	Reproduces in burrow Feeds on or near ground	32	burrowing owl badger ground coyote squirrels, mice
16	Reproduces in burrow Feeds in water on ground or in air	9	bank swallow shrews muskrat
Total		273	

Wildlife species require suitable habitat with a variety of structural components including food, water, and cover. Table 17 presents the number of species expected to forage and reproduce in major vegetation communities represented in the WD. With few exceptions, grassland-herbaceous communities support fewer wildlife species than those dominated by shrubs and trees.

Table 17. The Representation of Terrestrial Wildlife Species by Vegetation Community[1].

Life Form	Species (N)	Number of Species Reproducing (R)[2] or Feeding (F)[3] in each Vegetation Community													
		Grassland-Herbaceous		Shadscale/ Saltbush		Greasewood		Low Sagebrush		Tall Sagebrush		Juniper		Aspen	
		R	**F**	**R**	**F**	**R**	**F**	**R**	**F**	**R**	**F**	**R**	**F**	**R**	**F**
1	2														
2	3	1	2							3	3				
3	44			1	1	2	2	1	1	2	2	2	2		2
4	33	4	10	4	8	8	11	10	12	24	27	16	20	5	9
5	45	2	4	6	13	11	18	14	20	22	30	11	22	2	9
6	4				3		3	2	3	3	3	2	2	3	3
7	29		1		6	1	12		12	18	21	18	25	15	22
8	5				1		1		1	1	4	1	3	2	3
9	7										1	1	3	1	3
10	7										2	3	5	3	6
11	13		1		2	1	2		1	2	6	5	10	11	12
12	6		1		3		3		3		3	3	5	3	4
13	9				1		1		1		1	6	6	5	8
14	25				6		6		7		11	9	13	12	12
15	32	5	6	9	9	10	10	10	10	15	16	13	13	2	2
16	9									1	3				2
Totals	273	12	25	20	53	33	69	37	71	91	133	90	129	64	97

[1] The Grassland-Herbaceous community represents a post-fire situation.
Shaded boxes indicate situations where species use in the post-fire grassland-herbaceous community exceeds that in the shrub or tree dominated community.
Totals in the bottom row over all the plant communities will not total to 273 species because many species use multiple vegetation communities.
[2] R=Species Reproducing
[3] F=Species Feeding

3.2.13 Wilderness Study Areas

There are 13 WSAs in the WD administrative boundary (Table 18). The conditions of the WSAs have remained largely the same since they were designated in 1979, although there have been some impacts associated with increased OHV use (RMP EIS 2013).

Table 18. WSA and Acreage for the Winnemucca District

WSA	Acres
Poodle Mountain	142,050
Fox Range	75,404
Pole Creek	12,969
Augusta Mountains*	89,372
Selenite Range	32,041
Mount Limbo	23,752
Tobin Mountains	13,107
China Mountain	10,358
Pueblo Mountains*	623
North Fork Little Humboldt River	69,683
Disaster Peak*	13,200
Lahontan Cutthroat Trout Instant Study area.	12,316

*Portion within the WD

Like wilderness areas, the vegetative landscape in WSAs is an indicator of the naturalness of the area. The vegetative history is similar to that described under the wilderness section above. These areas have also been influenced by livestock grazing management practices over the last 150 years. Wildfire has also played a role in the vegetation communities seen today. Between 1910 through 2013 a total of 39,375 acres burned in WSAs. (BLM GIS Corporate Fire History Data Layer 2014). Table 19 shows the type and acres of areas within WSAs that have burned and have received vegetation treatments.

Table 19. WSA Fires

WSA Name	Fire Date	Cause	Fire Name	Total Acres	Treatment Type	Vegetation	Treated Acres
Augusta Mountains	1991	Unk.		419			
Augusta Mountains	2002	Unk.	Cain Fire	21			
Augusta Mountains	5/18/2006	Natural	Augusta	315			
Augusta Mountains	9/14/2007	Human	Farr	401			
Augusta Mountains	8/28/2012	Natural	Cain	111			
Augusta Mountains Total				**1,267**			
China Mountain	7/7/1995		Buffalo	48			
China Mountain	8/28/2012	Human	Cherry	299			
China Mountain Total				**347**			
Disaster Peak	1996			2			
Disaster Peak	7/10/2001	Natural	Lucky Strike	39			
Disaster Peak	8/31/2012	Natural	Holloway	12,736	Aerial Seeding	Mountain big sagebrush, bluebunch wheatgrass, Wyoming big sagebrush, Sandberg bludgrass, antelope bitterbrush, Great Basin wildrye, western yarrow, Lewis flax,	2,311
Disaster Peak Total				**12,777**			**2,311**
Fox Range	8/15/2001	Natural	Bull Basin	1833	Aerial Seeding	Wyoming big sagebrush, Great Basin wildrye Bluebunch wheatgrass,	793
Fox Range	6/6/2006	Human	Buckaroo	2			
Fox Range Total				**1,835**			**793**
LCT ISA	9/15/2000	Human	Mahogany	4076			
LCT ISA Total				**4,076**			
Mt. Limbo	1985			46			
Mt. Limbo	7/1/2006	Natural	Poito	771	Drill seeding	Forage kochia, Crested wheatgrass, big bluegrass, alfalfa, California saltbrush	<1
Mt. Limbo Total				**817**			**<1**
North Fork Little Humboldt	1996			13,593			
North Fork Little Humboldt	8/11/2011	Natural	Spring Creek	482	Planting	Wyoming big sagebrush, Great Basin wildrye, western yarrow	496
North Fork Little Humboldt Total				**14,075**			**496**
Poodle Mountain	8/3/2002	Natural	Tin Canyon	888			
Poodle Mountain	6/24/2004	Natural	Squaw	14			
Poodle Mountain	7/25/2010	Natural	108	<1			
Poodle Mountain	7/28/2010	Natural	Poodle	1			
Poodle Mountain	8/30/2011	Natural	Silverbell	367			
Poodle Mountain Total				**1,270**			
Selenite Mountains	2007		Selenite	1836			
Selenite Mountains	10/1/2011	Natural	Empire Ranch	<1			
Selenite Mountains Total				**1,836**			
Tobin Range	1999			82			
Tobin Range	8/6/2011	Natural	Siard	8			
Tobin Range Total				**90**			
Grand Total				**38,390**			**3,600**

In addition to the above treatments, 78 acres were treated with the herbicide Tebuthiuron in the North Fork of the Little Humboldt River WSA.

A description of the Wilderness Study Areas can be found in the Nevada Statewide Wilderness Report (1991). The current descriptions in the wetland/riparian and vegetation sections within this chapter include WSAs. WSAs are managed under BLM Manual 6330 (2012) until Congress designates them as wilderness or releases them for other purposes.

WSAs must be managed in a manner so as to not impair the suitability of the areas for preservation as wilderness. This is accomplished by using the 'non-impairment' standard when reviewing project proposal. To meet this standard, uses or facilities proposed within a WSA must be temporary and non-surface disturbing. Exceptions to this standard include restoration of human-caused impacts and activities designed to protect or enhance wilderness characteristics or values. However, any activity must be carried out in a manner that is least disturbing to the site.

Use of prescribed fires in WSAs is limited to instances where this use meets the non-impairment standard or one of the exceptions. The BLM may utilize prescribed fire in WSAs where the natural role of fire cannot be returned solely by reliance on wildfire or where relying on wildfires might create unacceptable risks to life, property, or natural resources outside of the WSA (Manual 6330).

The goal of fuel treatments is to make conditions possible for natural wildfire to return to the WSA. Whenever possible, management focus should be on natural processes to maintain native vegetation and to influence natural fluctuations in populations. Manipulation of vegetation through prescribed fire, chemical application, mechanical treatment, or human controlled biological means is allowed only where it meets the non-impairment standard or one of the exceptions. Restoration treatments address site-specific disturbances, control of non-native vegetation, or serve as a broad-scale landscape function.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Direct and Indirect Impacts

4.1.1 Air Quality

<u>Alternative A: Proposed Action</u>
Air quality would be affected by vegetation treatment activities, primarily smoke from prescribed fire, dust and combustion engine exhaust from mechanical, manual, and biological treatments, and from volatized chemicals associated with herbicide treatments. Except for smoke, effects would be small in scale, temporary, and quickly dispersed throughout the treatment area. Following the SOPs, as outlined in (Appendix I), and implementing site-specific plans as developed and reviewed by staff, federal, state, and local air quality regulations would not be violated. (Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Report (PER), Final report, June 2007)

Alternative B: No Use of Biological Control Agents
Impacts to air quality would be the same as under the proposed action

Alternative C: No Aerial Application of Herbicides
Impacts to air quality would be less than under the proposed action as the amount herbicide chemicals released to the air would be greatly reduced.

Alternative D: No-Action Alternative
Vegetation treatment activity would remain the same and impacts from fugitive dust, smoke and chemical herbicides would be more or less the same as is currently being released to the air.

4.1.2 Cultural Resources

Alternative A: Proposed Action
Treatment activities that disturb the ground have the greatest potential to harm cultural resources. Some of the acres would be treated using mechanical methods. Ground disturbance associated with mechanical treatments has the potential to affect artifacts located near the soil surface. Additionally, fuelbreaks could potentially impact the setting of historic trails and sites eligible to the National Register under criteria A.

Some of the acres would be treated using fire, which has both short- and long-term effects. Wooden and other perishable artifacts and wooden structures can be damaged or destroyed, petroglyphs can become smudged or spalled, and datable materials, such as charcoal and obsidian, can become altered by fire. Conversely, fuels treatments can limit the spread of wildfires, thereby limiting the impacts of fire to these types of cultural resources.

Other treatments including: EDRR noxious weed treatments, non-surface disturbing manual control of weeds, non-experimental biological control of weeds, native-species seed broadcasting which would not disturb soils, district-wide harvest of dead or down fuelwood, the green-tree fuelwood cutting areas specifically identified in the proposed action, live-staking of native plants, fire-suppression ES&R activities, pinyon Christmas-tree permits in areas open to harvest in the Stillwater Range, non-commercial collection of pinyon pine nuts, plant seed collection outside of specially designated areas, non-experimental biocontrol, green juniper Christmas tree permit, and installation of cone cages on whitebark pine.

A CRINA and any required inventories would be completed prior to implementation of all treatments, except those described in the paragraph above, and all listed, eligible, and unevaluated NRHP eligible sites would be avoided. Therefore, no direct impacts to cultural resources would be anticipated as a result of these actions. Since indirect impacts to the settings of National Register eligible historic sites and trails would be avoided through project redesign or other mitigation, no indirect impacts are anticipated.

Direct impacts to cultural resources from establishment of fuelwood harvest areas are not anticipated because permits would stipulate that no vehicle traffic would occur outside of established road systems. Permit stipulations reminding permit holders of the illegality of

collecting and/or vandalizing cultural resource sites and prohibiting the removal of trees with arborglyphs would help reduce the potential for indirect impacts.

Alternative B: No Use of Biological Control Agents
Impacts to cultural resources would be the same as under the proposed action.

Alternative C: No Aerial Application of Herbicides
Impacts to cultural resources would be the same as under the proposed action.

Alternative D: No-Action Alternative
Under the no-action alternative there would be no direct or indirect impacts to cultural resources due to treatments or designation of woodcutting areas. Without fuel treatments, the potential for larger fires could lead to impacts to cultural resources.

4.1.3 Invasive, Non-Native Species

Alternative A: Proposed Action
The proposed action identifies invasive non-native plants and noxious weeds as vegetation targeted for removal along with subsequent site restoration utilizing native plants and/or desirable perennial plants. The proposed action would treat invasive non-native plants and noxious weeds in the early stages of infestation in otherwise intact habitats dominated by native plants, reducing or eliminating the probability of continued expansion of invasive non-native plants and noxious weeds in these areas and maintaining valuable habitat over time. Areas which are already infested by invasive non-native plants and noxious weeds, such as upland areas dominated by non-native invasive annual plants, such as cheatgrass, tumble-mustard, or Medusahead rye, and riparian areas infested with Russian knapweed, Canada thistle, leafy spurge, and other species would be restored or rehabilitated to ecological communities dominated by native and/or desirable perennial plants.

Select treatments, such as fuelbreak construction and forest-related actions occurring in pinyon and juniper habitat, have the potential to disturb soils where no disturbance has occurred before. These disturbances are not expected to allow for new infestation and establishment of noxious weeds due to the implementation of the Resource Protection Measures detailed in the proposed action, including project monitoring, noxious weed treatment, and proactive revegetation efforts following disturbance.

Alternative B: No Use of Biological Control Agents
The exclusion of biological control treatments would result in a significant hindrance to the ability of the WD to control populations of non-native invasive species. The WD is an extremely large and variable landscape, with seasonal and terrain-determined access issues. This in turn hampers BLM's ability to conduct thorough inventory of 100 percent of the WD, and limits the ability of noxious weed control crews to access every noxious weed population in need of treatment in a timely fashion. When successfully established, biological control implement control of targeted noxious weeds or invasive plants without the need for a human control crew to be present (potentially during seasonal periods when sites are inaccessible due to weather or

terrain), to make repeat visits to a control site, or to incur potentially prohibitive costs in the form of fuel, equipment, or chemicals. Biological control agents also generate long-term control benefits, since the biological control insect remains active in the landscape and exerting control as long as the target weed is also present in the landscape. Biological control agents are widely recognized to have an excellent benefit to cost ratio, in some instances showing a benefit to cost ratio up to 400 times greater than chemical or mechanical control methods (Culliney 2005).

Alternative B would result in fewer acres and individuals of targeted noxious weeds or non-native invasive plants being subjected to control efforts. This in turn would result in fewer riparian and upland habitats being maintained in, or restored to, a desirable condition and may result in an overall increase in the presence of noxious weeds and invasive plant species and associated loss of habitat on the WD.

Alternative C: No Aerial Application of Herbicides

The exclusion of aerial application of herbicide products would result in fewer acres of noxious weeds or non-native invasive species subjected to control efforts, and therefore, a greater number of acres not being maintained in, or restored to a desired condition. In particular, control efforts targeting Medusahead rye or other invasive annual species, such as cheatgrass, would be reduced within high-priority habitats, such as sage-grouse PPH/PGH since these habitats often occur in mountainous areas and presently maintain a substantial amount of desirable native shrub cover. Aerial application of herbicides is often the most cost-effective method of delivery when dealing with landscape-level herbicide application, and is often the only logistically viable method of application due to limitations by terrain, road access, or existing vegetation.

Alternative D: No-Action Alternative

Under the no-action alternative, the WD would continue to treat noxious weeds with a more limited suite of herbicides. Fewer populations of noxious weeds and fewer acres of noxious weeds would receive a treatment, resulting in an increased risk of further spread and infestation across the district. Because the use of Imazapic is not programmatically approved for use across the entire WD, populations of Medusahead rye would continue to increase in number and size exponentially. Restoration of landscapes dominated by non-native invasive annual plants would be greatly reduced under the no-action alternative compared with the proposed action. Because seeding and planting of native or other desirable species is not currently explicitly approved (excepting fire rehabilitation) as a control tactic for noxious weeds and other invasive species, the ability of the WD to re-vegetate areas subjected to noxious weed or non-native invasive plant species control would be extremely limited compared to the proposed action.

4.1.4 Migratory Birds

Alternative A: Proposed Action

Effects to species and habitat would be similar to those described in Section 4.1.17, “Special Status Species”.

EDRR Invasive species control actions and handplanting projects may occur in migratory bird habitats during migratory bird nesting season. These actions would likely improve habitat

conditions long term for these species. Because the EDRR invasive species treatments and handplanting treatments are of extremely short duration (e.g., a few hours or less) at any given location, and are transient in nature, displacement or disruption of habitat function as a result of these actions would be expected to be minimal.

Alternative B: No Use of Biological Control Agents
Effects to species and habitat would be similar to those described in Section 4.1.17, "Special Status Species".

Alternative C: No Aerial Application of Herbicides
Effects to species and habitat would be similar to those described in Section 4.1.17, "Special Status Species".

Alternative D: No-Action Alternative
Effects to species and habitat would be similar to those described in Section 4.1.17, "Special Status Species".

4.1.5 Native American Religious Concerns

Consultation letters were sent to: Fallon Paiute & Shoshone Tribe, Fort McDermitt Paiute & Shoshone Tribe, Pyramid Lake Paiute Tribe, and Summit Lake Paiute Tribe.

Early in the consultation process, members of the Fallon Paiute and Shoshone Tribe and the Lovelock Paiute tribe expressed concerns over the cutting of pine nut trees in the Stillwater Range. The Summit Lake Paiute Tribe brought forth the following concerns: 1) the use of biological controls that may end up on the reservation; and 2) the use of herbicides near the reservation that are not approved for use by the Bureau of Indian Affairs. Since 2010, the Fort McDermitt Paiute and Shoshone Tribe has requested that they be notified two weeks in advance before large scale herbicide applications occur on BLM managed lands in the Paradise Valley.

Alternative A: Proposed Action
A letter was received from the Fallon Paiute and Shoshone Tribe dated 28 August 2015 with overall support for the proposed action. The tribe stressed the importance of on-going consultation for projects tiered to this EA, and wanted to be informed of any potential adverse impacts to cultural resources.

Alternative B: No Use of Biological Control Agents
Alternative B addresses the concerns of the Summit lake Paiute Tribe. Since biocontrol insects would not be used, there would be no potential for these organisms to spread to the Summit Lake Paiute reservation due to BLM actions. However, state and private weed-control efforts using biocontrol agents might still reach tribal lands.

Alternative C: No Aerial Application of Herbicides
By not aerially spraying herbicides, the risk of drift is minimized.

Alternative D: No-Action Alternative
Under the no-action alternative there would be no adverse effects to Native American religious concerns.

4.1.6 Threatened and Endangered Species

Alternative A: Proposed Action
Lahontan cutthroat trout and desert dace
The proposed action has potential impacts on the Lahontan cutthroat trout (LCT) and desert dace species, the impacts would vary depending on the type of treatment as follows:

The emergency stabilization and burned area rehabilitation actions could result in impacts of short-term sedimentation on LCT or desert dace streams if dozer-line stabilization or repair of existing roads crosses occupied streams. These types of actions would require additional section 7 consultation with USFWS prior to implementation of the action. The construction of temporary upland erosion structures would be away from LCT or desert dace streams and would be beneficial in helping the sedimentation being stopped before reaching the streams. The construction of sediment control structures could be constructed within or adjacent to LCT or desert dace streams and would be beneficial in helping the sedimentation being stopped before entering the streams. Overall, the actions following a wildfire would be expected to improve the conditions.

The construction and maintenance of fuelbreaks would be a benefit for the LCT and desert dace, as the fuelbreaks are created to reduce the risk of fire spread and impact to streams. The new fuelbreaks would avoid perennial streams with a 300 feet buffer and also avoid ephemeral streams with a 50 feet buffer. The possible sedimentation impacts would be minimized with the buffers. Most fuelbreaks would follow the stream buffers, however, exceptions may be necessary based on site conditions, and would require additional coordination and/or consultation with USFWS.

The noxious weed and invasive plants control actions have the potential to impact LCT and desert dace, however Standard Operating Procedures (SOPs) are in place to reduce these impacts (see Appendix I). The Proposed Environmental Protection Measures (see Section 2.2.1) are also in place for the District to further reduce the impacts. For manual control of weeds and invasive plants, the impacts to LCT or desert dace streams could include short-term sedimentation depending on the size of the infestation, but the benefits far outweigh the possible short-term due to the maintenance of the native riparian vegetation community. The mechanical treatment would result in some surface disturbance, which could result in possible erosion or short-term sedimentation. The machine-mounted mowing would not occur within 50 feet of LCT or desert dace stream to minimize the impacts. For the use of the proposed 18 herbicides for chemical control, negative impacts would not be expected, provided that a) the application would be done within the specific limitations on each chemical's label, b) the SOPs would be followed, and c) the Environmental Protection Measures' buffers are followed. The indirect impacts are beneficial to include the maintenance of the native riparian vegetation communities. The action of using prescribed grazing as the action to control the weeds and invasive plants would not expect

impacts on LCT streams as the action would be limited to the limits previously set within the existing Biological Opinions for each allotment, and this action would not occur within pastures including desert dace habitat. The use of prescribed fire as an action would also not expect impacts on LCT or desert dace as the prescribed fire would not occur within 300 feet of LCT or desert dace streams.

The mulching actions would not expect to have negative impacts to LCT or desert dace. The fertilizer, tackifier, or dye products would not be added to hydromulch or other mulch products within 300 feet of LCT or desert dace streams.

The seeding and planting for habitat restoration or improvement actions could have impacts to LCT and desert dace habitats. Live staking of woody riparian species could provide short-term sedimentation due to the amount of live staking per section of the stream, however indirect impacts would be beneficial to provide the native riparian woody species a jump start of improving the habitat condition. The drill seeding and seeding associated with soil disturbance would not be expected to have negative impacts on LCT or desert dace, as the seeding would not occur within 50 feet of LCT or desert dace streams. The seedling planting that includes soil decompaction could provide short-term erosion, and when this action is within 150 feet of LCT or desert dace streams additional section 7 consultation with the USFWS would be required prior to implementation. The application of soil amendments would not expect negative impacts for LCT or desert dace, as soil amendments would occur in upland areas more than 300 feet from LCT or desert dace streams.

Alternative B: No Use of Biological Control Agents
Potential impacts to LCT and desert dace under alternative B would be identical to those described under the proposed action.

Alternative C: No Aerial Application of Herbicides
Potential impacts to LCT and desert dace under alternative C would be identical to those described under the proposed action.

Alternative D: No-Action Alternative
Potential impacts to LCT and desert dace under the no-action alternative would be similar to those described under the proposed action with the exception that herbicide treatment near streams would not take place and impacts could include reduced riparian vegetation, streamside habitat, due to noxious weeds not being treated and restoration of invasive plant control sites in riparian areas not occurring.

4.1.7 Water Quality

Alternative A: Proposed Action
The majority of the activities outlined in the proposed action would not be expected to cause any measureable degradation to water quality within the district. Any impacts to water quality would be expected to apply only to surface water sources. Some activities that include an on the ground component adjacent to streams may lead to local, short duration (less than a few hours) increases

in sediment supply to streams. Broadcast or spray application of chemicals may lead to a local, short duration (a few hours to a few days) presence of these chemicals in water bodies. BMPs and restrictions on use within certain distances of water bodies would limit or eliminate this concern. Impacts would also be limited because the chemicals proposed were selected based partially on their overall environmental impact with an emphasis on finding options that have the least impact to non-target species or systems.

Activities described in the proposed action which would aim to improve the condition or function of vegetation in or adjacent to water bodies would be expected to help improve water quality. When riparian or wetland vegetation function is improved, surface water sources typically will experience a decrease in sediment loading due to improved stabilization of soils and decreased temperatures due to increased shading. Additionally, emergency stabilization and rehabilitation activities would help reduce post-fire (or other major disturbance) erosion and sedimentation by slowing or reducing erosional events and promoting expedited vegetation recovery.

Alternative B: No Use of Biological Control Agents
Impacts to water quality under alternative B would be identical to those described under the proposed action with the exception that any likelihood of chemical over spray from aerial applications would be eliminated.

Alternative C: No Aerial Application of Herbicides
Impacts to water quality under alternative C would be identical to those described under the proposed action.

Alternative D: No-Action Alternative
Impacts to water quality under the no-action alternative would be similar to those described under the proposed action with the exception that impacts would be fewer in number and would take longer to occur due to delays and complications related to individual implementation analyses and authorizations.

4.1.8 Wetlands and Riparian Zones

Alternative A: Proposed Action
Activities in the proposed action which are designed to avoid wetlands and riparian zones would not be expected to have any measurable impacts to these areas. Activities which may occur in wetlands and riparian zones could lead to minimal impacts to these areas by the manipulation of vegetative communities present and, to a lesser extent, by altering soils. In these cases, BMPs and environmental protection measures would help minimize these impacts. Additionally, since these activities would be implemented with intent to improve the overall function of these vegetative communities, any degradation of soil or vegetative function caused initially would be remediated within one or two growing seasons as natural recovery occurred.

Alternative B: No Use of Biological Control Agents
Impacts to wetlands and riparian zones under alternative B would be identical to those described under the proposed action.

Alternative C: No Aerial Application of Herbicides
Impacts to wetlands and riparian zones under alternative B would be identical to those described under the proposed action.

Alternative D: No-Action Alternative
Impacts to wetlands and riparian zones under the no-action alternative would be similar to those described under the proposed action with the exception that impacts would be fewer in number and would take longer to occur due to delays and complications related to individual implementation analyses and authorizations.

4.1.9 Wilderness

Alternative A: Proposed Action
Under the Wilderness Act, commercial seed collection and selling of permits for fuel wood collection in a wilderness area would be illegal and therefore are not considered in this analysis. Prior to project implementation a determination would be made by the authorizing officer that the project is the minimum necessary to meet the needs of managing the wilderness. The authorizing officer would also make a determination as to how the project would be executed and what minimum tools are needed for completing the tasks. Manual treatments and accessing treatment sites by foot or on horseback would have the least effect on wilderness values. Motorized access to treatment sites and the use of mechanized equipment would be incompatible with wilderness management and would only be used on rare occasions. These determinations would be made through the MRDG process (Appendix V – MRDG Process Outline and Overview).

The creation of dozer lines and fuel breaks are normally not permitted in wilderness area, and if they are permitted, they would have immediate and direct impacts to every wilderness characteristic. Dozer lines and fuel breaks would also lead to indirect impacts by promoting motorized vehicle trespass. For these reasons, dozer lines and fuel breaks would only be permitted under rare circumstances or under an emergency situation where the threat of life or property by wild fire is present. Reclamation of these sites would alleviate impacts to an extent. Reclamation efforts are addressed below. The use of non-native plant or seed species would also not be permitted in wilderness areas and is therefore not addressed in this section of the EA.

Untrammeled
Vegetation manipulation to restore conditions normally caused by natural conditions such as fire, drought, disease and insects are not usually permitted in a wilderness area unless these actions are needed to recover a federally listed threatened or endangered species, control non-native species, or restore conditions where natural process alone could not recover the area from past human intervention (BLM Manual 6340). Vegetation manipulation includes ES&R treatments; fuels reduction projects; noxious weeds and invasive plants control; and management of specific

plant species (juniper, pinyon pine, and sagebrush). Trammeling would also occur where vegetation communities are manipulated through activities associated with reclamation, seed collection, and soil amendments.

All of these treatments and activities would have negative effects on the untrammeled characteristics of the wilderness areas. These impacts would be temporary, based on the length of time needed to realize objectives of the treatment. Once objectives of the treatment are met, natural process would be allowed to return. The degree of impacts to the untrammeled characteristics would vary depending on the level (both in terms of area and degree) of vegetation manipulation being conducted.

Where prescribed fires have taken place, not initiating reclamation efforts and allowing sites to recover naturally would offset impacts to the untrammeled characteristic to some degree.

Undeveloped
Any treatment that proposes the construction of an installation (e.g. temporary closure fences for rehabilitation purposes, installation of seed collection cages), or that would use motorized vehicles or mechanized equipment, including the use of aircraft, would have negative impacts to the undeveloped character of the wilderness. These impacts would be temporary, limited to the duration of the use of equipment or the time the installation remained on site.

Seed cages would be an installation and would impact this wilderness character. This impact would be temporary and limited to the times when seed cages are being used.

Conducting the treatments manually, with no mechanized equipment or motor vehicle use, would offset the impacts to the undeveloped character of the wilderness. Minimizing application areas would also offset negative impacts.

Natural
Certain components of the proposed action (i.e. prescribed burns or using only native seeds and plants) are designed to return disturbed sites to their natural state or maintain and enhance native vegetation communities. Removal and control of noxious weeds would increase the naturalness of the wilderness areas by allowing the native and naturally occurring vegetation and associated wildlife communities to function as they would without competition from non-native plants. Prior to project approval, site specific vegetation manipulation projects (applicable Category C projects and Category E projects in Section 1.3) would be reviewed through the MRDG and NEPA process which would include evidence from existing research/application that the proposed treatment would bring about the desired result and an evaluation of the likelihood the natural system would be self-sustaining after the treatment.

Prescribed burns would maintain fire-dependent systems but not be used to replace natural process. Prescribed burning may even maintain or improve the natural fire regimes. Negative impacts related to prescribed burning include unsightly black scars that would remain for a long period of time. Smoke would be readily visible and reduction air quality in the immediate area. Minimizing the size of the burn block would reduce these impacts.

Seed cages would serve to ensure the survival of whitebark pine species.

Residual impacts to the naturalness quality after any type of treatment may include: loosened, textured, recontoured and decompacted surfaces; hay bales and scattered organic debris; broadcast seed/ transplanted vegetation and trampled vegetation. These impacts are short term and would eventually be removed through normal erosional processes.

Solitude or Primitive and Unconfined Recreation
Implementing the projects would have negative impacts to opportunities for solitude and primitive recreation due to the presence of working crews and by the sights and sounds associated with work being done. Impacts would be temporary and relatively short in duration and limited to the area where the work was being completed. Noise associated with the operation of the motorized vehicles and mechanized equipment, if permitted to be used in the wilderness through the MRDG process, may be heard for long distances. Determining if motorized vehicles or mechanized equipment could be used would be done on a site specific and project specific basis. Using the minimum tool necessary would minimize this impact. Some areas may be closed to recreational use in order for the treatments to be effective. This impact would be minimized by implementing projects during off-peak recreation periods (weekdays).

Once treatment objectives are realized, opportunities for solitude and primitive recreation could be enhanced through improved vegetative screening and reclaimed disturbances from firefighting activities.

Unique, Supplemental, or Other Features
The proposed action would have positive impacts to supplemental features of the various wilderness areas through protection. Prior to implementation of a project, the project area would be reviewed for cultural and biological resources and the applicable Environmental Protection Measure (Section 2.2.1) would be applied. Disturbances that result from firefighting activities may occur in the viewshed of the emigrant trail. Reclamation of these disturbances would provide beneficial impact on the viewshed of the trail corridor.

<u>Alternative B: No Use of Biological Control Agents</u>
Untrammeled
Impacts to the untrammeled characteristic under alternative B would be similar to those described under alternative A. Any type of vegetation control would be a trammel.

Undeveloped
Impacts to the natural characteristic under alternative B would be the same as those described under alternative A.

Natural
Impacts to the natural characteristic under alternative B would be similar to those described under alternative A except that using a biological control of native origin would be a preferred method over chemical control agents. Using the biological controls would serve to protect and enhance the naturalness character of the wilderness areas.

Solitude or primitive and unconfined recreation
Impacts would be the same as those described under alternative A.

Unique, Supplemental, or Other Features
Impacts would be the same as those described under alternative A.

Alternative C: No Aerial Application of Herbicides
Untrammeled
Impacts to the untrammeled characteristic under alternative C would be similar to those described under alternative A. Any type of vegetation control would be a trammel.

Undeveloped
Impacts would be similar as those described under alternative A. The removal of using aircraft under this alternative would preserve and enhance the undeveloped characteristic of the wilderness areas.

Natural
Impacts would be the same as those described under alternative A.

Solitude or primitive and unconfined recreation
Impacts would be the same as those described under alternative A.

Unique, Supplemental, or Other Features
Impacts would be the same as those described under alternative A.

Alternative D: No-Action Alternative
Untrammeled
Under the no-action alternative, no trammeling via vegetation manipulation as proposed under the proposed action would occur. Trammeling via current vegetation management strategies would continue if and when allowed to occur in wilderness areas.

Undeveloped
Under this alternative, none of the developments proposed in the proposed action would be installed. The use of aircraft in weed abatement or seeding efforts would continue at current levels and would require further analysis through the MRDG process.

Natural
Not implementing the rehabilitation and reclamation efforts could lead to the development of trespass routes. If these trespasses are not quickly addressed, continued soil compaction would interfere with natural rehabilitation. Weed infestations would decrease the naturalness quality of the wilderness areas. Weed populations would continue to spread at varying rates in affected wilderness areas. The spread of weeds would impact the native vegetation and wildlife communities and in some extreme cases may completely out-compete the native flora.

Solitude or primitive and unconfined recreation
The temporary impacts to solitude and primitive recreation associated with the proposed action would not occur. However, weed infestations would reduce vegetative screening that provides for opportunities of solitude or primitive recreation. Weed infestations would also impact the wilderness experience of visitors.

Unique, Supplemental, or Other Features
No unique, supplemental or other features would be affected under this alternative.

Additional Affected Resources

4.1.10 Fisheries

Alternative A: Proposed Action
For perennial streams, ponds and lakes with fish species on WD, not including LCT or desert dace (Threatened species are covered in section 4.1.6), the proposed action has potential impacts on fish species, the impacts would vary depending on the type of treatment as follows:

The emergency stabilization and burned area rehabilitation actions could result in impacts of short-term sedimentation on fisheries habitat if dozer line stabilization or repair of existing roads crosses occupied streams. The construction of temporary upland erosion would be constructed away from fishbearing streams; however the sediment control structures could be constructed within or adjacent to fishbearing streams. The sediment control structures could result with impacts of short-term sedimentation on fishbearing streams. Both methods would be beneficial in helping the sedimentation being stopped before entering the streams. Overall, the actions following a wildfire would be expected to improve the conditions.

The construction and maintenance of fuelbreaks would be a benefit for the fishbearing streams, as the fuelbreaks are created to reduce the fires potential from burning many acres. The new fuelbreaks would avoid perennial streams with a 300-feet buffer and also avoid ephemeral streams with a 50-feet buffer. The possible sedimentation impacts would be minimized with the buffers. Most fuelbreaks would follow the stream buffers, however, exceptions may be necessary based on site conditions, and would require additional coordination with NDOW.

The noxious weed and invasive plants control actions have the potential to impact fisheries, however, Standard Operating Procedures (SOPs) are in place to reduce these impacts (see Appendix I). The Proposed Environmental Protection Measures (see Section 2.2.1) are also in place for the District to further reduce the impacts. For manual control of weeds and invasive plants, the impacts to fish bearing streams could include short-term sedimentation depending on the size of the infestation, but the benefits far outweigh the possible short-term due to the maintenance of the native riparian vegetation community. The mechanical treatment would result in some surface disturbance, which could result in possible erosion or short-term sedimentation. The machine-mounted mowing would not occur within 50 feet of fish bearing streams to minimize the impacts. For the use of the proposed 18 herbicides for chemical control, negative impacts would not be expected, provided that a) the application would be done within the

specific limitations on each chemical's label, b) the SOPs would be followed, and c) the Environmental Protection Measures' buffers are followed. The indirect impacts are beneficial to include the maintenance of the native riparian vegetation communities. The action of using prescribed grazing as the action to control the weeds and invasive plants could result in impacts on fish bearing streams, depending on the timeframe used. The use of prescribed fire as an action would not expect impacts on fisheries as the prescribed fire would not occur within 300 feet of perennial streams.

The mulching actions would not expect to have negative impacts on fisheries. The fertilizer, tackifier, or dye products would not be added to hydromulch or other mulch products within 300 feet of fish bearing streams.

The seeding and planting for habitat restoration or improvement actions could have impacts to fisheries. Live staking of woody riparian species could provide short-term sedimentation due to the amount of live staking per section of the stream, however indirect impacts would be beneficial to provide the native riparian woody species a jump start of improving the habitat condition. The drill seeding and seeding associated with soil disturbance would not be expected to have negative impacts on fisheries, as the seeding would not occur within 50 feet of perennial streams. The seedling planting that includes soil decompaction could provide short-term erosion when this action is within 150 feet of fish bearing streams, additional coordination with NDOW would be required prior to implementation. The application of soil amendments would not expect negative impacts for fisheries, as soil amendments would occur in upland areas more than 300 feet from perennial streams.

Alternative B: No Use of Biological Control Agents
Potential impacts to fisheries under alternative B would be identical to those described under the proposed action.

Alternative C: No Aerial Application of Herbicides
Potential impacts to fisheries under alternative C would be identical to those described under the proposed action.

Alternative D: No-Action Alternative
Potential impacts to fisheries under the no-action alternative would be similar to those described under the proposed action with the exception that herbicide treatment near streams would not take place and impacts could include reduced riparian vegetation, streamside habitat, due to noxious weeds not being treated and restoration of invasive plant control sites in riparian areas not occurring.

4.1.11 Fire and Fuels Management

Alternative A: Proposed Action
The proposed action greatly improves the ability of the fire management program to implement proactive and reactive response to wildland fire. First, the response time of suppression resources would be improved through fuel reduction activities along existing roads. The reduction in fuel

can increase the safety of suppression resources to access fires through high fuel-loading areas; wider road corridors provide access for larger engines (e.g., Type III). Second, the range of treatments available for ES&R activities, post-fire would increase. The increase in available tools can improve ecological condition and recovery. For example, it has been demonstrated that multiple-entry treatments, such as herbicide application followed by seeding can improve efficacy of ES&R treatments, such as seeding, by 4-fold (Davies 2010). Additionally, the assisted and rapid recolonization of fire-impacted rangelands by sagebrush can improve their resistance to exotic annual grasses like cheatgrass (Prevéy *et al.* 2010). Third, fire size and intensity would be reduced through a more extensive network of fuelbreaks by providing effective barriers to slow or stop large wildfires and provide anchor points and safety zones for suppression resources (Finney 2001). Also, maintenance of the existing fuelbreaks would ensure their continued effectiveness of fuelbreaks to stop or slow the spread of future fire events. All of these fire management actions have the potential to maintain or improve the FRCC and ecological integrity of native ecosystems within the WD.

Alternative B: No Use of Biological Control Agents

This alternative would have almost equivalent impacts as the proposed action. There are some circumstances where biological agents could be utilized by ES&R activities to control invasive weeds. Alternative methods for weed control would have to compensate for the loss of this tool.

Alternative C: No Aerial Application of Herbicides

This alternative would restrict the amount and location where herbicides could be applied for ES&R and fuels management projects. Herbicides greatly enhance the efficacy of restoration activities such as hand planting and seeding (see proposed action above). Herbicide application would be limited to ground vehicles which cannot access large areas with the district because of terrain or existing vegetation. Also, fuelbreaks would take substantially longer to treat, limiting the number of acres that could be treated and increasing the risk of larger wildfires. Overall, large areas would become more susceptible to invasion by exotic annuals and the BLM's ability to positively improve FRCC would be less.

Alternative D: No-Action Alternative

Under the no-action alternative, FRCC values would not change. Large areas of the district would continue to have low ecological integrity and wildlife value. Also, large areas of important wildlife habitat would remain vulnerable to loss from wildfire.

4.1.12 Lands with Wilderness Characteristics

Alternative A: Proposed Action

Size

Wilderness inventory unit boundaries are largely based on the presence of roads, rights-of-ways, changes in land status, and other clearly linear disturbances that would render an area as unnatural. None of the elements of the proposed action would directly lead to a reduction in size of wilderness inventory units. Indirectly, several components of the proposed action could create a situation where disturbance evolves into roads by public users who may view the disturbance

as a potential travel route. These components of the proposed action include: the creation of fuelbreaks, fuel reduction projects, noxious weed control measures, or seeding or planting projects. Implementation of rehabilitation components and EPMs would address the potential for unintentional route development. Portions of the proposed action that would repair existing roads after fire suppression or ES&R activities and the EPM that would prohibit vehicle traffic outside of established road systems during fuelwood or tree harvesting activities would aid in preventing potential impacts. Impacts to the size criteria for lands with wilderness characteristics would be negligible, if any.

Naturalness

The naturalness quality for areas with wilderness characteristics is based on what appears natural to the casual observer. Components of the proposed action that would impact an areas naturalness include: construction of structures (e.g. erosion or sediment control structures and fences); surface disturbing activities (e.g., fuelbreaks, removal of vegetation during fuel reduction projects and species management projects); prescribed fires; dyes applied to fertilizers or herbicides; mulching (when material is not naturally found in the area); and project marking (fence flagging, laths, marking of trees). The severity of impacts would be dependent on the specific type and duration of activity. Most of these impacts would be temporary, lasting only as long as the treatment is needed to fulfill the objectives or goals of the treatment.

Some of the components mentioned above may also provide short and long term benefits to the naturalness of an area. Fencing is an unnatural development, but would protect areas being rehabilitated so that treatment objectives could be met sooner than without the fences. The management of encroaching juniper would benefit sagebrush ecosystems. Activities associated with noxious weeds and invasive plants, seeding and planting projects may include the use of unnatural materials, but in the long run would benefit the natural vegetation of the area.

Dozer line stabilizations would provide direct and immediate benefits to the naturalness quality of an area. Allowing the natural recovery of vegetation, the use of native seeds and plants, managing vegetation communities to avoid the spread of disease and encroaching plants, and controlling the spread of noxious weeds and invasive plants are all management actions that would ensure the naturalness of the area over the long term.

Opportunities for Solitude or Primitive and Unconfined Recreation

Almost all components of the proposed action would impact opportunities for solitude due to staff working in treatment area and the sights and sounds associated with the projects. These impacts would be short term and last only as long as would be needed to complete project tasks. Impacts would last longer where structures remain in the project areas which serve as a reminder of human presence. The recurrence of these impacts would also depend on the treatment type, duration structures are in place, and amount of subsequent monitoring.

Allowing natural recovery of vegetation is one aspect of the proposed action that would not impact the opportunities for solitude. Administrative components of the proposed action would have no impacts on this quality of wilderness characteristics. In areas where the natural vegetation community is one that allows for vegetative screening (i.e. wooded areas), improving the health of the vegetation community would benefit opportunities for solitude.

None of the components of the proposed action would directly affect the opportunities for primitive and unconfined recreation. Indirect affects would be associated with diverting recreational use of an area due to project activities. Long term beneficial impacts of the proposed action as a whole would be obtained by improving the vegetation communities thus providing the recreational user with a more pleasant experience.

Alternative B: No Use of Biological Control Agents

Size

Under alternative B, impacts to the wilderness inventory unit's size would be the same as those described under the proposed action.

Naturalness

The elimination of the use of biological control agents would have a slight impact to the naturalness of the area. Relying on the use of non-natural agents to control undesirable species would only be noticed by the casual observer during implementation of the treatment. It is unlikely after initial application the visitor would notice unless dyes are included in the treatment. Impact would be limited to time it takes to apply the non-natural agents and the duration of the dyes, if used.

Opportunities for Solitude or Primitive and Unconfined Recreation

Under alternative B, impacts to the wilderness inventory unit's quality of opportunities for solitude or primitive and unconfined recreation would be the same as those described under the proposed action.

Alternative C: No Aerial Application of Herbicides

Size

Under alternative C, impacts to the wilderness inventory unit's size would be the same as those described under the proposed action.

Naturalness

Under alternative C, impacts to the wilderness inventory unit's naturalness character would be the same as those described under the proposed action.

Opportunities for Solitude or Primitive and Unconfined Recreation

Under alternative C, impacts to the wilderness inventory unit's quality of opportunities for solitude would be slightly reduced by the removal of air traffic. All other impacts would be the same as those described under the proposed action.

Alternative D: No-Action Alternative

Size

Under the no-action alternative, no direct impacts are anticipated. Indirect impacts to the size would be similar as those described under the proposed action.

Naturalness

The probability of invasive species infestation under this alternative would be higher than under than the other alternatives which would result in a higher impact to naturalness. Under this alternative, proactive measures to preserve natural vegetative communities of sagebrush, pinyon, and juniper would not be implemented which could have an adverse long term impact to the naturalness quality.

Opportunities for Solitude or Primitive and Unconfined Recreation
As a whole, fewer types of treatment would be implemented under the no-action alternative. Noxious weed and invasive plant treatments would continue, thus the impacts to opportunities for solitude would continue as is currently realized during the execution of these treatments. Impacts would be associated with the sights and sounds of the project and would be temporary and of short duration.

There are no direct impacts to the opportunities for primitive and unconfined recreation under this alternative. Indirect impacts would be similar to those described under the proposed action, but at a smaller scale due to the fewer number of vegetation treatment projects that would be allowed.

4.1.13 Paleontology

Alternative A: Proposed Action
Treatment activities that disturb the ground in paleontologically sensitive areas have the greatest potential to harm paleontological resources. Some of the acres would be treated using mechanical methods. Ground disturbance associated with mechanical treatments has the potential to affect fossils located near the soil surface.

Other treatments such as noxious weed treatments and native species seed broadcasting are anticipated to have no impact on paleontological resource sites. Native-species hand-planting projects also generally have no impact on paleontological resources. Direct impacts to paleontological resources from establishment of fuelwood harvest areas are not anticipated because permits would stipulate that no vehicle traffic would occur outside of established road systems.

Since project areas with surface disturbing treatments would be evaluated for PFYC and known fossil locations prior to project approval and impacts to paleontological sites would be avoided, impacts to paleontological resources would not be anticipated as a result of these actions.

Direct impacts to paleontological resources from establishment of fuelwood harvest areas are not anticipated because permits would stipulate that no vehicle traffic would occur outside of established road systems.

Alternative B: No Use of Biological Control Agents
Impacts to paleontological resources would be the same as under the proposed action

Alternative C: No Aerial Application of Herbicides

Impacts to paleontological resources would be the same as under the proposed action

Alternative D: No-Action Alternative
Under the no-action alternative there would be no direct or indirect impacts to paleontological resources due to treatments or designation of woodcutting areas.

4.1.14 Rangeland Management

Alternative A: Proposed Action
The control, abatement, and/or eradication of noxious weeds and other non-native invasive plant species aid the range program in attaining its goals and objectives. Under the proposed action, the PVMP would be implemented for the allotments administered by the WD.

Long-term effects of invasive weed treatments to grazing allotments on the WD would be the retention of currently available forage, reduction or elimination of continued spread of invasive plant species from existing and unknown future sites, and recovery of native vegetation in areas currently impacted by invasive plants. Livestock operators may experience a slight loss of grazing opportunity if palatable non-native invasive species are subjected to control efforts however, many of the grazing strategies within allotments have deferred rotations and by focusing invasive weed treatments to pastures during a resting phase or outside the normal season of use would avoid many potential impacts to operators. Furthermore, invasive species control efforts would be coordinated with the seeding or planting of native or other desirable perennial plant species, which would be expected to improve grazing opportunities over longer periods of time.

Some herbicides have label use restrictions, depending upon rate of application, regarding livestock grazing or slaughtering following herbicide treatments. These effects are expected to be inconsequential, since the WD would only apply herbicides below the threshold for those restrictions, in accordance with the label.

The potential for a spill to occur during herbicide operations would be greater than under the no-action alternative based on the additional number of acres that would be treated. Minimal to no effects area anticipated to grazers or operators due to strict adherence to label handling directions and spill containment protocols in the unlikely event of a spill.

Under this alternative, treatment of invasive species, including eradication where possible, would allow grazing activities to remain much as they are under current conditions and would meet the desired future conditions within the project area. Additional benefits to this alternative would be the reduction of potential spread of invasive species into uninfested disturbed areas such as fencelines. Also, EDRR activities would occur. Compared to the other analyzed alternatives, the long term impacts of noxious and other invasive plant infestations would potentially be reduced, because native and desirable non-native vegetation would increase. The treatment of existing and future documented sites under this alternative would positively affect range resources.

Alternative B: No Use of Biological Control Agents

Under this alternative, most of the acres best suited for biological control could be treated with alternative methods. However, it is unlikely that this would occur for the majority of those acres. Biological controls are best suited to situations where non-native invasive plant species have become a widespread problem, and are present in many habitats, including remote locations, and inclement terrain. Fewer acres would be managed to control non-native invasive plant species, and alternative B would result in a greater potential for further spread and infestation, particularly in difficult to access or remote locations when compared with the proposed action or the no-action alternatives.

Alternative C: No Aerial Application of Herbicides
Under this alternative, many of the proposed aerial acres that would not be treated aerially would be treated with other methods. However, other methods may not be as effect at reducing invasive weeds. Aerial application is often the only feasible delivery method in areas with intact shrub communities which are largely undisturbed, or in areas where terrain prohibits the use of ground-based equipment. Fewer acres would be managed to control non-native invasive plant species, and alternative C would result in a greater potential for further spread and infestation, particularly in shrubland and steep terrain, when compared with the proposed action or no-action alternatives.

Alternative D: No-Action Alternative
Non-native invasive plant species currently infest, and are continuing to spread across the WD. Under the no-action alternative, control of invasive plant species would continue to implement under current decisions, however, the scope of those efforts would be less than under the proposed action, and the ability of the WD to conduct restoration efforts through seeding and planting projects would be much more limited, resulting in fewer acres stabilized as desirable perennial plant communities.

4.1.15 Recreation

Alternative A: Proposed Action
While the various vegetation management treatments as outlined in the above sections of this document would protect the recreation resource and improve access for recreationists, the possibility of limited access and other inconveniences during the operations associated with those activities exist over short periods of time. There would be minimal impacts to recreation from implementation of the proposed action.

Alternative B: No Use of Biological Control Agents
Impacts to recreation would essentially be the same as those described in the proposed action.

Alternative C: No Aerial Application of Herbicides
Impacts to recreation would essentially be the same as those described in the proposed action.

Alternative D: No-Action Alternative
Vegetation management treatments would be limited in size and scope as compared to the proposed action. This could potentially result in fewer acres being protected from the effects of

wildfire. In addition, without a full complement of management action choices as outlined in the above alternatives the possibility for a reduced potential for affected sites to recover to a desirable condition exists.

4.1.16 Soils

Alternative A: Proposed Action
Vegetation treatments would potentially affect soils by altering their physical, chemical, and/or biological properties. Physical changes could include loss of soil through erosion or changes in soil structure, porosity, or organic matter content. Fire and other treatments would potentially alter nutrient availability and soil pH, and herbicide treatments would involve the addition of chemicals to the soil. Some vegetation treatments might also alter the abundance and types of soil organisms that contribute to overall soil quality, including mycorrhizae. Over the long term, treatments that remove invasive vegetation, reduce fuels, and restore native plants should enhance soil quality on public lands. (Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Report, Final report, June 2007)

Alternative B: No Use of Biological Control Agents
Impacts to soil resources, in effect, would be the same as under the proposed action

Alternative C: No Aerial Application of Herbicides
Impacts to soil resources would be less than under the proposed action as the amount herbicide chemicals released to the air would be greatly reduced, effectively reducing the amounts of chemicals added to soils.

Alternative D: No-Action Alternative
Vegetation treatment activity would remain at similar levels with impacts to soil resources remaining the same.

4.1.17 Special Status Species

Refer to Table 11 to see the detailed list of special status species that are being analyzed in the following section. The potential impacts could affect special status wildlife species in a similar way and could affect the special status plant species similarly. Therefore, the discussions of the potential impacts that follow are designed to address the special status wildlife species as a group and the special status plant species as a group. Analysis is also provided specifically when a special status wildlife or plant species will be potentially affected differently that the group.

Alternative A: Proposed Action
Actions enacted under the PVMP are, by intention, beneficial for wildlife and native plant species. At a landscape level, vegetation manipulations enacted under the PVMP are designed to mitigate the degrading, sometimes devastating effects that wildfire, noxious weeds, and non-native invasive species can have on wildlife and native plant habitats. Other vegetation actions proposed under the PVMP are intended to restore habitat values which have been lost through historic human use and management actions.

Direct and indirect effects of the proposed action include temporarily displacing some wildlife species, redistributing species as a result of vegetation manipulations, reducing or increasing habitat values, foraging opportunities, nesting opportunities, changes in microclimate, and changing vegetation, which could result in short term habitat loss and long term habitat gain for wildlife species. This would be done by improving the structural diversity and species composition of vegetation communities, removing invasive species, and promoting production of native vegetation desired by wildlife (USDI FES 4-109). Other direct and indirect effects of the proposed action would include temporarily disturbing and displacing wildlife species, and in some cases could result in mortality if less mobile wildlife species would not be able to leave the treated areas (*e.g.,* insects, spring snails, amphibians, and small mammals). A thorough discussion of wildlife impacts from herbicides, along with BLM vegetation management SOPs, mitigation measures and BMPs can be found in USDI FES 2007.
http://www.blm.gov/style/medialib/blm/wo/Planning_and_Renewable_Resources/veis/dear_reader_letter.Par.5918.File.dat/AppendixB-HerbicideUseSOPs.pdf

Forestry actions would also have the potential to temporarily displace species of wildlife and in some instances may permanently change the type and distribution of species within a project area. For instance, the removal of juniper within a juniper-pinyon pine mixed stand would displace wildlife species which depend on juniper, but would potentially result in the improved health and reproductive ability of the remaining pinyon pine, which, at a landscape level, would maintain the pinyon pine resource in the presence of disease, pathogenic organisms, or drought. This in turn would both maintain and improve habitat opportunities for special status wildlife species which may utilize pinyon pine forests for part or all of their life-cycle.

Fuelbreaks, fuels reduction projects, and sage-brush maintenance projects would have the potential to temporarily displace special status species, and in some instances that displacement may be permanent. Although some localized habitats or individuals may be negatively affected, the landscape-level maintenance of existing, sage-brush and native grass and forb habitats would prove to be beneficial to special status wildlife and plant species.

ES&R actions and other restorative treatments would be beneficial to special status wildlife and plant species, since these actions would mitigate the effects of habitat loss to wildfire, and would also restore habitats and habitat values which are currently absent or in a chronically degraded condition. The utilization of biological control agents would allow for landscape-level management of noxious weeds, which would maintain existing habitats comprised of a diverse array of native plant species, and would reduce the influence of noxious weeds, allowing currently displaced native vegetation to recover naturally. In some instances, where no native vegetation is present in or adjacent to noxious weed populations affected by biological control insects, limited habitat values provided by the noxious weed may be lost, however this scenario is expected to occur rarely on the WD.

Although direct and indirect effects of the proposed action, including use of herbicides on wildlife, birds, and native plant species have been documented, SOPs, BMPs, mitigation measures, and the Environmental Protection Measures (identified in Section 2.2.1) minimize or eliminate the potential for impacts to wildlife species, as do basic administrative analyses

performed by the WD and cooperators prior to implementing projects. EPMs, SOPs, and BMPs of the proposed action include using timing restrictions to minimize impacts to wildlife. EPMs, SOPs, and BMPs include surveying for SSS (including burrowing owls, pygmy rabbits, and special status plant species) and implementing appropriate spatial buffers around habitat if found prior to initiating projects; when possible, limit use of herbicides in areas occupied by amphibians; and when possible, limit the size of application rates to limit impacts to wildlife, particularly through the contamination of food items. When possible, treatments would be performed in patches or strips and staggered over several years to create important refuge areas for sage grouse and other animals, including amphibians, reptiles, birds, and small mammals. EPMs also include implementing wildlife fence specifications to projects that utilize fences to allow for wildlife movement (*e.g.,* bighorn sheep, pronghorn antelope, and mule deer).

Greater sage-grouse

The focus of most treatments in sagebrush is to improve habitat for Greater sage-grouse and other wildlife that use sagebrush communities by improving the structural diversity and species composition of sagebrush and rabbitbrush stands, removing invasive species, and promoting production of perennial grasses and forbs desired by Greater sage-grouse and other wildlife (USDI FES 4-109).

All treatments identified within PPH/PGH or critical habitat as directed by BLM if different would require coordinating with NDOW prior to implementation of the action. The treatments would be in accordance with current or subsequent federal laws, regulations, or BLM IM's providing direction regarding Sage grouse, including WO-IM-2014-114 Greater sage-grouse Habitat and Wildfire Management, IM-NV-2014-022 Revised Direction for Proposed Activities within Greater sage-grouse Habitat, IM-NV-2015-017 Revised Direction for Proposed Activities within Greater sage-grouse Habitat and Fuels Management BMPs for Greater sage-grouse Conservation. For treatments that would disturb sagebrush, including fuelbreaks, no construction would occur in Greater sage-grouse PPH or PGH habitat (or habitat as identified in subsequent policy) during lekking, nesting, and brood-rearing seasons, from March 1 through August 31. Treatment areas post-treatment would continue to meet sage grouse objectives and not negate the treatment. Fence flagging would be used to increase fence visibility and reduce the risk of sage grouse strikes (Stevens *et al.* 2012).

The proposed action has potential impacts on Greater sage-grouse; the impacts would vary depending on the type of treatment as follows:

The hazardous fuels management actions (fuelbreaks and fuels reductions) would be a benefit for sage grouse, as the fuelbreaks are created to reduce the fires potential from burning many acres. During the construction and maintenance of fuelbreaks, the presence of humans and machines, such as bulldozers, could temporarily disturb sage grouse behavior. In areas where proposed fuelbreaks would disturb sagebrush, no construction would occur during sage grouse lekking, nesting, and brood-rearing seasons, from March 1 through August 31 to reduce disturbing sage grouse during the critical time-sensitive period.

The noxious weed and invasive plant management actions (EDRR; manual, mechanical, chemical and biological control; prescribed fire, grazing, and browsing; and mulching) have the

potential to impact sage grouse. The overall goal of these treatments within sage grouse habitat would be to improve the habitat and benefit the species. The noxious weed and invasive plant management actions could temporarily disturb sage grouse. Treatments could result in temporary surface disturbance and long term change in vegetation (e.g., removing noxious weeds and invasive plants and seeding of native plants in same area). The implementation of the SOPs and EPMs reduce these impacts by preventing the actions that disturb sagebrush to occur outside of the lekking, nesting, and brood-rearing seasons (March 1 – August 31).

For the use of the proposed 18 herbicides for chemical control, there could be potential impacts to sage grouse; however, these impacts would be reduced, provided that a) the application would be done within the specific limitations on each chemical's label, b) the SOPs would be followed, and c) the Environmental Protection Measures are followed. Impacts to wildlife species, including sage grouse, were analyzed within the Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States, Programmatic EIS. These risks include exposure to terrestrial herbicides with the greatest likelihood of impacting special status wildlife species, via any exposure pathway, including 2,4-D, bromacil, diuron, and hexazinone, for which moderate to high risks to special status terrestrial wildlife were predicted for application at the typical application rate, under one or more exposure scenario (USDI FES 4-120); treating sagebrush rangelands to increase herbaceous plants by removing broad-leaved plants without harming grasses (USDI FES 4-110); and potential habitat loss from spraying sagebrush with herbicides, and the long term recovery of sagebrush to grow back as it can sagebrush can take 14 to 17 years to recover from herbicide spraying (USDI FES 4-110). Incorporating the limitations of each chemical's label, and following the SOPs and EPMs would reduce the impacts to sage grouse.

SOPs and EPMs would prohibit disturbance in sagebrush habitat during sage grouse lekking and nesting season and would limit the magnitude of projects that would disturb sagebrush within 4 miles of known sage grouse leks. When possible, treatments would be performed in patches or strips and staggered over several years to create important refuge areas for sage grouse and other animals, including amphibians, reptiles, birds, and small mammals. Application of terrestrial herbicides with greatest likelihood of impacting special status terrestrial wildlife species (dicamba, diuron, glyphosate, hexazinone, tebuthiuron, and triclopyr) would be applied at the typical rate to minimize risks to terrestrial wildlife. The size of application areas would be minimized where practical for 2, 4-D, bromacil, diuron, and Overdrive® to limit impacts to wildlife, particularly through the contamination of food items. Where practical, glyphosate and hexazinone would be limited to spot applications in rangeland and wildlife habitat areas to avoid contamination of wildlife food items. Where practical, bromacil and diuron would not be applied in rangelands, and use appropriate buffer zones would be implemented to limit contamination of off-site vegetation, which may serve as forage for wildlife. Overall, the long term effects of treating noxious and weed and invasive plants are expected to be beneficial to maintaining the native sagebrush vegetation community and beneficial for sage grouse.

The use of prescribed fire as an action to control the weeds and invasive plants was analyzed within Vegetation Treatments on BLM Lands in 17 Western States, Programmatic EIS. Fire treatments would be beneficial to sage grouse by restoring native vegetation in areas where weeds and other invasive vegetation have displaced native plant species. The use of prescribed fire as an action to control the weeds and invasive plants could temporarily displace sage grouse,

requiring displaced wildlife to find suitable habitat elsewhere over the short term (USDI FES PER 4-75). Wildlife that leaves an area due to fire may return soon thereafter if food or cover is available in unburned areas, or even in burned areas (USDI FES PER 4-76). Fire can kill and injure animals, although the number of wildlife killed by fires is probably a small proportion of most animal populations (USDI FES PER 4-76). Burning in sagebrush habitat must be done with caution to ensure that sufficient and suitable habitat remains for sage grouse (USDI FES PER 4-77). In areas within 4 miles of known sage grouse leks, prescribed fire to control weeds and invasive plants would not occur in sagebrush occupied communities. No prescribed fire within sagebrush vegetation communities would occur during sage grouse lekking, nesting, and brood rearing seasons, from March 1 through August 31. When possible, treatments would be performed in patches or strips and staggered over several years to create important refuge areas for sage grouse and other animals, including amphibians, reptiles, birds, and small mammals.

The action of using prescribed grazing as the action to control the weeds and invasive plants in herbaceous communities (annual and perennial grassland and perennial forb communities) could "remove residual cover needed for ground-nesting birds, create undesirable shifts in successions that can cause significant and difficult-to-reverse impacts to wildlife habitat, reduce wildlife food and cover, and reduce plant species diversity, and can directly harm wildlife by trampling on animals or their nests, and grazing can alter grassland structure to the detriment of birds and small mammals" (Wiens and Dyer 1975, USDI FES PER 4-83). When grazing is used for management, care should be taken to ensure that livestock do not substantially alter habitat structure. The action of using prescribed grazing could benefit sage grouse by treating larger areas to stimulate new growth of desirable species, "maintain residual grass cover, and to create openings in sagebrush cover to benefit Greater sage-grouse and their chicks" (Crawford *et al.* 1992, USDI FES PER 4-90). Prescribed grazing could only occur within the terms and conditions of an existing permit.

The use of biological control insects to treat and control the weeds and invasive plants is not expected to have negative impacts to sage grouse. "It is not anticipated that use of biological control agents would result in adverse effects to the habitats of special status species. Gradual reduction in weed cover would improve many habitats without causing sudden losses of vegetation or structural changes" (USDI FES PER 4-93). The long term effects of using biological control insects to treat and control the weeds and invasive plants are expected to be beneficial to maintaining the native sagebrush vegetation community and beneficial for sage grouse.

The management of juniper species within sagebrush steppe would provide a long term benefit for sage grouse, as the intent of removing juniper would be to reduce or eliminate juniper seed dispersal and maintain sagebrush habitat and connectivity between sagebrush habitats over time. This action would be in areas which are within or near sage grouse PPH/PGH and where juniper cover is approximately 10 percent or less. The management of juniper and pinyon activities could temporarily disturb sage grouse behavior. The long term effects of managing juniper and pinyon species within sagebrush steppe are expected to be beneficial to maintaining the native sagebrush vegetation community and beneficial for sage grouse.

The emergency stabilization and burned area rehabilitation actions within sage grouse habitat would be expected to suppress fire in an emergency improve and also treat burned areas to encourage sage grouse habitat to recover following a wildfire. The emergency stabilization and burned area rehabilitation actions could result in long term habitat gain; the presence of humans and machines, such as bulldozers, could temporarily disturb sage grouse behavior; and the use of fences within sage grouse habitat could pose risks to sage grouse, such as sage grouse mortality from striking fences but the risk would be reduced by the use of fence flagging within critical habitat (Stevens *et al.* 2012). The emergency stabilization and burned area rehabilitation actions following a wildfire would be expected to improve the conditions for sage grouse in the long term.

The forestry and specialty products actions could temporarily disturb sage grouse from noise and human presence. Areas identified for harvest of live juniper for noncommercial fuelwood use by the general public through permits would occur within identified fuelwood cutting areas. The majority of identified fuelwood cutting areas are outside of PPH/PGH. Dry Canyon and Sonoma fuelwood cutting areas are within PPH/PGH however they are more than four miles of known leks. Additional fuelwood cutting areas would be established as appropriate and would require additional evaluation under NEPA.

Fish and wildlife habitat restoration activities would provide a long term benefit for sage grouse, as the intent of these treatments would be to establish a desirable plant species or plant community which competes with and reduces or eliminates the establishment of undesirable plant species or otherwise provides a needed ecological function. The fish and wildlife habitat restoration activities could temporarily disturb sage grouse behavior. No sagebrush manipulation would occur within PPH or PGH during sage grouse lekking, nesting, and brood rearing seasons, from March 1 through August 31.

Columbia Spotted Frog

Proposed actions within riparian habitat, including noxious weed and invasive plant control using herbicides, could result in impacts for Columbia Spotted Frog. These impacts include temporary disturbance and risk of exposure to herbicides, as analyzed in detail within the Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States, Programmatic EIS. SOPs, EPMs, and BMPs are in place for the District to reduce these impacts, including surveying for sensitive species prior to implementing treatments. The long term effects of treating and restoring riparian habitat are expected to be beneficial for the Columbia Spotted Frogs.

Whitebark pine

The proposed actions are expected to improve and maintain the two known populations of whitebark pine within the WD. The whitebark-pine cone cages are designed to protect the cones from being foraged and harvested by wildlife. The protected seeds can be used for scientific research and for continuing the population growth of the whitebark pine. SOPs, BMPs, and EPMs identified in this document minimize or eliminate the potential for impacts to whitebark pine. These protection measures include all projects occurring within Wilderness or WSAs and would be subject to all guidance presented within the BLM Manual 6340 (Management of Designated Wilderness Areas) and BLM Manual 6330 (Management of Wilderness Study

Areas). Existing, documented populations of BLM special status plant species that occur near proposed treatment areas would be flagged and avoided and all personnel engaged in EDRR noxious weed control would be required to attend training in the recognition of BLM special status plant species which are known to occur on the WD, including whitebark pine.

Alternative B: No Use of Biological Control Agents

The effects of alternative B to special status wildlife would be essentially the same as alternative A, except that fewer populations of noxious weeds would be controlled, which would mean that less habitat would be maintained in, or improved to a desirable condition over time at the landscape-scale. At a much smaller scale, in select locations, there would be no potential for effects to wildlife species where a noxious weed population is currently providing habitat values. Special status plant species are unlikely to benefit from the presence of noxious weeds either directly or indirectly under any circumstances, and the maintenance or improvement of habitats for special status plant species as a result of noxious weed control by biological control agents would be substantially less than would occur under alternative A.

The effects of alternative B to Greater sage-grouse would be essentially the same as alternative A, except that there would be no beneficial effect from biological control insects treating noxious weeds and invasive plants.

The effects of alternative B to Columbia spotted frog and whitebark pine would be essentially the same as alternative A.

Alternative C: No Aerial Application of Herbicides

The direct effects as a result of project actions under alternative C to special status wildlife would be similar to alternative A, except that chemical treatments would be restricted to areas where ground-based equipment could be utilized. Fewer acres of non-native invasive annual species such as Medusahead rye and cheatgrass would be treated in areas where native shrub, grass, and forb communities are intact to some degree. These habitats, if left untreated, would be at increased risk of wildfire impact and subsequent degradation by or complete conversion to non-native invasive annual species which would detrimentally affect both special status wildlife and plant species at the landscape scale.

The direct effects as a result of project actions under alternative C to sage-grouse and Columbia spotted frog would be similar to alternative A, except that chemical treatments would be restricted to areas where ground-based equipment could be utilized. Fewer acres of non-native invasive annual species such as Medusahead rye and cheatgrass would be treated in areas where native shrub, grass, and forb communities are intact to some degree. These habitats, if left untreated, would be at increased risk of wildfire impact and subsequent degradation by or complete conversion to non-native invasive annual species which would detrimentally affect sage grouse and Columbia spotted frog at the landscape scale.

The effects as a result of project actions under alternative C to whitebark pine would be the same as alternative A.

Alternative D: No-Action Alternative

Under the no-action alternative, ES&R and non-native invasive species treatments would continue under existing, approved programs. Control of non-native invasive species would be more limited under the No-Action Alternative than it would be under the other alternatives, and subsequent restoration of both riparian and terrestrial habitats with desirable plant species following invasive species treatments would not occur. Management of Medusahead rye and other non-native invasive annual plant species would be limited substantially, since the herbicide Imazapic would not be approved for use at a district-wide scale, which would allow these species to continue to spread unchecked through valuable habitats, and continue to provide for the potential of total habitat conversion in the event of wildfire. Pinyon pine forests would continue to decline as a result of disease and pathogenic organisms, which would result in the reduction or loss of associated habitat values and a cultural food resource. Viewed at the landscape-level, substantially fewer high quality, diverse native plant habitats would be maintained in a desirable condition for special status wildlife and plant species, and substantially less restoration of degraded habitats to a desirable condition would occur. This in turn would result in the potential decline of population viability of one or more special status wildlife or plant species as a result of habitat loss or degradation.

Under the no-action alternative, ES&R and non-native invasive species treatments would continue under existing, approved programs. Control of non-native invasive species would be more limited under the no-action alternative than it would be under the other alternatives, and subsequent restoration sage grouse habitat and Columbia spotted frog habitat with desirable plant species following invasive species treatments would not occur. Management of Medusahead rye and other non-native invasive annual plant species would be limited substantially, since the herbicide Imazapic would not be approved for use at a district-wide scale, which would allow these species to continue to spread unchecked through valuable habitats, and continue to provide for the potential of total habitat conversion in the event of wildfire. Pinyon-pine woodlands would continue to decline as a result of disease and pathogenic organisms, which would result in the reduction or loss of associated habitat values and a cultural food resource. Viewed at the landscape-level, substantially fewer high quality, diverse native plant habitats would be maintained in a desirable condition for sage grouse and Columbia spotted frog, and substantially less restoration of degraded habitats to a desirable condition would occur. This in turn would result in the potential decline of population viability of sage-grouse and Columbia spotted frog as a result of habitat loss or degradation.

Under the no-action alternative, the whitebark pine cone cage action would not be implemented; therefore, the whitebark pine cones would not be protected from wildlife foraging and harvesting the seeds. The population growth may be impacted if seeds are not available to germinate and provide for the whitebark pine population growth.

4.1.18 Vegetation

<u>Alternative A: Proposed Action</u>

The proposed action would increase the amount of fugitive dust, smoke and ash and chemicals released to the air and placed on the soil in the short term. In the long term the proposed action would greatly increase the district's ability to manage noxious weeds and non-native invasive

annual's threats to district vegetation communities on a landscape level with greater probability for positive outcomes. The suite of proposed treatment tools will allow greater flexibility to match treatments to vegetation community needs given a variety of challenges from terrain to scale and complexity of vegetation communities and wildlife habitat restoration objectives. These combinations of treatments will also allow for the rehabilitation, stabilization and, with fuel and undesirable vegetation treatment strategies, protection of restored vegetation communities from devastating wild fires and noxious weed and non-native annual invasions.

Alternative B: No Use of Biological Control Agents
Impacts to vegetation would be less positive than under the proposed action without the ability to use biological agents to treat various plant infestations and pests.

Alternative C: No Aerial Application of Herbicides
Impacts to vegetation, would be similar to the proposed action, except that fewer acres of noxious weeds and non-native invasive plants would be treated, which would result in fewer acres moving towards a desirable vegetative condition. In addition fewer acres which are currently vegetated with desirable vegetation would be protected from the effects of noxious weeds and non-native invasive annuals.

Alternative D: No-Action Alternative
Vegetation treatment activity would remain at current levels with impacts to vegetation remaining similar to present.

4.1.19 Visual Resource Management

Alternative A: Proposed Action
The basic concepts of the proposed action are compatible with and can be incorporated into the VRM management/class objectives. The area specific objectives provide the standards for planning, designing and evaluating proposed projects. This is done using the contrast rating system (Manual Section 8431) to provide a systematic means of evaluating proposed projects, determine whether they conform to the stated VRM objectives and identify mitigating measures that can be taken to minimize adverse visual impacts.

Alternative B: No Use of Biological Control Agents
Impacts would be the same as those described in the proposed action.

Alternative C: No Aerial Application of Herbicides
Impacts would be the same as those described in the proposed action.

Alternative D: No-Action Alternative
There would be no direct or indirect impacts to visual resources beyond what is present.

4.1.20 Wild Horses and Burros

Alternative A: Proposed Action
Based on a review of the treatments proposed in Chapter 2, this analysis focusses on the treatments that have the potential to affect WH&Bs. Fence closures may temporarily obstruct existing trails and foraging areas and foraging availability would be disturbed temporarily. Fence closures would not prevent WH&Bs from accessing water and therefore, would result in little impacts to WH&B. Machinery and human activity in the area could temporarily displace wild horses or burros, however WH&Bs would likely return to the area after completion of the proposed project; therefore would have little impact to WH&Bs. The proposed action would benefit WH&Bs by increased plant diversity and restoring some areas utilized by WH&Bs to native plant species. Improving riparian areas would equate to more available water for WH&Bs. Implementing management actions to improve or protect soils and restore native plant communities would impact WH&Bs by promoting soil stability, reducing soil loss and lessening the possibility of dust pneumonia. Stand health treatments would improve the ecological condition of vegetation in forested areas, thereby increasing forage available for grazing of WH&Bs. Using an array of treatments would allow for greater success in achieving stand health and allowing the landscape an opportunity to improve and maintain resilience within HMAs. Chemicals would be used according to label directions and therefore should result in little impacts on WH&B.

Alternative B: No Use of Biological Control Agents
Effects to wild horses would be the same as those described in alternative A.

Alternative C: No Aerial Application of Herbicides
Effects to wild horses and burros would be the same as those described in alternative A, except fewer acres would be moved to a desirable vegetative state which would potentially benefit wild horses and burros, and fewer acres of quality habitat would be protected from the effects of non-native invasive plants, such as Medusahead rye.

Alternative D: No-Action Alternative
Under the no-action alternative there would be no displacement due to machinery or human activities. Many degraded upland and riparian habitats would not be improved and new harvest areas would not occur within the North Stillwater HMA resulting in impacts to WH&BS.

4.1.21 Wildlife

Alternative A: Proposed Action
Effects to species and habitat would be similar to those described in Section 4.1.19, “Special Status Species”.

Actions enacted under the PVMP are, by intention, beneficial for wildlife and native plant species by treating sagebrush scrub, salt desert scrub and salt desert sink, woodlands, riparian areas, invasive annual grasslands, and potentially rock outcrops habitats which would provide long-term benefit to the 273 life forms that utilize these habitats, as identified in Section 3.1.21. At a landscape level, vegetation manipulations enacted under the PVMP are designed to mitigate the degrading, sometimes devastating effects that wildfire, noxious weeds, and non-native

invasive species can have on wildlife and native plant habitats. Other vegetation actions proposed under the PVMP are intended to restore habitat values which have been lost through historic human use and management actions. Proposed actions under the PVMP would also reduce hazardous fuels from public lands and reduce the risk of catastrophic wildfire that could impact wildlife and wildlife habitat.

The proposed actions may temporarily displace some wildlife species throughout the year, or result in a redistribution of species as a result of vegetation manipulations which may reduce or increase habitat values in project-specific localities, which would include foraging opportunities, nesting opportunities, or changes in microclimate, and in some cases result in mortality to wildlife that may not be able to leave the project-specific locations during treatments (*e.g.,* insects, amphibians, reptiles, and small mammals). Species that area wide ranging and use several habitats are usually better able to adapt to change than species with narrow habitat requirements (USDI PER 4-74). Over the short term, treatments under the proposed action could make habitats less suitable for some wildlife species, requiring displaced wildlife to find suitable habitat elsewhere (USDI PER 4-75). If these habitats were already at or near capacity in the number of wildlife they could support, displaced animals might perish or suffer lower productivity (USDI PER 4-75). In many cases, the treatments would return all or a portion of the treated area to any early successional stage, favoring early successional wildlife species (USDI PER 4-75). Treatments would restore native vegetation in areas where weeds and other invasive vegetation have displaced native plant species (USDI PER 4-75). Wildlife that occurred historically in these areas would likely increase in numbers, while species that have adapted to the disturbed conditions would decline (USDI PER 4-75). A thorough discussion of wildlife impacts from herbicides, along with BLM vegetation management SOPs, mitigation measures and BMPs can be found in USDI FES 2007.
http://www.blm.gov/style/medialib/blm/wo/Planning_and_Renewable_Resources/veis/dear_reader_letter.Par.5918.File.dat/AppendixB-HerbicideUseSOPs.pdf

SOPs, mitigation measures, and the EPMs (identified in Section 2.2.1) minimize or eliminate the potential for impacts to wildlife species, as do basic administrative analyses performed by the WD and cooperators prior to implementing projects. EPMs, SOPs, and BMPs of the proposed action include, when possible, limiting use of herbicides in areas occupied by amphibians, and when possible, limiting the size of application rates to limit impacts to wildlife, particularly through the contamination of food items. When possible, treatments would be performed in patches or strips and staggered over several years to create important refuge areas for sage grouse and other animals, including amphibians, reptiles, birds, and small mammals. EPMs also include implementing wildlife fence specifications to projects that utilize fences to allow for wildlife movement (*e.g.,* bighorn sheep, pronghorn antelope, and mule deer).

Alternative B: No Use of Biological Control Agents
Effects to species and habitat would be similar to those described in Section 4.1.19, "Special Status Species".

The effects of alternative B to wildlife would be essentially the same as alternative A, except that fewer populations of noxious weeds would be controlled, which would mean that less habitat would be maintained in, or improved to a desirable condition over time at the landscape-scale. At

a much smaller scale, in select locations, there would be no potential for effects to wildlife species where a noxious weed population is currently providing habitat values.

Alternative C: No Aerial Application of Herbicides
Effects to species and habitat would be similar to those described in Section 4.1.19, "Special Status Species".

The direct effects as a result of project actions under alternative C to wildlife would be similar to alternative A, except that chemical treatments would be restricted to areas where ground-based equipment could be utilized. Fewer acres of non-native invasive annual species such as Medusahead rye and cheatgrass would be treated in areas where native shrub, grass, and forb communities are intact to some degree. These habitats, if left untreated, would be at increased risk of wildfire impact and subsequent degradation by or complete conversion to non-native invasive annual species which would detrimentally affect wildlife species at the landscape scale.

Alternative D: No-Action Alternative
Effects to species and habitat would be similar to those described in Section 4.1.19, "Special Status Species".

Under the no-action alternative, ES&R and non-native invasive species treatments would continue under existing, approved programs. Control of non-native invasive species would be more limited under the no-action alternative than it would be under the other alternatives, and subsequent restoration of both riparian and terrestrial habitats with desirable plant species following invasive species treatments would not occur. Management of Medusahead rye and other non-native invasive annual plant species would be limited substantially, since the herbicide Imazapic would not be approved for use at a district-wide scale, which would allow these species to continue to spread unchecked through valuable habitats, and continue to provide for the potential of total habitat conversion in the event of wildfire. Pinyon pine woodlands would continue to decline as a result of disease and pathogenic organisms, which would result in the reduction or loss of associated habitat values and a cultural food resource. Viewed at the landscape-level, substantially fewer high quality, diverse native plant habitats would be maintained in a desirable condition for wildlife species, and substantially less restoration of degraded habitats to a desirable condition would occur. This in turn would result in the potential decline of population viability of one or more wildlife species as a result of habitat loss or degradation.

4.1.22 Wilderness Study Areas

Alternative A: Proposed Action
Most of the components of the proposed action do not meet the non-impairment standard because they do require some level of surface disturbance. However, the proposed action does fall under the exceptions to this standard as the goals and objectives of the action are to restore human-caused impacts or to protect or enhance the wilderness characteristics of naturalness.
No fuelwood cutting areas are being proposed in a WSA. As stated in the EPMs, projects within WSAs would be required to meet the requirements identified under Manual 6330 and would

require further NEPA analysis. Manual treatments and accessing treatment sites by foot or on horseback would have the least effect on WSA and would not impair the suitability of the area for wilderness designation. Components of the project that would meet the non-impairment standard would be hand broadcasting native seeds and the use of biological controls. Overall, the proposed action would not impair the suitability of the WSAs for wilderness designation.

Size
None of the elements of the proposed action would directly lead to a reduction in size of WSAs. The creation of fuelbreaks in a WSA is not likely. Fuel reduction projects, noxious weed control measures, or seeding or planting projects would use existing ways to access the project site. If off-road travel is needed, a determination would be made through further NEPA analysis regarding access to the project site and would identify appropriate mitigation. Portions of the proposed action that would repair existing roads after fire suppression or ES&R activities and the EPM that would prohibit vehicle traffic outside of established road systems during fuelwood or tree harvesting activities would aid in preventing potential impacts.

Naturalness
Components of the proposed action that would impact the WSA's naturalness include: construction of structures (e.g. erosion or sediment control structures and fences); surface disturbing activities (e.g., fuelbreaks, removal of vegetation during fuel reduction projects); prescribed fires; dyes applied to fertilizers or herbicides; mulching (when material is not naturally found in the area); and project marking (fence flagging, laths). Prior to the implementation of these activities in a WSA, a determination would be made as to the minimum level of disturbance necessary to meet the objectives of the project. In general, the severity of impacts would be dependent on the specific type and duration of activity. Most of these impacts would be temporary, lasting only as long as the treatment is needed to fulfill the objectives or goals.

Opportunities for Solitude or Primitive and Unconfined Recreation
Almost all components of the proposed action would impact opportunities for solitude due to staff working in treatment area and the sights and sounds associated with the projects. These impacts would be short term and last only as long as would be needed to complete project tasks. Impacts would last longer where structures remain in the project areas which serve as a reminder of human presence. The recurrence of these impacts would also depend on the treatment type, duration structures are in place, and amount of subsequent monitoring.
None of the components of the proposed action would directly affect the opportunities for primitive and unconfined recreation. Indirect affects would be associated with diverting recreational use of an area due to project activities. This would also be considered in future determinations for projects within WSAs.

Alternative B: No Use of Biological Control Agents
Size
Under alternative B, impacts to the WSA's size would be the same as those described under the proposed action.

Naturalness

The elimination of the use of biological control agents would have a slight impact to the naturalness of the WSA. Relying on the use of non-natural agents to control undesirable species would not be meet the intent of the guidance provided in Manual 6330 in that the natural regimes would not be allowed to prevail. Non-natural agents would only be allowed based on future determinations that this avenue is the least disturbing.

Opportunities for Solitude or Primitive and Unconfined Recreation
Under alternative B, impacts to the wilderness inventory unit's quality of opportunities for solitude or primitive and unconfined recreation would be the same as those described under the proposed action.

<u>Alternative C: No Aerial Application of Herbicides</u>
Size
Under alternative B, impacts to the WSA's size would be the same as those described under the proposed action.

Naturalness
Under alternative C, impacts to the WSA's naturalness character would be the same as those described under the proposed action.

Opportunities for Solitude or Primitive and Unconfined Recreation
Under alternative C, impacts to the WSA's quality of opportunities for solitude would be slightly reduced by the removal of air traffic. All other impacts would be the same as those described under the proposed action.

<u>Alternative D: No-Action Alternative</u>
Size
Under the no-action alternative, no direct impacts are anticipated. Indirect impacts would be similar as those described under the proposed action.

Naturalness
The probability of invasive species infestation under this alternative would be higher than under than the other alternatives which would result in a higher impact to naturalness.

Opportunities for Solitude or Primitive and Unconfined Recreation
Noxious weed and invasive plant treatments would continue, thus the impacts to opportunities for solitude would continue as is currently realized during the execution of these treatments. Impacts would be associated with the sights and sounds of the project and would be temporary and of short duration.
There are no direct impacts to the opportunities for primitive and unconfined recreation under this alternative. Indirect impacts would be similar to those described under the proposed action.

4.2 Cumulative Impacts

The Council of Environmental Quality (CEQ) regulations implementing NEPA defines cumulative impacts as "…[T]he impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or Non-Federal) or person undertakes such actions." Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

Assumptions for Cumulative Effects Analysis
Direct and indirect consequences of the proposed action and other alternatives were evaluated previously. Based on the preceding analysis in Chapter 4, no cumulative impacts are expected for paleontological resources under any alternative.

Resources analyzed in this section have the potential to be incrementally impacted by the proposed action and other alternatives within the identified cumulative effects study areas (CESA). For Wildlife, T&E, special status species, migratory birds, and fisheries, the CESA boundary follows the 8th order hydrologic subbasins as defined in Map 3. For the remainder of the resources analyzed, the WD boundary was utilized. Although the WD Boundary is an administrative boundary, it sufficiently covers the extent of any potential cumulative impacts.

Past, Present, and Reasonably Foreseeable Future Actions
On the basis of aerial photographic data, agency records and GIS analysis and interdisciplinary team discussion the following past and present actions, which have impacted the affected resources within the assessment area to varying degrees, have been identified:

Forestry Actions
Fuelwood, fenceposts, and Christmas trees have been harvested on the WD since European settlement of the area during the nineteenth century. These products have continued to be available since that time, although harvest has been restricted to the Stillwater Range since 2004, and only for personal use. It is reasonable to assume that Fuelwood and Christmas trees would continue to be offered to the public from BLM lands in the future. Pine-nuts have been harvested in the Stillwater Range since prehistoric times, and continue to be a valued food resource for both local Native American tribal members and other users of the public lands. It is anticipated that pine-nuts would continue to be available to the public in the future.

Invasive Species Management
Invasive species management has historically occurred on the WD, with a control emphasis placed on Nevada state-listed noxious weeds. Invasive species control is currently on-going, and is expected to continue in the future.

Livestock Grazing
Livestock grazing has a long history in the region dating back to the 1800's. Today, it remains the dominant use of the entire cumulative impact assessment area. Throughout

its history, ranching has remained a dispersed activity characterized by localized areas of more intensive use. The intensity and character of livestock grazing is anticipated to remain consistent into the foreseeable future.

Mining and Minerals Management

Mining for gold and other mineral resources has occurred irregularly across the WD since European settlement began in the 19th century. Historic mining resulted in surface disturbance as a result of placer and lode mining, and extensive off-road travel and road building associated with mines. Minerals extraction is expected to continue on the WD where mineral resources are located, according to regulation and practices determined by state and federal laws.

Fire and Fuels Management

Wildfire is a natural disturbance process in most vegetation communities in the WD. It is anticipated that wildfire will continue to increase in frequency and spread in areas characterized as having cheatgrass mono-cultures; continued drought and climate change may increase vulnerability of all vegetation communities to increased rates of wildfire. ES&R and fuels management treatments are common management actions on public land across the west, although the increase in fire frequency has made these actions more common over the past 30 years. Future fires would be subject to Emergency Stabilization and Rehabilitation treatments on a case by case basis. Fuels treatments, designed to control the spread of fire around communities-at-risk and important wildlife habitat, will continue to be implemented. Due to the importance in protecting critical Greater sage-grouse and sagebrush obligate species habitat, it is anticipated that fuels management actions would increase.

Recreation

There are many opportunities in the cumulative assessment area that offer a variety of past, present, and future recreation uses. Predominant uses include; hunting, fishing, hiking, camping, and recreational OHV use. All of these recreational uses have been substantial in the past, and recreational use on the WD is expected to increase in the future.

Development and Infrastructure

The WD has a historic network of roads and ROWs, including energy and water developments as well as disturbance from historic settlements. Private landholdings occur within the larger boundary of the WD as well. Development, including the construction of roads and ROWs, and sale of BLM administered lands, as allowed by law, can be expected to continue in the reasonably foreseeable future.

4.2.1 Air Quality

Past and Present Actions

Prior to the implementation of the Federal Clean Air Act of 1970, few if any measures to control or minimize impacts to air quality were required. Most mining operations were of smaller scale

and consisted of underground operations with minor disturbance footprints. Most air quality impacts from these operations consisted of the generation of fugitive dust during exploration, road building, trenching, and mining operations. In addition agricultural operations and travel on dirt roads added to impacts to air quality. Present actions within the Air Quality CESA that are contributing to air quality impacts include mining, wildland fire, agriculture, dispersed recreation, and road construction and maintenance. These activities are principally contributing volume source particulate matter emissions and fugitive dust to the air quality impacts. However, chemicals and products of combustion are also emitted during agricultural practices, general construction and mining.

Reasonably Foreseeable Future Actions

RFFAs within the Air Quality CESA that may contribute to impacts to air quality include dispersed recreation, transportation, mining and mineral exploration, transmission line construction, wind energy projects, geothermal energy projects and wildland fires. These activities are expected to increase over time as public needs arise.

Cumulative Impact

Alternative A: Proposed Action

Incremental amounts of particulate matter, fugitive dust, smoke, chemicals and products of combustion will impact air quality during the implementation stage of projects.

Alternative B: No Use of Biological Control Agents

Basically no difference with regards to air quality impacts than the proposed action

Alternative C: No Aerial Application of Herbicides

Slightly reduced amounts of chemicals and products of combustion would be released to the airshed with this alternative.

Alternative D: No-Action Alternative

Impacts to air quality would continue at current levels, with expectations to increase slightly into the future.

4.2.2 Cultural Resources

Past and Present Actions

In the past, livestock grazing has impacted cultural resources in areas where concentrated grazing has occurred. From 1982 to the present, land use plans and management actions have reduced concentrated grazing and improved conditions by progressing towards or meeting standards for rangeland health. These actions have reduced impacts on cultural resources from livestock grazing. Impacts which have occurred to cultural resources in the past from WH&B are similar to those from livestock grazing. WH&B management actions have reduced concentrations of WH&B in culturally sensitive areas, thereby reducing impacts on cultural resources.

Although, most impacts on cultural resources from minerals, lands and realty, renewable energy and permitted recreation events have been avoided or mitigated through implementation of the National Historic Preservation Act, indirect impacts from increased access to cultural sites,

looting and changes in setting have sometimes occurred. Although these impacts continue, monitor and patrol by law enforcement and heritage education outreach efforts have helped to reduce these impacts. Unrestricted OHV travel has damaged cultural resources through cross country travel and creating new roads or trails increasing access to cultural resource sites. In the past fire has resulted in direct disturbance or loss of cultural resources primarily through the destruction or modification of historic and ethnographic wooden structures, features, and culturally modified trees. Wildfire has also exposed large areas where vegetation has burned increasing the potential for illegal gathering of artifacts. Impacts from post-fire seeding and fuels projects have been avoided through compliance with the National Historic Preservation Act. Implementations of BMPs, SOPs, project specific mitigation measures, permit stipulations, inventory, and avoidance have contributed to reduced impacts.

Reasonably Foreseeable Future Actions
Impacts from RIFAs would be similar to present actions described above.

Cumulative Impact
Alternative A: Proposed Action
No incremental impacts from past, present and reasonably foreseeable future actions combined with the proposed action are anticipated.

Alternative B: No Use of Biological Control Agents
No incremental impacts from past, present and reasonably foreseeable future actions combined with this alternative action are anticipated.

Alternative C: No Aerial Application of Herbicides
No incremental impacts from past, present and reasonably foreseeable future actions combined with this alternative action are anticipated.

Alternative D: No-Action Alternative
No new cumulative impacts are anticipated under the no-action alternative.

4.2.3 Invasive, Non-native Species

Past and Present Action
Past and present actions have resulted in both intermittent and long term soil and vegetation disturbances on lands administered by the WD. In addition to the creation of disturbance conditions which have provided the opportunities for successful establishment of noxious weeds and non-native invasive species, past and present actions have also provided vectors of weed seed transport. These vectors have included livestock, heavy equipment, automobiles, OHVs, and human recreationists. As a result, the WD is affected by noxious weeds, particularly in areas where disturbance from past and present actions have occurred, or where vectors of seed transport coincide with those noxious weed and non-native invasive species infestations.

Reasonably Foreseeable Future Actions

All of the described Past and Present Actions are reasonably foreseeable future actions and have the potential to increase the presence of noxious weeds and non-native invasive species on the WD. Livestock grazing provides vectors of seed transport (often from private landholdings) and results in both soil and vegetation disturbance which are conducive to infestation by noxious weeds and invasive species. Wildfires are expected to continue. Wildfire increases vegetation and soil disturbance, generates disturbance from suppression actions, and creates conditions which are conducive to infestation by noxious weeds and non-native invasive plant species. Seeds of non-native plants may be introduced by firefighting equipment. Recreationists have the potential to disturb soils if using vehicles, and can serve as vectors of seed transport on vehicles or clothing.

Cumulative Impact

Alternative A: Proposed Action

Cumulatively, the proposed action would result in the greatest reduction of risk of spread and further infestation of noxious weeds and non-native plant species across the WD compared with the other alternatives. Presence and effect of noxious weeds within riparian areas would be reduced over time, and revegetation efforts would improve riparian area resilience to re-infestation. The utilization of aircraft to deliver herbicide products to areas infested with Medusahead rye or other non-native invasive annual plants would allow the WD to successfully control these plants within shrubland habitats which retain desirable vegetative components (shrub cover, intact forb/grass community components) but are infeasible to treat with ground-based application methods. The utilization of bio-control insects would allow the WD to successfully manage wide-spread noxious weed infestations which are logistically infeasible to control using currently approved methods.

Alternative B: No Use of Biological Control Agents

Cumulatively, alternative B would result in an increased ability by the WD to manage noxious weeds and non-native invasive species, but would result in fewer acres and species effectively managed since bio-control insects would not be approved. As a result, non-native species which have effective biocontrols and which are already widespread would continue to rapidly expand their influence in areas where other tools are less effective and where other reasonably foreseeable actions which create disturbance or transport seed are present. These areas would include locations accessible only to OHV, animal, or foot traffic. Influence of noxious weeds and other non-native invasive plants would increase in remote areas or in areas affected by widespread, lower-priority species (such as “Category C” weeds).

Alternative C: No Aerial Application of Herbicides

Cumulatively, alternative C would result in a reduced ability by the WD to manage noxious weeds and non-native invasive species. The use of aircraft is currently approved on the WD under the no-action alternative, and aircraft are often the only feasible herbicide application method for control of invasive annual plant species in inclement terrain or in areas which still have intact shrub communities. Other reasonably foreseeable future actions would still generate soil disturbance and provide opportunity for seed transport in these areas. Influence of invasive annual plants would continue to increase across the district.

Alternative D: No-Action Alternative

Cumulatively, the no-action alternative would result in noxious weeds management on the WD continuing under current practices. Biological controls would be unavailable, and infestations in extremely remote locations may go un-noticed and un-managed. Species which are widespread across the district would not be managed as effectively. Aircraft would be utilized; however, the herbicide Imazapic would not be available district-wide for focused control of invasive annual plant species and subsequent restoration efforts. Planting and seeding efforts following invasive plant control efforts would not occur, increasing opportunity for infestation and spread of noxious weeds by other reasonably foreseeable actions (livestock movement, recreation traffic, etc.). Other reasonably foreseeable actions would continue to create disturbance and provide vectors for seed transport across the district in all habitat types. Under the no-action alternative, noxious weed and non-native invasive plant populations would increase over time.

4.2.4 Migratory Birds, Threatened and Endangered, Special Status Species, Fisheries, and Wildlife

Past and Present Actions

Past, present and RFFAs have resulted in and would continue to result in impacts to wildlife habitat and wildlife. For the purpose of this section of the analysis and because the basic principles of the impacts are the same or similar, the impacts to general wildlife, BLM special status species (including plants), threatened and endangered species, fisheries, and migratory birds are collectively discussed. Due to the inherent vulnerability of threatened, endangered, candidate, and BLM special status species, results of impacts to these species could be intensified. The past human activities related to mining and minerals development, OHV use and road building, fence construction, and permitted grazing have altered the natural environment by degrading, decreasing, fragmenting, or eliminating natural wildlife habitat values (food, water, cover, space, and distribution of these elements). Various degrees of resource consumption by these activities (principally water use and vegetation removal) have increased competitive pressure with wildlife for these resources. Fuelwood harvest and Christmas tree harvesting have cumulatively reduced select habitat opportunities, such as snag habitats, in specific locations within the Stillwater and East Range.

Past wildfires have resulted in large-scale impacts to the Great Basin ecology because of the slow recovery process and overwhelming presence of invasive annual grasses which continue to spread and are facilitated by wildfire. ES&R treatments have helped to recover some of the habitat areas lost. Fuels treatments have resulted in decreased habitat suitability for some species, and an increase in habitat suitability for others. Fuels treatments likely contributed to protection of existing quality habitat for wildlife, migratory birds, threatened, endangered, candidate, and BLM special status species. Removal of wild horses and burros, has, in select locations, reduced competition with wildlife for natural resources.

Reasonably Foreseeable Future Actions

Impacts to species from livestock grazing, mineral exploration, recreation, wildfires, ES&R treatments, and fuels treatments would be similar to those described in the Past and Present Actions Section above. Potential increases in recreational use could create additional disturbance and potential for temporary displacement of species from suitable habitats. Potential increases in

fuels, forestry, restoration, and invasive species control treatments would contribute to the protection of existing, quality habitats would also potentially result in slight alteration to species distributions and composition within treatment areas through changes in the structure and composition of vegetation.

Cumulative Impact

Alternative A: Proposed Action

Incremental impacts from past, present and reasonably foreseeable future actions combined with the proposed action would likely result in a small loss of suitable habitat for some threatened, endangered, or candidate species, special status species, migratory birds, or other general wildlife species. Some species would likely realize a gain of suitable habitat. The distribution and composition of species that use proposed fuels treatments, forestry treatments, invasive species control treatments, and restoration treatments would likely change slightly due to changes in the structure and composition of vegetation. Treatments would increase overall, landscape-level habitat quality for species in upland and riparian areas. Implementation of the Environmental Protection Measures presented in this document would minimize or eliminate disturbance impacts to many species including pygmy rabbits, Greater sage-grouse, burrowing owls, other nesting birds, and special status plants. Protection of existing, quality habitats from the effects of wildfire would be improved.

Alternative B: No Use of Biological Control Agents

Cumulative impacts to threatened, endangered, candidate, BLM special status species, migratory birds, and general wildlife species would be similar to those described for the proposed action, except that non-native, invasive plant species and noxious weeds would exert a much larger influence across the landscape at large over time. In general, habitats for species, at the landscape level, would not improve or be maintained as effectively, in comparison with the proposed action, and in some locations, habitat degradation would occur in areas which would not be degraded if the proposed action were implemented, or would degrade at a faster rate than if the proposed action were implemented.

Alternative C: No Aerial Application of Herbicides

Cumulative impacts to threatened, endangered, candidate, BLM special status species, migratory birds, and general wildlife species would be similar to those described for the proposed action, except that projects which address non-native invasive annual plants, which are also fine fuels which contribute to increased impacts from wildfire would be much more limited in scope, size, and effectiveness. In particular, landscape level effects from Medusahead rye would occur largely unchecked. Habitats for species, at the landscape level, would not improve or be maintained as effectively in comparison with the proposed action, and fewer acres would be protected from wildfire. Cheatgrass would exhibit an increased influence in areas which are currently not infested or where infestations are in their infancy. Medusahead rye would degrade more acres of land, and that results of that degradation would be more severe in comparison with the proposed action.

Alternative D: No-Action Alternative

Cumulative impacts to threatened, endangered, candidate, BLM special status species, migratory birds, and general wildlife species would be similar to those described for the proposed action,

since ES&R actions, invasive species control, and fuelbreak constructions have been implemented, and would continue to be implemented under current decisions. The no-action alternative would result in substantially fewer acres managed to control non-native invasive plant species and for the improvement and maintenance of diverse native plant communities. Substantially fewer acres would be maintained as high quality habitat for threatened, endangered, candidate, BLM special status, migratory birds, and general wildlife species as a result of fewer projects being implemented which would protect existing landscapes from wildfire, and fewer projects implemented which would maintain sagebrush or quality forest habitats. Pinyon pine habitats would potentially be reduced in size or otherwise degraded over time as a result of the influence of pests, disease, or drought, and species which depend upon pinyon pine would also potentially decline. ES&R actions would continue, but be more limited in scope, which would result in fewer acres effectively restored or improved following wildfire impacts, which would potentially contribute to long-term degradation of habitats over time. Human harvest of fuelwood and other forest products would be reduced under the no-action alternative, and cumulatively, more dead woody material (downed woody debris and standing snags) would be available across the landscape for those species which utilize that resource.

4.2.5 Native American Religious Concerns

Past and Present Actions

From contacts with settlers, who brought disease and alcohol to the Great Basin, the Northern Paiute and Shoshone bands have been decimated. Further, past historical actions ranging from mining and gravel extraction, grazing, home building and other developments, have served to drive the Northern Paiutes and Shoshone bands off the land, confine them to reservations, and further destroy their culture and traditional lifeways. Only in the last 50 years have attempts been made by the federal and state governments to undo some of these actions.

Reasonably Foreseeable Future Actions

Impacts to Native American religious concerns described above will continue. Reasonably foreseeable future actions would be subject to mitigations or avoidance to minimize impacts. Increase in recreational use, particularly OHV traffic, is especially destructive to cultural resources through direct ground disturbance or by increasing erosion. Looting and vandalism (intentional or accidental) of archaeological sites and TCPs may also occur more often as the population grows and as access and recreational activities increase.

Cumulative Impact

Alternative A: Proposed Action

The proposed action has the potential to provide positive impacts to Native American communities since it is designed to foster the growth of native plant communities. Many of these native plants have traditionally been used as foods, and/or in religious ceremonies by the Northern Paiutes and Shoshones.

Alternative B: No Use of Biological Control Agents

See above for the proposed action.

Alternative C: No Aerial Application of Herbicides
See above for the proposed action.

Alternative D: No-Action Alternative
Under the no-action alternative, the status quo would be maintained.

4.2.6 Water Quality

Past and Present Actions
As described in the Affected Environment, impacts to water quality from other uses within the planning area are varied and widespread. Specific water quality impacts from each use at each water source are nearly impossible to be enumerated.

Reasonably Foreseeable Future Actions
With the overall need to enforce federal regulation protecting water quality, increasing concern over availability of potable water, and improved understanding of the interactions of natural systems; it is expected that water quality within the WD will improve to some extent in the future.

Cumulative Impact
Alternative A: Proposed Action
Effects from the proposed action would be expected to be slightly countervailing to effects from past and present actions and slightly additive to the effects from future actions.

Alternative B: No Use of Biological Control Agents
Effects from alternative B would not be expected to be measurably different than those of the proposed action when taken into account cumulatively with past, present, and reasonable foreseeable future actions.

Alternative C: No Aerial Application of Herbicides
Effects from alternative C would not be expected to be measurably different than those of the proposed action when taken into account cumulatively with past, present, and reasonable foreseeable future actions.

Alternative D: No-Action Alternative
Effects from the no-action alternative would not be expected to be measurably different than those of the proposed action when taken into account cumulatively with past, present, and reasonable foreseeable future actions.

4.2.7 Wetlands and Riparian Zones

Past and Present Actions

As described in the Affected Environment, impacts to wetlands and riparian zones from other uses within the planning area are varied and widespread. Specific impacts from each use at each wetlands or riparian zone are nearly impossible to be enumerated.

Reasonably Foreseeable Future Actions

Because the importance of wetlands and riparian areas to water security (both quantity and quality) is becoming more widely recognized, especially in the face of potentially changing climates, it is expected that the protection of these areas will improve in the future and their overall functionality will be maintained where it currently exists or begin or continue to improve where it does not.

Cumulative Impact

Alternative A: Proposed Action

Effects from the proposed action would be expected to be countervailing to effects from past and present actions and additive to the effects from future actions.

Alternative B: No Use of Biological Control Agents

Effects from alternative b would not be expected to be measurably different than those of the proposed action when taken into account cumulatively with past, present, and reasonable foreseeable future actions.

Alternative C: No Aerial Application of Herbicides

Effects from alternative C would not be expected to be measurably different than those of the proposed action when taken into account cumulatively with past, present, and reasonable foreseeable future actions.

Alternative D: No-Action Alternative

Effects from the no-action alternative would not be expected to be measurably different than those of the proposed action when taken into account cumulatively with past, present, and reasonable foreseeable future actions.

4.2.8 Wilderness

Past and Present Actions

Trammeling as a result of past and present actions has been minimal. Forestry actions were precluded in WSAs since 1987 under the Interim Management Policy for Lands under Wilderness Review (H-8550-1). These restrictions continued when the areas were designated as wilderness. Impacts to the untrammeled nature of the wilderness areas have been through invasive species and fire management actions, which were conducted in accordance with Manual H-8550-1 when they were managed as WSAs, and in accordance with Manual 8560 once designated. Manual 8560 was revised in 2012 (is now Manual 6340). Although impacting the untrammeled character of the wilderness areas, management actions to address the spread of invasive species and post-fire restoration have benefited the naturalness character. In these areas, and because of guidance provided through the BLM Manuals, weed and fire management efforts were designed to support native vegetation and wildlife.

Livestock grazing management has been a predominant use in these areas. Livestock grazing by domestic sheep as well as cattle has occurred for over 150 years in the region. Associated range improvements and access to those improvements for maintenance purposes were authorized prior to the areas being designated as wilderness. Many of these installations are still used. The WD is working to remove structures that have been abandoned. Current livestock grazing management focuses on meeting rangeland health standards which assist in preserving the naturalness character of the wilderness areas.

Historic homesteading and mining resulted in a number of structures, developments, and disturbances in wilderness areas. These developments are gradually deteriorating through natural processes of erosion, decay and wildfire. When the areas were designated as wilderness, they were withdrawn from all forms of mineral entry. The Nevada Department of Wildlife (NDOW) installed structures associated with wildlife management in these areas prior to being designated as wilderness. These structures (water guzzlers) continue to be in use and are maintained by the NDOW. The BLM has employed the use of aircraft and helicopters to assist in management actions to monitor and control wild horse and burro populations in some of the wilderness areas.

The past and present activities have had no impacts to the opportunities for unconfined recreation. Past and present activities have limited opportunities for recreationists seeking solitude in wilderness areas during the time invasive weed treatments, fire management, livestock and range improvement management, wild horse and burro management and wildlife management activities were being conducted. Developments remaining in wilderness areas remind visitors of the presence of other humans and of human development.

Impacts to the unique, supplemental, and other features of the wilderness areas are included in the sections addressing cultural and wildlife resources.

Reasonably Foreseeable Future Actions

Trammeling as the result of invasive weed and fire management are expected to continue. These impacts are expected to be limited in time and location based on each project. However, these projects would be designed in accordance with applicable manuals, and in such a manner as to preserve or enhance the naturalness qualities of the wilderness areas. Impacts associated with mining activity are not anticipated since wilderness areas are withdrawn from mining. Existing developments associated with livestock and wildlife management are expected to be maintained. Activities that are anticipated to affect the opportunities for solitude include continued wild horse management. As the population of Winnemucca, Reno and neighboring communities continue to grow, the amount of dispersed recreation is anticipated to grow accordingly, thereby reducing the opportunities for solitude as well.

Cumulative Impact

Alternative A: Proposed Action

The proposed action would incrementally increase impacts to the untrammeled character of the wilderness areas by manipulating the vegetation. Historic trammeling is minimal, and trammeling under the proposed action would be localized and temporary

The proposed action would temporarily increase the number of developments currently within wilderness areas. No permanent features are proposed. Cumulative impacts would be limited to the time the developments are in place, which could be for a number of years.

No foreseeable negative cumulative impacts would occur to the wilderness characteristic of naturalness. Negative impacts associated with past activities in the area and future potential wildfires (natural and anthropogenic) would be corrected through goals and objectives of the vegetation treatments. Cumulatively, impacts associated with air quality would temporarily increase during prescriptive burns or dust created associated with individual projects.

Impacts to solitude caused by implementation of projects under the proposed action would augment impacts to solitude caused by livestock grazing, wildlife, wildfire and wild horse management activities. All of these impacts are temporary, localized, and of short duration. The likelihood of any combination of activities occurring at the same time and the same place is minimal, at best.

Cumulative impacts to supplemental features of wilderness areas are included in the cultural and wildlife sections.

Overall, the synergic effects of the proposed action coupled with the past, present and reasonably foreseeable future activities within wilderness areas of the WD would not lead to cumulatively significant impacts.

Alternative B: No Use of Biological Control Agents
The cumulative impacts under alternative B would be similar to those described under Alternative A. The naturalness characteristic of the wilderness areas would be slightly better preserved through the use of native biological controls.

Alternative C: No Aerial Application of Herbicides
The cumulative impacts under alternative C would be similar to those described under Alternative A. The undeveloped and the opportunities for solitude characteristics of the wilderness areas would be slightly better preserved through the elimination of aircraft use.

Alternative D: No-Action Alternative
Under the no-action alternative, any trammeling associated with the proposed action would not augment trammeling caused by past, present or reasonably foreseeable actions. No developments would be added to those already located in wilderness areas. However, under this alternative the naturalness of these areas would be compromised. Impacts resulting from past activities would not be addressed. The Great Basin landscape is a fragile ecosystem and some wilderness areas may not return to its natural state.

No cumulative impacts would occur to the opportunities for solitude under the no-action alternative. Impacts to unique, supplemental, or other features are addressed in the cultural and wildlife resources sections.

4.2.9 Fire and Fuels Management

Past and Present Actions

As described in Chapter 3.1.13, past fires within the WD have burned 3,327,989 acres. Past grazing practices have reduced native perennial grasses which served to increase cheatgrass establishment through competition. The elimination of most native perennial grasses increased cheatgrass establishment and promoted wildfire spread. Present grazing systems and fuelbreaks have allowed for an increase in perennial grasses which stay green longer reducing the length of the fire cycle. Past and present fuel treatments have changed fire behavior by reducing intensity and in some cases stopped fires from spreading. Recreational use may increase the potential for human caused fire within the area. Sparks from recreation vehicles and campfires have caused fires.

Reasonably Foreseeable Future Actions

Grazing impacts are expected to remain similar to those described under present actions. Development of future fuels management projects would be based on monitoring and the success of the currently proposed actions. Proposed and existing fuels treatments would be maintained to ensure fuelbreak effectiveness, which should reduce the size and intensity of future wildfires. Impacts from recreation would be similar to those described under past and present actions.

Cumulative Impact

Alternative A: Proposed Action

Effects from past, present, and RFFAs combined with the proposed action would reduce the size of wildfires. Greater sage-grouse and sagebrush obligate species habitat would be protected from large wildfire events. Communities-at-risk and other human infrastructure would be better protected from wildfire. The FRCC proportions should improve over current levels.

Alternative B: No Use of Biological Control Agents

The impacts should be similar to the proposed action.

Alternative C: No Aerial Application of Herbicides

The ability to treated hazardous fuels and restore degraded rangelands would be drastically reduced as aerial application is a more cost effective and efficient method to apply herbicides. Because restoration of degraded sites and fuels treatments in areas dominated by non-native annuals is so ineffective without herbicide application, much less effective and/or fewer acres could be accomplished. Fewer fuels and restoration treatments would result in more acres in Fire Regime/Condition Class III; more acres would be susceptible to wildland fire and habitat and rangeland restoration treatments would not occur.

Alternative D: No-Action Alternative

Cumulative effects of the no action would include potential for wildfires to burn larger areas. Wildlife habitat and rangeland rehabilitation would occur on a case-by-case basis and would take longer to achieve resource benefits.

4.2.10 Lands with Wilderness Characteristics

Past and Present Actions

Since the original inventories in the late 1970s, lands and realty actions and mining developments have impacted the size of wilderness characteristics units through right-of-way permits and road developments. Land-use management actions have impacted the naturalness character of the units through the installation of structures such as permanent fences, troughs, guzzlers, etc. On the other hand, management actions to address the spread of invasive species and post-fire restoration have benefited the naturalness character. Current livestock grazing management focuses on meeting rangeland health standards which assist in preserving the naturalness character of wilderness characteristic inventory unit areas.

Past and present activities have had varying degrees of impact to opportunities of solitude either directly by an increase in the number of people in an area, or indirectly through permanent structures that remind visitors of human presence. In some areas of the district these impacts are pervasive and have reduced or eliminated this element from the wilderness characteristic inventory unit. Past and present activities have had no impacts to the opportunities for unconfined recreation.

Reasonably Foreseeable Future Actions

Land use management actions are expected to continue along with associated impacts. The degree and severity of impacts would vary. Projects located in areas identified as having wilderness characteristics would be reviewed under NEPA and appropriate use restrictions or mitigation would be applied (RMP 2015).

Cumulative Impact

Alternative A: Proposed Action

No cumulative impacts to the size element of the wilderness characteristic units are anticipated when the proposed action is coupled with past, present and reasonably foreseeable future actions. Cumulative impacts to the naturalness element would be countervailing or even corrective in some respects through improvements to native vegetation communities. On the other hand, the proposed action would incrementally add structures or developments to treated areas. No permanent features are proposed. Cumulative impacts would be limited to the time the developments are in place, which could be for a number of years.

Impacts to solitude caused by implementation of projects under the proposed action would augment impacts to solitude caused by livestock grazing, wildlife, wildfire and wild horse management activities. All of these impacts are temporary, localized, and of short duration. The likelihood of any combination of activities occurring at the same time and the same place is minimal, at best.

Overall, the synergic effects of the proposed action coupled with the past, present and reasonably foreseeable future activities within areas identified as having wilderness characteristics within the WD would not lead to cumulatively significant impacts.

Alternative B: No Use of Biological Control Agents

The cumulative impacts under alternative B would be similar to those described under alternative A. The naturalness characteristic of the wilderness characteristic units would be slightly better preserved through the use of native biological controls.

Alternative C: No Aerial Application of Herbicides
The cumulative impacts under alternative C would be similar to those described under alternative A. Opportunities for solitude criteria would be slightly better preserved through the elimination of aircraft use.

Alternative D: No Action Alternative
Under the no-action alternative naturalness of these areas would be compromised through reduced opportunities to address impacts of wildfire and noxious weed spread. No cumulative impacts would occur to the opportunities for solitude under the no-action alternative.

4.2.11 Rangeland Management

Past and Present Actions
Past and present activities have affected livestock grazing through the removal of livestock forage within disturbed areas. Fencing areas for minerals exploration and to protect riparian areas have limited livestock access to small amounts of forage within those areas. In many areas of the WD at lower elevations, wildfire has removed large areas of forage or restricted access to forage. Implementation of fire rehabilitation projects serve to re-establish forage vegetation which mitigates some of the effects of wildfire. Recreation use has occasionally resulted in damage or vandalism of range improvements, and occasional difficulty in managing livestock due to recreational users leaving fence gates open.

Reasonably Foreseeable Future Actions
Impacts to grazing from reasonably foreseeable future actions would remain similar to those analyzed under past and present actions relating to minerals activity and grazing. Increasing recreational use could cause an incremental increase in damage to range improvements and complicate livestock management in areas where use is increased substantially. Wildfire impacts are expected to continue, although they may be diminished due to the construction of fuelbreaks and improvement in response time to fires by fire suppression personnel.

Cumulative Impact

Alternative A: Proposed Action
Incremental impacts would include reduced potential for wildfire spread and long-term improvement of forage based on habitat restoration and invasive species control projects. Larger areas of rangeland would be protected. Select forestry actions which result in an increased availability of forage to ungulate wildlife species would also translate into increased availability of forage for grazing operations. Impacts related to minerals exploration and recreation use would continue and would be dependent on the amount of mineral exploration and recreational use in the areas where those activities occur.

Alternative B: No Use of Biological Control Agents

Cumulative impacts of alternative B would be similar to the cumulative impacts of the proposed action, except that fewer acres of existing populations of noxious weeds would be treated with subsequent improvement to range conditions in those immediate areas, and fewer acres would be protected from the effects of noxious weed spread and establishment in the future. Cumulatively, alternative B would result in reduced health and utility of the range over the long term when compared with the proposed action.

Alternative C: No Aerial Application of Herbicides
Cumulative impacts of alternative C would be similar to the cumulative impacts of the proposed action, except that substantially fewer acres would be treated for noxious weeds and non-native invasive species. In particular, Medusahead rye control projects would be greatly reduced, which would not improve the areas where Medusahead currently exists, and would protect fewer acres of healthy rangeland from the detrimental effects of Medusahead rye in the future. Cumulatively, alternative B would result in reduced health and utility of the range over the long term when compared with the proposed action.

Alternative D: No Action Alternative
If the no-action alternative is selected, there would be no impacts to grazing beyond those described in the past, present, and reasonably foreseeable future actions. The no-action alternative would result in less effective control of wildfire, a limited ability to control noxious weeds and non-native invasive species, and would result in fewer acres protected from the future effects of noxious weeds and non-native invasive species, which would result in reduced health and utility of the range over the long term when compared with the proposed action.

4.2.12 Recreation

Past and Present Actions
Recreational use in the WD has steadily increased in recent decades. In addition to the increase in the number of recreationist, the variety of activities these visitors are participating in encompasses forms of recreation that did not exist twenty to thirty years ago. Moreover, these recreational activities are increasingly dependent on the environment, the condition of the natural resources and the setting which within they exist. For this reason it is important that management actions strive to maintain a natural appearance. As noted in previous sections of this document, facilities are limited to relatively small areas. Accessibility to large portions of the district is difficult and distances from urban areas are great. Roads where they exist tend to be infrequently maintained.

Reasonably Foreseeable Future Actions
Use trends in the WD point to an increasing dichotomy: 1) there is an increasing interest in large scale events such as Burning Man, Forth of JuPlaya and large high-powered rocket launches taking place on the Black Rock Desert north of Gerlach. These events tend to promote social interaction within large groups. Facility development although elaborate is temporary; and 2) there is a trend towards increasingly dispersed recreation in even more remote areas of the district where social interaction is minimal and facility development – if any at all - would be limited to enhance visitor safety and resource protection versus visitor comfort and convenience.

Cumulative Impact

Alternative A: Proposed Action

Following an event such as wildfire and/or invasive weed infestation, a major factor affecting the quality of recreational opportunities in the WD is the ability of the natural environment and setting to recover. The cumulative impact of the proposed actions would benefit dispersed recreation in that the actions discussed would positively affect the different environments and settings by making them more resistant and resilient with regard to recreation.

Alternative B: No Use of Biological Control Agents

The cumulative impact of this alternative is the same as the proposed action.

Alternative C: No Aerial Application of Herbicides

The cumulative impact of this alternative is the same as the proposed action.

Alternative D: No-Action Alternative

If neither the proposed action nor one of the action alternatives is implemented, no additional impacts to recreational opportunities would occur. The effects of existing impacts would be managed as they are currently prescribed.

4.2.13 Soils

Past and Present Actions

Past and present actions that have potentially impacted soils include mining and mineral exploration, ranching operations (grazing), road construction and maintenance, ROWs, wildland fires, or dispersed recreation. Impacts from these activities include loss of soil productivity due to changes in soil physical properties, loss of soil fertility, soil movement in response to water and wind erosion, and loss of soil structure due to compaction.

Reasonably Foreseeable Future Actions

Potential impacts to soils could result from grazing, dispersed recreation, roads, energy development, wildfires, ROWS, and mining. There are no specific data on the potential impacts to soils from dispersed recreation, grazing, or potential wildfires. Impacts associated with RFFAs would be similar to the impacts described for past and present actions.

Cumulative Impact

Alternative A: Proposed Action

Impacts from the proposed action would be localized and minimized due to implementation of environmental protection measures and BMPs. Also many positive effects such as soil stabilization and improved nutrient and water cycling would be realized from establishment of functioning native plant communities through reseeding and seedling planting. Therefore, the incremental impacts to soils as a result of the proposed action when added to the past and present actions and RFFAs would be minimal in the short term. Outcomes from the proposed action would be highly beneficial in the long-term.

Alternative B: No Use of Biological Control Agents
Basically, there are no differences with regards to impacts to soil resources than would be realized from the proposed action.

Alternative C: No Aerial Application of Herbicides
Fewer acres of soil would be impacted by chemicals with this proposal. However more acres of soil disturbance could result with increases of mechanical treatments to remove noxious weed and non-native annual plants and construction of fuel breaks.

Alternative D: No-Action Alternative
Noxious weed and non-native annual plant expansion would continue unchecked on the district, effecting fire behavior and frequency increasing soil movement and productivity loss.

4.2.14 Vegetation

Past and Present Actions
Past actions that have affected vegetation include the development of roads, power lines and other utilities, fences, development of cattle and wild horse water sources, livestock grazing, wild horse use, agricultural activities, dispersed recreation, and land development. Impacts to vegetation from these activities include removal of vegetation, soil compaction, and soil loss through wind or water erosion. The extent of these impacts varies with the type of activity. These and other surface disturbing activities within the district have the potential to introduce and spread noxious weeds and invasive non-native annuals.

Reasonably Foreseeable Future Actions
Potential impacts to vegetation from grazing, road construction and maintenance, ROWs, minerals and mining activities, dispersed recreation, or wildland fires that alter the structure, composition, and ecology of plant communities in the district would continue to occur.

Cumulative Impact
Alternative A: Proposed Action
Vegetation alteration has and will occur from past, present and RFFAs due to reclamation of mining and exploration areas, energy development, disturbance associated with ROWs and seeding in burn areas that would favor herbaceous species over shrubs. The primary impact to vegetation relates to changes in dominant plant communities composition that affects habitat for wildlife (i.e., conversion from sagebrush to grasslands). Wildfires combined with displacement of native species by invasive annual grasses such as cheatgrass are the primary factors that have altered the structure, composition, and ecology of plant communities in the district. The Proposed action will allow for better perennial plant species diversity on previously disturbed areas through noxious weed and non-native annual plant controls and seeding along with seedling planting of perennial native species. Proper placement and maintenance of fuel breaks as outlined in the proposed actions will also aid in vegetation management by reducing wildfire spread and behavior.

Alternative B: No Use of Biological Control Agents

The cumulative impacts from this alternative will be basically the same as those from the proposed action.

Alternative C: No Aerial Application of Herbicides
Fewer acres of vegetation would be impacted by chemical spraying with this proposal; however more acres of soil disturbance could result with increases of mechanical treatments to remove noxious weed and non-native annual plants and construction of fuel breaks.

Alternative D: No-Action Alternative
Noxious weed and non-native annual plant expansion would continue unchecked on the district, effecting fire behavior and frequency, increasing losses of native perennial vegetation communities to noxious weeds and invasive annual species. These communities constitute important habitat for sensitive species such as Greater sage-grouse, pygmy rabbit and other valued wildlife on the district.

4.2.15 Wilderness Study Areas

Past and Present Actions
Forestry actions were precluded in WSAs since 1987 under the Interim Management Policy for Lands under Wilderness Review (H-8550-1). This policy was revised in 2012. Manual 6330 now provides guidance for vegetation management in WSAs. Management actions to address the spread of invasive species and post-fire restoration have benefited the naturalness character.

Livestock grazing management has been a predominant use in these areas. Livestock grazing by domestic sheep as well as cattle has occurred for over 150 years in the region. Associated range improvements and access to those improvements for maintenance purposes were authorized prior to the areas being designated as WSAs and many of these installations are still used. Current livestock grazing management focuses on meeting rangeland health standards which assist in preserving the naturalness character of the wilderness areas.

Historic homesteading and mining resulted in a number of structures, developments, and disturbances in WSAs. These developments are gradually deteriorating through natural processes of erosion, decay and wildfire. When the areas were designated as WSAs, they were withdrawn from all forms of mineral entry. Structures associated with wildlife management continue to be in use and are maintained by the NDOW. The BLM has employed the use of aircraft and helicopters to assist in management actions to monitor and control wild horse and burro populations in some of the WSAs.

The past and present activities have had no impacts to the opportunities for unconfined recreation. Past and present activities have limited opportunities for recreationists seeking solitude in WSAs during the time invasive weed treatments, fire management, livestock and range improvement management, wild horse and burro management and wildlife management activities were being conducted. Developments remaining in WSAs remind visitors of the presence of other humans and of human development.

Reasonably Foreseeable Future Actions

Invasive weed and fire management activities are expected to continue. These impacts are expected to be limited in time and location based on each project. However, these projects would be designed in accordance with applicable manuals, and in such a manner as to preserve or enhance the naturalness qualities of the WSAs. Impacts associated with mining activity are not anticipated since WSAs are withdrawn from mining. Existing developments associated with livestock and wildlife management are expected to be maintained. Activities that are anticipated to affect the opportunities for solitude include continued wild horse management. As the population of Winnemucca, Reno and neighboring communities continue to grow, the amount of dispersed recreation is anticipated to grow accordingly, thereby reducing the opportunities for solitude as well.

Cumulative Impact

Alternative A: Proposed Action

No foreseeable negative cumulative impacts would occur to the WSA criteria of size. Naturalness would be incrementally impacted through a temporary increase in the number of developments within WSAs. No permanent features are proposed. Cumulative impacts would be limited to the time the developments are in place, which could be for a number of years. Negative impacts associated with past activities in the area and future potential wildfires (natural and anthropogenic) would be corrected through goals and objectives of the vegetation treatments.

Impacts to solitude caused by implementation of projects under the proposed action would augment impacts to solitude caused by livestock grazing, wildlife, wildfire and wild horse management activities. All of these impacts are temporary, localized, and of short duration. The likelihood of any combination of activities occurring at the same time and the same place is minimal, at best.

Cumulative impacts to supplemental features of wilderness areas are included in the cultural and wildlife sections.

Overall, the synergic effects of the proposed action coupled with the past, present and reasonably foreseeable future activities within WSAs of the WD would not lead to cumulatively significant impacts.

Alternative B: No Use of Biological Control Agents

The cumulative impacts under alternative B would be similar to those described under alternative A. The naturalness characteristic of the WSAs would be slightly better preserved through the use of native biological controls.

Alternative C: No Aerial Application of Herbicides

The cumulative impacts under alternative C would be similar to those described under alternative A. The undeveloped and the opportunities for solitude characteristics of the WSAs would be slightly better preserved through the elimination of aircraft use.

Alternative D: No-Action Alternative

Under the no-action alternative, no developments associated with the proposed action would be added to those already located in WSAs. Under this alternative the naturalness of these areas would be compromised through delayed treatment of invasive and noxious weed spread and rehabilitation of damage caused by wildfires. Impacts resulting from past activities would not be addressed. No cumulative impacts would occur to the opportunities for solitude under the no-action alternative.

5.0 MITIGATION AND MONITORING

All mitigation and monitoring that would be implemented prior to or during treatment has been identified in the proposed action as environmental protection measures.

6.0 CONSULTATION AND COORDINATION

There is present and on-going conultation and coordination with the Nevada Department of Wildlife and the U.S. Fish and Wildlife Service for the proposed action, action alternatives and no-action alternative for this EA. Formal consultation with USFWS for treatments with the potential to impact threatened fish species has been initiated and would be completed prior to issuing any decision.

7.0 LIST OF PREPARERS

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8.0 PUBLIC OUTREACH

An interested party letter was sent out on March 28, 2011 informing known interested parties that the Bureau of Land Management (BLM) was proposing to implement a variety of weeds, fuels, forestry, and habitat restoration treatments across the Winnemucca District.

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1972 Federal Insecticide, Fungicide and Rodenticide Act
1973 Endangered Species Act
1974 Federal Noxious Weed Act
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