U.S. Department of the Interior
Bureau of Land Management

South Steptoe Valley Watershed Restoration Plan Environmental Assessment

DOI-BLM-NV-L020–2011–0013–EA

September 26, 2011

PREPARING OFFICE

U.S. Department of the Interior
Bureau of Land Management
Schell Field Office
702 N. Industrial Way
HC33 Box 33500
Ely, NV 89301
(775) 289–1800

South Steptoe Valley Watershed Restoration Plan Environmental Assessment: DOI-BLM-NV-L020–2011–0013–EA

September 26, 2011

This page intentionally
left blank

Table of Contents

List of Figures

This page intentionally
left blank

List of Maps

This page intentionally
left blank

List of Tables

This page intentionally
left blank

Chapter 1. Introduction

This page intentionally
left blank

1.1. Identifying Information

1.1.1. Title, EA number, and type of project

South Steptoe Valley Watershed Restoration Plan Environmental Assessment, DOI-BLM-NV-L020–2011–0013–EA

1.1.2. Location of Proposed Action

South Steptoe Valley Watershed, south-southeast of Ely, Nevada (see Map 1.1, " South Steptoe Valley Watershed Project Area" (p. 2))

1.1.3. Name and Location of Preparing Office

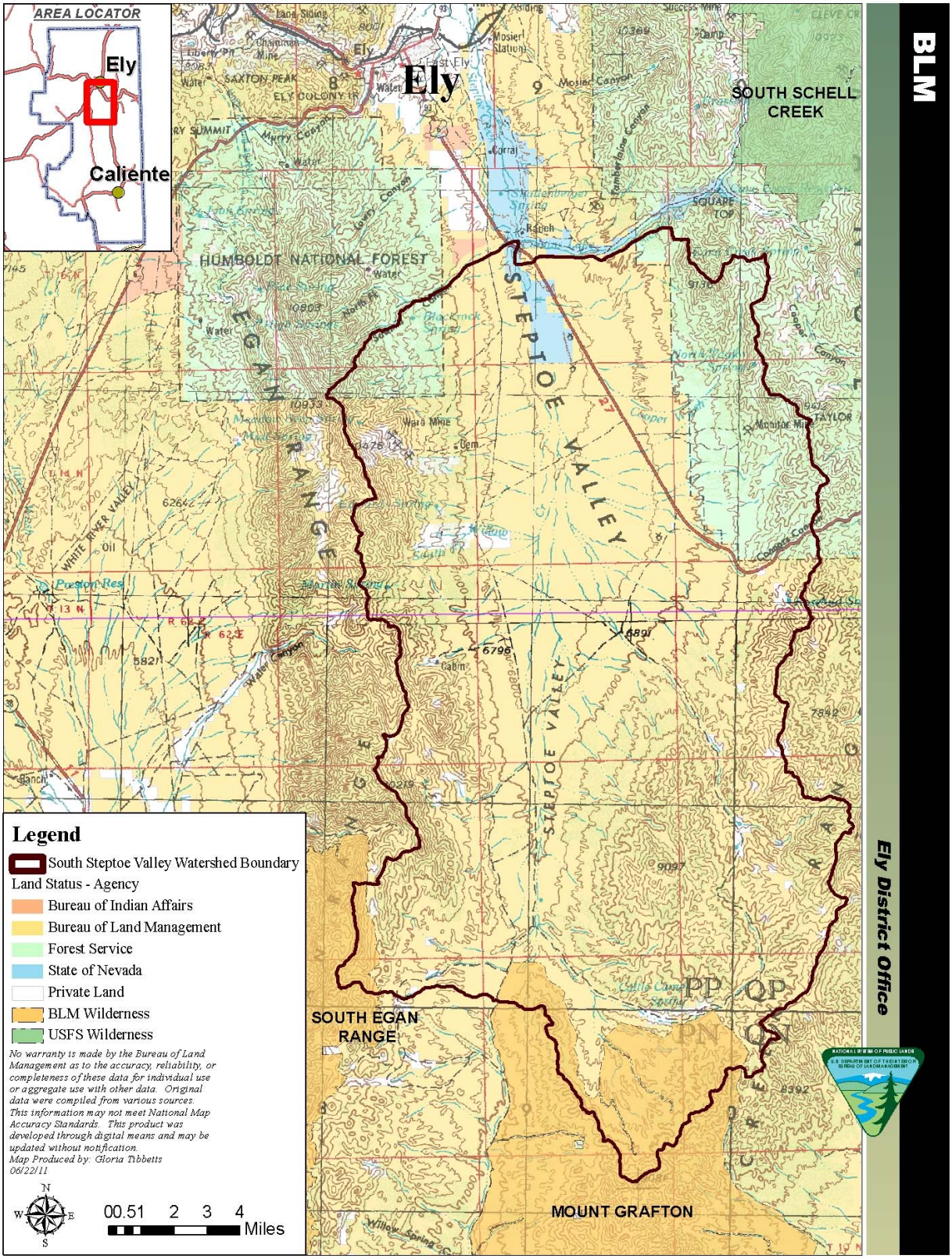
Lead Office — Schell Field Office
702 N. Industrial Way, HC 33, Box 33500
Ely, Nevada 89301

1.2. Introduction

The project area analyzed in this environmental assessment (EA) is the South Steptoe Valley Watershed, which lies south-southeast of the city of Ely, Nevada (see Map 1.1, " South Steptoe Valley Watershed Project Area" (p. 2)). This watershed is flanked by the South Schell Creek Mountains on the east and South Egan Mountains on the west. It is characterized by generally north-south trending mountains, gently to steeply sloping benches and piedmonts, and one valley bottom characterized by level to slightly rolling terrain. The watershed drains to the north towards Ely. Elevations in the watershed vary from about 6,700 feet in the valley bottom to 10,900 feet on top of the Egan Mountain Range.

A majority of the 201,322 acres within the project area are public lands administered by the Bureau of Land Management (BLM) (approximately 172,104 acres) with other lands being administered by the State of Nevada (approximately 2,031 acres), the U.S. Forest Service (approximately 23,131 acres) and private land holders (approximately 4,029 acres). The primary vegetation within the project area consists of sagebrush (Artemesia spp.) communities and established stands of singleleaf pinyon pine (Pinus monophylla) and Utah juniper (Juniperus osteosperma). The mix of grasses, forbs and shrubs in some vegetation communities are outside the desired range of conditions as described in the Ely District Resource Management Plan (RMP).

Regardless of the alternative selected, it is anticipated that the analysis conducted in this National Environmental Policy Act (NEPA) document would be valid until conditions in the analysis area change sufficiently to require additional NEPA analysis.



Map 1.1. South Steptoe Valley Watershed Project Area

1.3. Purpose and Need for Action

An interdisciplinary team consisting of Bureau of Land Management specialist and other parties conducted an assessment of the condition of the watershed beginning in 2005 and culminating in 2010. The results of this assessment indicated there are areas of the landscape where vegetative communities were not attaining the desired range of conditions for each community as specified in the Ely District Approved Resource Management Plan (RMP) (2008).

The purpose and need for the proposal is to achieve the following objectives:

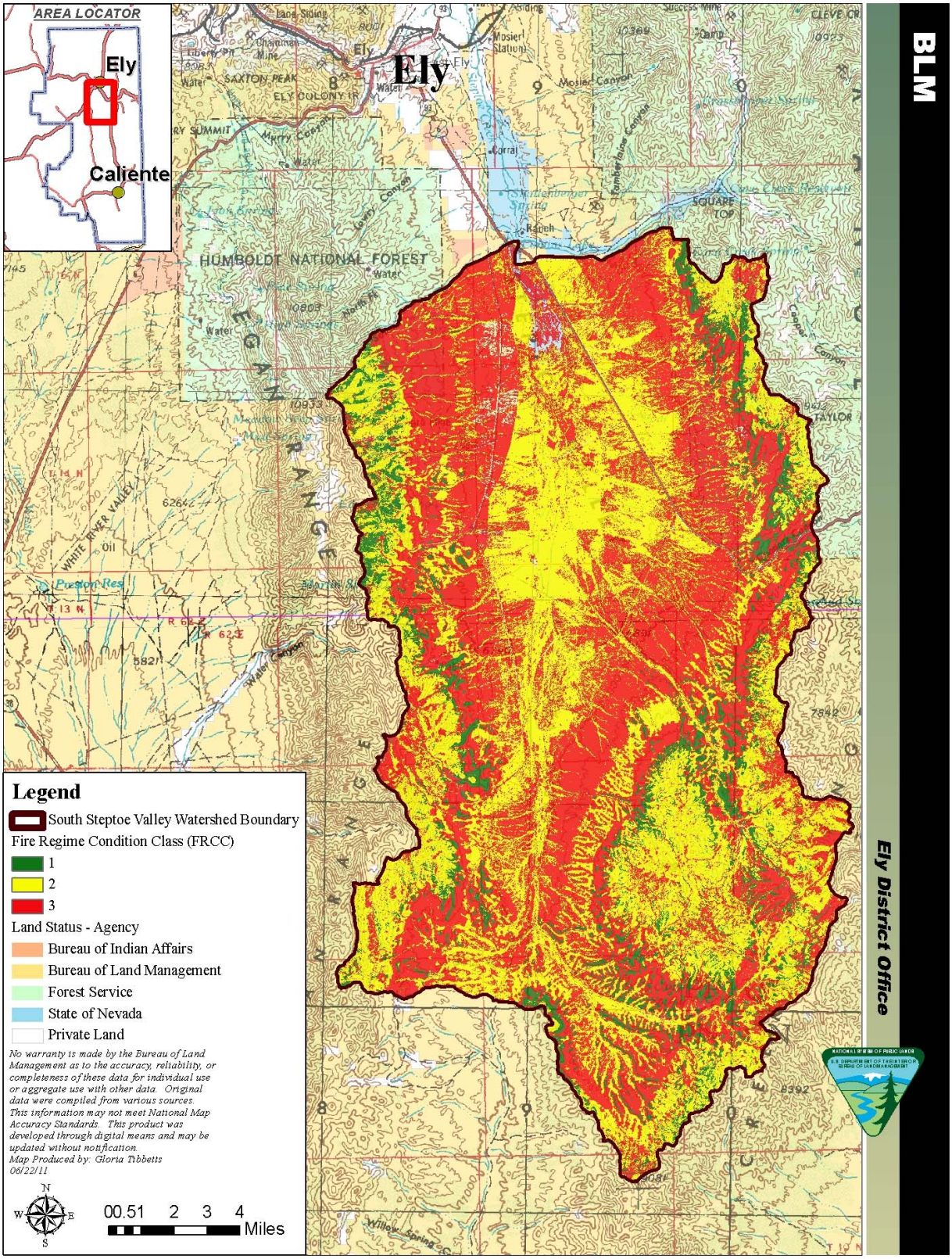
- Move the landscape within the South Steptoe Valley Watershed toward FRCC 1 with a mosaic of seral stages attaining the potential cover percentages of grasses and forbs for the respective biophysical models.
- The current watershed FRCC ratings are 9% FRCC 1, 44% FRCC 2 and 48% FRCC 3 with an overall departure of 58%. Following the implementation of the treatments the objective would be to reduce departure within the watershed to 43% (FRCC 2).
- Improve habitat for all wildlife, especially sage grouse and big game species.
- Achieve better distribution for livestock and wildlife, and improve overall rangeland health.

One of the tools used to make the assessment of the watershed's condition is Fire Regime Condition Class (FRCC), which is an interagency, standardized tool based on scientific and peer reviewed literature for determining the degree of departure from a reference vegetation condition within a given biophysical setting (BPS). More information regarding this tool can be found at the following website http://www.frcc.gov. Assessing FRCC can help guide management objectives and set priorities for treatments. The classification is based on a relative measure describing the degree of departure from the historical natural disturbance regime for a given BPS. This departure is described as changes to one or more of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure and mosaic pattern); fuel composition; fire frequency, severity and pattern; and other associated disturbances (e.g. insects and disease mortality, grazing and drought). There are three FRCC classes used to describe the departure from reference BPS conditions. The three classes are based on low (0-33% departure; FRCC1), moderate (34-66% departure; FRCC2) and high (67-100% departure; FRCC3) departure from central tendency of the natural (historical) regime. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside the range of variability. The FRCC rating is accompanied by indicators of the potential risks that may result. Biophysical setting models have been developed for most major vegetation types. These models describe the vegetation, geography, biophysical characteristics, succession stages, disturbance regimes, and assumptions for each vegetation type (Havlina et al, 2010). Reference conditions described in the BPS models are compared to actual conditions for purposes of determining the current FRCC rating. A FRCC rating is determined for the entire watershed by determining the weighted average of all major vegetation FRCC ratings. FRCC 1 is desired for each BPS and for the entire watershed. A departure from FRCC 1 (reference condition) to FRCC 2 or FRCC 3 serves as an indicator that changes need to be affected.

Map 1.2, "Strata Fire Regime Condition Class (FRCC) for the South Steptoe Valley Watershed" (p. 5) illustrates the moderate to high departure from natural conditions across the South Steptoe Valley Watershed. The FRCC data layer used depicts departures for the entire Steptoe Valley Watershed. The analysis of the watershed determined the causal factors for

this departure to be a combination of drought, fire suppression efforts, and historic livestock overgrazing. Fire frequencies are departed from historical frequencies by multiple return intervals. The risk of losing key ecosystem components within the South Steptoe Valley Watershed is considered moderate. Vegetation attributes have been altered from their historical range and now include uncharacteristically high densities of trees and below normal levels of perennial grass and forb composition. While the majority of the project area is FRCC 2, much of the FRCC 2 area is at the high end of the FRCC 2 range (departure scores of 34-65%). This suggests that management actions could prevent these ecosystems from departing further towards FRCC 3 and instead move toward a more ecologically sound condition.

Each vegetation type is stratified into succession classes or seral stages: A, B, C, D, E, and U. An "A" classification is a vegetative community in early succession (ecological condition immediately after disturbance) and seral classes represent varying seral states as vegetation progresses following disturbance. A "U" succession class is an uncharacteristic vegetation classification, meaning the percentage of exotic vegetation is high or desired understory vegetation is depleted. BPS models describe the typical distribution of succession classes that would be naturally exhibited across the landscape for each vegetation type based on natural disturbance regimes, geography, and other factors (Havlina et al, 2010).



Map 1.2. Strata Fire Regime Condition Class (FRCC) for the South Steptoe Valley Watershed

1.4. Relationship to Planning

The project is in conformance with the Ely District Record of Decision and Approved Resource Management Plan (August 2008). The proposals being considered in this EA would help in achieving the following resource management goals identified in the Ely RMP:

Vegetation Resources

Manage vegetation resources to achieve or maintain resistant and resilient ecological conditions while providing for sustainable multiple uses and options for the future across the landscape.

Forest/Woodland Products

Provide opportunities for traditional and non-traditional uses of vegetation products on a sustainable, multiple-use basis.

Watershed

Manage watersheds to achieve and maintain resource functions and conditions required for healthy lands and sustainable uses.

Fire

Return fire to its natural role in the ecological system and implement fuels treatments, where applicable, to aid in returning fire to the ecological system.

Fish and Wildlife

Provide habitat for wildlife (i.e. forage, water, cover, and space) and fisheries that is of sufficient quality and quantity to support productive and diverse wildlife and fish populations, in a manner consistent with the principles of multi-use management, and to sustain the ecological, economic, and social values necessary for all species.

Special Status Species

Manage public lands to conserve, maintain, and restore special status species populations and their habitats; support the recovery of federally listed threatened and endangered species; and preclude the need to list additional species.

The project is in conformance with the following specific objectives and management decisions:

Vegetation Resources

General Vegetation Management:

VEG-1: Emphasize treatment areas that have the best potential to maintain desired conditions or respond and return to the desired range of conditions and mosaic upon the landscape, using all available current or future tools and techniques.

VEG-4: Design management strategies to achieve plant composition within the desired range of conditions for vegetation communities, and emphasize plant and animal community health at the mid scale (watershed level).

Fish and Wildlife

General Wildlife Habitat Management:

WL-1: Emphasize management of priority habitats for priority species. (See the discussion on Vegetation Resources for the desired range of conditions for the various vegetation communities.)

Special Status Species

Parameter: Great Basin Sagebrush Habitat

SS-38: Maintain intact and quality sagebrush habitat. Prioritize habitat maintenance actions from the BLM National Sage Grouse Conservation Strategy to: 1) maintain large areas of high quality sagebrush currently occupied by greater sage-grouse; 2) maintain habitats which connect seasonal sagebrush habitats in occupied source habitats; and 3) maintain habitats that connect seasonal sagebrush habitats in occupied isolated habitats.

SS-39: Implement proactive and large scale management actions to restore lost, degraded, or fragmented sagebrush habitats and increase greater sage-grouse populations. Prioritize habitat restoration actions from the BLM National Sage Grouse Conservation Strategy to: 1) reconnect large patches of high quality seasonal habitats, which greater sage-grouse currently occupy; 2) enlarge sagebrush habitat in areas greater sage-grouse currently occupy; 3) reconnect stronghold/source habitats currently occupied by greater sage-grouse with isolated habitats currently occupied by greater sage-grouse; 4) reconnect currently occupied and isolated habitats; 5) restore potential sagebrush habitats that currently are not occupied by greater sage-grouse. Develop allowable use restrictions in greater sage-grouse habitats undergoing restoration, on a case-by-case basis, as dictated by monitoring.

Fire

Management Actions–Fire

FM-4: Incorporate and utilize Fire Regime Condition Class as a major component in fire and fuels management activities. Use Fire Regime Condition Class ratings in conjunction with vegetation objectives (see the discussion on Vegetation Resources) and other resource objectives to determine appropriate response to wildland fires and to help determine where to utilize prescribed fire, wildland fire use, or other non-fire (e.g., mechanical) fuels treatments.

FM-5: In addition to fire, implement mechanical, biological, and chemical treatments along with other tools and techniques to achieve vegetation, fuels, and other resource objectives.

This EA is tiered to the analysis and effects disclosed in:

- The Ely Proposed Resource Management Plan/Final Environmental Impact Statement (November 2007).
- The Final Programmatic Environmental Impact Statement (PEIS) – Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (2007).

1.5. Relationship to Statutes, Regulations, or other Plans

The proposal is also consistent with other Federal, State and local plans or decisions including, but not limited to, the following:

The White Pine County Public Land Policy Plan (August 2007) which identifies the following policies:

- *Policy 2-2:* Protect and preserve the quality of the environment, and economic, cultural, ecological, scenic, historical and archeological values; protect and preserve wildlife habitat values compatible with economic opportunities needed to provide for long term benefits for the people of White Pine County now, and future generations.
- *Policy 2-4:* Support the Great Basin Restoration Initiative.
- *Policy 5-3:* Support the management of woodlands/forest by ecological condition for a diversity of vegetation communities. Grass and shrub ecosystems with no or few invasive species are preferable to pinyon/juniper monocultures.
- *Policy 5-5:* Recognize the importance of maintaining healthy aspen communities and encourages activities that will retain and improve the vigor of these communities.
- *Policy 9-7:* Support habitat restoration to improve wildlife habitat when compatible with other uses.

The White Pine County Elk Management Plan (2007 Revision) was developed by a Technical Review Team (TRT) that consisted of representatives from the United States Forest Service (USFS), the Bureau of Land Management (BLM), the National Park Service (NPS), the Natural Resources Conservation Service (NRCS), Nevada Division of Wildlife (NDOW), sportsmen, ranchers, general public, conservationists and the Goshute Indian Tribe. The plan identified vegetation conversion projects by NDOW management units that would improve wildlife habitat by creating a more diverse mixture of grasses, forbs and shrubs. The project area lies within NDOW Management Unit 111. Elk numbers have been achieved in this unit. Possible projects/opportunities listed in the plan for this area include “large potential for prescribed fire or thinning in pinyon-juniper communities.” The health of aspen stands within the unit was cited as a potential limitation to management.

White Pine County Portion (Lincoln/White Pine Planning Area) Sage Grouse Conservation Plan (2004) (page 21) – “Goal 3: Manage for diverse, healthy, sagebrush plant communities in each PMU”

State Protocol Agreement between the Bureau of Land Management, Nevada and the Nevada Historic Preservation Office for Implementing the National Historic Preservation Act (2009).

The Standards and Guidelines for Nevada's Northeastern Great Basin (page 13) states in part, "Create and maintain a diversity of sagebrush age and cover classes on the landscape through the use of prescribed fire, prescribed natural fire, mechanical, biological and/or chemical means to provide a variety of habitats and productivity conditions" and "Where pinyon pine and/or juniper trees have encroached into sagebrush communities, use best management practices to remove trees and re-establish understory species".

1.6. Scoping, Public Involvement and Issues

The South Steptoe Valley Watershed Restoration Project was scoped internally by the Bureau of Land Management (BLM) Schell Field Office interdisciplinary team on December 13, 2010. In addition, a letter to individuals and entities that had previously expressed interest in the watershed

analysis process was mailed on November 30, 2010 providing a summary of the evaluation and determinations of the analysis of the watershed. In this letter, these interested publics were solicited for input regarding potential alternatives to affect change within the watershed to enhance the condition of the resources. Two responses were received from the interested publics. One letter expressed a desire to continue to be updated on the project, the other expressed a variety of concerns that are documented in the Scoping Comment Matrix in Appendix E.

The following issues are analyzed within this EA as a result of internal scoping and from comments received during external scoping:

Vegetation
Vegetative Products
Non-Native Invasive and Noxious Species
Fish and Wildlife
Special Status Species
Fuels and Fire Management

This page intentionally
left blank

Chapter 2. Proposed Action and Alternatives

This page intentionally
left blank

2.1. Introduction

The previous chapter presented the Purpose and Need of the proposed project, as well as the relevant issues, i.e., those elements that could potentially have a significant impact to the quality of the human environment through the implementation of the proposed project. In order to meet the purpose and need of the proposed project in a way that resolves the issues, the BLM has developed a proposed action. The proposed action and a no action alternative are presented below.

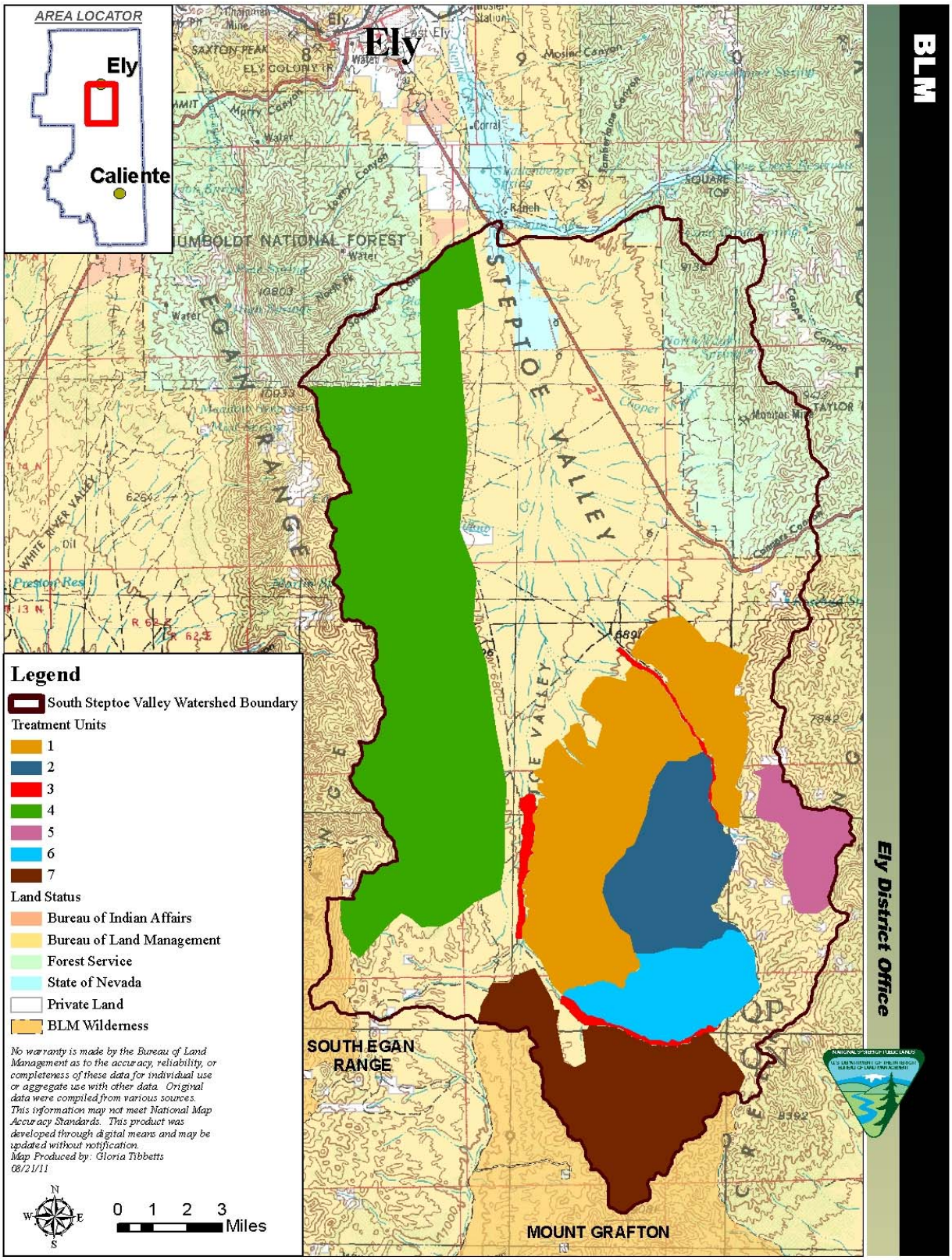
2.2. Adaptive Management

Adaptive management, as defined by the Natural Resource Council whose definition was adopted by the Department of Interior, is a decision making process that promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advance scientific understanding and helps adjust policies or operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a 'trial and error' process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to achieve more effective decisions and enhanced benefits. Its true measure is in how well it helps meet environmental, social, and economic goals, increases scientific knowledge, and reduces tensions among stakeholders.

Given the longer time scale of this project and the need to be flexible in how treatments are applied in given areas, adaptive management would be used for implementation of the South Steptoe Valley Watershed Restoration Project. Adaptive management would be used within the bounds of this analysis to achieve the objectives specified for treatments conducted.

2.3. Proposed Action

The proposal is to treat several areas within the watershed to move current vegetative conditions in the selected areas along a path towards Fire Regime Condition Class (FRCC) 1. The treatment methods would be employed in designated areas to achieve the overall objectives for the watershed and the treatment-specific objectives for each treatment unit. The areas identified for treatment, as shown in Map 2.1, "Proposed Action Treatment Units" (p. 14), are primarily located in the southern portion of the watershed and consist of lands where the natural pattern of disturbance regimes has been altered.



Map 2.1. Proposed Action Treatment Units

2.3.1. Treatment Restrictions Common to All Treatment Methods

Several treatment methods are proposed for use within the South Steptoe Valley Watershed. These treatment methods have been utilized within other areas of this watershed as well as other areas of the Ely District. The results of these treatments have been monitored within the area and a range of potential outcomes is understood. Each method listed below includes a description of the treatment and the parameters by which it would be selected if multiple methods are allowed within the same area. Primary treatments refer to treatments that would occur over large sections of the treatment area and would represent the initial treatment within each treatment unit. Following the primary treatment there may be secondary treatments implemented to achieve the objectives for the treatment unit. Secondary treatments refer to smaller more targeted treatments conducted after the primary treatment to achieve the objectives for the treatment unit. Secondary treatments would be conducted after post monitoring indicates the results of the primary treatment. Selection of the primary treatment would be based on the desired outcome, environmental conditions, as well as physical and social constraints within the area. Secondary treatments may be applied if the original objectives were not fully achieved through application of the primary treatment.

2.3.1.1. Timing Restrictions

1. Sage grouse – Do not allow treatments within two miles of active leks from March 1 – June 30 during breeding and nesting season.
2. Migratory birds – Avoid treatments during the migratory bird nesting season from May 1 – July 15. If treatment is to be implemented during the nesting season, a biologist would determine the appropriate survey methods (timing, frequency, etc.) and restrictions needed prior to implementation to minimize impacts to migratory birds.
3. Raptors – Avoid conducting treatments from April 15 – July 15 within a half-mile of active raptor nests, unless nest has been determined inactive for at least 5 years.
4. Big Game – Avoid conducting treatments within big game calving/fawning/kidding grounds and crucial summer range from April 15 – June 30.

2.3.1.2. Treatment Design Restrictions

1. Sagebrush treatments should be in a mosaic/strip pattern and seeded if there is no existing herbaceous understory.
2. Minimize sagebrush treatments in areas that consist of pygmy rabbit or winter sage grouse habitat.
3. Do not treat sagebrush within crested wheatgrass seedings, but allow pinyon pine and juniper removal if needed.
4. No vegetation treatments within a quarter mile of an active sage grouse lek (with the exception of pinyon and juniper removal) unless reviewed and approved by a BLM Wildlife Biologist.
5. Do not treat more than 20% of sage grouse breeding habitat within a 30-year period, which is the approximate time for sagebrush stand to recover. Additional treatments should be deferred until the treated area provides suitable habitat (15%-25% sagebrush cover and greater than 10% herbaceous cover). (Connelly et al. 2000).
6. Avoid removal of pinyon pine and juniper displaying old-growth characteristics. Old-growth characteristics generally include trees displaying a combination of the following: broad asymmetric tops, deeply furrowed bark, twisted trunks or branches, dead branches and spike

tops, large lower limbs, hollow trunks (mostly in juniper), large trunk diameter relative to tree height, and branches covered with lichen.

2.3.1.3. Visual Resource Restrictions

Most of the treatment units are within Visual Resource Management (VRM) class II areas where the objectives are to retain the existing character of the landscape, allowed change is low and activities may be visible, but should not attract attention of the casual observer. To meet these objectives the following design criteria would be followed when designing vegetation treatment.

Mechanical treatments would include runners of trees along the drainages and islands of trees to maintain diversity for wildlife and to achieve a natural appearance to meet VRM objectives. Figure 2.1, "Image depicting the "natural" interface from woodland sites above to rangeland sites below with stringers of trees along washes and in depressions." (p. 16) represents a "natural" appearance of the interface between woodland sites above and rangeland sites below with runners of trees along the drainages. Prior to project implementation, stringers and islands would be mapped to produce a mosaic pattern. Remaining trees would remain in an arrangement similar to that depicted in the figures below. Biomass remaining on site would be scattered on the ground following treatment.

Figure 2.1. Image depicting the "natural" interface from woodland sites above to rangeland sites below with stringers of trees along washes and in depressions.

2.3.1.4. Cultural Restrictions

All treatment areas that create surface disturbance would be inventoried for cultural resources to identify eligible (Historic Properties) and potentially sensitive sites prior to implementing treatments. Prior to treatment, any possible Traditional Cultural Properties would be identified. An archaeologist would review any potential properties found to determine appropriate mitigation.

A Cultural Needs Assessment would be completed for each treatment unit prior to implementation of any treatment. Identified cultural sites would be recorded and evaluated to determine eligibility for the National Register of Historic Places (NRHP). Eligible cultural resources would be avoided or impacts mitigated as necessary before any surface disturbing treatments are initiated. Historic mining districts and mines would also be identified for the safety of crews working in the area. A standard 20-meter buffer would be in place for any treatments utilizing heavy equipment or

for removal of flammable material surrounding cultural sites that may be affected by fire or heat preceding ignition of a prescribed fire. A hand-cut fireline may also be created surrounding the 20-meter buffer for prescribed fire. Burn piles would be located in previously disturbed areas or, if not available, an archaeologist would survey the area to identify any avoidance areas for the placement of the piles. Prior to aspen treatments, a survey would be conducted for arborglyphs and an archaeologist would be would review to determine appropriate mitigation.

A Class III cultural resource inventory would be required for any treatments including the use of vehicles or heavy equipment or when all-terrain vehicles (ATVs) are used for more than a one-time application of chemical treatments. A mosaic pattern would be designed for any mechanical treatments to avoid any cultural sites identified during the Class II inventory. Avoidance areas that would not be treated would be irregularly shaped and blended with the landscape. No Class III cultural resource inventory would be required for hand cutting treatments if the trees were cut, dropped, and hand-carried off of the site. A Class I cultural resource inventory would be required when ATVs are used for a one-time application of chemical treatments and travel routes would avoid all known cultural sites. A Class I cultural resource inventory would also be required prior to ignition of prescribed fire and within 24 hours of a naturally ignited fire to determine if any burnable of fire-sensitive resources are present.

2.3.1.5. Mineral Restrictions

A survey for mining claim markers in documented active claim sites would be conducted prior to implementing treatments. All active mining claim marker locations and tag information would be recorded. Active mining claim markers or stakes would be avoided to the extent practical. Active mining claim markers that are destroyed by prescribed burning, thinning, or chaining operations would be re-staked using a legal mining claim marker. The re-staking of mining claim markers would occur in coordination with the existing mining claimants to ensure accurate, legal staking procedures that would minimize damage to claims.

If any mining sites or dumps are discovered within the project area, operations would avoid these sites in order to minimize risk from potentially hazardous materials or mine features. Sites would also be reported to the Ely District Hazardous Materials Coordinator.

2.3.1.6. Travel Restrictions

No new roads would be constructed or created during project implementation. Off-road travel with heavy equipment and vehicles would occur during implementation. Loading and unloading any equipment would occur on existing roads to minimize off-road disturbances and impacts. If determined necessary, signs would be posted along roads within or adjacent to treatment units in regards to travel restrictions to assist in mitigating impacts from future cross country travel. No off-road travel would be authorized for harvest of fuelwood by the public, unless specifically allowed by the authorized officer and subject to the following considerations and restrictions that will be determined at the time of authorization:

- Vehicle size limitations
- Timing restrictions
- Avoidance areas for sensitive resources
- Soil conditions
- Off-road travel would not be authorized for the duration of grazing closure for the same area, if applicable.

- Off-road travel would be allowed until the biomass has been removed or for a period not to exceed five years following the opening of the area for off-road fuelwood collection.

2.3.1.7. Grazing Restrictions

Coordination with the affected livestock permittees within the allotments being treated would be conducted prior to any treatment occurring. Any livestock grazing closure for the purpose of the vegetation treatment would be done through the grazing decision or agreement process and would occur prior to the treatment. Livestock grazing would not be authorized within the treatment areas during implementation of the selected alternative. Livestock grazing would resume immediately within treatment areas that exhibit at least 10 percent foliar cover of desirable perennial grasses and forbs. Seeded areas would be closed to livestock grazing for two growing seasons or until the following vegetation objectives have been met:

- A minimum of five or more desirable perennial plants per square meter would be firmly rooted in the treated area. Desirable perennial plants are those plants that are native or introduced and have the ability to maintain ecosystem processes and provide forage for livestock and wildlife.
- In aspen (Populus tremuloides) stands, livestock grazing would not be scheduled following treatment for two complete growing seasons or until the following vegetation objective has been achieved: Regeneration of 350 aspen shrub phase stems per acre and 175 saplings per acre greater than 1.5 inches diameter at breast height (DBH).

Monitoring sites would be established prior to project implementation however, additional sites may be established within one year following treatment completion. Monitoring locations would be measured annually during the livestock grazing closure period. The closure period may be extended until vegetation objectives have been met. At that time livestock grazing would resume as permitted.

An interdisciplinary team would conduct a review of the resource monitoring data and objectives to determine if and when livestock grazing should be allowed to occur within the project area. If environmental factors prevent attainment of resource management objectives following the mandatory rest period, an interdisciplinary team would review resource monitoring data and determine an appropriate grazing regime with the permittee. Any terms and conditions specific to livestock grazing within the project area would also be discussed and included in any annual grazing authorization, which would require a new grazing decision to be issued.

2.3.1.8. Hydrology Restrictions

Crossing perennial, intermittent, ephemeral drainage features would be avoided unless deemed absolutely necessary. If it is deemed necessary to cross these features, crossing locations would be approved by the authorized officer with input from the appropriate technical specialist. If the crossing or entering of ephemeral features must be undertaken, ingress and egress would be as close to 90 degrees to draw long-axis as possible and with as little bank disturbance as practicable. Slash or woody material of sufficient size and depth could be placed in ephemeral drainage features to protect banks and draw bottoms at designated crossing sites and would be removed when the crossing is no longer needed. Re-contouring of drainage feature banks or bottoms would occur as needed following completion of treatment, restoration of drainage crossing, or otherwise as identified by project manager.

2.3.1.9. Cadastral Restrictions

In accordance with IM-NV-2007-003, surveys would be conducted for cadastral monument and markers prior to any surface disturbing activities and that, if they are disturbed, they would be restored after treatment where possible.

2.3.1.10. Private Land Restrictions

There are private lands located within the boundaries of proposed treatment units. These private lands would not be treated unless a cooperative agreement is in place between the BLM and the landholder.

2.3.1.11. Air Quality Restrictions

A smoke permit would be required for implementation of prescribed fire, and wildfire for resource benefit treatments in accordance with the following documents:

- BLM Handbook H-9214-1 Prescribed Fire Management Handbook
- Interagency Prescribed Fire Planning and Implementation Procedures Guide, 2003, Modified
- NWCG Interagency Incident Business Management Handbook, PMS 902, NFES 3139.
- Wildland Fire Use Implementation Procedures and Reference Guide, 2005, Modified
- Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy, 2003

2.3.1.12. Non-Native Invasive and Noxious Species

Stipulations identified in the Weed Risk Assessment (Appendix A) and the Ely District Integrated Weed Management Plan and Environmental Assessment (DOI-BLM-NV-L000-2009-0010-EA) would be carried out at the time of implementation within each treatment unit.

Management of weeds would include best management practices for early detection and to prevent spread; and treatments to control current populations and any new weed populations discovered during the life of the project. Treatments could include biological controls, targeted grazing, mechanical controls and herbicide. For biological controls only the release of U.S. Department of Agriculture (USDA) - Animal and Plant Health Inspection Service approved insects or pathogens would be used and would be accompanied by a BLM Biological Control Agent Release Proposal. Targeted grazing would only be used to suppress large patches of cheatgrass (Bromus tectorum) that are hindering successful recovery of desired plant species. Sheep, cattle, or goats may be used as long as the animals are intensely managed and removed when the targeted species is reduced to a height of two to three inches. Timing restrictions would apply when using targeted grazing to reduce impacts to desired plant species. Targeted grazing would only be allowed during early spring green up when cheatgrass has emerged and other desired grasses are mostly dormant, or in the fall after desired grasses and forbs become dormant.

Treatments may include hand pulling, mowing, cutting using hand or chainsaw, and prescribed fire. Chemical treatments could be used to target cheatgrass or newly discovered noxious and invasive weeds within the vegetative treatments areas. Any herbicide treatments would require a Pesticide Use Report submitted to the BLM Nevada State Office following implementation. Herbicide treatments for weeds would include the potential use of all BLM approved herbicides and surfactants, both in the BLM Vegetation Treatments Using Herbicides on Bureau of Land

Management Lands in 17 Western States Programmatic Environmental Impact Statement (EIS) and Record of Decision (BLM 2007), and any herbicides approved in the future using the protocol for identifying, evaluating, and using new herbicides as described in that EIS. Depending on chemical, size of the area and acceptable amount of drift, applications of treatments could include backpack application, pack animal tank application, ATV/UTV tank application, truck or tractor tank application, and aerial application.

2.3.1.13. Right-of-way Restrictions

All utility lines and other rights-of-way (ROW) structures would be avoided during implementation, depending on the selected treatment type. Above ground structures associated with buried utility lines would also be avoided. Any potential ROW holders within the treatment units would be notified prior to implementation.

2.3.1.14. Wilderness Restrictions

Treatments conducted within Wilderness Areas would be designed to be in full compliance with the applicable Wilderness Management Plan. Treatment methods and design would be reviewed by the Ely District Wilderness Planner using a Minimum Requirement Decision Guide (MRDG) analysis to ensure the least amount of potential impact. Specific design features would be incorporated as the treatment design is finalized prior to implementation.

2.3.2. Treatment Methods

2.3.2.1. Methods for tree removal or woodland restoration

Tree removal would be targeted in areas where tree establishment and density is at undesired levels and should be thinned or removed in order to achieve management goals listed in the Ely RMP. Examples include pinyon pine (Pinus monophylla) and juniper (Juniperus spp.) species establishment onto sagebrush communities or establishment of mixed conifer species into aspen communities.

2.3.2.1.1. Group tree removal - Chaining

Chaining would be accomplished using the Ely Anchor Chain (Navy ship anchor chain with 40-120 pound links and 18 inch railroad iron welded perpendicular to the chain link) and/or smooth chain (chain with 40-120 pound links) pulled between two bulldozers. Chaining treatments would consist of one or two-way chaining (chaining the trees twice, once from one direction, then from a different direction). Islands of untreated trees would be left to provide escape and thermal cover for wildlife. Areas that are chained would be seeded prior to completing the final pass. Biomass may be left on site for natural degradation, treated with a secondary treatment (i.e. prescribed fire) or may be made available for removal and use after the implementation of the treatment.

Chaining would be used where decadent sagebrush and heavy to moderate encroachment of pinyon pine and juniper are reducing the proportion of younger brush, grasses, and forbs within an area. Chaining is a desirable method for incorporating seed into a diverse seedbed to promote revegetation of the area. In addition to seed applied through an aerial method, seed dribblers

attached to the track of the bulldozer can be used to press antelope bitterbrush (Purshia tridentata) seed into the soil to promote establishment.

Chaining would not be desirable in areas where selective tree removal is needed to meet objectives and treatments should be designed to avoid stands of mountain mahogany. For the purpose of removing pinyon pine and juniper trees and maintaining sagebrush communities, chaining would not be a desirable method in areas with less than 10% tree cover. Chaining would be preferred on slopes of less than 20%, however may be considered on slopes up to 30%.

2.3.2.1.2. Individual tree removal - Mastication or other mechanical methods

Mastication and mechanical removal of pinyon pine and juniper includes the use of some form of cutting head attached to a piece of machinery from the size of a light duty skid steer or larger. The cutting heads can be of various designs, some of which chip the tree, cut and pile the tree, and others that cut, lop, and scatter the tree. The potential for biomass removal would depend on the type of method used. Biomass, including fuelwood, would be made available for public use to the greatest extent possible. Biomass created from whole-tree cutting methods would be consolidated into piles and disposed of later through prescribed burning, spread out using a lop and scatter technique, or hauled offsite. Biomass created from mastication equipment would be left onsite to degrade by natural means. Scatter height of cut limbs and trees for areas treated with lop and scatter methods would be a maximum of 24 inches. Burning of piles would take place when there is a low chance for fire spread and when soil moisture levels are sufficiently high to prevent hydrophobicity, generally October through April. A burn plan would be written and approved prior to any prescribed burning. Following treatment, the site would be inspected to determine if excess biomass left onsite in certain locations would restrict movement for sage grouse and other wildlife. If this occurs the biomass within these areas may be piled and/or burned or removed mechanically.

Mastication or mechanical tree removal is a desirable method for selective removal of pinyon pine and juniper (thinning areas or areas with desirable tree species intermixed) with minimal impact to existing brush, grasses and forbs. However, mastication loses efficiency as tree density and size increases. Incorporate pinyon pine and juniper stringers for Ferruginous hawk nests on the benches where pinyon pine and juniper has encroached into sagebrush communities. This method can incorporate some seed and prepare a seed bed in areas, but only where the equipment travels. Mastication or mechanical tree removal may be effective in areas where tree densities fall below the cover threshold for chaining. Chipping equipment is preferable in areas where remaining biomass is to be minimized (chips versus whole trees). Whole-tree cutting methods can be utilized for biomass removal and utilization.

When using this method, chip layers resulting from mastication should be restricted to six inches or less. Mastication or mechanical tree removal would be preferred on slopes of less than 20%, however may be considered on slopes up to 30%. If biomass is to be removed from the project site, accommodations would need to be made for vehicles to be able to access the site for loading and vegetation removal prior to authorization.

2.3.2.1.3. Hand Cutting

Hand cutting would involve the use of crews to selectively hand cut the trees within the treatment area. Trees would be lopped and scattered across the treatment area or piled. Cut tree material in sage-grouse habitat would be scattered or piled next to the tree bole to allow movement of

sage-grouse through or around the area. Remaining biomass may be left on site, removed for utilization, or burned. Scatter height of cut material for areas treated with hand cutting would be a maximum of 24 inches. Following treatment, the site would be inspected to determine if excess biomass left onsite in certain locations would restrict movement for sage grouse and other wildlife. If this occurs the biomass within these areas may be piled and/or burned or removed mechanically. Hand cutting may be used as a pretreatment or as a component of other treatments.

Hand cutting is a desirable method for the selective removal of pinyon pine, juniper, or other tree species (thinning areas, areas with desirable tree species intermixed, or buffering sensitive resources) with minimal impact to existing brush, grasses and forbs. It may also be an effective method in areas where tree densities fall below the cover threshold for chaining or where slope restricts the use of chaining, mastication, and other mechanical methods. Incorporate pinyon pine and juniper stringers for Ferruginous hawk nests on the benches where pinyon pine and juniper has encroached into sagebrush communities. Hand cutting is preferable in areas where remaining biomass is to be piled for burning later or lopped and scattered to maximum height of 24 inches. Hand cutting would not be used to incorporate seed or prepare a seed bed.

2.3.2.2. Mechanical Methods for Sagebrush Restoration

Mechanical sagebrush treatments would target late seral sagebrush sites (Wyoming, Black, and Mountain sagebrush) where older and decadent sagebrush is increasing and the herbaceous understory is diminishing.

2.3.2.2.1. Dixie Harrow

The Dixie harrow consists of a large spike-tooth harrow pulled by a four-wheel drive rubber-tired tractor equipped with a three-point hitch. The Dixie harrow can be used in sagebrush or other small shrub stands and offers a high degree of control. Factors such as the pattern of treatment, residual density of sagebrush, seeding, and timing can all be controlled. Sagebrush mortality levels can be adjusted through the removal or addition of tines. Within these units, mechanical removal of pinyon pine and juniper may be utilized to remove the trees prior to treatment, as opposed to avoiding them. Seeding can be conducted within the same pass as the treatment with the use of a broadcast seeder attached to the back of the equipment pulling the Dixie harrow. Any biomass resulting from this treatment would be left on site for natural decomposition.

The Dixie harrow would be desirable for reducing shrub cover, increasing the vigor of existing shrubs, and reducing competition to existing grasses and forbs. It allows incorporation of seed into a seedbed to promote re-vegetation of an area. Equipment would have to negotiate around trees if they aren't removed prior to treatment and treatment areas would be restricted to areas that are less than 20% slope.

The Dixie harrow may be used as a secondary treatment within areas that have been treated for removal of pinyon pine and juniper to further reduce the shrub component in order to achieve the desired mosaic pattern and percentages of seral states listed within the objectives for each treatment area. When used as a secondary treatment, the amount of biomass remaining on site would restrict the effectiveness of the Dixie harrow.

2.3.2.2.2. Roller Chopper

Roller chopper treatment involves the use of a large drum with paddles attached that is pulled behind a piece of machinery such as a tractor or bull dozer. The weight of the drum can be adjusted through the addition of water to the drum. The treatment crushes and chops brush and small trees. Seeding can be conducted within the same pass as the treatment with the use of a broadcast seeder attached to the back of the equipment pulling the roller chopper. Any biomass resulting from this treatment would be left on site for natural decomposition.

The roller chopper is desirable for reducing shrub and small tree cover and is effective at incorporating seed into a seedbed to promote re-vegetation of the area. The roller chopper can be used in areas where small trees are present up to five inches in diameter, but would need to negotiate around large pinyon pine and juniper if not cut prior to treatment. Equipment would be restricted to areas that are less than 20% slope and soils that contain a low amount of rock fragments.

The roller chopper may be used as a secondary treatment within areas that have been treated for pinyon pine and juniper removal in order to further reduce the shrub component to achieve the desired mosaic pattern and percentages of seral states listed within the objectives. When used as a secondary treatment the amount of biomass remaining on site may (depending upon diameter) restrict the effectiveness of the roller chopper.

2.3.2.2.3. Mowing

Mowing involves the use of a mowing deck pulled behind a tractor equipped with a power take-off. Its use would be limited to sagebrush and other small shrubs in areas that have fairly gentle terrain and with no large rocks or downed trees. Within these units, hand cutting of trees may be utilized to remove the trees as opposed to avoiding them. Any biomass resulting from this treatment would be left on site for natural decomposition.

Mowing is a desirable method for reducing shrub cover, increasing the vigor of existing shrubs, and reducing competition to existing grasses and forbs. The height to which the target species is cut may range from ground level to 12-15 inches high. The degree of sagebrush mortality and re-growth can be controlled by adjusting the height of the cutting blades. Cutting to less than four inches would likely result in 85-100% mortality. Leaving greater than a 10-inch height may result in only 40-60% mortality. Mowing is not effective at incorporating seed into the soil or preparing the seedbed and would have to negotiate around pinyon pine and juniper if they are not removed prior to treatment. Mowing treatments would be restricted to areas that are less than 20% slope and a relatively low amount of surface rock.

Mowing may be used as a secondary treatment within areas that have been treated for removal of pinyon pine and juniper to further reduce the shrub component in order to achieve the desired mosaic pattern and percentages of seral states listed within the objectives for each treatment area. When used as a secondary treatment the amount of biomass remaining on site would restrict the effectiveness of the mowing treatment.

2.3.2.3. Chemical Treatments

All chemical treatments would be in accordance with the specifications listed on the label for the chemical being used and the Final Programmatic Environmental Impact Statement (PEIS)

– Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (2007) and associated Record of Decision. Agency and contractor personnel involved with the application of pesticide would be appropriately licensed as required by the EPA, BLM, and the state of Nevada. Equipment utilized for application would be properly equipped and calibrated for dispensing the herbicide. For aerial applications of herbicide the pilot would be required to have a current Nevada pesticide applicator's license and the aircraft would need to be equipped to precisely dispense the herbicide. The applicator would also be required to have a current Nevada pesticide applicator's license. A Pesticide Use Proposal (PUP) would be completed and authorized prior to completing the treatment. Standards and guidelines for storage facilities, posting and handling, accountability and transportation as listed in BLM Handbook 9011 (Pesticide Storage, Transportation, Spills and Disposal) Section II would be followed. Items listed in the Material Safety Data Sheets (MSDS) provided for all chemicals used would also be adhered to.

2.3.2.3.1. Tebuthiuron

Tebuthiuron is a pesticide used to control woody species and may be applied in accordance with all applicable federal, state and local laws, regulations and guidance. The preferred time of application would be during the fall prior to the first snow fall, however, the herbicide could be applied any time as long as the ground is not frozen, water saturated, or snow covered. The project would be conducted during calm weather conditions to avoid herbicide (pellet) drift.

The project design would be in compliance with the buffers identified within the Standard Operating Procedure and Appendix C table C-16 of the Final Programmatic Environmental Impact Statement (PEIS) – Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (2007). Standard Operating Procedures and Mitigation Measures Identified in the Record of Decision for the Final Programmatic Environmental Impact Statement (PEIS) – Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (2007) would be incorporated into the project design at implementation. The above incorporated project design features provide prescriptions for herbicide treatment along with appropriate mitigating measures. Other project design features may be added to protect resources as site specific conditions warrant prior to treatment.

Herbicide effectiveness of Tebuthiuron depends on the soil depth and texture and the amount of clay and organic matter content of the soil. Soil samples would be collected and tested at various locations in major vegetation types within the treatment area to determine soil properties and appropriate herbicide application rates in order to meet the objectives of the project.

Tebuthiuron is proposed to achieve one of three objectives; 1) to reduce pinyon pine and sagebrush cover within mountain sage communities to release deep rooted shrubs, grasses and forbs, 2) to reduce sagebrush cover in a spotty and mosaic fashion and at application rates that result in less than 100% mortality within black and Wyoming sagebrush sites, and 3) to reduce sagebrush competition with grasses and forbs within areas where a desirable understory is already present. Application rates would be determined through soil analysis and the objectives for the specified treatment area.

Biomass remaining after the effects of the herbicide are realized may be left on site for natural decomposition, treated with prescribed fire, or made available for fuelwood. If made available for fuelwood, the Material Safety Data Sheet and any other applicable information must be reviewed to ensure the safety of combustion of wood that has absorbed the chemical and must be made available to the public.

Tebuthiuron may be in areas where shrub and tree cover would need to be removed in order to release grasses, forbs and deep rooted woody species (rate dependent). Tebuthiuron may be used in areas that terrain limits other mechanical treatments. However, Tebuthiuron should not be used in areas that have soils with clay content greater than 30% or that have surface water or an elevated groundwater level. Treatments should be designed to avoid stand of mountain mahogany. Tebuthiuron may be used as a secondary treatment to further reduce the shrub component to achieve the desired mosaic pattern and percentages of seral states listed within the objectives for each treatment area.

2.3.2.3.1.1. Tebuthiuron for Suppression of Pinyon Pine and Juniper

Target areas for herbicide treatment would be areas where pinyon pine and juniper have established on sagebrush ecological sites and late seral pinyon pine and juniper woodland sites where a desirable understory is established. Following application of the herbicide in doses sufficient to control juniper it would be expected to have near 100% mortality of sagebrush and pinyon pine. This treatment should be restricted to areas that have a desirable understory of grasses established that are resilient to the herbicide.

2.3.2.3.1.2. Tebuthiuron for Suppression of Sagebrush

Target areas for herbicide treatment would be areas where older, decadent, even-aged stands of sagebrush exist with a desirable understory. Areas with Basin Wildrye (*Leymus cinereus*) as a dominant species as identified within the Ecological Site Description (ESD) may be treated to reduce sagebrush cover and promote a desirable understory. Application of herbicide in this instance would be done at rates that would result in partial control of sagebrush. The method of application would be dictated by the treatment size and would be done in accordance with the applicable label and the Final Programmatic Environmental Impact Statement (PEIS) – Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (2007). Following application of the herbicide in such doses it would be expected that deep rooted shrubs (antelope bitterbrush) and trees (juniper) would not be substantially impacted and existing grasses and forbs would be released.

2.3.2.3.2. 2,4-D and Picloram for Rabbit Brush Suppression

Treatment units identified for the removal of rubber rabbitbrush would be treated with a mechanical treatment (mowing), followed by a chemical treatment of Picloram and 2,4-D within the project area in order to reduce the densities of rubber rabbitbrush communities on sagebrush and basin wildrye dominated ecological sites. The project design would be in compliance with the buffers identified within the Standard Operating Procedures and Appendix C table C-16 of the Final Programmatic Environmental Impact Statement (PEIS) – Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (2007). If areas around wetland and riparian areas are to be treated they would only be treated with a pesticide registered with the Environmental Protection Agency for aquatic applications. Wind speeds, precipitation events and other environmental factors would be considered during the application processes to prevent herbicidal drift or potential runoff.

Picloram (active ingredient: 4-amino-3,5,6-trichloro-2-pyridinecarboxylic acid) is a highly translocated, selective herbicide active through both foliage and roots on many broadleaf herbaceous weeds and woody plants. 2,4-D (active ingredient: 2,4-Dinitrotoluene) is a selective,

foliar-absorbed, translocated, phenoxy herbicide used mostly in post-emergence applications and is effective in controlling many annual and perennial broadleaf weeds. Once absorbed 2,4-D is translocated within the plant and accumulates at the growing points of roots and shoots where it inhibits growth. Application rates and procedures would follow directions as listed on the herbicide specimen labels for rubber rabbitbrush. Target areas for both mowing and herbicidal treatments would be those areas where rubber rabbitbrush has established on sagebrush and basin wildrye ecological site.

The preferred time of application would be in late May or early June. Rubber rabbitbrush can be susceptible to herbicides such as 2,4-D, but results vary widely according to the type of treatment, rate of application and the date and year of treatment. Relative effectiveness also depends on the amount of new twig growth and subsequent rainfall. The highest success rates are obtained when plants have at least 3 to 4 inches of new growth and when soil moisture exceeds 13 percent. Rubber rabbitbrush may be less susceptible to herbicides during drought years when new growth may be minimal (Tirmenstein, D. 1999). The project area would be inspected prior to the chemical treatment to solidify those areas targeted for each specific treatment in order to achieve the desired resource management objectives.

2.3.2.4. Prescribed Fire

Prescribed fire can be used to control certain species, manage fuel loading, and maintain vegetation community types that are fire dependent, and enhance growth, reproduction, or vigor of certain species. Target locations would be chosen in sites with existing native perennial understory species. These target areas would exhibit characteristics where positive natural re-establishment of native grasses and favorable establishment of seeded grasses are most likely to occur. Given the presence of a healthy and diverse understory of native perennial species and a lack of non-native invasive plant species, it is less likely that invasive plants would establish in these areas.

Vegetation targeted for prescribed fire includes aspen, mixed conifer (other than those types listed under incidental or avoidance), mountain mahogany, mountain sagebrush, and pinyon pine and juniper woodlands. Incidental vegetation types would include sagebrush (Wyoming, black, and low), ponderosa pine and vegetation within riparian areas. Inter-Mountain Basins Subalpine Limber-Bristlecone Pine Woodland is mapped within some treatment units. These vegetation types would be inventoried where mapped and it would be determined whether or not Bristlecone Pine (*Pinus longaeva*) is present. If present the stands would be avoided with prescribed fire. If not present the stands would be considered an incidental vegetation type. Vegetation types that would be avoided with prescribed fire are limber pine, bristlecone pine, and salt desert shrub communities. Prescribed fire may be used as a secondary treatment to achieve the objectives listed for individual treatment areas. Prescribed fire may also be used to reduce biomass left on site. In the event that prescribed fire is utilized in areas where antelope bitterbrush is present, fire severity and timing of ignition would be limited to minimize impacts to the antelope bitterbrush.

Ignitions would occur within the specific prescribed burn project boundary designated within the treatment units. Prescribed fire that moves outside of the prescribed burn project boundary but remains within the treatment unit boundary may be managed to accomplish resource management objective consistent with those listed for the treatment unit. Prescribed fire that moves outside of the treatment unit boundaries would be fully suppressed.

Ignition would be strategically timed to best reduce fuel hazards to acceptable levels and benefit ecological system health. Fuel moistures and atmospheric conditions would be closely monitored

prior to ignitions to achieve the specific levels of fire severity targeted within the objectives and burn plan, maintain the greatest degree of control possible, and prevent adverse impacts from smoke.

A combination of ground and aerial firing (ignition) resources would be used to implement the prescribed burn. Ground firing resources would include drip torches and terra torch where applicable. Clean up and control would also be conducted with the use of drip torches and/or terra torch. Aerial application would be through the use of a Plastic Sphere Dispenser (PSD) machine or helitorch. Aerial fire application would improve efficiency and effectiveness. Safety, fuels properties, current and expected weather, topography (ingress/egress), and holding capabilities would determine the proper fire application. Drainage bottoms would be avoided, where possible, and mosaic patterns would be preferred to block patterns. An approved burn plan would be prepared prior to any prescribed fire. Control lines for prescribed fire would utilize natural barriers as much possible. In the event natural barriers cannot be utilized, tree and shrubs would be cut and removed along prescribed fire boundaries. Vegetation removal may include techniques described under Section 2.3.2.1 “Methods for tree removal or woodland restoration”. Vegetation removed along the control line would be piled inside the prescribed fire boundary and burned during firing operations. In some cases control lines would include scraping and/or digging to expose mineral soil. If fire lines are constructed for a prescribed burn, the lines would be rehabilitated after the completion of the burn. Rehabilitation of the lines may include seeding (by hand or ATV), dragging brush back onto the line, and/or water-barring the fire line.

Prescribed fire may be used in areas where reducing the shrub and/or tree component is desirable to release other desirable vegetation (aspen, grasses, forbs, etc.) and in areas that have a pre-existing understory to reseed the burned area naturally. It may also be used in areas with varying terrain and is the preferred method for aspen and mountain mahogany regeneration. However, boundaries should be designed to avoid sage grouse breeding habitat and any known cultural sites that are susceptible to damage from heat or smoke. Prescribed fire may be used as a secondary treatment to further reduce the shrub component to achieve the desired mosaic pattern and percentages of seral states listed within the objectives for each treatment area.

Planned ignition is a technique that may be employed within the prescribed burn units and may be preferred in prescribed burn units within the wilderness areas (if allowed within the applicable Wilderness Plan). This technique involves igniting a fire in a strategic location, time, and weather conditions to accomplish the specified objectives. Following ignition the fire is allowed to burn as the weather and fuels dictate with suppression forces utilized to keep it within the prescribed burn area boundaries or to protect sensitive resources. This technique may require a series of planned ignitions over several years to accomplish the objectives for any one prescribed fire treatment unit.

2.3.2.5. Non-Native Seedings

Within South Steptoe Valley Watershed there are several non-native seedings that were established for the purpose of livestock management. Presently the Ely District RMP allows 5% of sagebrush communities and 18% of salt desert shrub communities to occur within non-native seedings. It is proposed to manage all of the non-native seedings that presently occur within South Steptoe Valley Watershed as non-native seedings with the exception of seedings that do not occur within sagebrush or salt desert shrub communities. The desired future condition (DFC) for the proportions of sagebrush and salt desert shrub communities for the watershed would be adjusted to incorporate all of the non-native seedings.

The Ely District RMP delineates a DFC for the management of non-native seedings for which actions are to be implemented to obtain. The seral classes are described as; Herbaceous (65%) Shrub State (25%) and Tree State (10%) as described within the applicable state and transition models. Monitoring would be conducted to determine the percentages of the non-native seedings that are occurring within each seral state. Up to 4000 acres of non-native seedings may be treated to increase the establishment of native shrubs and forbs to meet the seral class percentages as listed within the RMP. Priority areas would be mono-culture non-native seedings occurring adjacent to active sage grouse leks. Any locations that occur within a seeding and are mapped as a vegetation type other than sagebrush or salt desert shrub would be monitored. If the site is not a sagebrush or salt desert shrub vegetation type the seeding would be treated to return it to the applicable vegetation type. Treatments within non-native seedings may include the removal of the non-native seeded species and the seeding or planting of desirable grasses, forbs and shrubs. Mechanical removal of non-native species would include the methods listed for sagebrush removal as well as concentrated grazing rotations. Seeding of desirable species may include seeding with the use of broadcast seeding by hand or vehicle, rangeland drill or aerial application. Planting of desirable species would include primarily hand planting seedlings.

2.3.2.6. Aspen Restoration

Aspen communities within the South Steptoe Valley Watershed not identified elsewhere in the Proposed Action for potential treatment may be targeted for specific aspen restoration activities. Aspen within the Egan Range is subject to treatment consistent with the treatments outlined in this document and in the Egan Range Aspen Restoration EA and Decision Record (DOI-BLM-NV-L020-2010-0008-EA), which includes manual conifer removal, fencing, and prescribed fire. Aspen stands outside the treatment units, or within treatment units but not targeted for treatment, are small in scale, often do not appear on satellite imagery due to pixel sizes larger than average stand size, and have not been inventoried. As these stands are identified, they would be eligible for conifer removal treatment. Conifer removal would be done by hand within 75 feet of a living aspen stem (approximately 1.5 times the average stand height) when the conifer component of the stand exceeds a stand density index (SDI) of 20. No new roads or trails would be constructed. Slash would be scattered, piled for burning, or made available for removal by the public as biomass. Slash piles would be burnt following preparation of an approved prescribed fire burn plan.

2.3.2.7. Seeding

Seeding would occur in areas where the interdisciplinary team determines that existing understory vegetation is not sufficiently abundant (generally in areas with less than 10% relative cover of perennial grass and forb species) or diverse. Seeding would be conducted on the treated sites during the fall or early winter months, preferably prior to snow fall. Seed mixes intended for application in wilderness areas would utilize only native grasses, forbs, or shrubs. Seed mixes for all other areas may consist of a variety of native grasses, forbs, and shrubs as well as non-native perennial species that are able to successfully compete with invasive annuals (e.g., cheatgrass) and are adapted to site characteristics. Preference would be given to using a purely native seed mix, however if it is determined that recurring wildland fire, invasive species establishment, or site characteristics may prevent achieving the treatment unit objectives, non-native perennials may be utilized to reduce these threats.

Seeding would occur through aerial application, ground application with the use of a rangeland drill, broadcast with a tractor or ATV, aerially applied, or applied by hand. Seeding in wilderness areas would only be applied by hand or aerially. Seeding with a rangeland drill would be restricted to slopes less than 20% and where stone content of the soil permits the effective use of the drill. All areas that are chained for the purpose of pinyon pine and juniper removal would be seeded. Chainings, regardless of the purpose, would be seeded aerially prior to the completion of the final pass of equipment. Other mechanical treatments for pinyon pine, juniper, or sagebrush would have seed applied prior to the treatment occurring. Areas that are to be treated with chemicals would be seeded after the application of the herbicide in most cases and would be determined by the specification and recommendations of the label.

If chaining occurs within mountain sagebrush habitat, antelope bitterbrush seed would be applied using dribblers attached to the dozer.

Seeding may also be utilized as a secondary treatment in burned areas from prescribed fire or fire for resource benefit. These areas would be selected based upon the existence of a desirable understory that would promote natural re-vegetation of the treatment area. In the event that the prescribed burn severity is higher than predicted or the fire moves into a non-target area, seeding may be required to ensure revegetation of the area by desirable species.

2.3.2.8. Fencing

Fencing may be required to restrict livestock from entering treated areas and fencing may also be required to restrict all large ungulate (wild and domestic) herbivory on treated areas in highly sensitive location such as aspen stands and riparian areas. All fences for the purpose of restricting all ungulate herbivory would be temporary in nature and would remain in place only until the objectives are met.

Aspen stands with low regeneration (fewer than 300 healthy stems per acre under six feet in height) may need to be fenced in order to prevent herbivory on the stand. In general, fencing of aspen stands would be used in open stands where few conifers dominate the overstory (possibly after other treatment) and on gentler slopes. Fencing would be constructed of eight-foot steel pipe rail fencing, electrical fencing, or a slash barrier fencing designed to keep elk, deer, cattle, and domestic sheep out of the treatment area. Fencing would be placed on site in such a way that visual impacts would be minimized to the fullest extent practicable.

Any treatment that is seeded and any prescribed burn would be rested for a minimum of two years following treatment or until the revegetation criteria described in 2.3.1.7, Grazing Restrictions are achieved. To accomplish the overall and treatment-specific objectives, fencing of all or parts of treatment areas may be required. If possible, existing fences would be utilized to restrict livestock from entering treated areas.

Temporary fencing for the purpose of restricting livestock would be installed around treatment areas as needed and would be removed after objectives for the treatment area had been achieved. Additionally, permanent fencing could be installed in coordination with goals defined through the Term Permit Renewal process for a given area.

Steel pipe rail fencing consists of four rails, is self-supporting, non-reflective, and requires no ground disturbance during installation. The fence would be left in place until regeneration objectives are met. At that time the fence may be removed from the stand and available for use elsewhere.

Electrical fencing may be used as a cost-effective fencing alternative that meets the objectives. Electric fencing would typically be three or four strands attached to a fiberglass or metal pole to a height of five or six feet. Corner posts will be constructed of wood. The fencing would be solar powered with a battery box to store electrical charge. The box containing batteries would be camouflaged to the surroundings to the largest degree possible. Electrical fencing would be used until objectives are met and then made available to reuse in other locations.

2.3.2.9. Wildland Fire for Resource Benefit and the Fire Management Plan

The South Steptoe Valley Watershed intersects four Fire Management Units (FMUs) as defined by the current (2004) Fire Management Plan (FMP). FMUs within the watershed are categorized into Wildland Urban Interface (WUI) and High Value Habitat (HVH) with varying constraints placed on acceptable wildfire size. Wildland fire for resource benefit is allowed by the FMP in all of the FMUs except the Ely/Lund/Duckwater WUI FMU as presented in Table 2.1, "Wildland Fire for Resource Benefit by FMU and the acreage of each FMU within the South Steptoe Valley Watershed." (p. 30). Wildland fire for resource benefit would be allowed within the South Steptoe Valley Watershed as prescribed within the current FMP.

If ignitions are to be considered for wildland fire for resource benefit, the mechanical and prescribed fire treatment methods identified within the Proposed Action may be implemented as part of the fire management strategy. In the case of a wildland fire for resource benefit, the BLM would inform the potentially impacted landowners within the area as to the objectives and strategy being employed. Ignitions within or adjacent to the designated treatment units would be considered for wildland fire for resource benefit if conditions are appropriate for the fire to accomplish the objectives listed for the treatment unit. Targets for individual fire size would remain the same as identified for each of the FMUs. Acres allowed within the Ely/Lund/Duckwater WUI and Northern Benches FMUs for wildland fire for resource benefit would remain as calculated on a proportional basis. Decadal acres allowed within the South Steptoe portion of the Bullwhack FMU would be 10,000 acres. Decadal acres allowed within the South Steptoe portion of the Highlands and South Egan would be 15,000 acres. These acreage adjustments are to allow wildland fire for resource benefit within the treatment areas as well as consideration for ignitions outside of the treatment units where fire could be allowed to be reintroduced to the landscape.

Table 2.1. Wildland Fire for Resource Benefit by FMU and the acreage of each FMU within the South Steptoe Valley Watershed.

Fire Management Unit Name	Percent of Area*	Wildland Fire Use Burn Targets		
		Individual Wildland Fire for Resource Benefit	Decadal Acres	
			Total Acres	South Steptoe Proportional Acres
Bullwhack	17.9	5,000	10,000	1,790
Ely/Lund/Duckwater WUI	13.2	0	0	0
Highlands and South Egan	6.8	50,000	100,000	6,800
Northern Benches	4.7	5,000	300,000	39,600

*Represents the percent of the FMU that occurs within the South Steptoe Valley Watershed and is used to calculate the proportional acres listed in the table.

2.3.3. Treatment Units

Treatment units within the South Steptoe Valley Watershed have been selected based on the purpose and need and objectives that have been specified. Data gathered by The Nature Conservancy mapping Biophysical Setting (BPS) locations within the watershed was utilized to help determine the treatment unit boundaries. Vegetation types that deviate from reference conditions as listed within the BPS models and the DFC as listed within the RMP were grouped and units were defined by the majority of the grouped vegetation types. Each treatment unit has unique objectives that define the type and extent of primary and secondary treatments to be implemented. Treatment unit objectives are based on BPS model seral states and the evaluation of the watershed is based on stratum FRCC values.

Biophysical setting models establish a reference condition that is described as the potential vegetative community for a given site prior to European influence reflecting a range of natural disturbances. These reference conditions specify a range, in percentages, of seral classes that describe the vegetation progression post-disturbance. The RMP utilized the BPS data in delineating the vegetative goals for the district. The percentages within the RMP vary slightly from the BPS models for certain vegetation types. The RMP percentages are described as the DFC for the district for which the Ely District Office is managing towards.

Sagebrush systems within the planning area have different reference percentages defined by the BPS for the area and the DFC as defined by the RMP. The RMP lumps all sagebrush systems into one description with 5% of the sagebrush acres withheld for uncharacteristic exotic stands of crested wheatgrass seedings. The RMP designates desired seral states for the crested wheatgrass seedings as well. For the purpose of defining the objectives of the treatment units the BPS reference percentages would be used as there are no proposed treatments within crested wheatgrass seedings.

Within several of the treatment units there are areas that are denoted as Montane-Subalpine Riparian Systems. Pixels associated with the BPS data are $30m^2$ which encompasses approximately 0.22 acres. Local knowledge of these riparian systems indicates that several of them are entrenched and, even those that are not, rarely achieve this size in width. Several of these entrenched systems have resulted in a drop in the water table, which has allowed non-riparian vegetation (i.e. rabbitbrush) to establish on the sites. For the purpose of treatment unit delineation, the BPS data would be used as is, however if this alternative is selected, pre-treatment monitoring would confirm the boundaries of the vegetation types.

2.3.3.1. Treatment Unit 1

Treatment Unit 1 consists of a total of 22,319 acres and 75% of that area, or approximately 16,740 acres, would be targeted for treatment. Targeted vegetation types for unit 1 are all within FRCC 2.

Treatment objectives specific to Treatment Unit 1:

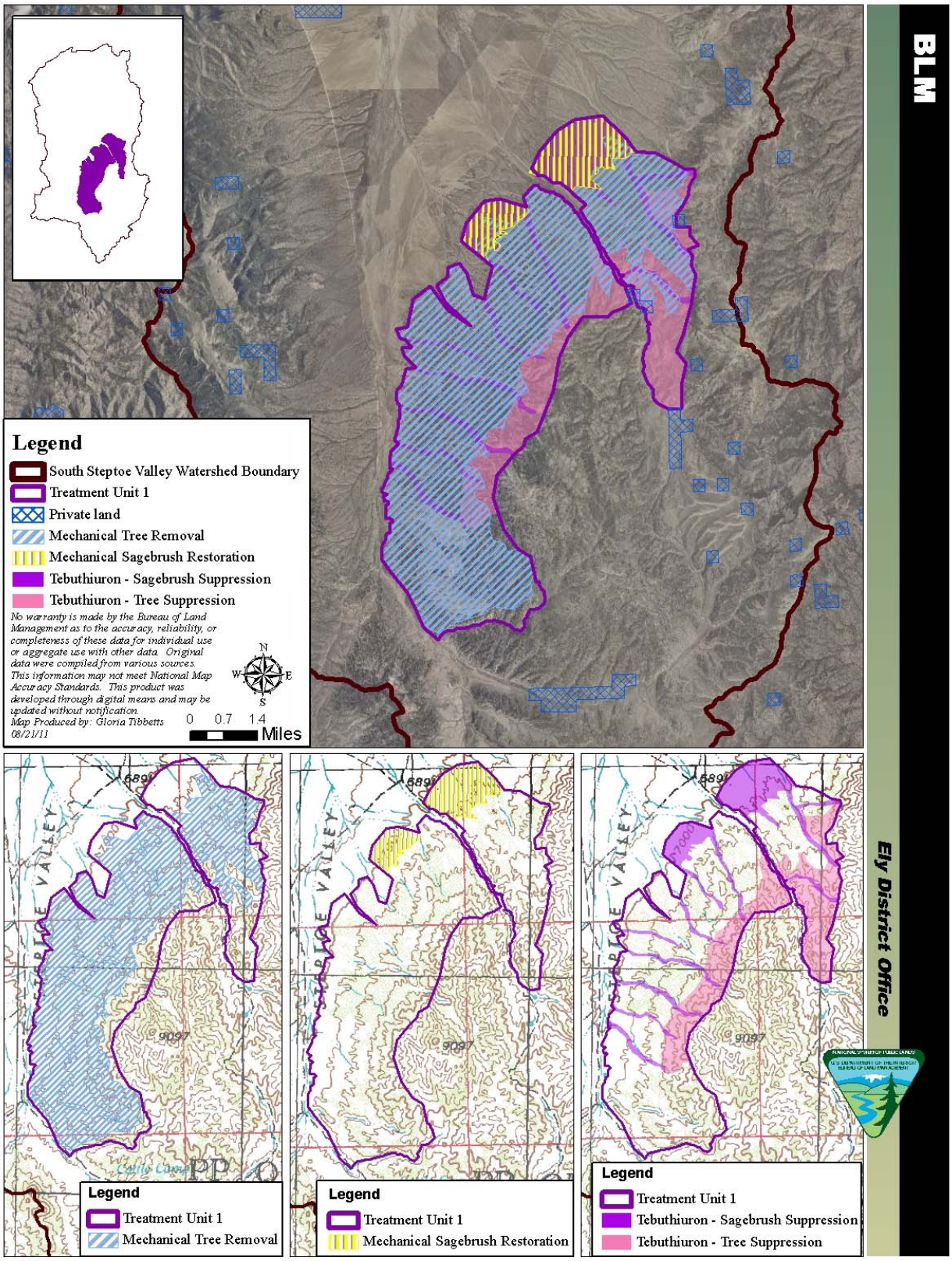
- Reduce the amount of pinyon pine and juniper establishment within sagebrush communities by 75%.
- Bring treated vegetation communities to 15%A, 60%B, 15%C, and 10%>C (+/-5%) as described by the BPS models.
- Improve sage grouse habitat by reducing sagebrush cover to 15-25% and increasing the herbaceous foliar cover to a minimum of 10%.

- Open wildlife corridors for sage grouse and other species by removing pinyon pine and juniper within drainages.
- Promote browse (bitterbrush, mahogany, etc.) within big game habitat.
- Suppress and stabilize cheatgrass and promote desired vegetative species.
- Meet Class II objectives for visual resource management.

Table 2.2. Vegetation Types for Treatment Unit 1

Target Vegetation Types*			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Sagebrush (Black Sagebrush)	10,511	7,883	9,460
Sagebrush (Wyoming Sagebrush)	4,938	3,704	4,444
Sagebrush (Mountain Sagebrush)	2,958	2,219	2,662
TOTALS	18,407	13,806	
Incidental Treatment Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Pinyon-Juniper Woodlands	2,420	0	2,178
Sagebrush (Low Sagebrush)	170	0	153
Avoidance Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Mountain Mahogany	756	0	0
High Elevation Conifer (Mixed Conifer)	7	0	0
High Elevation Conifer (Ponderosa Pine)	2	0	0
Salt Desert Scrub	54	0	0
Riparian Wetlands	417	0	0

*NOTE: All numbers within the table above have been derived from the work that The Nature Conservancy conducted based on mapping BPS locations within the watershed. If pre-monitoring indicates that vegetation types were mapped incorrectly, the error would be resolved and the percentages used to determine target acreages would be used to determine new acreages. If pre-monitoring indicates vegetation mapped as U (uncharacteristic) is a result of excess tree or shrub cover, then those acres would be added to the latest successional class (e.g., D or E) for that BPS model having the highest cover percentage in either shrub or trees. Target vegetation acreage was determined through applying a 75% limitation for treatment. Acreage not to exceed was determined by applying a 90% limitation. Incidental vegetation types include vegetation that is not specifically targeted, however may be treated because it may occur within the treatment polygons.



Map 2.2. Treatment Unit 1

Primary treatment types would include:

- Methods for tree removal or woodland restoration:
  - Chaining
  - Mastication or other mechanical methods
  - Hand cutting
- Mechanical methods for sagebrush restoration:
  - Dixie harrow
  - Roller chopper
  - Mowing
- Chemical treatments:
  - Tebuthiuron for suppression of pinyon pine and juniper
  - Tebuthiuron for suppression of sagebrush
- Seeding

Adaptive Management

Adaptive management allows the use of secondary treatments to achieve the objectives set forth for the treatment unit. Post monitoring of the primary treatment(s) would be conducted to determine the effectiveness of the treatment. Secondary treatments may be conducted within primary treatments to the extent that the objectives for seral classes would be met.

- Mechanical methods for sagebrush restoration:
  - Dixie harrow
  - Roller Chopper
  - Mowing
- Chemical treatments:
  - Tebuthiuron for suppression of pinyon pine and juniper
  - Tebuthiuron for suppression of sagebrush
- Prescribed Fire
- Seeding
- Fencing

2.3.3.2. Treatment Unit 2

Treatment Unit 2 consists of a total of 9,190 acres and 20-50% of that area, or approximately 1,840-4,500 acres, would be targeted for treatment. Target vegetation types within treatment unit 2 fall within FRCC 2 with the exception of Inter—Mountain Basins Aspen-Mixed conifer Forest and Woodlands which is within FRCC 3.

Treatment objectives specific to Treatment Unit 2:

- Bring targeted vegetation within the treatment unit to the following:
  - Aspen
    - Keep all aspen stands on the landscape intact in the long term.
    - Achieve a successional class breakdown of: 97%A 0%B, 0%C, 3%D, 0%E and 0% U (+/-5%).
    - Reduce conifer component within aspen stands to a stand density index (SDI) of less than 20 (Relative Density Index [RDI] of 5%).
    - Increase aspen regeneration in 70% of treated stands to a minimum of 500 regeneration stems per acre.
    - Reduce mortality of regeneration stems by herbivory to less than 20%.

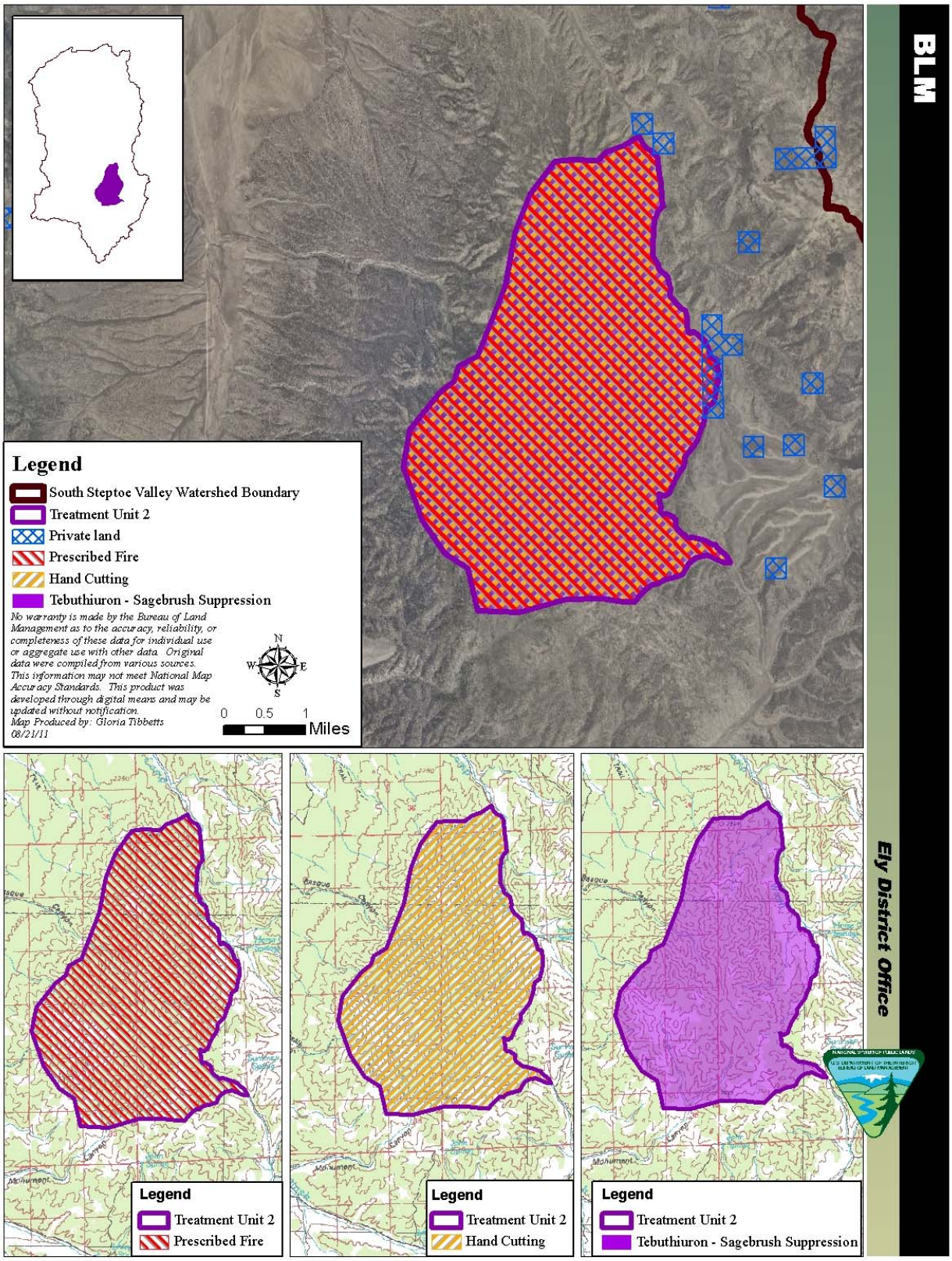
- High Elevation Conifer (Mixed Conifer)
  - Achieve a successional class breakdown of: 20%A, 30%B, 50%C (+/-5%).
  - SDI to less than 300 (RDI of 0.55), target SDI of 200 (RDI of .35) in treated stands.
  - If any aspen is present, treat as an aspen stand where the goal becomes returning the stand to a functioning aspen community.
- Mountain-Mahogany
  - Achieve a successional class breakdown of: 80%A, 0%B, 0%C, 20%D and 0%E (+/-5%).
  - Increase regeneration across the landscape through disturbance that results in bare mineral soil, typically prescribed fire or fire for resource benefit.
- Sagebrush
  - Achieve a successional class breakdown of: 15%A, 60%B, 15%C, and 10<C (+/-5%) as described by the BPS models.

- Promote browse (bitterbrush, mahogany, etc.) within big game habitat.
- Suppress and stabilize cheatgrass and promote desired vegetative species.
- Contain bull thistle and any other noxious weeds present in the treatment unit.

Table 2.3. Vegetation Types for Treatment Unit 2

Target Vegetation Types*			
RMP Reference Name	Total Acreage	Minimum Target Acreage	Acreage Not to exceed
High Elevation Conifer (Mixed Conifer)	172	86	155
Aspen	131	118	131
Mountain Mahogany	5,244	185	2,622
Sagebrush (Wyoming)	906	487	815
Sagebrush (Mountain)	1,332	832	1,199
TOTALS	7,785	1,708	
Incidental Treatment Vegetation Types			
RMP Reference Name	Total Acreage	Minimum Target Acreage	Acreage Not to exceed
High Elevation Conifer (Ponderosa Pine)	1	0	1
Sagebrush (Black Sage)	122	0	110
Sagebrush (Low Sage)	155	0	140
Pinyon-Juniper Woodlands	828	0	745
Riparian/Wetland	140	0	70

*NOTE: All numbers within the table above have been derived from the work that The Nature Conservancy conducted based on mapping BPS locations within the watershed. If pre-monitoring indicates that vegetation types were mapped incorrectly, the error would be resolved and the percentages used to determine target acreages would be used to determine new acreages. If pre-monitoring indicates vegetation mapped as U (uncharacteristic) is a result of excess tree or shrub cover, then those acres would be added to the latest successional class for that BPS having the highest cover percentage in either shrub or trees. Target vegetation acreage was determined through applying a percentage to each vegetation type. High elevation (mixed conifer) target acreage is 50% of class B & C and acreage not to exceed is 90% of the overall. Aspen target acreage is 90% of the overall and acreage not to exceed is 100% of the overall. Mountain mahogany target acreage is 25% of class D and E and acreage not to exceed is 50% of the overall. Sagebrush (Wyoming) and Mountain) target acreages are 75% of class C, D & E and acreage not to exceed is 90% of the overall. Incidental vegetation types include vegetation that is not specifically targeted, however may be treated within the treatment polygons. Acreage not to exceed for incidental treatment vegetation represents a 90% limitation for all except riparian which is a 50% limitation.



Map 2.3. Treatment Unit 2

Primary treatment types would include:

- Prescribed Fire
- Chemical Treatments:
  - Tebuthiuron for suppression of sagebrush
- Methods for Tree Removal or Woodland Restoration
  - Hand Cutting

Adaptive Management

Adaptive management allows the use of secondary treatments to achieve the objectives set forth for the treatment unit. Post monitoring of the primary treatment(s) would be conducted to determine the effectiveness of the treatment. Secondary treatments may be conducted within primary treatments to the extent that the objectives for seral classes would be met.

- Methods for tree removal or woodland restoration:
  - Hand cutting
- Seeding
- Fencing

2.3.3.3. Treatment Unit 3

Treatment Unit 3 consists of a total of 1,555 acres and 85-95% of that area, or approximately 1,320-1,475 acres, would be targeted for treatment. Target vegetation types within treatment unit 3 are all within FRCC 2..

Treatment objectives specific to Treatment Unit 3:

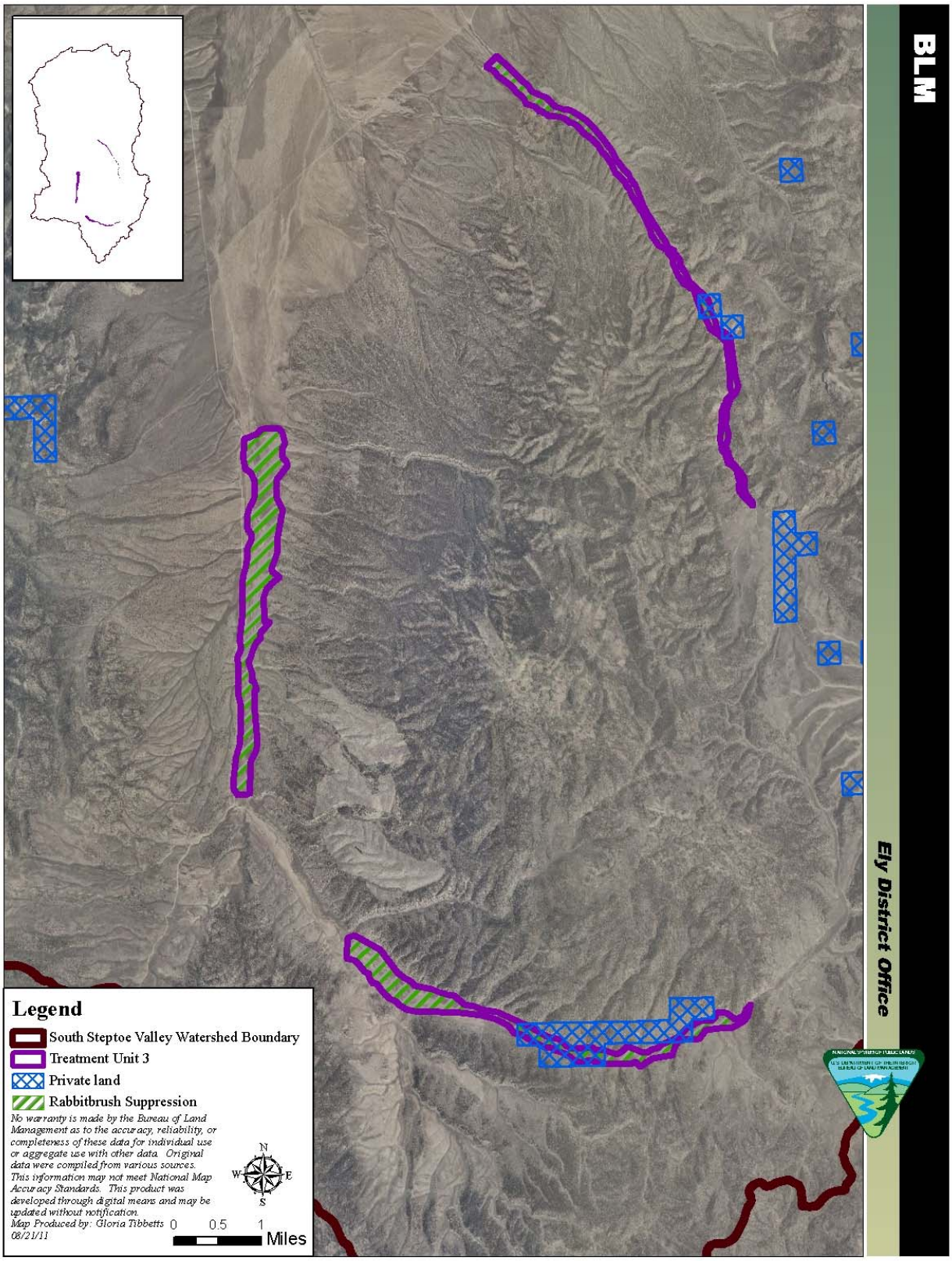
- Restore sagebrush communities by changing brush species dominance from rabbitbrush to sagebrush. Reduce rabbitbrush foliar cover by 90%.
- Suppress and contain black henbane (Hyoscyamus niger), hoary cress (Lepidium draba), and any other noxious weeds present in the treatment unit.
- Improve wildlife habitat, especially for sage grouse, big game, and pygmy rabbit, through the restoration and improvement of sagebrush habitat.
- Achieve class A for respective BPS within the treatment area.

Table 2.4. Vegetation Types for Treatment Unit 3

Target Vegetation Types*			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Sagebrush (Black Sagebrush)	254	229	254
Sagebrush (Wyoming Sagebrush)	1148	1033	1148
Sagebrush (Mountain Sagebrush)	32	29	32
TOTALS	1434	1291	
Incidental Treatment Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Riparian Wetlands	93	0	93
Pinyon-Juniper Woodlands	6	0	6
Sagebrush (Low Sagebrush)	8	0	8
Avoidance Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed

Mountain Mahogany	1	0	0
Salt Desert Scrub	2	0	0

*NOTE: All numbers within the table above have been derived from the work that The Nature Conservancy conducted based on mapping BPS locations within the watershed. If pre-monitoring indicates that vegetation types were mapped incorrectly, the error would be resolved and the percentages used to determine target acreages would be used to determine new acreages. Target vegetation acreage was determined through applying a 90% target to each vegetation type. Acreage not to exceed was determined by applying a 100% limitation. Incidental vegetation types include vegetation that is not specifically targeted however may be treated within the treatment polygons. This treatment unit is specifically focused on systems that are occupied by rubber rabbit brush. If pre-monitoring indicates fewer acres of the treatment area are dominated by rubber rabbitbrush the target acres would be adjusted accordingly.



Map 2.4. Treatment Unit 3

Primary treatment types would include:

- Mechanical methods for sagebrush restoration
  - Mowing
- Chemical Treatments:
  - 2,4-D and Picloram for rabbitbrush suppression
- Seeding

Adaptive Management

Adaptive management allows the use of secondary treatments to achieve the objectives set forth for the treatment unit. Post monitoring of the primary treatment(s) would be conducted to determine the effectiveness of the treatment. Secondary treatments may be conducted within primary treatments to the extent that the objectives for seral classes would be met.

- Chemical Treatments
  - Tebuthiuron suppression of sagebrush
- Fencing

2.3.3.4. Treatment Unit 4

Treatment Unit 4 consists of a total of 40,620 acres and 50% of that area, or approximately 20,300 acres, would be targeted for treatment. Treatment Unit 4 has been split into a prescribed fire area and low elevation treatment areas due to the overall size of the treatment unit. Objectives and treatments for the two different areas are separated as well. Targeted vegetation within treatment unit 4 is within FRCC 2 with the exception of Inter-Mountain Basins Aspen-Mixed conifer Forest and Woodlands which is in FRCC 3..

2.3.3.4.1. Treatment Unit 4 Prescribed Fire Area

Treatment Unit 4 Prescribed Fire Area consists of a total of 9,350 acres and 20-50% of that area, or approximately 1,870-4,675 acres, would be targeted for treatment.

Treatment objectives specific to Treatment Unit 4 Prescribed Fire Area:

- Bring targeted vegetation within the treatment unit to the following:
  - Aspen
    - Keep all aspen stands on the landscape in the long term.
    - Achieve successional class breakdown as follows: 91%A, 0%B, 2%C, 7%D, 0%E and 0% U (+/-5%).
    - Reduce conifer component within aspen stands to a stand density index (SDI) of less than 20 (RDI of 5%).
    - Increase aspen regeneration in 70% of treated stands to a minimum of 500 regeneration stems per acre.
    - Reduce mortality of regeneration stems by herbivory to less than 20%.
  - High Elevation Conifer (Mixed Conifer)
    - Achieve successional class breakdown of: 20%A, 30%B, 50%C (+/-5%).
    - Reduce SDI to less than 300 (RDI of .55), target SDI of 200 (RDI of .35) in treated stands.
    - If any aspen is present, treat as an aspen stand and goal becomes returning stand to a functioning aspen community.
  - Mountain-Mahogany

        - Achieve successional class breakdown of: 80%A, 0%B, 0%C, 20%D and %E (+/-5%).
        - Increase mountain mahogany regeneration across the landscape through disturbance that causes bare mineral soil (fire).
    - Sagebrush (Mountain)
        - Achieve 100%A as described by the Biophysical Setting model.
    - Pinyon-Juniper Woodlands
        - Achieve successional class breakdown of 20%A, 30%B, 50%C (+/-5%) as described by the Biophysical Setting models.
        - Reduce SDI to less than 225 (RDI of .55) post treatment for all pinyon juniper woodlands treated through prescribed fire
- Improve northern goshawk nesting habitat through aspen restoration by achieving successional classes listed above.
- Suppress and stabilize cheatgrass and promote desired vegetative species.
- Contain bull thistle and any other noxious weeds present.

Table 2.5. Vegetation Types for Treatment Unit 4 — Prescribed Fire Area

Target Vegetation Types*			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Aspen	1,046	941	1,046
Pinyon-Juniper Woodlands	931	167	838
High Elevation Conifer (mixed conifer)	1,077	396	1,077
Mountain Mahogany	3,809	362	3,809
Sagebrush (Mountain Sagebrush)	1,304	652	1,174
TOTALS	8,169	2,518	
Incidental Treatment Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
High Elevation Conifer (Ponderosa, Subalpine)	3	0	2
Sagebrush (Black Sagebrush)	113	0	57
Sagebrush (Wyoming Sagebrush)	200	0	100
Sagebrush (Low Sagebrush)	65	0	33
Riparian/Wetland	159	0	80
Avoidance Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to exceed
High Elevation Conifer (Limber Pine, Bristlecone Pine)	510	0	0

*NOTE: All numbers within the table above have been derived from the work that The Nature Conservancy conducted based on mapping BPS locations within the watershed. If pre-monitoring indicates that vegetation types were mapped incorrectly, the error would be resolved and the percentages used to determine target acreages would be used to determine new acreages. Due to the complexity of the unit, acreages were calculated based on the Prescribed Fire Area polygon. Target vegetation acreage was determined through applying a percentage limitation to each vegetation type. High elevation (mixed conifer) target acreage is 50% of class B and C and the acreage not to exceed limitation is 90% of the overall acreage. Aspen target acreage is 90% and the acreage not to exceed limitation is 100% of the overall acreage. Mountain mahogany target acreage is 25% of class D and E and the acreage not to exceed limitation is 50% of the overall acreage. Sagebrush (Mountain) target acreage is 50% of classes C, D and E and the acreage not to exceed limitation is 90% of the overall acreage. Pinyon-Juniper woodlands target acreage is 50% of classes C, D and E and the acreage not to exceed limitation is 90% of the overall acreage. Incidental vegetation types include vegetation that is not specifically targeted, however may be treated within the treatment polygons. High elevation conifer (Limber Pine, Bristlecone Pine) is listed as an avoidance vegetation type until the presence of Bristlecone Pine can be verified. If Bristlecone Pine are not present the vegetation type would become an incidental vegetation type. Acreage not to exceed for incidental treatment vegetation represents a 50% limitation for all vegetation types.

Primary treatment types would include:

- Prescribed Fire

- Methods for Tree Removal or Woodland Restoration
  - Hand Cutting

Adaptive Management

Adaptive management allows the use of secondary treatments to achieve the objectives set forth for the treatment unit. Post monitoring of the primary treatment(s) would be conducted to determine the effectiveness of the treatment. Secondary treatments may be conducted within primary treatments to the extent that the objectives for seral classes would be met.

- Chemical treatments:
  - Tebuthiuron for suppression of pinyon pine and juniper
  - Tebuthiuron for suppression of sagebrush
- Methods for tree removal or woodland restoration:
  - Hand cutting
- Seeding
- Fencing

2.3.3.4.2. Treatment Unit 4 Low Elevation Area

Treatment Unit 4 Low Elevation Area (the remaining area of Treatment Unit 4 with the prescribed fire area removed) consists of a total of 31,270 acres and approximately 50% of that area, or approximately 15,630 acres, would be targeted for treatment.

Treatment objectives specific to Treatment Unit 4 Low Elevation Area:

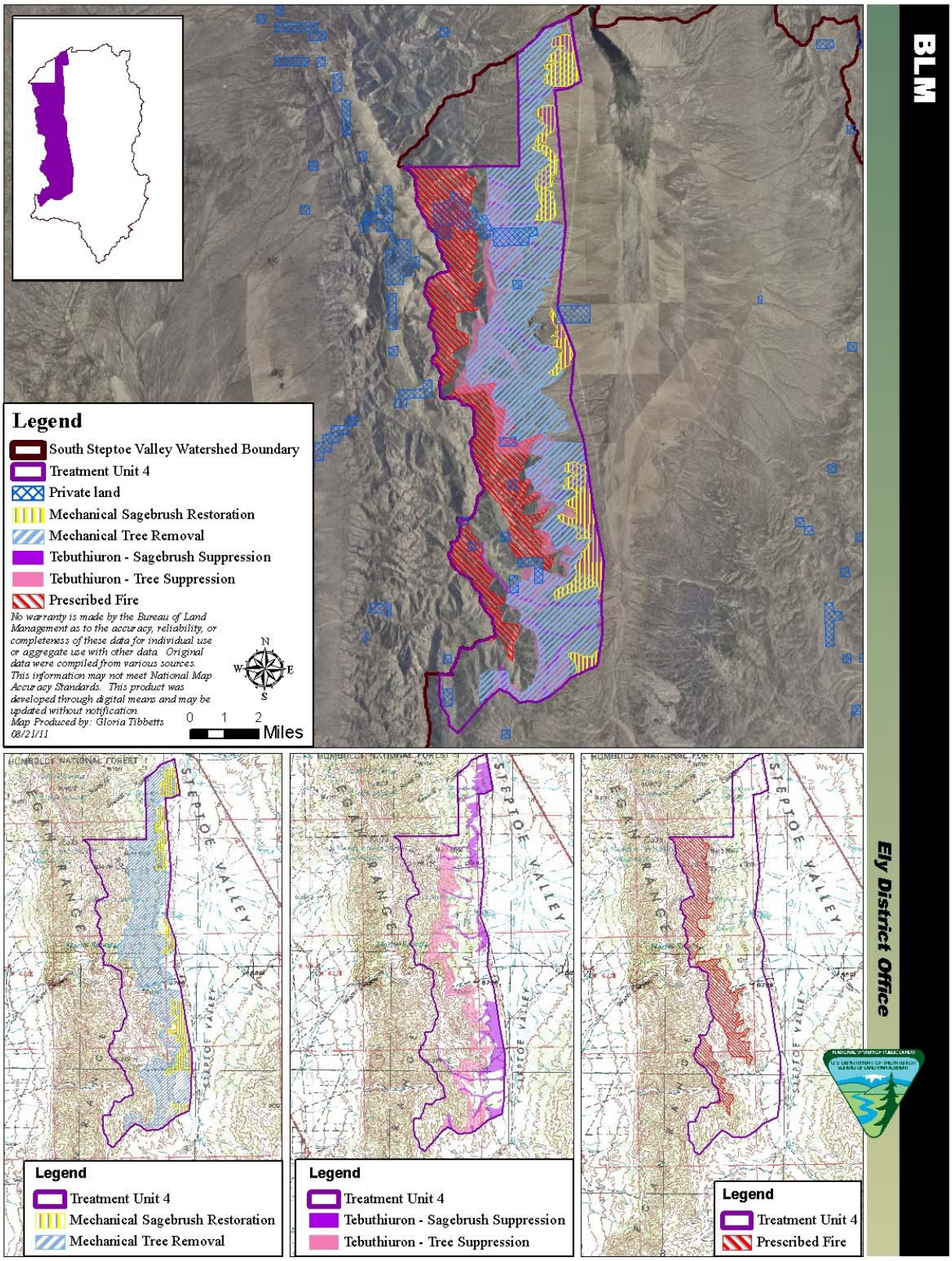
-
- Bring targeted vegetation communities to 15%A, 60%B, 15%C, and 10%>C (+/-5%) as described by the Biophysical Setting models.
- Improve sage grouse habitat by reducing sagebrush cover to 15-25% and increasing the herbaceous cover to a minimum of 10%.
- Reduce pinyon pine and juniper establishment within sagebrush communities by 60%.
- Increase sagebrush habitat and create corridors to sage grouse brood rearing habitat.
- Coordinate with private land owners to develop visually appropriate treatments adjacent to private land.
- Promote browse (bitterbrush, mahogany, etc.) within big game habitat.
- Suppress and stabilize cheatgrass and promote desired vegetative species.
- Contain bull thistle and any other noxious weeds present.

Table 2.6. Vegetation Types for Treatment Unit 4 — Low Elevation Area

Target Vegetation Types*			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Sagebrush (Black Sagebrush)	9,866	5,899	8,879
Sagebrush (Wyoming Sagebrush)	6,390	3,834	5,751
Sagebrush (Mountain Sagebrush)	6,246	3,748	5,621
TOTALS	22,502	13,481	
Incidental Treatment Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Pinyon-Juniper Woodlands	3,045	0	1,523
Sagebrush (Low Sagebrush)	130	0	64
Avoidance Vegetation Types			

RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Mountain Mahogany	3,502	0	0
High Elevation Conifer (Mixed Conifer)	56	0	0
High Elevation Conifer (Ponderosa Pine)	0	0	0
Salt Desert Scrub	697	0	0
Riparian Wetlands	805	0	0

*NOTE: All numbers within the table above have been derived from the work that The Nature Conservancy conducted based on mapping BPS locations within the watershed. If pre-monitoring indicates that vegetation types were mapped incorrectly, the error would be resolved and the percentages used to determine target acreages would be used to determine new acreages. If premonitoring indicates vegetation mapped as U (uncharacteristic) is a result of excess tree or shrub cover then those acres would be added to the latest successional class for that BPS model having the highest cover percentage in either shrub or trees. Target vegetation acreage was determined through applying a 60% treatment to all sagebrush vegetation types. Acreage not to exceed was determined by applying a 90% limitation. Incidental vegetation types include vegetation that is not specifically targeted however may be treated within the treatment polygons. Acreage not to exceed limitations were calculated for the incidental vegetation types by applying a 50% restriction.



Map 2.5. Treatment Unit 4

Primary treatment types would include:

- Mechanical Methods of Tree Removal and Woodland Restoration:
  - Chaining
  - Mastication and Other Mechanical Methods
  - Hand Cutting
- Mechanical Methods for Sagebrush Restoration:
  - Dixie harrow
  - Roller Chopper
  - Mowing
- Chemical Treatments:
  - Tebuthiuron for suppression of Pinyon Pine and Juniper
  - Tebuthiuron for suppression of Sagebrush
- Prescribed Fire
- Seeding

Adaptive Management

Adaptive management allows the use of secondary treatments to achieve the objectives set forth for the treatment unit. Post monitoring of the primary treatment(s) would be conducted to determine the effectiveness of the treatment. Secondary treatments may be conducted within primary treatments to the extent that the objectives for seral classes would be met.

- Methods for tree removal or woodland restoration:
  - Mastication or other mechanical methods
  - Hand cutting
- Mechanical methods for sagebrush restoration:
  - Dixie harrow
  - Roller Chopper
  - Mowing
- Chemical treatments:
  - Tebuthiuron for suppression of sagebrush
- Prescribed Fire
- Seeding
- Fencing

2.3.3.5. Treatment Unit 5

Treatment Unit 5 consists of a total of 3,915 acres and 20–50% of that area, or approximately 780–1,950 acres, would be targeted for treatment. Target vegetation within treatment unit 5 falls within FRCC 2 with the exception of Inter—Mountain Basins Aspen-Mixed Conifer Forest and Woodlands which is within FRCC 3.

Treatment objectives specific to Treatment Unit 5:

- Bring targeted vegetation within the treatment unit to the following
  - Sagebrush (Mountain)
    - Achieve a successional class breakdown of: 100%A as described by the BPS models.
  - Aspen
    - Keep all aspen stands intact on the landscape in the long term.
    - Achieve a successional class breakdown of: 30%A, 0%B, 28%C, 42%D, 0%E and 0%U.

- Reduce conifer component within aspen stands to a SDI of less than 20 (RDI of 5%).
- Increase aspen regeneration in 30% of treated stands to a minimum of 500 regeneration stems per acre.
- Reduce mortality of regeneration stems by herbivory to less than 20%.
- Improve northern goshawk nesting habitat through aspen restoration.

○ High Elevation Conifer (Mixed Conifer)

- Achieve a successional class breakdown of: 20%A, 30%B, 50%C (+/-5%).
- Reduce SDI to less than 300 (RDI of .55), target SDI of 200 (RDI of .35) in treated stands.
- If any aspen individual is present, treat as an aspen stand with the goal of returning the stand to a functioning aspen community.

○ Mountain-Mahogany

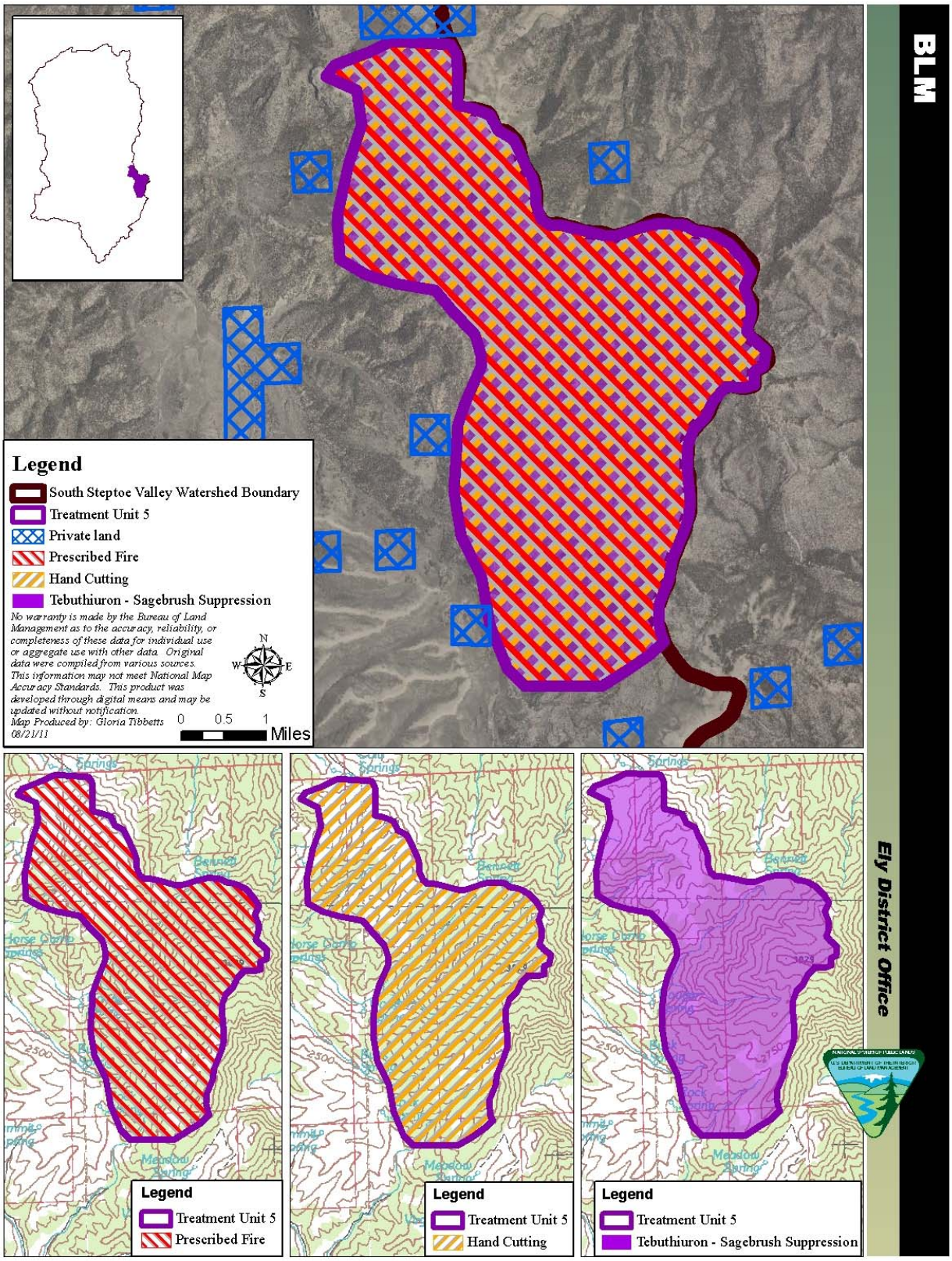
- Achieve a successional class breakdown of: 80%A, 0%B, 0%C, 20%D and 0%E (+/-5%).
- Increase regeneration across the landscape through disturbance that results in bare mineral soil, typically prescribed fire or fire for resource benefit.

- Promote browse (bitterbrush, mahogany, etc.) within big game habitat.
- Improve sage grouse brood-rearing habitat.
- Suppress and stabilize cheatgrass and promote desired vegetative species.

Table 2.7. Vegetation Types for Treatment Unit 5

Target Vegetation Types*			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Aspen	803	337	838
High Elevation Conifer (mixed conifer)	846	430	761
Mountain Mahogany	1,295	40	648
Sagebrush (Mountain Sage)	620	270	558
TOTALS	3,559	1,077	
Incidental Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Pinyon-Juniper Woodlands	48	0	43
Sagebrush (Black Sage)	48	0	43
Sagebrush (Wyoming Sage)	13	0	12
Sagebrush (Low Sage)	58	0	52
Riparian/Wetland	76	0	38
Avoidance Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
High Elevation Conifer (Limber Pine/Bristlecone Pine Woodland)	30	0	0

*NOTE: All numbers within the table above have been derived from the work that The Nature Conservancy conducted based on mapping BPS models within the watershed. If pre-monitoring indicates that vegetation types were mapped incorrectly, the error will be resolved and the percentages used to determine target acreages would be used to determine new acreages. Target vegetation acreage was determined through applying a percentage to each vegetation type. Aspen target acreage is 90% of classes B, C, D and E and the acreage not to exceed limitation is 100% of the overall acreage. High elevation (mixed conifer) target acreage is 50% of class B and C and the acreage not to exceed limitation is 90% of the overall acreage. Mountain mahogany target acreage is 25% of class D and E and the acreage not to exceed limitation is 50% of the overall acreage. Sagebrush (Mountain) target acreage is 50% of classes C, D and E and the acreage not to exceed limitation is 90% of the overall acreage. Incidental vegetation types include vegetation that is not specifically targeted however may be treated within the treatment polygons. High elevation conifer (Limber Pine, Bristlecone Pine) is listed as an avoidance vegetation type until the presence of Bristlecone Pine can be verified. If Bristlecone Pine are not present the vegetation type would become an incidental vegetation type. Acreage not to exceed for incidental treatment vegetation represents a 90% limitation for all types except riparian, which has a 50% limitation.



Map 2.6. Treatment Unit 5

Primary treatment types would include:

- Prescribed Fire
- Methods for Tree Removal or Woodland Restoration
  - Hand Cutting
- Chemical Treatments
  - Tebuthiuron for suppression of sagebrush

Adaptive Management

Adaptive management allows the use of secondary treatments to achieve the objectives set forth for the treatment unit. Post monitoring of the primary treatment(s) would be conducted to determine the effectiveness of the treatment. Secondary treatments may be conducted within primary treatments to the extent that the objectives for seral classes would be met.

- Methods for Tree Removal or Woodland Restoration
  - Hand Cutting
- Seeding
- Fencing

2.3.3.6. Treatment Unit 6

Treatment Unit 6 consists of a total of 6,660 acres and 40% of that area, or approximately 2,665 acres, would be targeted for treatment. Targeted vegetation types within treatment unit 6 are within FRCC 2.

Treatment objectives specific to Treatment Unit 6:

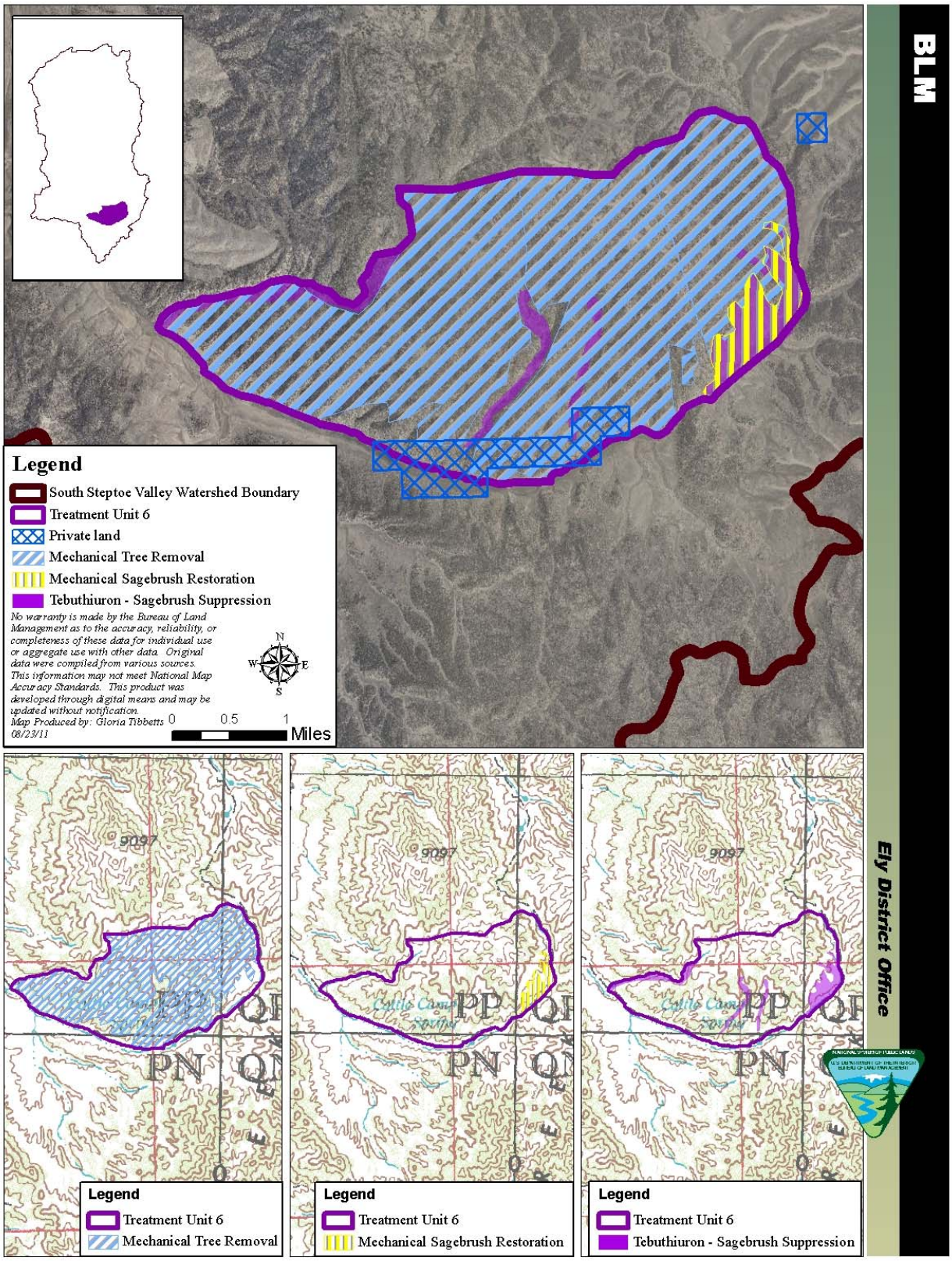
- Reduce the amount of pinyon pine and juniper encroachment within sagebrush by 60%.
- Bring targeted vegetation communities to 15%A, 60%B, 15%C, and 10%>C (+/-5%) as described by the Biophysical Setting models.
- Improve sage grouse habitat by reducing sagebrush cover to 15-25% and increasing the herbaceous cover to a minimum of 10%.
- Build on previous treatments to open wildlife corridors for sage grouse and other species.
- Promote browse species (bitterbrush, mahogany, etc.) within big game habitat.
- Meet Class II visual resource management objectives.
- Suppress and stabilize cheatgrass and promote desired vegetative species.
- Suppress and contain black henbane, hoary cress, and any other noxious weeds present.

Table 2.8. Vegetation Types for Treatment Unit 6

Target Vegetation Types*			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Sagebrush (Black Sage)	646	388	581
Sagebrush (Wyoming Sage)	1165	699	1049
Sagebrush (Mountain Sage)	1,896	1,137	1,706
TOTALS	3,707	2,224	
Incidental Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Pinyon-Juniper Woodlands	1,109	0	998
Sagebrush (Low Sage)	186	0	167
Avoidance Vegetation Types			

RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Mountain Mahogany	1,431	0	0
Salt Desert Scrub	25	0	0
Riparian Wetlands	106	0	0

*NOTE: All numbers within the table above have been derived from the work that The Nature Conservancy conducted based on mapping BPS models within the watershed. If pre-monitoring indicates that vegetation types were mapped incorrectly, the error will be resolved and the percentages used to determine target acreages would be used to determine new acreages. If pre-monitoring indicates vegetation mapped as U (uncharacteristic) is a result of excess tree or shrub cover, then those acres would be added to the latest successional class for that BPS model having the highest cover percentage in either shrubs or trees. Target vegetation acreage was determined through applying a 60% treatment to all sagebrush vegetation types. Acreage not to exceed was determined by applying a 90% limitation. Incidental vegetation types include vegetation that is not specifically targeted, however may be treated within the treatment polygons.



Map 2.7. Treatment Unit 6

Primary treatment types would include:

- Mechanical Methods for Tree Removal or Woodlands Restoration:
  - Chaining
  - Mastication or Other Mechanical Methods
  - Hand Cutting
- Mechanical Methods for Sagebrush Restoration:
  - Dixie Harrow
  - Roller Chopper
  - Mowing
- Chemical Treatments:
  - Tebuthiuron for suppression of pinyon pine and juniper
  - Tebuthiuron for suppression of sagebrush
- Seeding

Adaptive Management

Adaptive management allows the use of secondary treatments to achieve the objectives set forth for the treatment unit. Post monitoring of the primary treatment(s) would be conducted to determine the effectiveness of the treatment. Secondary treatments may be conducted within primary treatments to the extent that the objectives for seral classes would be met.

- Methods for tree removal or woodland restoration:
  - Mastication or other mechanical methods
  - Hand cutting
- Mechanical methods for sagebrush restoration:
  - Dixie harrow
  - Roller Chopper
  - Mowing
- Chemical treatments:
  - Tebuthiuron for suppression of sagebrush
- Seeding
- Prescribed Fire
- Fencing

2.3.3.7. Treatment Unit 7

Treatment Unit 7 consists of a total of 13,642 acres and 20–50% of that area, or approximately 2,728–6,821 acres, would be targeted for treatment. Targeted vegetation within treatment unit 7 is within FRCC 2 with the exception of Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodlands.

Treatment objectives specific to Treatment Unit 7:

- Increase “naturalness” of the area by reducing the density of pinyon pine and juniper and creating a more mosaic pattern and varied age class in all vegetative communities.
- Preserve the wilderness characteristics of the area.
- Meet Class I objectives for visual resource management.
- Bring targeted vegetation within the treatment unit to the following:
  - Aspen
    - Keep all aspen stands on the landscape intact in the long term.

- Achieve a successional class breakdown of: 75%A, 0%B, 25%C, 0%D, 0%E and 0% U (+/-5%).
- Reduce conifer component within aspen stands to a SDI of less than 20 (RDI of 5%).
- Increase aspen regeneration in 75% of treated stands to a minimum of 500 regeneration stems per acre.
- Reduce mortality of regeneration stems by herbivory to less than 20%.

○ High Elevation Conifer (Mixed Conifer)
- Achieve a successional class breakdown of: 20%A, 30%B, 50%C (+/-5%).
- SDI to less than 300 (RDI of .55), target SDI of 200 (RDI of .35) in treated stands.
- If any aspen is present, treat as an aspen stand with the goal of returning stand to a functioning aspen community.

○ Mountain-Mahogany
- Achieve a successional class breakdown of: 80%A, 0%B, 0%C, 20%D and 0%E (+/-5%).
- Increase regeneration across the landscape through disturbance that results in bare mineral soil, typically prescribed fire or fire for resource benefit.

○ Sagebrush (Mountain)
- Achieve a successional class breakdown of 100%A as described by the Biophysical Setting models.

○ Pinyon Pine and Juniper Woodlands:
- Achieve a successional class breakdown of: 20%A, 30%B, 50%C (+/-5%) as described by the Biophysical Setting models.
- Reduce SDI to less than 225 (RDI of .55) post treatment for all pinyon pine and juniper woodlands treated through prescribed fire

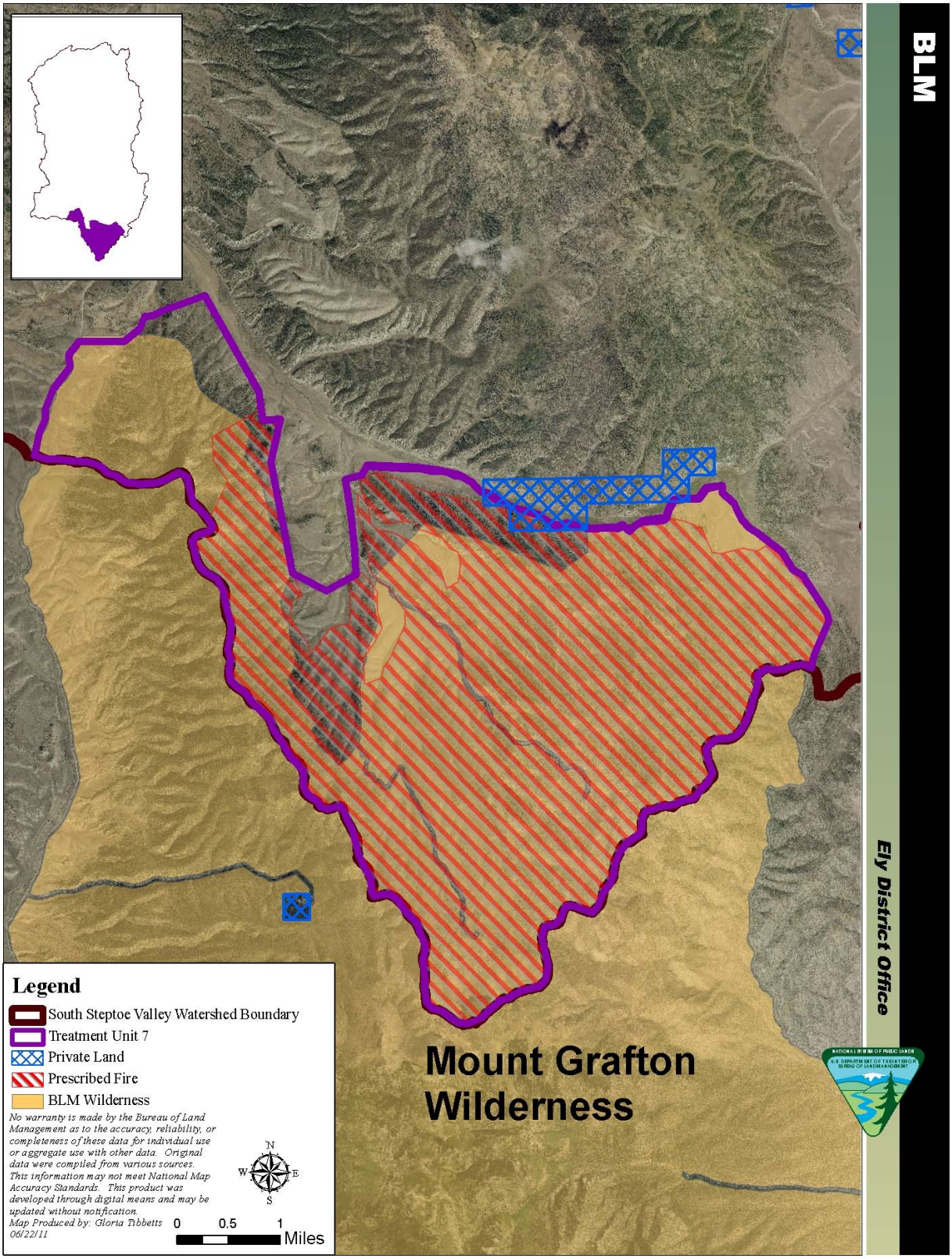
- Improve sage grouse habitat by reducing sagebrush cover to 15-25% and increasing the herbaceous cover a minimum of 10%.
- Suppress and stabilize cheatgrass and promote desired vegetative species.
- Suppress and contain black henbane, hoary cress, and any other noxious weeds present.
- Improve northern goshawk nesting habitat through aspen restoration.
- Promote browse (bitterbrush, mahogany, etc.) within big game habitat.

Table 2.9. Vegetation Types for Treatment Unit 7

Target Vegetation Types*			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
High Elevation Conifer (Mixed Conifer)	35	20	32
Aspen	30	3	28
Mountain Mahogany	1,979	131	990
Sagebrush (Wyoming)	3,794	829	2,846
Sagebrush (Mountain)	2,402	960	1,802
Pinyon-Juniper Woodlands	1,838	511	1,670
TOTALS	10,015	3,922	8,218
Incidental Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Sagebrush (Black Sage)	3,043	0	1,522
Sagebrush (low sage)	143	0	72
Riparian/Wetland	154	0	77
Avoidance Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed

Salt Desert Scrub	12	0	0
High Elevation Conifer (Limber Pine, Bristlecone Pine)	<1	0	0

*NOTE: All numbers within the table above have been derived from the work that The Nature Conservancy conducted based on mapping BPS models within the watershed. If pre-monitoring indicates that vegetation types were mapped incorrectly, the error will be resolved and the percentages used to determine target acreages would be used to determine new acreages. Target vegetation acreage was determined through applying a percentage to each vegetation type. High elevation (mixed conifer) target acreage is 75% of class B and C and the acreage not to exceed limitation is 90% of the overall acreage. Aspen target acreage is 50% of classes C, D and E and the acreage not to exceed limitation is 90% of the overall acreage. Mountain mahogany target acreage is 50% of class C, D and E and the acreage not to exceed limitation is 50% of the overall acreage. Sagebrush (Wyoming and Mountain) target acreage is 40% of classes C, D and E and the acreage not to exceed limitation is 75% of the overall acreage. Pinyon-Juniper woodlands target acreages is 50% of classes C, D and E and the acreage not to exceed limitation is 90% of the overall acreage. Incidental vegetation types include vegetation that is not specifically targeted, however may be treated within the treatment polygons. High elevation conifer (Limber Pine, Bristlecone Pine) is listed as an avoidance vegetation type until the presence of Bristlecone Pine can be verified. If Bristlecone Pine are not present the vegetation type would become an incidental vegetation type. Acreage not to exceed for incidental treatment vegetation represents a 50% limitation for all vegetation types.



Map 2.8. Treatment Unit 7

Primary treatment types would include:

- Prescribed Fire

Adaptive Management

Adaptive management allows the use of secondary treatments to achieve the objectives set forth for the treatment unit. Post monitoring of the primary treatment(s) would be conducted to determine the effectiveness of the treatment. Secondary treatments may be conducted within primary treatments to the extent that the objectives for seral classes would be met.

- Seeding (native seed only in Wilderness Area)
- Fencing

2.3.4. Monitoring

Monitoring would be conducted before and after implementation of the proposed vegetation treatments to establish baseline vegetation characteristics and determine post treatment success towards meeting treatment objectives. All monitoring techniques would follow BLM approved methods as established in Technical Reference 4400-4 (1996) and the Monitoring Manual for Grassland, Shrubland, and Savanna Ecosystems (2009) or other similar approved manuals or references.

Monitoring locations would be randomly chosen within the project area and monitoring would be conducted at least one growing season prior to the implementation of the treatment. Additional monitoring points may be established post-treatment if it is determined that they are needed. Vegetation monitoring methods may include, but are not limited to, line-point intercept for cover, two meter belt transects for density, grazing exclosures and photographs. The same monitoring locations and methods used to establish baseline data would be used to determine if post treatment vegetation objectives are being met. Additional monitoring locations and methodologies may be employed if needed to address resource concerns.

2.3.5. Maintenance

Maintenance of treatments may be required in the future to maintain a desired seral state. Maintenance of previously treated areas may be implemented if the treatment unit and/or the watershed is departing, as indicated through monitoring, from the respective objectives listed as a result of pinyon and juniper establishment and if hand thinning or mechanical removal of pinyon and juniper would reduce departure from the objectives listed for the treatment unit and/or the watershed. Any maintenance treatments would be held to the same restrictions and BMPs as the primary and secondary treatments.

2.4. No Action Alternative

The No Action Alternative is the current management situation. There would be no treatments implemented within the proposed project areas as a result of this EA. However, treatments would still be considered and prioritized on a case-by-case basis by reviewing existing conditions and available funding resources for the planning and implementation of each individual project. Additional NEPA review would be required for each proposed treatment.

2.5. Alternatives Considered but not Analyzed in Detail

The following alternatives were considered, but were determined not to support the purpose and need for the proposal. They were, therefore, eliminated from further consideration.

2.5.1. No Chemical Alternative

Under the No Chemical Alternative, all of the treatment methods listed in the Proposed Action would be implemented except the chemical treatments listed in Section 2.3.2.3 Chemical Treatment Methods. This action was eliminated from further analysis because it would not achieve the purpose and need by (1) prohibiting sagebrush restoration treatments in areas where accessibility is limited and undesirable for use of prescribed fire or fire for resource benefit, (2) not allowing for sagebrush suppression while sustaining only a minimal impact to antelope bitterbrush and other desirable species, and (3) not allowing for the promotion of grasses and forbs that are in competition with older stands of sagebrush and provide important forage for wildlife species.

2.5.2. Native Seed Only Alternative

In the Use of Native Seed Only Alternative, all actions would be identical to those under the Proposed Action, except the composition of seed mixes applied after treatments. Under this alternative, only native seed would be used. This alternative was dropped for further consideration as the preference is already for native seed but allowing non-native where their use would be more efficient at achieving the listed objectives. Several non-native desirable species have been found to grow successfully in the watershed and compete within invasive annuals. The use of native seed only could potentially limit the achievement of the objectives in circumstances where there is a threat of invasive annuals and recurring wildland fires.

2.5.3. Natural Fire Only Alternative

An alternative using only natural fire to affect the treatments was considered but eliminated from further consideration because, as indicated in the purpose and need statement, the watershed is in FRCC 2 with certain vegetation types being in FRCC 3. This condition results in an increase in the risk of losing key ecosystem components due to excess hazardous fuels. With these conditions, a fire would be difficult to control in some areas and would not achieve the desired results since fire severity would be increased. Additionally, there is a need to affect treatments in a more targeted manner across the watershed to achieve the purpose and need in a timelier manner. Given the uncertainty of fires starting from natural conditions, a more certain method of affecting desired changes is needed.

2.5.4. Passive Restoration Alternative

The use of only passive restoration would involve the removal of grazing allowances within the project area and avoid any active treatments to the landscape. This alternative has been eliminated from further analysis due to the current condition of the watershed. Many areas that have been identified for treatment under other alternatives are lacking a sufficient seed bank to regenerate native shrub and herbaceous understory cover without any intervention. Further, this alternative would not address the existing and expected continuation of pinyon pine and juniper

encroachment on intact sagebrush habitats. This alternative would not meet the objectives stated in the Purpose and Need related to improvement of habitat or moving the landscape toward a Fire Regime Condition Class 1.

2.5.5. Hand Cutting Only Alternative

This alternative would involve the selective hand cutting of primarily young pinyon pine and juniper trees in areas where they are considered to be encroaching on predominantly sagebrush communities. By removing only a select number of the trees from sagebrush habitat and allowing many of the older trees to remain, the desired seral class stages for sagebrush communities would not be achieved. This alternative has been eliminated from further analysis due to its failure to meet the stated objectives for several of the treatment units, including those related directly to improvement of sage grouse habitat. Additionally, the sole use of hand cutting does not provide any support for the reestablishment of herbaceous understory.

This page intentionally
left blank

Chapter 3. Affected Environment

This page intentionally
left blank

Potential impacts to the following resources/concerns were evaluated in accordance with criteria listed in the H-1790-1 NEPA Handbook (2008), to determine if detailed analysis was required. Consideration of some of these items is to ensure compliance with laws, statutes or Executive Orders that impose certain requirements upon all Federal actions. Other items are relevant to the management of public lands in general, and to the Ely District BLM in particular. The items listed in Table 3.1, "Resources that have been reviewed and dismissed from detailed analysis" (p. 61) have been reviewed and determined to be unaffected by the Proposed Action and No Action Alternative.

Table 3.1. Resources that have been reviewed and dismissed from detailed analysis

Resource/Concern	Rationale for dismissal from detailed analysis
Threatened and Endangered Species	No known populations of threatened or endangered species occur within the South Steptoe Valley Watershed.
Wild Horses	There are no wild horse Herd Management Areas or Herd Areas in the South Steptoe Valley Watershed.
Water Resources (Water Rights)	Design features, including buffering drainages and riparian areas during treatments, will prevent potential impacts to water resources. No water rights will be affected. No adverse effects to water resources or water rights are expected.
Water Quality, Drinking/Ground	Project design features, buffer zones, topography, vegetation and other natural ecosystem components act to preclude sediment from hillsides from entering waterways. The natural buffering capability of the hillsides and vegetation surrounding the intermittent and perennial streams with the added design feature buffers placed upon these same systems combine to maintain water quality. The application of potential treatments upon the landscape would not affect the water quality in the watershed.
Cultural Resources	Cultural resources would be avoided or mitigated prior to ground disturbing activities.
Native American Religious and other Concerns	There are no Native American traditional religious sites or cultural sites of importance within the proposed project area that would be affected as a result of this project. There are no 'Indian Trust Assets' identified within the Ely District Office.
Environmental Justice	There are no known disadvantaged populations that would be adversely impacted by the project.
Human Health and Safety	All applicable safety requirements and regulations would be incorporated into the design of each treatment prior to implementation. Appropriate design features have been incorporated into the proposed action to minimize exposure and risk to human health and safety.
Wastes, Hazardous or Solid	No known hazardous or solid wastes exist within the South Steptoe Valley Watershed. Any spills or discoveries of hazardous or solid wastes would be reported immediately to the approving official.
Wild and Scenic Rivers	There are no wild and scenic rivers in the South Steptoe Valley Watershed.
Areas of Critical Environmental Concern (ACEC) and other Special Designations, except Wilderness	There are no ACECs or other areas with special designations located within the South Steptoe Valley Watershed.
Mineral Resources	There are no approved mine plans or drilling permits within the project area. Any areas containing permitted mineral material sources would be avoided.

3.1. Air Quality

The State of Nevada, Division of Environmental Protection (NDEP) annually monitors principal pollutants for compliance with EPA established standards. In 1998 an air quality monitoring site was established in McGill, White Pine County, Nevada to monitor PM10. PM10 is an inhalable coarse particulate less than ten microns in size which is mainly an emission from man-made

sources like salt and sand application on roads in winter, work on unpaved roads, construction sites, or rock processing. The monitoring site at McGill was discontinued because PM10 measurements remained well below national air quality standards. The current air quality status in White Pine County for all constituents that NDEP monitors state-wide is termed "unclassifiable" meaning that no annual data is collected.

3.2. Soil Resources

Soils within the watershed can be characterized as deep, well-drained loams that vary in terms of coarse constituent content as slope and position on the landscape increases. The nearly flat valley bottom soils have silt loam surface horizon textures and silty clay loam subsurface horizon textures. The valley fill is moderately alkaline and reflects the continuous deposition of very fine materials mobilized by wind and water forces.

The hillside benches, or otherwise known as alluvial fans and piedmonts, have shallow to moderately deep, well-drained soils that range in textural class from very fine, sandy loam to gravelly loam. The fan and piedmont soils overlay a soil horizon ranging from about 10 inches to 20 inches deep known as a duripan layer. A duripan has a massive soil structure which stops root and water movement from penetrating and moving through the layer. Duripans form when silica, calcium carbonate, and some other constituents essentially cement together to form an impermeable layer.

The very steep hillside and mountain soils are very gravelly or very cobbly loam with coarse fragments of limestone, shale, slate, and sandstone. The Parent Material for these soils are readily apparent as seen in the very large boulder-sized pieces of andesite, quartzite, conglomerate, limestone, dolomite, and shale in the surrounding mountains.

3.3. Vegetation

3.3.1. Rangeland Vegetation

The primary vegetation within the project area consists of pinyon pine and juniper woodlands, mountain mahogany woodlands, and sagebrush communities. Perennial grasses and forbs occur at levels below ecological site potential.

Native, perennial, cool-season grasses potentially occurring within the project area include species such as needle and thread (Hesperostipa comata), bluebunch wheatgrass (Pseudoroegneria spicata), Indian ricegrass (Achnatherum hymenoides), Thurber's needlegrass (Achnatherum thurberianum) and muttongrass (Poa fendleriana). Non-native, perennial cool-season grasses include species such as crested wheatgrass (Agropyron cristatum), an excellent drought-tolerant and fire resistant grass which is commonly used for reclamation and spring forage production in arid sections of the western United States (Ogle, 2003). Many of the existing perennial, cool-season grasses exhibit low vigor and reduced seed and vegetative production, especially in the lower elevation benches. Grass and forb species have relatively high vigor in some of the higher elevation benches. Undesirable, non-native, annuals such as cheatgrass (Bromus tectorum) occur within the project area. Native shrubs include Wyoming big sagebrush (Artemisia tridentata wyomingensis), black sagebrush (Artemisia nova), curlleaf mountain-mahogany (Cercocarpus ledifolius), Stansbury's cliffrose (Purshia stansburiana), fourwing saltbush (Atriplex canescens),

and winterfat (Krascheninnikovia lanata). Some of the sagebrush communities are comprised of older, even-aged, decadent plants which have low vigor and poor nutritional value for browsers.

Pinyon pine and juniper are becoming established on sagebrush habitats within the watershed. The expansion of pinyon pine and juniper woodlands and drought-related impacts have reduced the overall health, vigor, recruitment and production of a variety of grass and shrub species and disrupted the desired plant succession.

The alteration of the fire regime has led to a progression towards FRCC 2 and FRCC 3. These vegetative conditions have the potential to carry rapidly moving wildfires that are both of high intensity and severity. Wildfire of such intensity may also pose threats to life and property within the area both in terms of direct impact from the fire and excessive amounts of smoke emissions. Wildfires that occur under these conditions have potential to create impacts that are outside the natural ecological disturbance regime altering the soils, vegetative, hydrologic function, and habitat within the watershed. Following such a wildfire, the damage can be difficult or impossible to reverse.

Within the South Steptoe Valley Watershed there are approximately 21,794 acres of non-native seedings that have been established for the purpose of livestock management. Of these 20,689 acres occur within sagebrush systems, 885 acres occur within salt desert shrub communities and the remaining 220 acres occur within other vegetation types as mapped by the biophysical setting models.

3.3.2. Forest and Woodland Vegetation

Forest and woodland vegetation within the South Steptoe Valley Watershed consists of four primary groups of vegetation: pinyon pine and juniper woodlands, aspen forests, mixed conifer forests (including white fir (Abies concolor), ponderosa pine (Pinus ponderosa), limber pine (Pinus flexilis), and other species) and mountain-mahogany woodlands. Table 3.2, “Distribution of vegetation type in South Steptoe Valley Watershed” (p. 63) shows the percentage of the watershed in each category by forest and woodland vegetation type (based on biophysical settings).

Table 3.2. Distribution of vegetation type in South Steptoe Valley Watershed

Vegetation	Vegetation Group	Acres	Percent of Watershed	Average Departure
Aspen	Forest	2,501	1%	53
Pinyon /Juniper	Woodland	15,726	8%	37
Limber and bristlecone pine	Forest	784	0%	43
Curlleaf Mountain-mahogany	Woodland	27,858	1%	46
Ponderosa pine	Forest	4	0%	75
Mixed conifer	Forest	2,701	1 %	48
Spruce-fir	Forest	14	0%	57

The current health of the forest and woodland areas in the watershed varies by location, past disturbances, and current vegetation type. In general, due to altered disturbance regimes and the lack of repeated disturbance in the watershed, forest and woodland communities are overly dense. A large portion of the forests and woodlands are in later successional classes (Classes D and E) and often in uncharacteristic classes due to densities much greater than found in the reference condition. A complete summary of each vegetation type (BPS model) by succession class is presented in Appendix C.

Quaking aspen within the South Steptoe Valley Watershed is generally being overtopped by conifers, especially white fir, and at risk of being lost due to senescence after an aspen stand is shaded out by another coniferous tree. In addition, herbivory by ungulates (domestic and wild) reduces the regeneration of aspen to the point where aspen stands are of one age class overtopped by conifers and unlikely to persist without future disturbance. Many aspen stands have already been lost and now must be managed as white fir stands. Other stands mapped as white fir stands that have some remaining living aspen stems should be managed as aspen while it is still present regardless of current BPS.

Pinyon pine and juniper woodlands within the watershed are generally in late successional age classes. Many of the stands are in a closed canopy state due to high densities of trees. Canopy cover that exceeds that listed within the reference condition within the BPS model can be rated as uncharacteristic native (succession class UN).

Mixed conifer stands including white fir, limber pine, ponderosa pine, bristlecone pine and spruce stands in general are over-representing in the older successional classes (classes D and E). These systems, with the exception of white fir, need fire to increase the odds of successful regeneration. Without disturbance, these communities increase in average age and density and become unhealthy and at risk of insect and disease. In addition, these communities are often at risk of uncharacteristic wildfire intensities due to ladder fuels (pinyon pine and juniper) increasing and encroaching on mixed conifer stands. Ponderosa pine is especially vulnerable to encroachment by pinyon pine and juniper.

Curlleaf mountain-mahogany is in a state of late successional age classes in the watershed due to a lack of natural or anthropogenic disturbance in the past century. Mountain-mahogany requires bare mineral soil (following fire) to regenerate and, because of the lack of fire in the watershed over the past century, the result is that younger age classes are missing from the landscape.

3.3.3. Special Status Plant Species

3.3.3.1. Pennel Beardtongue

The Pennel beardtongue occurs on rocky calcareous slopes and shaded banks at 2,590 – 3,355 meters in elevation. In the South Steptoe Valley Watershed there is one documented population in the Egan Mountains west of the Ward Mining District.

3.3.4. Non-native Invasive and Noxious Species

Cheatgrass is documented in all treatments units. No other weed species were documented in Treatment Units 1, 2, and 5. Within Treatment Unit 3 the following weeds are also documented: black henbane (Hyoscyamus niger), bull thistle (Cirsium vulgare), and hoary cress (Lepidium draba). Within Treatment Unit 4 the following weeds are also documented: black henbane, bull thistle, musk thistle (Carduus nutans), spotted knapweed (Centaurea stoebe), tall whitetop (Lepidium latifolium), and hoary cress. Within Treatment Units 6 and 7 the following weeds are also documented: black henbane and hoary cress. There is also probably halogeton (Halogeton glomeratus), and Russian thistle (Salsola kali) scattered along roads in the area. The area was last inventoried for noxious weeds in 2007.

3.4. Vegetative Products

The South Steptoe Valley Watershed is a popular location for gathering vegetative products on the Ely BLM District. Vegetative products gathered in the area include pine nuts, fuelwood, posts and poles, native seeds, and Christmas trees. Being close to the largest population center within the county, many locals use this area extensively for harvesting vegetative products. Fuelwood, both commercial and personal use, is gathered in great quantities within the planning area. Pinyon pine and juniper fuelwood is gathered throughout the planning area by a large percentage of the fuelwood burning public of Ely and Ruth. The dense mountain-mahogany stands near Horse and Cattle Camp Loop are the most used mountain-mahogany woodlands in the district for the collection of green and dead fuelwood. The majority of mountain-mahogany fuelwood consumed in the county is harvested from this area. Posts and poles, primarily Utah juniper, are also harvested within the planning area at lower rates. Christmas trees, including pinyon pine and white fir are harvested in large quantities from the South Steptoe Valley. Pine nuts are also harvested for both personal and commercial use in this area. Commercial harvest in the Horse and Cattle Camp designated commercial pine nut harvesting area is dependent on the quantity of pine nuts produced in any given year. However, this unit has been used numerous times in the past decades with tens of thousands of pounds of pine nuts harvested from the unit in many years.

3.5. Fish and Wildlife Resources

3.5.1. Fish and Wildlife

Managed big game species that occur within the South Steptoe Valley Watershed include Rocky Mountain elk (Cervus canadensis), mule deer (Odocoileus hemionus), and pronghorn antelope (Antilocapra americana). There is no occupied bighorn sheep habitat in or near the proposed project area.

Rocky Mountain elk occur in a wide variety of habitats within the South Steptoe Valley Watershed, from valley benches during winter to the highest elevations during summer and fall. The Ely RMP delineates 201,322 acres of yearlong elk habitat within the watershed. A total of 41,395 acres of crucial summer habitat is delineated in the Schell Creek Range along the eastern and southeastern portions of the watershed, as well as a smaller area on the eastern slope of the south Egan Range. This habitat includes mixed conifer, aspen (Populus tremuloides), sagebrush-grasslands, and pinyon pine and juniper woodlands. Pinyon pine and juniper woodlands, aspen stands, and mixed-conifer forests provide thermal and escape cover. Brush species, including antelope bitterbrush (Purshia tridentata), mahogany (Cercocarpus spp.), serviceberry (Amelanchier alnifolia), and sagebrush, also provide important cover and forage for elk. Additionally the crested wheatgrass seedings in the watershed are heavily utilized by elk, especially from late winter through spring. The area enclosed in the Horse and Cattle Camp Loop contains brush stands crucial to elk populations in the watershed. Also, the shrub stands in and around Robbers Roost Basin are important to local elk populations.

Mule deer are widespread within the watershed and are typically associated with middle to upper elevations. Within the South Steptoe Valley Watershed, there are 34,939 acres of yearlong habitat and 80,850 acres of crucial summer range. Habitat for mule deer within the watershed includes mixed conifer, aspen, big sagebrush, low sagebrush, grasslands, and agricultural lands. Deer generally are classified as browsers, foraging primarily on forbs and shrubs. However, the

importance of forage type varies with season and climate. Forbs and grasses are an integral part of the mule deer diet during the spring and fall growth seasons when succulence is greatest. Shrubs are utilized more heavily during dry summer and winter periods. Important forage shrubs include sagebrush, serviceberry, antelope bitterbrush, and mahogany. Mahogany and pinyon pine and juniper woodlands are also important for thermal and escape cover. Aspen stands are a critical spring habitat for fawning mule deer. During summer, mule deer tend to rely on riparian and mountain sagebrush communities at higher elevations.

Pronghorn antelope prefer gently rolling to flat topography that provides good visibility of the surrounding area, primarily occurring in sagebrush/grassland habitat types. The pronghorn diet consists of grasses, forbs, and browse plants. Sagebrush is important for both food and cover. Other important forage species include antelope bitterbrush, saltbush (Atriplex spp.), rabbitbrush (Chrysothamnus spp.), winterfat (Krascheninnikovia lanata), and Indian ricegrass (Achnatherum hymenoides). During the summer, pronghorn are widely distributed throughout the valleys and mountain foothills and primarily are associated with low sagebrush habitat with mixed vegetation including grasses, forbs, and shrubs. The watershed provides 74,802 acres of pronghorn habitat with the area encompassed by Highway 50/Horse Camp Wash/Willow Creek providing important winter range.

Although differing in their preferred forage, areas of seasonal use, and optimal habitat needs, adequately sustaining desired population levels and distribution for all big game species requires a mosaic of healthy and diverse vegetation types. While crested wheatgrass seedings historically planted in the valley bottom have nutritional value and can be attractive to wildlife, type conversion has resulted in the loss of preferred native wildlife forage plants and overall negative impacts on wildlife habitat. Lands converted to agricultural crop production may serve as a wildlife attractant and seasonal benefit, but have resulted in the additional loss of native wildlife forage plants and overall negative impacts on wildlife habitat. Pinyon-juniper forests provide important escape and thermal cover, but this increasing establishment of woody species within ecological sites that typically support shrub-dominated and grassland communities has decreased the quality of the herbaceous understory in terms of reduced plant productivity, diversity, and canopy cover. Although these trends benefit species that occur primarily in woodland habitats, these trends also lead to loss of forage (grass and forb) production within dense woodland stands and a reduction of species diversity. Degraded habitat conditions due to pinyon pine and juniper invasion and decadent or senescent sagebrush communities across areas of the watershed may reduce big game population potentials.

The planning area also provides habitat for an array of other wildlife species such as coyotes (Canis latrans), rabbits (Lepus and Sylvilagus spp.), badgers (Taxidea taxus), bobcats (Lynx rufus), grey and red foxes (Urocyon cinereoargenteus and Vulpes vulpes), ringtail (Bassariscus astutus), and numerous other small mammals, reptiles, amphibians, and invertebrates.

3.5.2. Migratory Birds and Raptors

3.5.2.1. Migratory Birds

Migratory birds are those listed in 50 CFR 10.13 and include many native species commonly found in the U.S. Migratory birds are protected under the Migratory Bird Treaty Act (MBTA). The MBTA makes it unlawful to take, kill, or possess migratory birds as defined by 16 USC 703-711. Migratory bird nesting and foraging habitats are located throughout the South Steptoe

Valley Watershed, with certain species adapted to specific habitat types. All native bird species are integral to properly functioning natural communities and commonly are viewed as indicators of environmental quality based on their sensitivity to environmental changes caused by human activities. Based on known habitat associations, migratory bird species composition may be somewhat anticipated. Great Basin Bird Observatory sampled numerous atlas blocks across Nevada for inclusion within the Atlas of the Breeding Birds of Nevada (Floyd et al. 2007). Table B.6 in Appendix B lists the breeding birds documented in the watershed from the surveyed atlas blocks. This list is not exhaustive as it is based only upon surveys or incidental observations for the Atlas during four survey years (1997-2000).

3.5.2.2. Raptors

The South Steptoe Valley Watershed supports a diverse suite of raptor species with 16 species documented in the watershed. Though only four species have been documented as having nested, it can be assumed that a portion of the observed species could be nesting in the watershed. Great horned owls (Bubo virginianus) have been observed on adjacent portions of the Steptoe Valley Wildlife Management Area and there is a high probability the watershed hosts barn owls (Tyto alba). Based on known habitat associations, the watershed may also host populations of western burrowing owls (Athene canicularia hypugeaa), western screech owls (Megascops kennicotti), long-eared owls (Asio otus), northern saw-whet owls (Aegiolus acadius), and northern pygmy owls (Glaucidia gnoma). Specific habitat needs vary by species and season, but all raptors have the common requirement of an adequate prey base of small mammals, birds, and/or insects.

Raptors use the Schell Creek Range on the east side of the South Steptoe Valley Watershed and the Egan Range on the west side as migration corridors (Smith 2005). Fall raptor passage rates of 4.8 raptors/hour at southern Schell Creek Range sites and 1.9 raptors/hour at the Ward Mountain site were documented. Spring raptor passage rates were 0.5 raptors/hour at southern Schell Creek Range sites and 2.4 raptors/hour at the Ward Mountain site. Golden eagles were the most observed resident raptor seen during both the spring and fall raptor migration counts.

3.5.2.2.1. Golden Eagle

The golden eagle is protected from take by the Bald and Golden Eagle Protection Act (BGEPA). The BGEPA prohibits take as defined as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, disturb, or otherwise harm eagles, their nests, or their eggs. Under the BGEPA, “disturb” means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior. All management activities within the South Steptoe Valley Watershed should follow the guidelines in the Interim Golden Eagle Technical Guidance (US Fish and Wildlife Service, 2010).

Golden eagles are common in the South Steptoe Valley Watershed and use the area year round. Golden eagles have large breeding home ranges and are generally spread thin on the landscape (Floyd et al. 2007). Golden eagles typically nest on large cliffs and canyon walls, or on tall, artificial structures, such as electrical poles and towers, and they frequently use these vertical structures to perch while hunting as well. Golden eagles build several nests within their territory and use them alternately for several years. Though found in most habitats, golden eagles are

often seen hunting in sagebrush habitats (Floyd et al. 2007). Golden eagles' predominant prey is leporids (hares and rabbits), sciurids (ground squirrels, prairie dogs, and marmots), and gallinaceous birds (pheasants, partridge, and grouse). Golden eagles also regularly scavenge on carrion which has resulted in relatively high local vehicle collision mortalities for eagles. Electrocution and illegal shootings are other significant sources of eagle mortality.

3.5.2.2.2. Ferruginous Hawk

Ferruginous hawks occupy a variety of habitat types across their range, including open grasslands, shrub-steppe, croplands, desert scrub, and the periphery of pinyon pine and juniper woodlands. Dense forests, extensive aspen parklands, high elevations, narrow canyons, and habitats recently altered by human development or cultivation are avoided (Collins and Reynolds 2005). Within Nevada, most individual ferruginous hawks are present as breeders during spring through fall, with a relatively low number of over-wintering individuals depending upon winter severity (Wildlife Action Plan Team 2006). Breeding habitat includes nesting, post-fledging, and foraging areas surrounding nest sites, which are commonly located in juniper trees at the interface between pinyon pine and juniper woodlands and sagebrush/shrub-steppe rangelands. Nesting areas often contain multiple nests used by the same breeding pair over successive years, and have been reported to range in size from 0.01 to 9.0 km2 (Collins and Reynolds 2005). Data from northeastern Nevada suggest that about 90% of foraging occurs within 4 km of an active nest site (Great Basin Bird Observatory 2005). In contrast to other parts of its breeding range, suitable nest sites are not a limiting factor for ferruginous hawks within Nevada.

More than other species of Buteo, ferruginous hawks avoid human disturbance during nest site selection, and are particularly sensitive to human disturbance during the courtship, egg-laying, and incubation phases of reproduction (Wildlife Action Plan Team 2006). Thus, a critical component of any suitable nesting habitat is freedom from human disturbance during these time periods. As with other species of raptors, ferruginous hawks require an adequate prey base of small mammals. Leporids (rabbits and hares) are particularly important prey items and comprise the majority of the biomass consumed by ferruginous hawks within Nevada. Ground squirrels constitute a smaller portion of total biomass consumed. Many of the mammalian prey species upon which the ferruginous hawk depends are subject to cyclic fluctuation, and in areas where few or no alternate prey species are available, breeding ferruginous hawk numbers necessarily follow the cycles of their primary prey populations.

3.5.3. Special Status Animal Species

The BLM 6840 Manual (2008) describes special status species as: 1) species listed or proposed for listing under the Endangered Species Act (ESA), and 2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as Bureau sensitive. All Federal candidate species, proposed species, and species delisted in the last five years will be conserved as BLM sensitive species. A table listing BLM Sensitive Species that have the potential to occur within the project area can be found in Appendix B.

3.5.3.1. Greater Sage-grouse

The greater sage-grouse (Centrocercus urophasianus) is a BLM Sensitive Species that has been determined to be warranted for listing under the Endangered Species Act (ESA), but which is

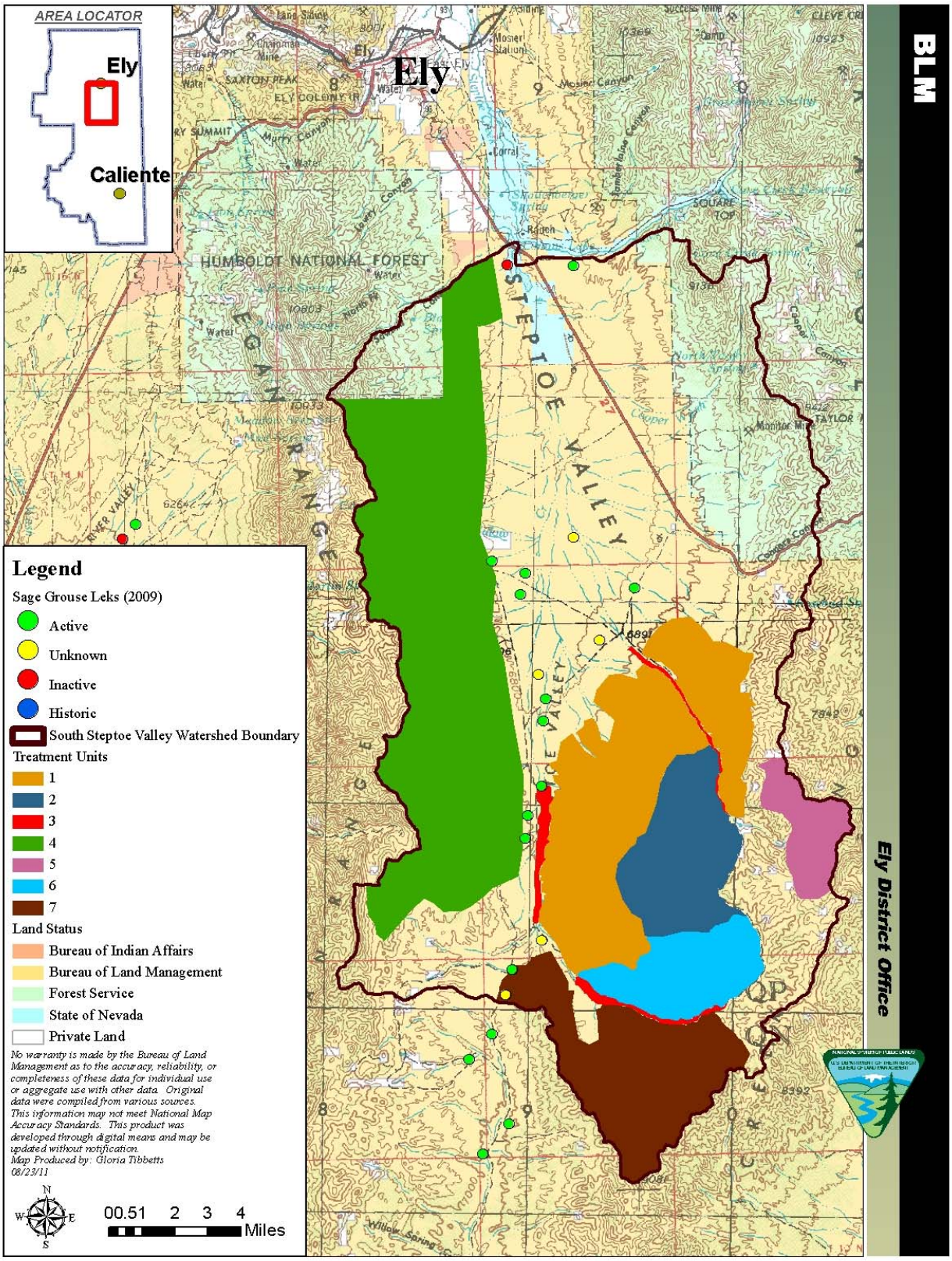
precluded by other species of higher priority (Federal Register /Vol. 75, No. 55 /Tuesday, March 23, 2010). It has been identified as an umbrella species by the Ely District BLM, and chosen to represent the habitat needs of the sagebrush obligate or sagebrush/woodland dependent guild (BLM 2007; p. 4.7-10). The South Steptoe Valley Watershed is within the Steptoe and Cave Sage Grouse Population Management Unit (PMU), as described in the White Pine County Sage Grouse Conservation Plan. Within this watershed, the Ely RMP delineates 106,490 acres as greater sage-grouse nesting habitat, 127,495 acres as summer habitat, and 77,303 acres as critical winter habitat.

Greater sage-grouse are sagebrush obligates that depend on large expanses of un-fragmented sagebrush habitats for successful reproduction and winter survival (Connelly et al. 2004). The characteristics of landscapes dominated by big sagebrush, including Wyoming big sagebrush (A. t. wyomingensis), mountain big sagebrush (A. t. vaseyana), and basin big sagebrush (A. t. tridentata), comprise the primary habitat requirements for sage grouse. Sage grouse also use other sagebrush species such as low sagebrush (A. arbuscula) and black sagebrush (A. nova). Sage grouse distribution is strongly correlated with the distribution of sagebrush habitats (Schroeder et al. 2004). Black sagebrush habitats may not naturally provide the vegetation characteristics to meet greater sage-grouse nesting habitat requirements as described by Connelly et al. (2000), but still can provide important habitat components for greater sage-grouse. Patches of big sagebrush mixed within black sagebrush habitats may provide nesting cover for greater sage-grouse. Black sagebrush habitats are used for brooding and summer habitat for greater sage-grouse and may provide for wintering grouse if snow depths are light to moderate.

Preferred lek habitat includes shorter vegetation within or near a matrix of otherwise suitable nesting habitat, with taller, more robust sagebrush surrounding the lek for escape cover. An absence of trees or other raptor perches near the grounds is also preferred. The planning area holds a mosaic of different species of sagebrush that serve as breeding, nesting, brood-rearing, and wintering habitat. The sagebrush understory of productive nesting areas contains native grasses and forbs with horizontal and vertical structural diversity that provides an insect prey base, herbaceous forage for pre-laying and nesting hens, and cover for the hen while she is incubating (Schroeder et al. 1999, Connelly et al. 2000, Connelly et al. 2004). In arid sites such as eastern Nevada, optimal greater sage-grouse nesting habitat contains 15-25% sagebrush canopy cover with a vigorous, diverse, herbaceous understory consisting of at least 15% perennial grass/forb cover (Connelly et al. 2000). Optimal brood-rearing habitat should be in close proximity to nesting areas, and should contain 10-25% sagebrush canopy cover, with at least 15% grass/forb cover. Past crested wheatgrass (Agropyron cristatum) seedings are being re-colonized by sagebrush and are providing some of the better greater sage-grouse habitat in the watershed.

Shrub canopy and grass cover provide concealment for greater sage-grouse nests and young, and are critical for reproductive success. Females have been documented to travel more than 12.5 miles to their nest site after mating, but distances between a nest site and the lek on which breeding occurred is variable. While earlier studies indicated that most hens nest within 2 miles of a lek, more recent research indicates that many hens actually move much further from leks to nest based on nesting habitat quality. Research by Wakkinen et al. (1992) demonstrated that nest sites are selected independent of lek locations. Hens rear their broods in the vicinity of the nest site for the first two to three weeks following hatching. Forbs and insects are essential nutritional components for chicks. Therefore, early brood-rearing habitat must provide adequate cover adjacent to areas rich in forbs and insects to assure chick survival during this period. Optimal winter habitat should contain 10-30% sagebrush canopy cover exposed above the snow.

The South Steptoe Valley Watershed has 18 known sage grouse leks – 12 leks are classified as active status, one lek has historic status, and five leks are currently listed as having unknown status (Map 3.1, "Location and status of known sage grouse leks" (p. 71)). Male attendance on leks in the watershed is variable with counts ranging from just several to over 50 males being observed displaying. The Steptoe and Cave PMU was rated for overall population risk in the White Pine County Sage Grouse Conservation Plan (2004) as being at a high risk in the category of habitat quality for both nesting/early brood and late brood habitats.



Map 3.1. Location and status of known sage grouse leks

3.5.3.2. Pygmy Rabbits

The pygmy rabbit (Brachylagus idahoensis) is another BLM Sensitive Species that has recently been found not to warrant protection under the ESA (Federal Register /Vol. 75, No. 189 /Thursday, September 30, 2010). Fifteen locations for pygmy rabbits have been recorded in the South Steptoe Valley Watershed since 1993, mostly in the central portion of the watershed. The extent of pygmy rabbit occurrence is influenced by various factors. Foremost among these is habitat suitability as indicated by the presence of tall, dense, big sagebrush stands in combination with deep, sandy, and loose soils. These characteristics ensure adequate food, cover, and burrowing opportunities. Loss of habitat through "fire, grazing, invasion of exotic annuals, and agricultural conversion" has been identified as the most significant contributing factor to pygmy rabbit population declines (Whisenant 1990, Knick and Rotenberry 1995, 1997 in Wildlife Action Plan Team 2006). Fragmentation of suitable sagebrush communities can also threaten pygmy rabbit populations due to their limited capacity for dispersal (Weiss and Verts 1984 in Wildlife Action Plan Team 2006). The probability of survival of a population of pygmy rabbits is directly related to the amount of contiguous big sagebrush that provides suitable habitat. The loss of sagebrush habitat to pinyon pine and juniper encroachment is a serious concern for pygmy rabbits in the South Steptoe Valley Watershed.

3.6. Wetlands and Riparian Areas

Five perennial stream systems within the watershed possess both lotic and lentic riparian areas in their basins. Lotic types are associated with flowing water and adjacent to streambanks. Lentic types are usually associated with non-flowing riparian systems that may or may not have surface water such as vegetation around ponds or vegetation in meadows. The total amount of lotic and lentic riparian areas in the watershed are roughly 6.7 miles and 54.7 acres respectively. Table 3.3, "Total Estimated Riparian Areas Near Potential Treatment Units on Public Land." (p. 72) shows an estimated amount of lentic and lotic riparian resources for each perennial system and for all other drainages on public land. There are potentially 142 acres of wetland and lentic riparian area on the valley floor above Comins Lake which is not reflected in the table below because it is managed by the State of Nevada. An additional 909 acres of potential lentic riparian area on the valley floor above Comins Lake is being irrigated and used for agricultural purposes on Nevada State land.

Table 3.3. Total Estimated Riparian Areas Near Potential Treatment Units on Public Land.

Drainage	Lotic (miles)	Lentic (acres)
Cattle Camp Wash	1.6	0
Cold Springs	0.3	0
Horse Camp Spring	0.4	5.9
Williams Creek	1.1	8.4
Willow Creek	3.0	25
Other Unnamed Drainages	0.3	15.4
Subtotal	6.7	54.7
Meadow on Valley Floor Two Miles Above Comins Lake	0	552
Total	**6.7**	**606.7 with meadow**

The lotic riparian areas range from moderately disturbed systems in the valley bottom where stream channels were altered to accommodate other water needs. The riparian vegetation in these areas is dominated by rush, sedge, grasses, and with willows common. Higher up the piedmonts

within the old confined stream channels the lotic systems are dominated by grasses and sedges with clumps of willow common. Water Birch may be found on streambanks that were altered. In the headwaters of the streams and some intermittent and ephemeral drainages, quaking aspen stands can be found either associated with lentic riparian areas or as a lone stand of trees.

Lentic riparian areas associated with stream valley systems tend to be dominated by grasses with rush and sedge components and willows common. These areas range in size from isolated patches which are only tenths of acres to stringers of vegetation which follow the stream for miles and are hundreds of feet wide. Lentic riparian areas are also associated with springs throughout the watershed. Many small, unnamed springs flow or seep and have small areas of riparian vegetation develop in and around the saturated soil. Small lentic systems may be ephemeral and dependent upon snowmelt or spring precipitation.

3.7. Floodplains

A search of the FEMA Map Service Center electronic version of Map Item ID 3200221600A, White Pine County FEMA issued flood map revealed that a small unnamed tributary to Comins Lake (NENE Section 19 T15N R64E) and Comins Meadow (portions of Sections 20, 21, 28, 29, 32, and 33 T15N R64E) are classified as Zone A floodplain. Zone A floodplains are areas of 100-year flood; base flood elevation and flood hazard not determined. Comins Meadow is a large, 1500 acre plus riparian meadow complex situated above Comins Lake. Potential Treatment Unit 4 has some partial sections which were classified as Zone C or “areas of minimal flooding” due to their proximity to ephemeral, dry draws that may feed into Comins Lake during localized precipitation events. The remainder of the potential treatment areas and the analysis area were not classified.

Comins Meadow is the natural collection point for all waters emanating from places higher in the South Steptoe Valley Watershed. As such, the meadow has evolved to accommodate the water and sediment to which it has developed over many years. The natural function of a healthy riparian meadow system is to store excess water and slowly release it overtime and thus, attenuate the otherwise potentially negative effects of floods.

3.8. Prime and Unique Farmlands

No Unique Farmlands exist in the State if Nevada. Prime Farmlands are soils that when treated and managed in particular ways and using proper farming methods can favor economic production of crops. In the South Steptoe Valley Watershed there were four soil associations and two soil series that when irrigated, all of the major components in each are considered prime farmlands. Eight more soil associations, made up of three soil series each, have one or more components that meet the soil requirements for prime farmland when irrigated. The soils with all major components considered prime farmlands are called Main Prime Farmlands in this document and those soils with only a few major components meeting the requirements called Partial Prime Farmlands. The eight Partial Prime Farmland soil associations are each composed of three soil series and in each case only one soil series which accounts for between 15% to 55% of the total association is considered prime farmlands.

The watershed analysis area contains about 1,961 acres of Main Prime Farmlands of which 957 acres are within potential treatment areas. The analysis areas contain about 33,358 raw acres of Partial Prime Farmlands of which 10,589 raw acres are within potential treatment areas. Please

note: while attempting to calculate acreage for Partial Prime Farmlands it was impossible to separate the three soils series apart that make up each association. Thus the reporting of acreage for Partial Prime farmlands is very likely over estimated by the 15% to 55% representation of the prime farmland soil series component in each representative Partial Prime Farmlands reported unit. So a more accurate estimate of Partial Prime Farmlands would be a range of between 5,004 corrected acres and 18,347 corrected acres in the analysis area and 1,588 corrected acres and 5,824 corrected acres in the potential treatment areas.

There are seven components the Main and Partial Prime Farmlands need to exhibit in order to fulfill their potential as farmlands. Any potential treatments that affect enough of these components to upset the balance of water and air movement in and through the soil could alter the soil's classification as Prime Farmland. The components are: adequate and dependable supply of irrigation water; favorable temperature and growing season; few rocks in the soil and permeable to air and water; soil not excessively susceptible to erosion; soil not saturated water for long periods; no floods during growing season; and gentle slopes.

3.9. Livestock Grazing

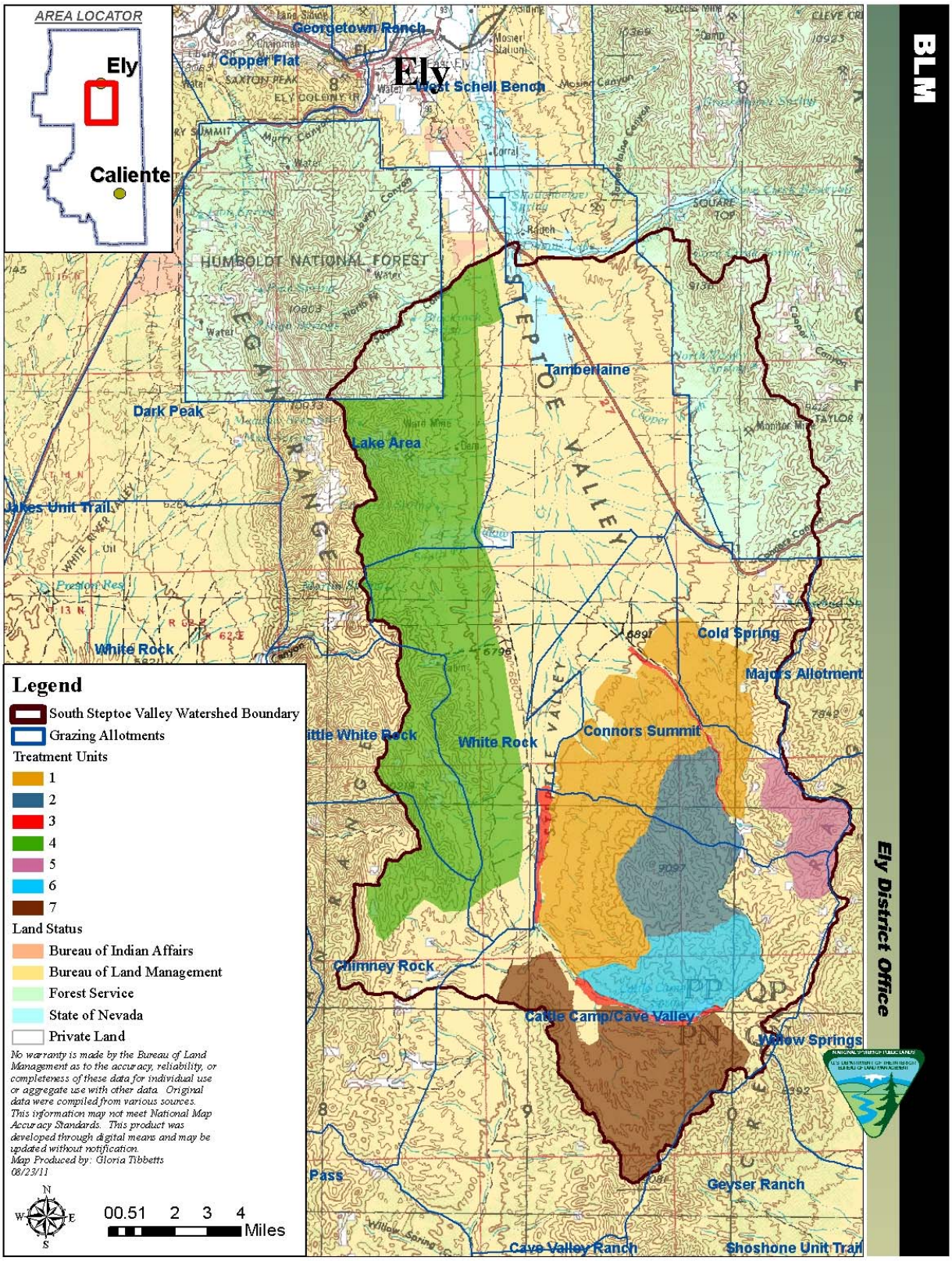
Past actions within the proposed project area have resulted in reduced livestock numbers over time. Livestock grazing in the region has evolved and changed considerably since it began in the 1870's and is one factor that has created the current environment. At the turn of the century, large herds of livestock grazed on unreserved public domain in uncontrolled open range. Eventually, the range was stocked beyond its capacity, causing changes in plant, soil and water relationships. Some speculate that the changes were permanent and irreversible, turning plant communities from grasses and other herbaceous species to shrubs and trees. Protective vegetative cover was reduced, and more runoff brought increased erosion, rills and gullies. In response to these problems, livestock grazing reform began in 1934 with the passage of the Taylor Grazing Act. Subsequent laws, regulations and policy changes have resulted in adjustments in livestock numbers, season of use and other management actions. The proper management of livestock grazing is one of many important factors in ensuring the protection of Public Land resources.

The project occurs within all or portions of the following allotments: Tamberlaine, Steptoe, Lake Area, Little White Rock, White Rock, Chimney Rock, Connors Summit, Cold Spring and Cattle Camp\Cave Valley. The permitted grazing use on these allotments is listed in Table 3.4, "Livestock Grazing Information by Allotment" (p. 74).

Table 3.4. Livestock Grazing Information by Allotment

Allotment	Livestock Kind / Season of Use	Permitted Use	Ten Year Average AUM Use	Percent of Permitted Use
Tamberlaine	Cattle / 5/1 – 10/15	2,059	1,927	94%
Lake Area	Cattle / 5/1 – 11/1 Sheep / 5/1 – 11/1	2,977	730	51%
Little White Rock	Cattle / 3/1 – 2/28 OR Sheep / 3/1 – 2/28	2,196	160*	60%

Chimney Rock	Cattle / 5/1 – 11/1 OR Sheep / 5/1 – 11/1	684	346**	51%
Cattle Camp/Cave Valley	Cattle / 5/15 – 11/30	6,338	3,285	67%
Cold Spring	Sheep / 5/1 – 9/30	1,265	287	32%
Connors Summit	Cattle / 3/1 – 2/28	2,448	407	63%



Map 3.2. Grazing Allotments in the South Steptoe Valley Watershed

3.10. Recreation

The South Steptoe Valley Watershed offers a wide variety of recreational activities. Recreation in the valley is moderate and dispersed, and primarily consists of off-highway vehicle use, dirt biking, hunting, wildlife viewing, fishing, camping, hiking, cross-country skiing, horseback riding, caving, and mountain biking. Developed recreation sites within South Steptoe Valley include: Ward Charcoal Ovens State Park, Ward Mountain Recreation Area, and the Ely Elk Viewing Area.

3.11. Wilderness

There are two Wilderness areas that enter the southern portion of the South Steptoe Valley Watershed, the Mount Grafton Wilderness Area and the South Egan Range Wilderness Area. Only a small northern portion of each wilderness is within the watershed comprising 14% of Mount Grafton and 2% of the South Egan Range Wilderness. Only the north end of Mount Grafton Wilderness is being identified for vegetation treatment.

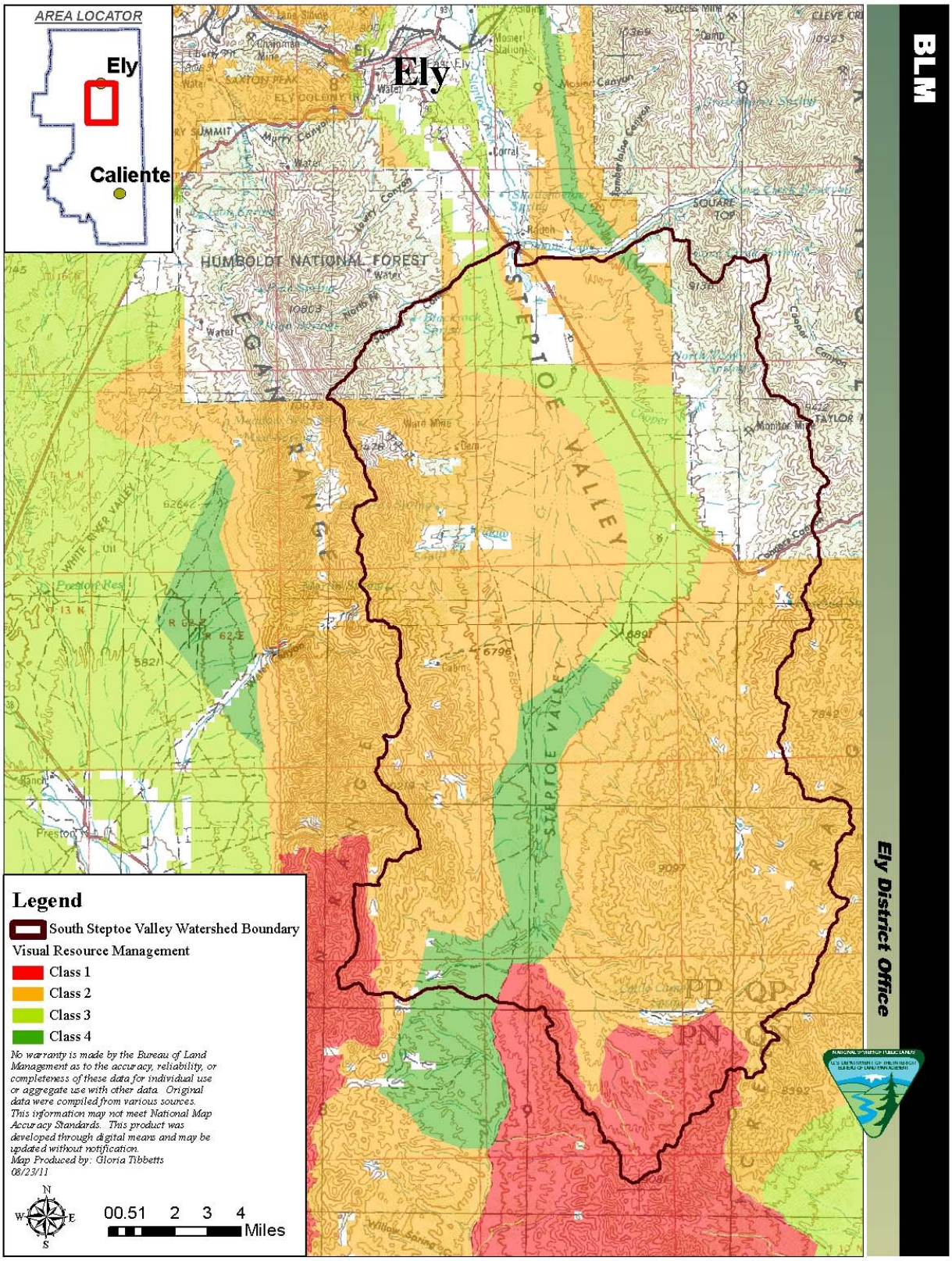
The Wilderness Act of 1964 defines wilderness and mandates that the primary management direction is to preserve wilderness character. Although wilderness character is a complex idea and was not explicitly defined in the Wilderness Act, it may be described as the combination of biophysical, experiential, and symbolic ideals that distinguish wilderness from all other lands. Wilderness areas, regardless of size, location, or any other feature, are unified by this statutory definition of wilderness. The four qualities of wilderness, related to wilderness character are:

- *Untrammeled* ─ area is unhindered and free from modern human control or manipulation.
- *Natural* ─ area appears to have been primarily affected by the forces of nature.
- *Undeveloped* ─ area is essentially without permanent improvements or human occupation and retains its primeval character.
- *Outstanding opportunities for solitude or a primitive and unconfined type of recreation* ─ area provides outstanding opportunities for people to experience solitude or primeval and unrestricted recreation, including the values associated with physical and mental inspiration and challenge.

3.12. Visual Resource Management

Visual resources are identified through the Visual Resource Management (VRM) inventory. This inventory consists of a scenic quality evaluation, sensitivity level analysis and a delineation of distance zones. Based on these factors, BLM-administered lands are placed into four visual resource inventory classes: VRM Class I, II, III and IV. Class I and II are the most valued, Class III represents a moderate value and Class IV is of the least value. VRM classes serve two purposes: (1) as an inventory tool that portrays the relative value of visual resources in the area, and (2) as a management tool that provides an objective for managing visual resources.

The proposed project area occurs within Visual Resource Management (VRM) classes I, II, III and IV. The watershed is 8 % class I, 70% class II, 10% class III and 8% class IV.



Map 3.3. Visual Resource Management (VRM) classes in the South Steptoe Valley Watershed

The Class I VRM objective 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.

The Class II VRM objective 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 attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

The Class III VRM objective is to partially retain the existing character of the landscape. The level of change to the characteristic landscape 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 landscape. Changes caused by management activities may be evident and begin to attract attention, but these changes should remain subordinate to the existing landscape.

The Class IV VRM objective is to allow for management activities that involve major modification of the existing character of the landscape. The level of contrast can be high – dominating the landscape and the 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 of the characteristic landscape.

3.13. Fuels and Fire Management

3.13.1. Fuels

Fuel types within the South Steptoe Valley Watershed represent a broad range of vegetation from high elevation limber and bristlecone pine to salt desert shrub. Past management actions within the planning area has led to an alteration of fire cycles leading to an increase in fuel build up and continuity of fuels, causing an increase in the potential for large uncontrollable fires.

Biophysical setting models describe the vegetation, geography, biophysical characteristics, succession stages, disturbance regimes and assumptions for each vegetation type (Havlina et al, 2010). For each BPS model reference conditions have been developed to describe the distribution of seral stages within a landscape prior to European influence. Seral classes represent a scale of vegetative succession as a community progresses from post-replacement to later successional states.

BPS models were utilized within the Ely RMP, which lists vegetation types and a DFC expressed as percentages of seral classes. The RMP has grouped some BPS models such as sagebrush, which incorporates all of the sagebrush systems.

Fire Regime Condition Class (FRCC) ratings are based on the comparison of the current seral states of the vegetation as compared to the reference condition on a large scale. The appropriate scale to calculate stratum FRCC ratings, as presented within the Interagency FRCC Guidebook (2010), is dictated by the fire regimes present as shown in Table 3.5, “Fire regime as described by frequency and severity as well as FRCC assessment size and the relative percentage of the South Steptoe Valley Watershed.” (p. 80).

Table 3.5. Fire regime as described by frequency and severity as well as FRCC assessment size and the relative percentage of the South Steptoe Valley Watershed.

Fire Regime Group	Fire Frequency (years)	Fire Severity	FRCC Assessment Area Size (acres)	Percent of South Steptoe Valley Watershed
I	0-35	Low/mixed	500-5,000	3%
II	0-35	Replacement	500-10,000	0%
III	35-200	Mixed/low	5,000-20,000	52%
IV	35-200	Replacement	20,000-500,000	42%
V	200+	Any Severity	1,000-20,000	4%

Fire Regime Condition Class is a measure commonly used and accepted for the measurement and characterization of fuels conditions. Fire regimes represent classifications of wildfire within vegetation types based on two criteria: fire severity and fire frequency. Fire frequency represents the average number of years between fire occurrences. Fire severity, in terms of fire regime, is defined by the replacement of the upper canopy of vegetation. This replacement of vegetation is independent from the degree of mortality of the vegetation that composes the upper canopy. Fire severity is described as Low (<5% replacement), Mixed (26-75% replacement), Replacement (>75% replacement).

FRCC refers to the amount of departure from the Historical Range of Variability (HRV). The Interagency FRCC Guidebook (2010) defines HRV as the variability and central tendencies of biophysical, disturbance, and climatic systems, across landscapes and through time, in the absence of modern human interference. FRCC is characterized into three classes:

- FRCC 1 – Less than 33% departure from the central tendency of the historical range of variation (HRV): Fire regimes are within the natural or historical range and risk of losing key ecosystem components is low. Vegetation attributes (composition and structure) are well intact and functioning.
- FRCC 2 – 33 to 66% departure from the HRV: Fire regimes have been moderately altered. Risk of losing key ecosystem components is moderate. Fire frequencies may have departed by one or more return intervals (either increased or decreased). This departure may result in moderate changes in fire and vegetation attributes.
- FRCC 3 – Greater than 66% departure from the HRV: Fire regimes have been substantially altered. Risk of losing key ecosystem components is high. Fire frequencies may have departed by multiple return intervals. This may result in dramatic changes in fire size, fire intensity and severity, and landscape patterns. Vegetation attributes have been substantially altered.

FRCC ratings for the South Steptoe Valley Watershed have been calculated utilizing the BPS data collected and ground-truthed by The Nature Conservancy. Current FRCC ratings for the South Steptoe Valley Watershed demonstrate a departure of 57% and an FRCC 2 classification. Stratum FRCC ratings for the major BPS models present are presented in Appendix D. Non-native seedings that have been established for the purpose of livestock management have not been included within the FRCC calculations as they are an approved land use within the South Steptoe Valley Watershed and they would represent an adverse vegetation type within the FRCC calculations.

Vegetation treatments conducted within the South Steptoe Valley Watershed total 4,069 acres with 3,107 of these acres being treated in the last ten years. Within the last ten years, 95% have been conducted in sagebrush vegetation types. Treatment methods have included prescribed burning, mowing, mechanical pinyon pine and juniper removal, and Dixie harrow. All of the acres of sagebrush that have been treated were in seral class C, D, E or U.

3.13.2. Fire Management

The South Steptoe Valley Watershed occurs within four Fire Management Units (FMUs). Proportionally the South Steptoe Valley Watershed makes up 17.9% of the Bullwhack FMU, 13.2% of the Ely/Lund/Duckwater WUI FMU, 6.8% of the Highlands South Egan FMU and 4.7% of the Northern Benches FMU. Historical fire occurrence within the planning area is 34 fires over the last ten years and 112 fires, with a total of 362 acres, since 1980. Of the fires within the planning area, one fire within the last ten years and 14 fires within the last 30 years were human caused, accounting for a total of 69.5 acres. Fire size within the watershed has been low since 1980 with the largest fire being the Cattle Camp Fire, which consumed 220 acres in 2007. Average fire size since 1980 is 3.23 acres with only three fires over 25 acres in size. Fire size has been limited historically with the aggressive suppression and relative accessibility of fires within the watershed.

Current fire management is guided by the Ely District Fire Management Plan (FMP) (2004). Of the FMUs within the planning area, only the Ely/Lund/Duckwater WUI FMU is considered Watershed and Wildland Urban Interface (WUI) where wildland fires are aggressively suppressed to protect watershed and community infrastructure. The remaining FMUs are listed as High Value Habitat concerns and range from high to low constraints for fire size. The Northern Benches FMU is listed as high constraint where fire size is to be limited to 50 acres or less. The other two FMUs (Highlands and South Egan FMU and Bullwhack FMU) are listed as low and moderate constraints of fire size. The moderate constraint restricts fire size to 300 acres and the low restricts fire size to 1,000 acres. All fire occurrences within the last 30 years have been held below the tolerances listed above.

Treatment acres are listed within the FMP and are listed below in Table 3.6, “Fire and treatment limitations listed within the Fire Management Plan.” (p. 81). Wildland fire for Resource Benefit and prescribed fire are approved within all FMUs except the Ely/Lund/Duckwater WUI FMU. Over the last ten years, non-fire treatments within the South Steptoe portion of the FMUs have totaled 278 acres within the Bullwhack FMU, 8 acres within the Ely/Lund/Duckwater FMU, 5 acres within the Highlands and South Egan FMU and 1,772 acres within the Northern Benches FMU.

Table 3.6. Fire and treatment limitations listed within the Fire Management Plan.

Fire Management Unit Name	Wildland Fire		Wildland Fire for Resource Benefit		Non Fire Treatments		Prescribed Fire Treatments	
	Individual Fire Limitation (acres)	Decadal Tolerance (acres)	Individual Fire Target Acreage	Decadal Acres	Annual Acre Target	Decadal Acres	Annual Acre Target	Decadal Acre Target
Bullwhack	300	10,000	5,000	10,000	1,419	50,000	2,500	25,000
Ely/Lund/ Duckwater WUI	1	100	0	0	10,000	50,000	0	0
Highlands and South Egan	1,000	500,000	50,000	100,000	1,000	20,000	25,000	100,000
Northern Benches	50	10,000	5,000	300,000	25,000	100,000	25,000	100,000

3.14. Climate Change

According to the Global Climate Change Impacts in the United States report produced by the U.S. Global Change Research Program, the South Steptoe Valley Watershed is located the Southwest region of the United States. The report states that recent warming has occurred in this region more rapidly than in other areas of the nation. The warmer temperatures and drier conditions that are being observed in some areas of the Southwest are predicted to potentially alter the vegetative distribution across the region, including possible increases in invasive species. The increased temperatures are also predicted to support increased wildfire activity.

Chapter 4. Environmental Effects:

This page intentionally
left blank

4.1. Air Quality

4.1.1. Impacts from the Proposed Action

The prescribed fire component of the Proposed Action would introduce fine and coarse particulates into the atmosphere within the South Steptoe Valley Watershed and White Pine County, Nevada. The BLM would follow the State of Nevada, Division of Environmental Protection, Bureau of Air Quality Planning, Smoke Management Plan requirements for air quality. Any particulates liberated to the air during prescribed fire operations would not affect the air quality of White Pine County.

4.1.2. Impacts from the No Action Alternative

There would be no impacts on air quality from the No Action Alternative.

4.2. Soil Resources

4.2.1. Impacts from the Proposed Action

Tree Removal or Woodland Restoration: Chaining and mastication would disturb soils by directly compacting and displacing surface and subsurface horizons, which could lead to an increased risk of wind and water erosion. Chaining operations would have the greatest risk of compacting soils. The use of heavy equipment making multiple passes across treatment areas, up-rooting vegetation, exposing soil to depths potentially below the rooting zone, and displacing soil by altering its position within the soil horizon or upon the landscape. The degree to which soils are compacted is a function of the depth of organic material and vegetation at the surface upon which the vehicles travel and the pressure the equipment exerts on the soil surface. The degree to which soil is exposed or uncovered is a function of the type of chain employed and whether one pass or two passes are employed. Displaced and exposed soil could be susceptible to wind or water erosion until exposed soil is re-vegetated. Soils compacted during chaining could show long-term effects such as a change in soil structure and slower water infiltration rates. The amount of soil compaction in any treatment unit is expected to be small given the occurrence only appears where the equipment was used, which accounts for an overall small percentage of a treatment unit.

Mastication treatments would have compaction and displacement effects to an overall lesser degree than the chaining treatments due to use of lighter equipment and a greater retention of standing vegetation and residual organic material. Moving and stacking of biomass whether for burning or fuelwood disposal could lead to limited and localized areas of soil displacement, especially where the equipment may make frequent turns and where soils may become dished-out. The compaction effects would be lessened further as equipment use occurs over tree and shrub material and may not occur at all if material is thick enough to support the equipment and disperse the ground pressure effects. Soil disturbance effects are expected to be short-term until vegetation re-establishes on bare soils.

Fire, whether unit burning post-chaining or pile burning post-mastication or hand cutting, could leave areas of soil hydrophobicity if fires burn too severely. Large slash piles may exhibit

small areas of hydrophobic soil underneath and adjacent to the piles due to high temperatures generated while burning. Sites exhibiting hydrophobic characteristics are expected to be rare and to account for very minimal land area in treatment units which are burned as a secondary treatment. General conditions needed to form hydrophobic soils are a thick litter layer before the fire, sandy texture soils, and a severe slow-moving fire usually with a crown fire. Conditions in the proposed treatment units are coarse loam soils, no crown fire potential, and lack a thick organic layer component in the soil horizon.

Mechanical Methods for Sagebrush Restoration: The three types of equipment used for mechanical sagebrush restoration require being pulled or dragged by either a tractor or bulldozer. Soil compaction is a risk, especially if the mechanical method is a secondary treatment following a chaining primary treatment. The Dixie harrow and mower operations would have a lower risk of soil compaction whether directly or compounded following a chaining operation. The probable use of a rubber tired tractor with the harrow or mower reduces the likelihood of soil effects. Roller chopper use would be expected to have the greater risk of soil compaction with the use of a bulldozer to pull the equipment across treatment units.

Dixie harrow would rake the surface vegetation and potentially the soil surface to the set depth of the spiked teeth. Further soil disturbance could occur if dragged material gouged or scoured bare or exposed soil. Mower use is not expected to have effects to soil resources. Roller chopper use could directly scalp the soil surface if the chopper was operated over bare or exposed soils. Mechanical methods could have long-term disturbance effects to soil resources if operated upon bare or exposed soil. Displacement of surface organic horizon or intermixing of inorganic subsurface horizons with organic surface horizons may affect soil productivity in localized areas.

Chemical Treatments: Use of chemicals to affect vegetation would not directly have soil effects. Loss of ground cover vegetation may affect soil retention or soil stability. It is expected that the efficacy of chemical treatments across landscape settings would not lead to increased potential for soil erosion or soil loss. Chemical treatment of target species would leave sufficient ground cover from non-target vegetation to retain soil resources.

Prescribed Fire: Burning treatment units to reduce fuel loading or biomass and to attain other resource targets would follow guidelines in an established project specific burn plan. The creation of control lines and fire lines would necessitate the exposure of bare mineral soil. Lines could be areas of increased risk to soil erosion if rehabilitation does not occur prior to the onset of the first precipitation event. Loss of target vegetation from prescribed burning is not expected to result in a total elimination of organic texture from hillsides or the ability of the natural system to buffer sediment if erosion does occur. Understory vegetation and heterogeneous topography are expected to naturally buffer and protect hillsides from soil and water movement prior to the establishment of new or release of existing plants.

The risk of creating hydrophobic soil conditions is identical to that described for use of fire as a secondary treatment in Tree Removal or Woodland Restoration.

Aspen Restoration: Manual conifer tree cutting and removal would not affect soil resources directly. Decking trees on riparian soils and later fuelwood cutting if undertaken during wet soil conditions could be a risk factor. Prescribed fire use in aspen stands would have effects similar, but typically on a smaller scale, to that described in Prescribed Fire.

Seeding: Use of seeding as a treatment would tend to stabilize and protect soils, especially where sown on bare or exposed soil. Establishing target species ground cover is expected to hold soil

on slopes and buffer against erosion as well as working as an important part of soil health by organic matter integration.

Fencing: Use of fences would not directly affect soil resources. Fencing areas to exclude entry into sensitive areas could protect soils from trampling until target vegetation is established and capable of handling intended use.

Wildland Fire for Resource Benefit and the Fire Management Plan: Use of Wildland Fire for Resource Benefit would rely on circumstances as defined in the Fire Management Plan before application to the project area. Effects to soil resources are expected to be similar to those described in Tree Removal or Woodland Restoration and Prescribed Fire. Wildland fires can be less predictable and thus have a higher risk associated with the use.

4.2.1.1. Impacts from the No Action Alternative

There would be no short-term effects to soil resources. There could be a long-term effect to soil productivity from the slow change from shrub-grassland dominated systems to shrub-tree dominated systems. In other words, there could be a change in the timing and processes involved in the way nutrients and organic matter enter the soils; finer vegetation potentially changing to coarser vegetation or shorter nutrient cycling times versus potentially longer times.

4.3. Vegetation

4.3.1. Rangeland Vegetation

4.3.1.1. Impacts from the Proposed Action

Under the Proposed Action, vegetative conditions are expected to benefit following implementation of the proposed vegetation treatments. Reducing the establishment of pinyon pine and juniper would assist in improving the ecological condition of sagebrush and aspen sites within the project area. It is expected that plant species diversity and composition would be in better balance with native wildlife needs as departure from reference conditions and the DFC is reduced. The proposed treatments would reduce departure within the watershed and move the watershed towards FRCC 1 by reducing fuel loading and continuity. Residual woody vegetation, which would consist of slash/biomass created from mastication equipment, scattered trees from the chaining treatment, or burnt trees as a result of prescribed fire or fire for resource benefit, would provide protection to regenerating grasses and shrubs that could be grazed by wildlife. The scattered trees from chaining would also continue to provide protective cover for wildlife species. The decomposition of woody plant material would also improve soil nutrient content, which would enhance the recruitment, establishment and long-term viability of the grass and shrub community, as well as provide protection to the soil resource. The Proposed Action is also expected to assist the watersheds in conforming to the Standards and Guidelines for Nevada's Northeastern Great Basin and the Fundamentals of Rangeland Health (Title 43 CFR 4180) by improving soil protection, vegetative diversity, habitat quality and other watershed values. Rangeland Health Standard 1 (Upland Sites) states the following:

"Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

As indicated by:

Indicators are canopy and ground cover, including: litter, live vegetation and rock, appropriate to the potential for the site."

Non-native seedings would be managed in compliance with the RMP. Currently there is a disproportionate amount of seedings that occur within the South Steptoe Valley Watershed when compared to the Steptoe Watershed as a whole or the Ely District as a whole. The South Steptoe Valley Watershed comprises 1.4% of the Ely District and the seedings within represent approximately 8% of the seedings within the Ely District. The Steptoe Valley Watershed that occurs within the Ely District represents 6% of the district and the non-native seedings within represent 12% of the district. Presently the Ely District RMP allows 5% of sagebrush systems and 18% of salt desert shrub communities to occur within non-native seedings. Within the South Steptoe Valley Watershed there is 14.6% of the sagebrush systems and 23.3% of the salt desert shrub communities, as indicated by the mapping of BPS models. However percentages listed within the Ely District RMP are for the district as a whole and when the percentages are applied to the entire Steptoe Watershed that occurs within the Ely District, 5.8 percent of sagebrush systems are within a non-native seeding and 1.5% of the salt desert shrub communities are within a non-native seeding. When applying the Ely District RMP percentages allowed for non-native seedings as a whole district it is appropriate to manage all of the non-native seedings within South Steptoe Valley Watershed as such.

4.3.1.2. Impacts from the No Action Alternative

Under the No Action Alternative, vegetative conditions are expected to remain the same for the short-term and decline in condition over the long-term. The health, vigor, recruitment and production of perennial grasses and native shrubs would decline in the long-term due to a combination of factors including grazing and browsing by livestock and wildlife; competition for nutrients, sunlight and water with older, decadent shrubs and the establishment of pinyon and juniper. Future drought related factors would also contribute to the decline in condition of upland vegetative communities. The establishment of pinyon and juniper onto sagebrush ecological sites would continue and the older, decadent even-aged shrub communities would further decline in health and vigor affecting the recruitment and establishment of new grasses, forbs and shrubs which are important for grazing, browsing, soil protection, soil stability and other watershed values.

The risk of large scale high intensity and severity wildfires would continue to increase as more areas progress towards FRCC 3. As vegetation progresses towards a homogenous fuel bed of late seral woodlands and rangeland with dense pinyon pine and juniper the risk for large scale wildfires increases. These wildfires would be difficult to control and may cause more damage as a result.

4.3.2. Forest and Woodland Vegetation

4.3.2.1. Impacts from the Proposed Action

The following treatment methods have the potential to impact forests and/or woodlands. Other treatment methods would have no impact because they occur outside forest or woodland areas.

Chaining: Pinyon pine and juniper woodlands are incidental vegetation types for chaining. Chaining removes all pinyon pine and juniper trees over approximately four feet in height within the chaining treatment area, except for islands and stringers left by design. This treatment method is not mimicking a natural disturbance as prescribed fire or individual tree removal methods do, but does effectively revert succession class C, D, E and UN (for uncharacteristically high canopy cover) woodlands back to a succession class A and B woodlands. Currently in the watershed, succession classes A and B are underrepresented by 5% each. Thus some chaining in pinyon pine and juniper woodlands would have an impact consistent with the purpose and need of the proposal. However, if more than 15% of the pinyon pine and juniper woodlands are treated through chaining, herbicide or stand-replacing prescribed or wild fire, then the ecological departure of the pinyon pine and juniper woodland system would increase contrary to the purpose and need for treatment. Regeneration following chaining is typically quite successful, however young pinyon pine and juniper trees would be at increased risk of being trampled, browsed, scrapped or otherwise disturbed due to the increased amount of livestock grazing that would occur after understory vegetative objectives are met.

Individual tree removal: Individual tree removal includes hand thinning, mastication and mechanical tree removal treatment techniques. Target and incidental vegetation for these treatment methods include pinyon pine and juniper woodlands, white fir forests, and aspen forests. The impact to these vegetation types from the proposed action is to reduce tree density in targeted stands. This reduction of tree density would open up stands (converting a succession class UN (for uncharacteristically high canopy cover) stand in many cases to a C, D or E stand depending on the average size of the remaining trees). This impact would be consistent with the goals of the project in all forest and woodland vegetation types because all vegetation types are either becoming encroached by an unwanted species (white fir in aspen or pinyon pine and juniper in ponderosa) or are over-representing in the later successional classes, or both.

Chemical Treatments: Herbicide (Tebuthiuron) has varying impacts on woodland vegetation. If applied at a high enough rate (more than 1.5 oz. of active ingredient per acre), nearly all trees would senesce. At lesser rates, pinyon pine is more vulnerable than juniper and juniper will often survive. If the rate is high enough to kill all trees in the application area, the effect would be to return the area to a succession class A if in large enough blocks. If the application is mosaic in nature, the result could be to open up the stand, creating class C or D structures. Both of these results are consistent with the purpose and need, so long as more acreage isn't converted to one succession class than is stated in the reference condition percentage, which would increase rather than decrease ecological departure.

Prescribed Fire and Fire for Resource Benefit: Prescribed fire reduces densities of trees generally in a mosaic pattern, and increases regeneration in some ecosystems (especially aspen and mountain-mahogany). Because every forest and woodland community within the South Steptoe Valley Watershed is over-dense and over-representing in the late successional age classes, the reduction of tree density and increased regeneration would return the stands to a condition closer to the reference condition and therefore reduce ecological departure. Prescribed fire also burns very heterogeneously across the burn unit, allowing for a more natural distribution of age classes and increased patchiness in the watershed. This impact is consistent with the purpose and need for the proposal.

Fencing: Fencing would only have an impact on aspen and mountain-mahogany vegetation types and is only proposed in aspen communities. Fencing would reduce the amount of herbivory by livestock and wildlife and would allow for increased rates of regeneration in aspen communities.

This increased regeneration would help ensure the aspen stands persist into the future and reduce the ecological departure of the system.

4.3.2.2. Impacts from the No Action Alternative

The No Action Alternative would not impact forests and woodlands in a manner consistent with the purpose and need. Rather stand densities would continue to increase and stands would continue to become more departed from the reference condition (higher FRCC). Forests and woodlands would be at increased risk to high severity, high intensity wildfire that is uncharacteristic and would revert large areas back to successional class A, increasing the ecological departure in most vegetation types even more. Furthermore, without disturbance (either natural or through treatment such as one described in the Proposed Action) aspen stands within the watershed are at high risk to being lost from the landscape forever.

4.3.3. Non-native Invasive and Noxious Species

4.3.3.1. Impacts from the Proposed Action

Direct impacts could include an initial increase of cheatgrass and other weed species in treatment areas, especially where soils are disturbed or following prescribed or natural fire. The design features include chemical treatments and targeted grazing to reduce cheatgrass monocultures, allowing desired plant species to re-establish. There is also the potential for noxious weeds to move into the disturbed areas following treatment. This impact is reduced by using weed free seed, cleaning equipment, and treating current weed infestations along access routes.

Indirect impacts could include an increase in fire frequency if large monocultures of cheatgrass establish, preventing desired vegetation from recovering following treatment. Managing cheatgrass following treatments will reduce this risk. By managing weeds in these treatment units, native vegetation will re-establish and be more resilient to future weed infestations.

4.3.3.2. Impacts from the No Action Alternative

Direct impacts to weeds would not occur. Weed populations would remain stable as long as no other large disturbances, such as fire, occurred within the treatment units.

Indirect impacts would include a less resilient native plant community that could be prone to weeds following a disturbance such as fire.

4.4. Woodland and Vegetative Products

4.4.1. Impacts from the Proposed Action

Impacts to vegetative products, including native seed found in rangeland vegetation and forest products such as fuelwood, Christmas trees, posts, poles, pine nuts and wildings, differ based on treatment method. The following treatment methods would have an impact on vegetative products.

Chaining: Pinyon pine and juniper woodlands are incidental vegetation types for chaining. Chaining removes all pinyon pine and juniper trees over approximately four feet in height within

the chaining treatment area, except for islands and stringers left by design. Chaining impacts forest products by increasing the amount of dry fuelwood available to the public in the short term. In the long term, the amount of fuelwood, posts, and poles is greatly decreased by amounts of four to six cords per acre as the chained area begins to regenerate with pinyon pine and juniper trees not yet of a large enough size for harvest. Christmas tree production decreases in the short term, but increases as the regenerating trees reach appropriate height for use as Christmas trees. Pine nut production of chained areas containing mature pinyon pine trees is reduced to zero for a minimum of thirty years until regenerated trees reach maturity. Native seed availability for the public increases in the short and long term as areas with trees are replaced with rangeland vegetation, especially if native seed is planted during chaining.

Individual tree removal: Individual tree removal includes hand thinning, mastication and mechanical tree removal treatment techniques. Target and incidental vegetation for these treatment methods include pinyon pine and juniper woodlands, white fir forests, and aspen forests. The impact to vegetative products includes increasing the availability of fuelwood as harvested boles are made available as biomass. The availability of Christmas trees would be reduced by the number of trees of the appropriate height harvested, but the quality of remaining potential Christmas trees may increase due to greater resource availability and growing in a more open environment. Pine nut production would increase in the short and long term due to more available resources for remaining pinyon pine trees. The effect of individual tree removal on native seed would be negligible because harvesters generally do not target areas within woodlands or forests and the increase of seed within treated areas would be minimal.

Chemical Treatments: Herbicide (Tebuthiuron) has varying impacts on woodland vegetation. If applied at a high enough rate (more than 1.5 oz. of active ingredient per acre), nearly all trees would senesce. At lesser rates, pinyon pine is more vulnerable than juniper and juniper will often survive. This would increase the amount of dry fuelwood, decrease the number of available Christmas trees and decrease the pine nut production in the short term. In the long term fuelwood production would be reduced, Christmas tree production would increase and pine nut production would continue to be reduced until regenerated pinyon pine trees reach maturity. Native seed production would be increased in the long and short term until trees retake the site.

Prescribed Fire and Fire for Resource Benefit: Fire reduces densities of trees and sagebrush and reverts stands to an earlier succession class. The number of trees producing fuelwood, posts, poles and pine nuts would be decreased in the short term. In the long term, while the overall number of trees would not increase, the quality of the forest product would increase as growth rates of the trees increase. Pinyon pine stands would increase in health in the longer term resulting in more pine nuts per tree and an overall increase in pine nut production, despite lower densities. The availability of Christmas trees to the public would be reduced in the short term following a fire event, but would increase for a period of time in the long term as regenerated pinyon pine and white fir trees reach heights desired for Christmas trees. Fire would impact native seed collection by reducing the number of annual and perennial grasses and decreasing the number of forbs in the short term. In the long term the species generally collected for native seed would likely increase, especially if seeding follows a fire event.

Seeding: Seeding of treated areas would only impact the availability of native seed, increasing availability in both the long and short term.

4.4.2. Impacts from the No Action Alternative

The No Action Alternative would continue to allow for current rates of harvest of vegetative products. No increases or decreases of availability of varying products as described above would occur and the current condition would likely persist into the future.

4.5. Fish and Wildlife Resources

4.5.1. Fish and Wildlife

4.5.1.1. Impacts from the Proposed Action

Under the Proposed Action, impacts to big game and other wildlife would be minimal with implementation of timing stipulations and design features. Individual animals may be disturbed and displace from the area temporarily during implementation; however there is adjacent suitable habitat to provide wildlife needs. A mosaic pattern is expected to provide wildlife populations with greater vegetative diversity and diverse age-class distribution. Woodland sites would continue to provide thermal protection and escape cover for many species.

4.5.1.2. Impacts from the No Action Alternative

Under the No Action Alternative, resource conditions are expected to stay the same with continual pinyon pine and juniper encroachment on sagebrush communities and decline in the production, vigor, and diversity of grass, forb, and shrub species. Forage values would continue to decline in terms of both nutrition and palatability. The increase of pinyon pine, juniper, and decadent sagebrush stands could result in large, uncontrolled wildfires that have the potential to eliminate large tracts of existing habitat for big game and other wildlife.

4.5.2. Migratory Birds and Raptors

4.5.2.1. Impacts from the Proposed Action

Under the Proposed Action, impacts to migratory birds and raptors would be minimal due to timing restrictions and design features. Treatment implementation would occur outside the breeding bird nesting season or the area would be surveyed for nesting birds prior to treatment. Due to the difficulty of identifying all nests within a project area, some nests or eggs may be destroyed during implementation; however due to adjacent and available suitable habitat within the watershed, local migratory bird populations would not be impacted by the Proposed Action. All active raptor nests would be avoided during implementation of the Proposed Action.

Changes in habitat condition and abundance as a result of the proposed action may result in increases in the populations of some bird species at the expense of other bird species. Thus, there is no change that would benefit or adversely affect all bird species. Additionally, treatment design is to incorporate varying succession stages of pinyon pine and juniper woodlands throughout the watershed and would benefit pinyon-juniper obligate bird species. Incorporating pinyon pine and juniper stringers into the treatment design is expected to benefit nesting Ferruginous hawks.

Additionally, improving sagebrush communities would increase the prey base (small mammals) for raptors and increase insect populations.

4.5.2.1.1. Impacts from the No Action Alternative

Under the No Action Alternative, resource conditions are expected to stay the same with continual pinyon pine and juniper encroachment on sagebrush communities and decline in the projection, vigor, and diversity of grass, forb and shrub species. The increase of pinyon pine, juniper, and decadent sagebrush stands could result in large, uncontrolled wildfires that have the potential to eliminate large tracts of existing habitat for migratory birds and raptors.

4.5.3. Special Status Animal Species

4.5.3.1. Impacts from the Proposed Action

Under the Proposed Action, impacts to special status species would be minimal with implementation of Best Management Practices, timing stipulations, and design features of treatments. Individual animals may be disturbed and displaced from the area during implementation of treatments. Tree roosting bats may be disturbed, displaced, or killed during implementation of pinyon pine and juniper treatments, however suitable woodlands exist adjacent to treatment areas and the Proposed Action would not affect local bat populations.

Treatments are expected to improve habitat for greater sage-grouse, pygmy rabbits and other special status species by removing pinyon pine and juniper trees, increasing available sagebrush habitat, and increasing grass and forb production in sagebrush communities. Treatments would leave a mosaic pattern of vegetation in the watershed, providing greater vegetative diversity, diverse age-class distribution and a patchiness effect which provides thermal and protective cover. Additionally, reducing trees would decrease perches for raptors that may prey on greater sage-grouse and other special status species. No treatments would occur within two miles of an active greater sage-grouse lek during the breeding season and active pygmy rabbit habitat would be avoided for sagebrush treatments.

4.5.3.2. Impacts from the No Action Alternative

Under the No Action Alternative, resource conditions are expected to stay the same with continual pinyon pine and juniper encroachment on sagebrush communities and decline in the production, vigor, and diversity of grass, forb, and shrub species. Forage values would continue to decline in terms of both nutrition and palatability. The increase of pinyon pine, juniper, and decadent sagebrush stands could result in large, uncontrolled wildfires that have the potential to eliminate large tracts of existing habitat for special status species. Additionally, the spread of pinyon pine and juniper trees on sagebrush communities potentially limits available strutting grounds, nesting and summer habitat, possibly resulting in a decline in local greater sage-grouse populations.

4.6. Wetlands and Riparian Areas

4.6.1. Impacts from Proposed Action

Riparian areas would be buffered during ground disturbing treatments, excluding prescribed fire. Chemical treatment buffers would range from 25 feet near drainages if applied by hand, 100 feet if applied from ground-based motorized equipment (e.g. ATV), to 300 feet if aerially applied. Site specific determination of appropriate buffers for drainage features, riparian systems, and water collection points would occur prior to treatment. Mechanical treatments and hand felling operations could occur adjacent to riparian areas. Aspen regeneration actions could occur near or inside riparian areas, which would include conifer removal using hand-cutting methods and prescribed burning.

Chemical and mechanical treatments near riparian zones are not expected to affect the function or resilience of the systems. Buffers utilized to protect drainages that may possess or flow towards riparian systems are expected to capture and hold any materials used or liberated during mechanical or chemical treatments and preclude their introduction into the riparian systems. Any materials that do enter drainages or riparian systems would have negligible and lead to immeasurable effects on riparian resources.

Removal of conifer trees and regeneration of aspen trees in or near riparian systems would retain groundwater for riparian species use and possibly help to retain groundwater levels closer to the ground surface. Reducing upland species competition in and around riparian zones would reduce competition for limited water resources.

4.6.2. Impacts from the No Action Alternative

Riparian systems would continue to be surrounded and encroached by upland shrub and tree species in competition for limited water resources in the short-term. Aspen stands and riparian habitats could become rarer in the long-term.

4.7. Floodplains

4.7.1. Impacts from the Proposed Action

Floodplains would not be affected by the proposed project. The Proposed Action would not alter natural stream flow patterns or alter the natural variability of snowfall distribution, which could lead to changing the timing and distribution of stream flow. No change to the amount, duration, intensity, or frequency of stream flow events emanating from drainage networks in the analysis area would occur as a result of the Proposed Action.

4.7.2. Impacts from the No Action Alternative

There would be no impacts to floodplains resulting from the No Action Alternative.

4.8. Prime and Unique Farmlands

4.8.1. Impacts from the Proposed Action

The Proposed Action would use mechanical and chemical treatments, some of which would use equipment traversing treatment units and disturbing soils. The chaining, mastication and mechanical tree removal, mowing, and some actions associated with prescribed fire, such as fireline construction, could displace and disturb soils. The only two components that the Proposed Action and any treatment chosen to carry out the action could affect would be: (1) altering soil structure sufficiently enough to impede water and air movement into and through the soil (compaction); or (2) disturbing the landscape sufficiently to alter the soil's susceptibility to water and/or wind erosional forces that would in turn affect the other components that are important to prime farmlands. Similar to the analysis of Soil Resources above, soil compaction would only occur where direct contact was made between the equipment and the surface, which would account for only a small percentage of the total area of the treatment units and the watershed as a whole.

4.8.2. Impacts from the No Action Alternative

There would be no impacts resulting from the No Action Alternative.

4.9. Livestock Grazing

4.9.1. Impacts from the Proposed Action

Under the Proposed Action, rangeland conditions are expected to improve following implementation of the proposed vegetation treatments. The health, vigor, recruitment, and production of perennial grasses, forbs and shrubs would improve, which would provide a more palatable and nutritional source of forage for livestock and wildlife and also protect the soil resource and other associated watershed values. The rejuvenation of decadent, even-aged stands of sagebrush and the thinning of established pinyon and juniper woodlands would assist in improving the ecological condition of sites within the proposed project area. No reductions or increases in permitted livestock use would occur as a result of increased forage availability from the proposed project.

Implementation of the Proposed Action would assist those portions of allotments within the project area in conforming with Standard No. 1 and Standard No. 3 of the Standards and Guidelines for Nevada's Northeastern Great Basin Area and the Fundamentals of Rangeland Health (Title 43 CFR 4180) by increasing the quantity and quality of herbaceous vegetation and assisting those ecological sites in progressing toward achieving the reference condition community.

Implementation of the Proposed Action should not result in any short-term economic effect on the permittees due to a mandatory rest period of the treatment areas. The rest period is necessary in order to ensure the establishment, protection, and long-term viability of the vegetation enhancement project. The rest period would be for a minimum of two years or until vegetation management objectives have been met as identified in Chapter 2. The rest period may be extended pending the rate of progress towards vegetative establishment. The overall impacts to the grazing

permittees on the allotments would be minimal, as the permittees would herd livestock and avoid the treatment areas while they are being rested or deferred.

Seed germination, drought-related influences, wildfire, or other unforeseen natural events could potentially affect the rate of vegetative establishment. The type of treatment implemented may also affect the rate of recovery (e.g. mechanical, chemical, etc.). Seeding establishment is expected to occur with the use of site-adapted seed sources and under normal precipitation levels. Resource management objectives would be met at a more rapid rate on sites with adequate existing understory vegetation in comparison to those sites with a depleted understory component. In the long-term, the Proposed Action should benefit all users by providing more palatable, nutritious forage for livestock and wildlife due to the establishment of seeded perennial vegetation and the recovery and improved vigor of existing vegetation. Long-term viability of the vegetative treatments would be expected so long as utilization levels do not exceed 50% and the season of use corresponds with plant phenology characteristics. Any adjustments in stocking levels, the incorporation of management guidelines such as utilization levels or other modifications to the existing permits would require further NEPA analysis and would be conducted at the time the permits expire and are analyzed under the permit renewal process. Current utilization level thresholds identified in the existing permit would allow for proper vegetation management. Impacts to the permittees' grazing schedules would be minimal under the Proposed Action. Very small portions of each allotment are identified for treatment (less than 10%).

4.9.2. Impacts from the No Action Alternative

Under the No Action Alternative, there would be no short term impacts to the current livestock grazing on the allotments. In the long term, forage species for livestock would continue to diminish as pinyon pine, juniper, sagebrush, and undesirable annuals increase in density and desirable grasses and forbs decline. Forage quality and quantity would decline over the long term. The health, vigor, recruitment and production of perennial grasses and native shrubs would decline in the long-term due to a combination of factors including continued grazing and browsing use by livestock, wildlife and competition for nutrients, sunlight and precipitation with older decadent shrubs, and expanding pinyon pine and juniper woodlands. Future drought related factors would also contribute to the decline in condition of upland vegetative communities. The expansion of pinyon pine and juniper woodlands onto sagebrush ecological sites would continue and the older, decadent even-aged shrub communities would further decline in health and vigor, affecting the recruitment and establishment of new grasses, forbs and shrubs. Available forage would be reduced over a period of time.

Impacts to permittee grazing schedules would remain the same as the current situation. Livestock use would not occur due to the difficulty in grazing and herding in the dense tree canopy. Forage availability would remain very limited for livestock and wildlife in those areas.

4.10. Recreation

4.10.1. Impacts from the Proposed Action

Short term impacts could include visual and noise disturbance near dispersed recreation sites for a period of less than one month. In the long term recreationists may see healthier rangelands and aspen stands, possibly leading to increased recreational opportunities.

4.10.2. Impacts from the No Action Alternative

There would be no impacts resulting from the No Action Alternative.

4.11. Wilderness

4.11.1. Impacts from the Proposed Action

Treatment Unit 7 lies within the Mount Grafton Wilderness area. Minimum Tool guidelines would be followed in the event that a prescribed fire was to be conducted in this area. Conducting a prescribed fire would be considered a trammeling effect. The other potential treatment would be the use of fire for resource benefit. As fire is a naturally occurring element of the landscape, wilderness characteristics would not be affected as long as it is not suppressed within wilderness. No new roads would be added if a fire treatment were to be applied.

4.11.2. Impacts from the No Action Alternative

Wilderness character would not be impacted through fire for resource benefit or the trammeling effect of a prescribed fire.

4.12. Visual Resources

4.12.1. Impacts from the Proposed Action

Predominant natural features of the characteristic landscape are mosaic burned and disturbed patches within the landscape resulting from a historic fire regime of generally 35 to 100 years. The proposed action would repeat the basic elements of form, line, color and texture and therefore conform to the appropriate VRM class objectives and the Ely RMP.

4.12.2. Impacts from the No Action Alternative

Visual resources would remain the same without vegetation manipulation.

4.13. Fire and Fuels Management

4.13.1. Fuels

4.13.1.1. Impacts from the Proposed Action

Impacts of the proposed action are analyzed based on the conversion of vegetation targets to the seral class objectives as listed within the Proposed Action and compared to the desired future condition (DFC) as listed within the RMP. This analysis is based on the target vegetation only and does not include the treatment of the incidental vegetation types. As these vegetation types are not targeted and would be incorporated by the treatment design, it is not possible to quantify the

impacts to these vegetation types. However, the treatment of these incidental vegetation types with the methods listed would bring them closer to the DFC percentages listed within the RMP.

Biophysical Setting model data sets and model descriptions have been utilized to conduct the analysis and determine departure both for FRCC values and departure from the DFC. Fire Regime Condition Class analysis is based upon the reference condition listed within the BPS model descriptions. Reference conditions represent the combination of the vegetation with the natural disturbance regime to represent the range of seral classes present prior to European influence.

The analysis of the impacts of the proposed action are based on the assumption that the objectives for the treatment areas would be met through the implementation of the primary or secondary actions listed. The analysis is also based on the assumption that the treatments would be completed over a ten year period. The information utilized for this analysis is presented in the tables and provided in Appendix C. Based on the results from past treatments it is reasonable to expect that the objectives would be met.

Within the Proposed Action there would be a total of 1,400 acres of aspen (BPS Models Rocky Mountain Aspen Forest and Woodland and Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodlands) targeted for treatment. The combined impact of the Proposed Action in relation to the RMP DFC, as well as current conditions, is presented within Table 4.1, "Proposed Action impacts to Aspen in relation to the RMP DFC." (p. 98) below. Under the proposed action there would be a shift in the composition towards seral class A. No increase in classes B, C and D is due to the fact that the vegetation would have to progress from class A over time. Departure from the DFC for the Rocky Mountain Aspen Woodland model shows an increase in departure as additional acres are added to class A. Within the models succession from class A to B would occur in approximately 10 years. Progression from class B to class C would occur in approximately 30 years without disturbance. Succession Acres listed as U are likely areas where there are no aspen present. In this case, these acres would be re-categorized and listed as the existing vegetation type. Until these acres are inventoried, it is not possible to state that they actually are in a no aspen state. However the re-categorization of these no aspen acres would further help the composition percentages to be closer to the DFC.

Table 4.1. Proposed Action impacts to Aspen in relation to the RMP DFC.

BPS MODEL & CLASS		Desired Future Condition (DFC)	Current Condition Percentages	Current Condition Difference from DFC	Proposed Action Resulting Percentages	Proposed Action Difference from DFC
ROCKY MOUNTAIN ASPEN FOREST AND WOODLAND	A	14%	23%	9%	71%	57%
	B	40%	25%	-15%	6%	-34%
	C	45%	7%	-38%	5%	-40%
	D	1%	17%	16%	11%	10%
	E	0%	0%	0%	0%	0%
	U	0%	27%	27%	6%	6%
Average Departure from DFC				**18%**		**25%**

BPS MODEL & CLASS	Desired Future Condition (DFC)	Current Condition Percentages	Current Condition Difference from DFC	Proposed Action Resulting Percentages	Proposed Action Difference from DFC

INTER-MOUN-TAIN BASINS ASPEN MIXED-CONIFER FOR-EST AND WOOD-LAND	A	14%	10%	-4%	41%	27%
	B	40%	3%	-37%	0%	-40%
	C	35%	2%	-33%	5%	-30%
	D	10%	1%	-9%	10%	0%
	E	1%	27%	26%	6%	5%
	U	0%	57%	57%	38%	38%
Average Departure from DFC				**28%**		**23%**

The FRCC calculations for the aspen show a 58% departure for Rocky Mountain Aspen Forest and Woodland and 71% for Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodlands pre-treatment. Post treatment departures show a 54% departure for Rocky Mountain Aspen Forest and Woodland and 58% for Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodlands. It would be anticipated that inventorying the U class, as discussed above, would result in a reduction in U and a shift in the seral class percentages resulting in lower departures from DFC and the BPS reference condition.

Within the proposed action there are 678 acres of Pinyon-Juniper Woodlands targeted for treatment. The combined impact of the proposed action in relation to the DFC as well as current conditions is presented within Table 4.2, "Proposed Action impacts to Pinyon-Juniper Woodlands in relation to the RMP DFC. " (p. 99) below. Under the proposed action there would be a negligible impact to the seral percentages in reference to the watershed as a whole. The treatment of the vegetation on a project specific scale would shift the classes towards classes A, B and C, however the acres targeted for treatment compared to the acres of pinyon-juniper woodlands within the watershed does not make a measurable difference in departure from DFC.

Table 4.2. Proposed Action impacts to Pinyon-Juniper Woodlands in relation to the RMP DFC.

BPS MODEL & CLASS		Desired Future Condition (DFC)	Current Condition Percentages	Current Condition Difference from DFC	Proposed Action Resulting Percentages	Proposed Action Difference from DFC
PIN-YON AND JU-NIPER WOO-DLA-NDS	A	5%	0%	-5%	1%	-4%
	B	5%	0%	-5%	1%	-4%
	C	20%	9%	-11%	11%	-9%
	D	35%	28%	-7%	26%	-9%
	E	35%	26%	-9%	23%	-12%
	U	0%	37%	37%	37%	37%
Average Departure from DFC				**12%**		**12%**

The FRCC calculations for the Pinyon-Juniper Woodlands show a departure of 53% pre-treatment. The post treatment departure show a decrease to 51%. This small change in departure is a result of seral class D and E acres converting to earlier seral classes of A, B and C. It is likely that when the U class is inventoried those acres falling into the native U class of excess tree cover would be treated with the E class vegetation increasing the acres treated and decreasing the departure from the DFC and the BPS reference condition.

Within the Proposed Action there are 932 acres of High Elevation Mixed Conifer targeted for treatment. The DFC listed within the Ely District RMP for High Elevation Mixed Conifer only utilizes classes A, B and C where models used below use additional classes. Due to this the Landfire reference condition has been used as the DFC for High Elevation Mixed Conifer for the South Steptoe Valley Watershed. The combined impact of the Proposed Action in relation to the DFC, as well as current conditions is presented within Table 4.3, "Proposed Action impacts to High Elevation Mixed Conifer in relation to the RMP DFC. " (p. 100) below. Under the Proposed Action there would be an increase in both classes A and C, a reduction in class B, and no change in class D and E (where applicable). Proposed treatments within the high elevation mixed conifers are restricted to prescribed fire and fire for resource benefit. Mixed severity fires within this vegetation type would revert some to an early seral class while low severity areas that have been thinned would progress to a class C. This treatment decreases departure from the DFC across all classes except Rocky Mountain Subalpine Dry Mesic Spruce Fire Forest and Woodland class C. The increase in departure for BPS 1055 C represents 0.7% (6 acres) of the high elevation mixed conifer vegetation within the analysis area and is a relatively small change.

Table 4.3. Proposed Action impacts to High Elevation Mixed Conifer in relation to the RMP DFC.

BPS MODEL & CLASS		Desired Future Condition (DFC)	Current Condition Percentages	Current Condition Difference from DFC	Proposed Action Resulting Percentages	Proposed Action Difference from DFC
ROCKY MOUNTAIN MESIC MIXED CONIFER FOREST	A	20%	13%	3%	20%	10%
	B	20%	75%	45%	56%	26%
	C	60%	12%	-18%	24%	-6%
	D	0%	0%	–20%	0%	–20%
	E	0%	0%	—10%	0%	–10%
	U	0%	0%	0%	0%	0%
Average Departure from DFC				**16%**		**12%**
BPS MODEL & CLASS		Desired Future Condition (DFC)	Current Condition Percentages	Current Condition Difference from DFC	Proposed Action Resulting Percentages	Proposed Action Difference from DFC
ROCKY MOUNTAIN SUBALPINE DRY MESIC SPRUCE FIR FOREST AND WOODLAND	A	35%	3%	-32%	31%	-4%
	B	25%	56%	31%	16%	-9%
	C	5%	33%	28%	43%	38%
	D	35%	10%	-25%	9%	-26%
	E	0%	0%	0%	0%	0%
	U	0%	0%	0%	0%	0%
Average Departure from DFC				**19%**		**13%**

The FRCC calculations for the High Elevation Mixed Conifer shows that the BPS model Rocky Mountain Mesic Montane Mixed Conifer Forest is departed by 59% pre-treatment. The post treatment departure shows a decrease in reduction of 10% to an overall departure of 49%. The BPS model Rocky Mountain Subalpine Dry Mesic Spruce Fir Forest and Woodland was not included in the FRCC calculation due to its minimal amount of acres that comprise 0.007% of the watershed.

Within the Proposed Action there are 718 acres of Mountain Mahogany targeted for treatment. The amount of Mountain Mahogany targeted for treatment represents 2.5% of the mahogany within the watershed. The combined impact of the proposed action in relation to the DFC as well as current conditions is presented within Table 4.4, "Proposed action impacts to Mountain Mahogany in relation to the RMP DFC." (p. 101) below. Under the Proposed Action there would be a negligible impact to the seral percentages in reference to the watershed as a whole. The treatment of the vegetation on a project specific scale and achievement of the objectives would shift the classes slightly towards class A, however the acres targeted for treatment compared to the acres of mountain mahogany within the watershed does not make a measurable difference in departure from DFC.

Table 4.4. Proposed action impacts to Mountain Mahogany in relation to the RMP DFC.

BPS MODEL & CLASS		Desired Future Condition (DFC)	Current Condition Percentages	Current Condition Difference from DFC	Proposed Action Resulting Percentages	Proposed Action Difference from DFC
INTER-MOUN-TAIN BASINS MOUN-TAIN MA-HOGANY WOOD-LAND AND SHRUB-LAND	A	10%	52%	42%	53%	43%
	B	20%	22%	2%	22%	2%
	C	10%	10%	0%	10%	0%
	D	15%	3%	-12%	3%	-12%
	E	45%	13%	-32%	12%	-33%
	U	0%	0%	0%	0%	0%
Average Departure from DFC				**15%**		**15%**

The FRCC calculations for the Mountain Mahogany shows a departure of 51% pre-treatment with a change to 52% post treatment. This increase in departure is a result of additional acres being converted to class A.

Within the Proposed Action there are 39,171 acres of sagebrush targeted for treatment. The combined impact of the Proposed Action in relation to the DFC as well, as current conditions, is presented within Table 4.5, "Proposed Action impacts to Sagebrush in relation to the RMP DFC" (p. 102) below. Within the RMP sagebrush combines the BPS models listed within the table. Rocky Mountain Lower Montane-Foothill Shrubland was included under this as mountain sagebrush and antelope bitterbrush can make up a substantial portion of the understory and analysis of treatments would be similar. However, within the Proposed Action treatment units, only two acres of the BPS Rocky Mountain Lower Montane-Foothill Shrubland are included, of which the impacts are negligible over the watershed. Analysis will focus on the three main targeted sagebrush types.

Under the proposed action where current non-native seedings occurring within sagebrush and salt desert shrub habitat would be managed as non-native seedings the DFC for the management of South Steptoe Valley Watershed would be changed to represent the amount of seedings present within the project area. The percentages of acres occurring within seedings has been inserted into the U class DFC and the percentages of other seral classes has been reduced proportionally to accommodate the U class. Non-native seedings are a significant portion of the Great Basin Xeric Mixed Sagebrush Shrubland and Intermountain Basin Big Sagebrush Shrubland models where non-native seedings represented 13% and 24% respectively. The DFC for salt desert shrub communities would also change proportionally as indicated within Appendix C, however are not presented here as there are no treatments proposed within these vegetation types. Non-native

seedings did not make up a significant percent (<0.1%) of the other sagebrush vegetation types within the watershed. When FRCC calculations were done the acres that occur within the seedings have been removed. Non-native seedings have been identified as an appropriate vegetation class within the area, according to the Ely District RMP, and if included within the FRCC calculations would skew the result towards a higher departure as the seedings would be considered an undesirable vegetation class.

Impacts to sagebrush as a whole reduces departure from DFC by treating later seral classes (C, D and E) and converting them to earlier seral classes (A, B and C). Departure for Great Basin Xeric Mixed Sagebrush Shrubland (typically dominated by black sagebrush) was reduced by an average of 6%, Inter-Mountain Basin Big Sagebrush Shrubland (typically dominated by Wyoming sagebrush) was reduced by an average of 4% and Inter-Mountain Basin Montane Sagebrush Steppe (typically dominated by Mountain Sagebrush) was reduced by an average of 9%. The Proposed Action has the greatest impact, in terms of acres, on the sagebrush vegetation communities within the analysis area.

Table 4.5. Proposed Action impacts to Sagebrush in relation to the RMP DFC

BPS MODEL & CLASS		Desired Future Condition (DFC)	Current Condition Percentages	Current Condition Difference from DFC	Proposed Action Resulting Percentages	Proposed Action Difference from DFC
GREAT BASIN XERIC MIXED SAGE-BRUSH SHRUB-LAND	A	14%	0%	-13%	4%	-9%
	B	55%	0%	-52%	15%	-37%
	C	9%	9%	—4%	9%	–4%
	D	9%	11%	2%	8%	–1%
	E	0%	0%	0%	0%	0%
	U	13%	80%	67%	64%	51%
Average Departure from DFC				**23%**		**17%**
BPS MODEL & CLASS		Desired Future Condition (DFC)	Current Condition Percentages	Current Condition Difference from DFC	Proposed Action Resulting Percentages	Proposed Action Difference from DFC
INTER-MOUN-TAIN BASIN BIG SAGE-BRUSH SHRUB-LAND	A	12%	0%	-12%	5%	-7%
	B	40%	0%	-38%	11%	-27%
	C	16%	48%	29%	49%	30%
	D	4%	5%	1%	5%	1%
	E	4%	23%	20%	13%	10%
	U	24%	24%	0%	19%	–5%
Average Departure from DFC				**17%**		**13%**
BPS MODEL & CLASS		Desired Future Condition (DFC)	Current Condition Percentages	Current Condition Difference from DFC	Proposed Action Resulting Percentages	Proposed Action Difference from DFC

INTER-MOUN-TAIN BASINS MON-TANE SAGE-BRUSH STEPPE	A	20%	0%	-20%	5%	-15%
	B	50%	0%	-50%	21%	-29%
	C	15%	25%	10%	24%	9%
	D	10%	9%	-1%	8%	-2%
	E	5%	53%	48%	33%	28%
	U	0%	12%	12%	9%	9%
Average Departure from DFC				**24%**		**15%**

The FRCC calculations for the Sagebrush show that Great Basin Xeric Mixed Sagebrush Shrubland is departed by 63%. Inter-Mountain Basin Big Sagebrush Shrubland is departed by 55% and Inter-Mountain Basins Montane Sagebrush Steppe is departed by 60%. Following the implementation of the Proposed Action, Great Basin Xeric Mixed Sagebrush Shrubland departure decreased by 24% to a departure of 39%, Inter-Mountain Basin Big Sagebrush Shrubland decreased by 26% to a departure of 29% and Inter-Mountain Basins Montane Sagebrush Steppe departure decreased by 22% to a departure of 38%. Inventorying the U class of sagebrush within the designated treatments areas would likely result in some being classified as the native uncharacteristic classes of excess shrub or tree cover and would be treated as the most representative seral class. This may result in additional acres being treated and a further reduction in departure from DFC and the BPS reference condition.

The FRCC values were calculated utilizing the BPS data that The Nature Conservancy gathered for the larger South Steptoe Valley Watershed. Under the Proposed Action between 43,600–54,500 acres, or 22–27% of the overall watershed, is proposed for treatment. With the treatment of the proposed acreage and achievement of the specified seral classes for each treatment unit, overall departure from BPS reference condition for the watershed would be reduced. Given that the current departure from BPS reference condition for the South Steptoe Valley Watershed has been calculated at 57%, which is on the high side of FRCC 2, it is unlikely that the treatment of 29% of the watershed would result in a reduction in departure sufficient to achieve an FRCC 1 rating. However, departure would be expected to drop to a lower FRCC 2. Given the achievement of the objectives listed within the Proposed Action, the calculated resulting FRCC value is 41% or a reduction in departure of 16%. It would be likely that the treatment of incidental vegetation as well as the inventory of U class vegetation would further reduce the departure following the implementation of the Proposed Action, but it is not possible to quantify. The objective of a 15% reduction in FRCC ratings for the watershed would likely be achieved if the objectives are met.

4.13.1.2. Impacts from the No Action Alternative

Under the No Action Alternative, fuels management and vegetation treatments would continue as currently directed within the RMP and FMP. Vegetation treatments within the area would continue to be planned and prioritized as they are currently. Treatments identified and completed within the last ten years are used to calculate what would likely be completed over the next ten years. Over the last ten years there have been 3,107 acres treated within the planning area totaling 1.6% of the overall watershed. Of these treatments 95% of them have occurred in sagebrush habitats with seral classes C, D, E and U. If there were an additional 1.6% of acres treated within the watershed, with the same distribution, departure within the watershed from DFC or BPS reference condition would not improve. Overall vegetation communities would continue to progress towards later seral classes.

4.13.2. Fire Management

4.13.2.1. Impacts from the Proposed Action

Fire management within the South Steptoe Valley Watershed would continue as prescribed within the 2004 FMP with the amendments listed under the Proposed Action. Following the achievement of the objectives listed within the Proposed Action, there would be an increase in the amount of natural fuel breaks and a reduction in the continuity of the fuels. This would lead to a reduction in the risk for large wildfires outside of the natural disturbance regime. As vegetation with the watershed moves closer to FRCC 1 disturbances would more likely occur within the natural disturbance regime and thus further assist the watershed in reducing departure from the DFC and reference conditions.

The increase in acres listed for wildland fire for resource benefit for the Bullwhack FMU and the Highlands South Egan FMU would potentially allow for wildland fire to be used for the treatment of the Proposed Action Treatment units as well as areas outside of the proposed treatment area. The reduction in the continuity of the fuels resulting from achieving earlier seral classes and moving closer to the DFC would allow for fire to play a role that is more representative of the historic fire regime in these ecosystems.

4.13.2.1.1. Impacts from the No Action Alternative

Under the No Action Alternative fire management would continue as currently directed within the RMP and FMP. As vegetation progresses towards the later seral classes, fire would primarily play a replacement role where fires are potentially larger and more severe than the mixed severity fires within the reference condition for most BPS models. This would increase the risk of losing key ecosystem components and for conversion of communities to non-native annual grasses. Allowing wildland fire for resource benefit would be less probable as the risk of losing key ecosystem components and threatening property increases. The probability of introducing fire to the landscape where it can play a natural role in the environment would be reduced.

4.14. Climate Change

The Proposed Action incorporates several vegetation treatments targeted at reducing dense fuel loads primarily through the removal of pinyon pine and juniper trees from areas traditionally occupied predominantly by sagebrush. This may serve to counteract some of the potential increases in wildfire risk if, in fact, overall warming and drying occurs within the project area as predicted. The removal of the trees in large areas would eliminate some of the existing shading, but would allow additional subsurface moisture and space for growth for the remaining sagebrush and other smaller vegetation. The carbon sink properties lost with any tree removal may at least be partially offset by the increased vigor and abundance of the sagebrush and smaller vegetative species. The remaining vegetation treatments are targeted at improving regeneration rates in existing stands of high elevation tree species or rejuvenating aging stands of sagebrush and would not be impacted as directly by any of the predicted trends. Quantification of any of these impacts relative to the overall warming trend in the region is not possible due to the lack of site-specific research and general controversy surrounding the topic of climate change.

4.15. Cumulative Effects

As defined by the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, Cumulative Effects (40 CFR 1508.7) are defined as, "The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

The general area reviewed as the Cumulative Effects Study Area includes the entire South Steptoe Valley Watershed and areas within the surrounding watersheds, including Cave Valley, Lake Valley, South Spring Valley, Spring Valley, Steptoe C, White River North, and White River Central. In addition to the site specific analysis included below, a comprehensive cumulative effects analysis can be found on pages Section 4.28 of the Ely Proposed Resource Management Plan/Final Environmental Impact Statement (November 2007).

4.15.1. Past, Present, and Reasonably Foreseeable Future Actions

4.15.1.1. Past Actions

Past actions in the area include grazing, mining, recreation, hunting, fuels treatments (generally chainings and mowings), range improvement projects, development subject to rights-of-way and wildfire.

The Bullwhack project focused on hazardous fuels reduction and habitat improvement on 2,037 acres conducted in 2005 near Bullwhack Summit between Cave Valley and Steptoe Valley. Treatments included prescribed fire and the mechanical treatment of sagebrush using a mowing deck. In 2006, the South Steptoe/Williams Creek project also focused on hazardous fuels reduction and habitat improvement of 1,026 acres on the east bench of the Egan Mountain Range at the mouth of Williams Creek. Treatments included the mechanical treatment of sagebrush using a mowing deck and Dixie harrow. In 2008, the Ward Stewardship Project was conducted as a Wildland Urban Interface (WUI) treatment of 389 acres around private lands located on the east bench of the Egan Mountain Range between Lowry Creek and Willow Canyon. Treatments involved the mechanical removal of trees and biomass from the site. Finally, the Connors Summit Powerline Project was a WUI treatment of 191 acres conducted in 2009 to reduce the threat of wildland fire to the Connors Powerline. Treatments involved the mechanical removal of trees and prescribed burning of piles on site.

4.15.1.2. Present Actions

Present actions include wildfire management, mining, recreation, grazing and hunting. The Cold Springs Restoration Treatment is an ongoing project targeted at hazardous fuels reduction and habitat improvement on 522 acres located on the eastern side of the watershed between Connors Canyon and Cherry Spring. Treatments involve the mechanical removal of trees and biomass from the site. The Spring Valley Wind Energy Facility, encompassing 66 wind energy turbines, is located in neighboring Spring Valley and is currently under construction.

4.15.1.3. Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions include hunting, recreation, grazing, travel management, and wildfire management. Watershed Restoration Plans are currently being developed for the areas surrounding the South Steptoe Valley Watershed, including Cave Valley, Lake Valley, White River North, Steptoe C, and South Spring Valley Watersheds. Each of these efforts is at various stages in the process, but all would incorporate vegetation and other treatments targeted to improve the health of the landscape. The Ward Mountain Restoration Project is another effort being led by the U.S. Forest Service in cooperation with the BLM and will also target specific areas for improvement of vegetation and habitat health. The Egan Range Aspen Restoration Treatment incorporates a combination of hand-felling of conifers, fencing of aspen stands to reduce herbivory of the aspen by ungulates, and/or prescribed fire to restore quaking aspen communities in the Egan Range. The South Steptoe Travel Management Plan includes the land within the South Steptoe Valley Watershed and a few surrounding areas and will potentially alter usage to some of the existing roads within the area. A Wilderness Management Plan for the Mt. Grafton, South Egan Range, Far South Egans, and Highland Range Wilderness Areas is currently being developed and is expected to be completed in 2012. The Southern Nevada Water Authority (SNWA) Groundwater Development Project includes a proposed power line that would cross the northeast portion of the South Steptoe Valley Watershed. Additional components of the project are located in nearby Spring, Cave, and Lake Valleys. The Wilson Creek Wind Energy Facility is located in the Wilson Creek Mountain Range and would place some of the 350 proposed wind energy turbines in the southeast portion of the Lake Valley Watershed.

4.15.2. Cumulative Effects Summary

4.15.2.1. Soil Resources

Past actions, such as from wildfires, have increased soil erosion on areas outside the proposed project areas. Past actions combined with the lack of treatments within the proposed project area has increased soil erosion vulnerability, especially if large unplanned disturbances such as wildfires, wind events or precipitation events were to occur. The implementation of present and future fuels treatments would increase soil stability in the area as vegetative diversity and ground cover is increased. Through planned treatments, natural disturbances would be smaller in size and manageable and would reduce soil erosion levels over the long term. Cumulative impacts from implementing the Proposed Action combined with present and future actions would improve the overall stability of soils and their resistance to erosion. Improving soil cover and stability by improving vegetative conditions through the implementation of various treatments would improve the overall watershed stability which would indirectly reduce cumulative impacts.

4.15.2.2. Rangeland Vegetation

Under many situations, uncontrolled wildfires affect continuous expanses of vegetation and habitat, leaving minimal mosaic to the burn pattern. Rehabilitation efforts are generally expensive and difficult due to the lack of species diversity in many plant communities that have burned. Long term changes in ecological conditions affect vegetative diversity and habitat quality. Past actions to adjust livestock and wildlife use on vegetation combined with present and future actions to implement various fuels and vegetation treatments would allow for an improvement in vegetative recruitment, establishment, production, vigor and diversity and help facilitate the

establishment of the natural (historic) fire regime and improve habitat conditions for many species of wildlife. Wildfires and past range improvement projects, combined with the South Steptoe Valley Watershed Restoration Project will improve the fire regime condition class of the area and maintain or improve vegetative diversity and abundance.

4.15.2.3. Forest and Woodland Vegetation

The cumulative effects study area (CESA) for forest and woodland vegetation is the South Steptoe Valley Watershed and all adjacent watersheds including: Steptoe B and C watersheds, Cave Valley watershed, Spring Valley watershed and the White River North watershed. Other restoration projects targeting forest and woodland vegetation within these watersheds, including watershed analysis and restoration treatments for the watersheds, the Ward Mountain Restoration Project, the Egan Range Aspen Restoration Project and others, would combine to reduce ecological departure over a larger landscape thus bringing the area more into compliance with the stated successional class breakdowns included in the Ely RMP. Wildfire and other natural disturbances would burn in a natural and often a heterogeneous mosaic pattern following treatments across watersheds increasing the diversity and heterogeneity of the vegetative successional classes and returning the watersheds to a more natural state with less ecological departure. Harvesting of forest and woodland products within the CESA will continue to occur and further reduce the densities of woodland vegetation. Aspen treatments across the CESA will ensure aspen is not lost from the landscape in the near or long term. Combined, past, present, and reasonably foreseeable future actions will decrease the ecological departure of a large landscape area and reduce the FRCC of that area in woodland and forest vegetation.

4.15.2.4. Vegetative Products

The cumulative effects study area (CESA) for vegetative products is the South Steptoe Valley Watershed and all adjacent watersheds including: Steptoe B and C Watersheds, Cave Valley Watershed, Spring Valley Watershed and the White River North Watershed. Other restoration projects targeting forest and woodland vegetation within these watersheds, including watershed analysis and restoration treatments for the watersheds, the Ward Mountain Restoration Project, the Egan Range Aspen Restoration Project and others, would alter the availability of vegetative products. In general, over the CESA in the short term the availability of fuelwood and native seed would increase and the availability of posts, poles, Christmas trees and pine nuts would decrease. In the long term over the CESA, the availability of fuelwood and pine nuts would decrease and the availability of posts, poles, Christmas trees and native seed would increase. Other past, present and reasonably foreseeable future projects would alter the potential availability of vegetative products at such small amounts that they round to zero and become negligible across the larger landscape.

4.15.2.5. Non-native Invasive and Noxious Species

The primary cumulative impact to the watershed would be if cheatgrass increased the fire frequency regime and an increasing area was converted to cheatgrass monoculture. The design features of the Proposed Action should prevent fine fuel loads from cheatgrass and prevent cheatgrass monocultures from establishing.

4.15.2.6. Fish and Wildlife Resources, including Migratory Birds and Special Status Species

Previous actions, such as past seedings and water developments, have increased forage production, water availability and distribution for wildlife. Activities such as livestock grazing, road construction and maintenance, fence construction, uncontrolled wildfire, and recreation activities including off-highway travel, camping and hunting have potentially altered wildlife habitat or affected wildlife behavior and distribution. Most of these activities are expected to continue to some degree in the future and would continue to impact wildlife in a similar fashion. However, as additional forage is provided through vegetative treatments, competition for resources and habitat would decrease, potentially providing cumulative benefits to wildlife in the long-term. BLM policy and guidance on sage grouse, raptors, pygmy rabbits, migratory birds, and special status species would help to reduce overall impacts to these species.

4.15.2.7. Livestock Grazing

Past, present, and reasonably foreseeable future actions combined with treatments included in the Proposed Action would mitigate impacts to vegetation, soils and water relationships by improving the health, vigor and recruitment of perennial grasses, forbs and shrubs; increasing ground cover to improve soil stability, improve water quality by reducing erosion potential; and promote herd health and economic stability by increasing the quantity and quality of forage for livestock use. Over a period of time, forage conditions would improve, which would benefit long term livestock grazing management.

4.15.2.8. Fuels and Fire Management

The cumulative effects study area for fuels and fire management is the South Steptoe Valley Watershed. Past and present actions occurring within the watershed have been incorporated into the analysis for the Proposed Action and the No Action Alternative. In general, past projects have been relatively small in size and, while beneficial in accomplishing the objective for the specific treatment (fuel breaks for Wildland Urban Interface), they are not substantial enough to contribute to a reduction in departure within the overall watershed. Future actions within the watershed include the continuation of land management as prescribed under the current RMP. Cumulative impacts resulting from the combination of the reasonably foreseeable future actions with the past and present actions within the watershed are minimal and not measurable when added to the impacts of the Proposed Action or No Action Alternative.

Fire management would continue to occur as dictated by the current Fire Management Plan (2004) and RMP. The combination of past, present and reasonably foreseeable future actions with the impacts of the Proposed Action or No Action Alternative are minimal and not measurable.

Chapter 5. Tribes, Individuals, Organizations, or Agencies Consulted:

This page intentionally
left blank

- Eastern Nevada Landscape Coalition
- Ely Shoshone Tribe
- Nevada Department of Wildlife
- U.S. Fish and Wildlife Service

5.1. Tribal Coordination

On December 7, 2010 the South Steptoe Valley Watershed Restoration proposal was presented via letter as a means of Tribal coordination. The tribes were specifically asked to help develop alternatives for analysis in this NEPA action. Additionally, the Ely District Office Tribal Coordinator, Elvis Wall, called the two tribes that have previously expressed interest in activities in the area and informed them of the forthcoming letter and of the BLM's desire that the tribes participate. No concerns or alternatives were identified as a result of this letter.

5.1.1. Request for input from Interested Publics

On November 30th, 2010, a letter was mailed to those parties that had previously expressed interest in the watershed assessment process. In this letter, the results of the evaluation and determination were summarized and input on the preparation of this document and any alternatives were solicited. Comments were received from two entities; however neither of these provided any input on an alternative action. On June 24th, a letter to all interested parties announcing the 30–day public comment period for the preliminary EA and a public meeting to be held on July 19th, 2011 at the Ely District Office. On June 30th, a Notice of Proposed Action for lands in Wilderness was mailed to all interested parties. There were two attendees at the meeting and written comments were received from five entities. Additionally, a site visit was requested by one of the commenters and was conducted on August 24th, 2011. The other commenters were invited to attend, but only two entities, Western Watersheds Project and Nevada Department of Wildlife, were able to be present.

This page intentionally
left blank

Chapter 6. List of Preparers

This page intentionally
left blank

Table 6.1. List of Preparers

Name	Title	Responsible for the Following Section(s) of this Document
Gloria Tibbetts	Planning and Environmental Coordinator	Project Manager, NEPA Compliance, Environmental Justice
Matthew Rajala	Fire Management Specialist (Fire Planner)	Fuels and Fire Management
Zach Peterson	Forester	Forest and Woodland Vegetation, Vegetative Products
Nancy Williams	Wildlife Biologist	Wildlife, Migratory Birds, Threatened and Endangered, Special Status Species
Mark D'Aversa	Hydrologist	Air Quality, Soil, Water Resources, Water Quality, Floodplains, Wetlands/Riparian Areas, Farmlands
Shawn Gibson	Archeologist	Cultural/Paleontological/Historical Resources
Melanie Peterson	Environmental Protection Specialist	Hazardous Materials, Human Health and Safety
Mindy Seal	Natural Resource Specialist	Non-native Invasive and Noxious Species
Dave Jacobson	Planning and Environmental Coordinator (Wilderness)	Wilderness, Special Designations, Visual Resources, Land with Wilderness Characteristics
Emily Simpson	Outdoor Recreation Planner (Wilderness)	Wilderness, Special Designations, Visual Resources, Land with Wilderness Characteristics
Elvis Wall	Native American Coordinator	Native American Coordination
Brenda Linnell	Realty Specialist	Lands and Realty
Kyle Hansen	Watershed Coordinator	General Information
Scott Standfill	Range Management Specialist	Livestock Grazing, Rangeland Vegetation
John Miller	Park Ranger (Wilderness)	Recreation
Dave Davis	Geologist	Mineral Resources

This page intentionally
left blank

Chapter 7. References

This page intentionally
left blank

American Society for Range Management (1964). A Glossary of Terms Used in Range Management. Range Term Glossary Committee. Portland, Oregon. 32 pages.

Barrett, S.; Havlina, D.; Jones, J.; Hann, W.; Frame, C.; Hamilton, D.; Schon, K.; Demeo, T.; Hutter, L.; and Menakis, J. 2010. Interagency Fire Regime Condition Class Guidebook. Version 3.0 [Homepage of the Interagency Fire Regime Condition Class website, USDA Forest Service, US Department of the Interior, and The Nature Conservancy]. [Online], Available: www.frcc.gov.

Bedell, T. E., L. E. Eddleman, T. Deboodt, C. Jacks. 1993. Western Juniper: its impacts and management in Oregon rangelands. Oregon State University Extension Service. EC1417. 15 pp.

Brockway, D. G. R. G. Gatewood and R. B. Paris. 2002. Restoring grassland savannas from degraded pinyon-juniper woodlands: effects of mechanical overstory reduction and slash treatment alternatives. Journal of Environmental Management. 74:179-197.

Collins, Cameron P. and Reynolds, Timothy D. PhD. 2005. Ferruginous hawk (Buteo regalis): A technical conservation assessment. [Online]. USDA Forest Service, Rocky Mountain Region. Available: http://www.fs.fed.us/r2/projects/scp/assessments/ferruginoushawk.pdf [accessed 05/01/11].

Commons, M.L., R.K. Baydack and C.E. Braun. 1999. Sage grouse response to pinyon/juniper management. Pages 238-239 in S.B. Monsen and R. Stevens, compilers. Proceedings of the Ecology and Management of Pinyon/Juniper Communities Symposium.

Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun. 2000. Guidelines to manage sage grouse populations and their habitats. Wildlife Society Bulletin 28:967-985.

Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation assessment of greater sage-grouse and sagebrush habitats. Western Association of Fish and Wildlife Agencies Report. Cheyenne, Wyoming.

Floyd, T., C.S. Elphick, G. Chisholm, K. Mack, R.G. Elston, E.M. Ammon, and J.D. Boone.

2007. Atlas of the breeding birds of Nevada. University of Nevada Press, Reno, NV.

Havlina et al. 2010. Interagency Fire Regime Condition Class website. USDA Forest Service, USDA Department of the Interior, and The Nature Conservancy [www.frcc.gov] (accessed 05/30/2011).

Information Ventures. 1995. Tebuthiuron Pesticide Fact Sheet. Prepared by Information Ventures, Inc. under U.S. Forest Service Contract. November 1995.

LANDFIRE Biophysical Setting Models (2006). http://www.landfire.gov. (accessed 4/17/11)

Miller, R., T. Svejcar and J. Rose. 1999. Conversion of shrub-steppe to juniper woodland. Pages 385-390 in S.B. Monsen, R. Stevens, R. J. Tausch, R. Miller and S. Goodrich, editors. Proceedings of the Ecology and Management of Pinyon/Juniper Communities within the Interior West Symposium. U.S. Department of Agriculture - Forest Service Proceedings RMRS-P-9. Rocky Mountain Research Station, Fort Collins, Colorado.

Nevada Department of Wildlife. 2004. White Pine County portion (Lincoln/White Pine Planning Area) sage grouse conservation plan. http://www.ndow.org/wild/conservation/sg/plan/SGPlan063004_Q.pdf (accessed 5/10/11)

Ogle, Daniel G., Loren St. John and Dr. Kevin B. Jensen (2003). Plant Guide - Crested Wheatgrass (Agropyron cristatum). USDA - Natural Resources Conservation Service (Idaho State Office and Aberdeen Plant Materials Center) and USDA - Agriculture Research Service (Forest and Range Research Laboratory - Utah State University). 6 pages.

Schroeder, M.A., et al. 1999. Sage grouse (Centrocercus urophasianus). In The birds of North America. No. 425 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.

Schroeder, M. A, et al. 2004. Distribution of sage-grouse in North America. The Condor 106:363-376.

Smith, J.P. and S.W. Hoffman. 2005. Do Golden Eagles warrant special concern based on migration counts in the western United States? Reply to McCaffery and McIntyre. Condor 107:473-475.

Tausch, R.J. 1999. Historic Pinyon and Juniper Woodland Development. In: Proceedings: Ecology and Management of Pinyon/Juniper Communities Within the Interior West. Monsen, S.B. and Stevens, R. comps.

Thurow, T. L. and J.W. Hester. 2005. How an increase or reduction in juniper cover alters rangeland hydrology. Available: http://texnat.tamu.edu\symposia\juniper\TOM2.htm

Tirmenstein, D. 1999. USDA Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. Fire Effects Information System, http://www.fs.fed.us/database/

USDA-NRCS. 2003. Rangeland Ecological Site Descriptions, MLRA 28A.

USDA-NRCS. 2005. Soil Survey of White Pine County Nevada, East Part. In cooperation with the USDI-BLM and the University of Nevada Agricultural Experiment Station.

USDA-USFS. 2000. Protecting People and Sustaining Resources in Fire-Adapted Ecosystems: A Cohesive Strategy

USDI-BLM. 1991. Final EIS - Vegetation Treatments on BLM Lands in Thirteen Western States

USDI-BLM, USDI-FWS, USDA-Forest Service, Oregon Department of Fish and Wildlife and Oregon Department of State Lands. 2000. Greater Sage Grouse and Sagebrush/Steppe Ecosystems: Management Guidelines.

USDI-BLM. 2004. National Sage Grouse Habitat Conservation Strategy.

USDI-BLM. 2007. Ely Proposed Resource Management Plan/Final Environmental Impact Statement.

USDI-BLM. 2007. Final Programmatic Environmental Report -- Vegetation Treatments on Bureau of Land Management Lands in 17 Western States.

USDI-BLM. 2007. Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Final Programmatic Environmental Impact Statement and Record of Decision.

USDI-BLM. 2008. Ely District Record of Decision and Approved Resource Management Plan

USDI-BLM. 2008. BLM Manual MS-6840 Special Status Species Management.

USDI- USFWS. 2010. Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance.

USDI-USGS. 2005. Biology of the Great Basin-Mojave Desert Region. USGS.Available: http://biology:usgs.gov/stt/SNT/nofram/gb150.htm

Wakkinen, W. L., K. P. Reese, J. W. Connelly, and R. A Fischer. 1992. An improved spotlighting technique for capturing sage grouse. Wildlife Society Bulletin 20: 425-426.

West, N.E. R. J. Tausch, P.I.T. Tueller. 1998. Management-oriented classification of pinyon-juniper woodlands of the Great Basin. U.S. Department of Agriculture, U.S. Forest Service. RMRS GTR-12.

Wildlife Action Plan Team. 2006. Nevada Wildlife Action Plan. Nevada Department of Wildlife, Reno. Available online at www.ndow.org.

This page intentionally
left blank

Appendix A. Risk Assessment for Noxious & Invasive Weeds

South Steptoe Valley Watershed Restoration Project
White Pine County, Nevada

On April 5, 2011 a Noxious & Invasive Weed Risk Assessment was completed. The proposal is to treat several areas within the watershed to move current vegetative conditions in the selected areas along a path towards Fire Regime Condition Class 1. The desired result would be a mosaic of seral stages within each treated vegetative community that better represents the respective biophysical models. The following potential methods may be applied depending upon site specific needs:

- Mechanical Tree thinning (non-chaining)
- Chaining
- Non-chaining mechanical treatments in sagebrush communities
- Chemical treatments
- Weed prevention and treatment with herbicide, hand removal, bio controls and targeted grazing
- Prescribed fire
- Seeding
- Aspen Restoration

Each proposed treatment is described in detail in the EA.

The No Action Alternative is the current management situation. Under the No Action Alternative, there would be no treatments implemented within the proposed project areas.

No field weed surveys were completed for this project. Instead the Ely District weed inventory data was consulted. Cheatgrass (Bromus tectorum) is documented in all project areas. No other weed species were documented in Treatment Units 1, 2, and 5. Within Treatment Unit 3 the following weeds are also documented: black henbane (Hyoscyamus niger), bull thistle (Cirsium vulgare), and hoary cress (Lepidium draba). Within Treatment Unit 4 the following weeds are also documented: black henbane, bull thistle, musk thistle (Carduus nutans), spotted knapweed (Centaurea stoebe), tall whitetop (Lepidium latifolium), and hoary cress. Within Treatment Units 6 and 7 the following weeds are also documented: black henbane and hoary cress. There is also probably halogeton (Halogeton glomeratus), and Russian thistle (Salsola kali) scattered along roads in the area. The area was last inventoried for noxious weeds from 2007.

Table A.1. Factor 1 assesses the likelihood of noxious/invasive weed species spreading to the project area.

None (0)	Noxious/invasive weed species are not located within or adjacent to the project area. Project activity is not likely to result in the establishment of noxious/invasive weed species in the project area.
Low (1-3)	Noxious/invasive weed species are present in the areas adjacent to but not within the project area. Project activities can be implemented and prevent the spread of noxious/invasive weeds into the project area.

Moderate (4-7)	Noxious/invasive weed species located immediately adjacent to or within the project area. Project activities are likely to result in some areas becoming infested with noxious/invasive weed species even when preventative management actions are followed. Control measures are essential to prevent the spread of noxious/invasive weeds within the project area.
High (8-10)	Heavy infestations of noxious/invasive weeds are located within or immediately adjacent to the project area. Project activities, even with preventative management actions, are likely to result in the establishment and spread of noxious/invasive weeds on disturbed sites throughout much of the project area.

For this project, the average factor rates as Moderate (6) at the present time. This project has a range of ratings for this factor depending on the treatment method selected. The hand removal method, herbicide treatments and biocontrols to treat weeds have a Low (3) rating due to the minimal amount of ground disturbance associated with those treatments. The fencing, targeted grazing and having the public access the area to retrieved fuel wood has a Moderate (5) rating due to the amount of ground disturbance and the possibility of transporting weed seeds on the vehicle tracks. The chaining, use of heavy equipment and prescribed burn methods have a High (8) rating due the weed infestation that already exist within the project area and along access roads to the project areas. These treatments are also more likely to increase cheatgrass.

Treatment along roadways would continue. Also any new infestations of noxious weeds would utilize early detection and rapid response to control these species as they are discovered and prevent spread.

Table A.2. Factor 2 assesses the consequences of noxious/invasive weed establishment in the project area.

Low to Nonexistent (1-3)	None. No cumulative effects expected.
Moderate (4-7)	Possible adverse effects on site and possible expansion of infestation within the project area. Cumulative effects on native plant communities are likely but limited.
High (8-10)	Obvious adverse effects within the project area and probable expansion of noxious/invasive weed infestations to areas outside the project area. Adverse cumulative effects on native plant communities are probable.

This project rates as Moderate (6) at the present time. Since the existing infestations are currently being treated this would reduce the likelihood of noxious weeds spreading into treatment areas. If new infestations establish within the project area this could adversely impact those native plant communities. Also, an increase of cheatgrass could alter the fire regime in the area. However the proposed action is designed to improve native plant communities to be more resilient to weed infestations including weed prevention and treatment processes.

Table A.3. The Risk Rating is obtained by multiplying Factor 1 by Factor 2.

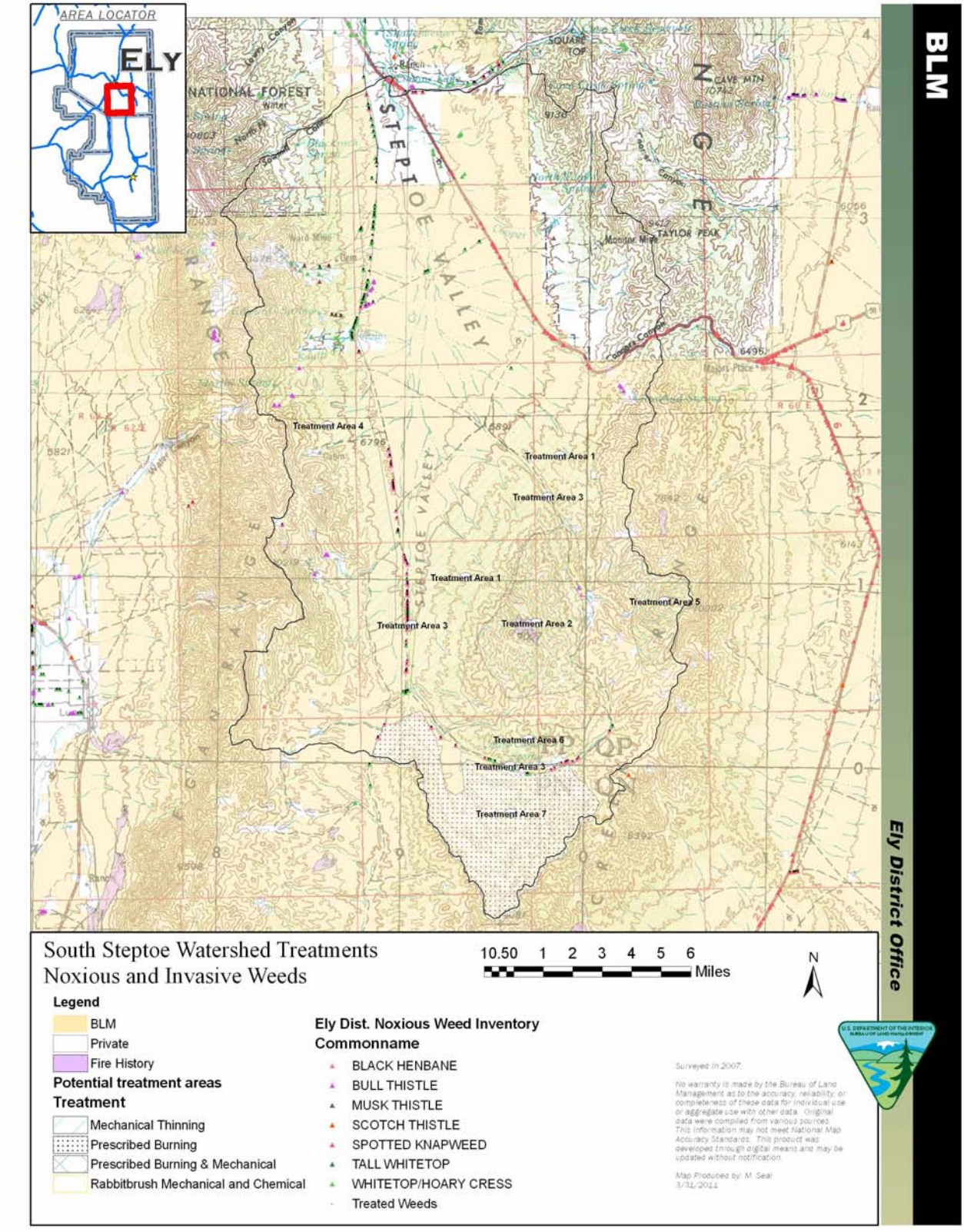
None (0)	Proceed as planned.
Low (1-10)	Proceed as planned. Initiate control treatment on noxious/invasive weed populations that get established in the area.
Moderate (11-49)	Develop preventative management measures for the proposed project to reduce the risk of introduction of spread of noxious/invasive weeds into the area. Preventative management measures should include modifying the project to include seeding the area to occupy disturbed sites with desirable species. Monitor the area for at least 3 consecutive years and provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.
High (50-100)	Project must be modified to reduce risk level through preventative management measures, including seeding with desirable species to occupy disturbed site and controlling existing infestations of noxious/invasive weeds prior to project activity. Project must provide at least 5 consecutive years of monitoring. Projects must also provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.

For this project, the Risk Rating is Moderate (48). This indicates that the project can proceed as planned as long as the following measures are followed:

- Prior to entering public lands, the contractor will provide information and training regarding noxious weed management and identification to all personnel who will be affiliated with the implementation and maintenance phases of the project. The importance of preventing the spread of weeds to uninfested areas and importance of controlling existing populations of weeds will be explained.
- To eliminate the transport of vehicle-borne weed seeds, roots, or rhizomes all vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground disturbing activities; or for authorized off-road driving will be free of soil and debris capable of transporting weed propagules. All such vehicles and equipment will be cleaned with power or high pressure equipment prior to entering or leaving the work site or project area. Cleaning efforts will concentrate on tracks, feet and tires, and on the undercarriage. Special emphasis will be applied to axels, frames, cross members, motor mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out and refuse will be disposed of in waste receptacles. Cleaning sites will be recorded using global positioning systems or other mutually acceptable equipment and provided to the Field Office Weed Coordinator or designated contact person.
- Reclamation would normally be accomplished with native seeds only. These would be representative of the indigenous species present in the adjacent habitat. Rationale for potential seeding with selected nonnative species would be documented. Possible exceptions would include use of non-native species for a temporary cover crop to out-compete weeds. Where large acreages are burned by fires and seeding is required for erosion control, all native species could be cost prohibitive and/or unavailable.
- If the presence and/or spread of noxious weeds is noted, appropriated weed control procedures will be determined in consultation with Ely District Office personnel and will be in compliance with the appropriate BLM Handbook sections and applicable laws and regulations. All weed control efforts on BLM-administered lands will be in compliance with BLM Handbook H-9011, H-9011-1 Chemical Pest Control, H-9014 Use of Biological Control Agents of Pests on Public Lands, and H-9015 Integrated Pest Management. Submission of Pesticide Use Proposals and Pesticide Application Records will be required.
- Conduct mixing of herbicides and rinsing of herbicide containers and spray equipment only in areas that are a safe distance from environmentally sensitive areas and points of entry to bodies of water (storm drains, irrigation ditches, streams, lakes, or wells).
- Certify that all interim and final seed mixes, hay, straw, and hay/straw products are free of plant species listed on the Nevada noxious weed list.
- When managing in areas of special status species, carefully consider the impacts of the treatment on such species. Wherever possible, hand spraying of herbicides is preferred over other methods.
- Do not conduct noxious and invasive weed control within 0.5 mile of nesting and brood rearing areas for special status species during the nesting and brood rearing season.
- Control or restrict the timing of livestock movement to minimize the transport of livestock-borne noxious weed seeds, roots, or rhizomes between weed-infested and weed-free areas.
- Consider nozzle type, nozzle size, boom pressure, and adjuvant use and take appropriate measures for each herbicide application project to reduce the chance of chemical drift.
- All applications of approved pesticides will be conducted only be certified pesticide applicators or by personnel under the direct supervision of a certified applicator.

- Prior to commencing any chemical control program, and on a daily basis for the duration of the project, the certified applicator will provide a suitable safety briefing to all personnel working with or in the vicinity of the herbicide application. This briefing will include safe handling, spill prevention, cleanup, and first aid procedures.
- Store all pesticides in areas where access can be controlled to prevent unauthorized/untrained people from gaining access to chemicals.
- Do not apply pesticides within 440 yards (0.25 mile) of residences without prior notification of the resident.
- Areas treated with pesticides will be adequately posted to notify the public of the activity and of safe re-entry dates, if a public notification requirement is specified on the label of the product applied. The public notice signs will be at least 8 ½" x 11" in size and will contain the date of application and the date of safe re-entry.
- Whenever possible, hand spraying of herbicides is preferred over other methods at heavily used recreation sites (i.e. campgrounds, trailheads, etc.).
- When manual weed control is conducted, remove the cut weeds and weed parts and dispose of them in a manner designed to kill seeds and weed parts.

Reviewed by:	/s/Mindy Seal	4/12/2011
	Mindy Seal	Date
	Natural Resource Specialist	



Map A.1. Locations of Noxious and Invasive Weeds in the South Steptoe Valley Watershed

This page intentionally
left blank

Appendix B. Special Status and Migratory Bird Tables

Table B.1. BLM Special Status species documented to occur within the South Steptoe Valley Watershed.

	Common name	Scientific name
Birds		
	greater sage-grouse	Centrocercus urophasianus
	golden eagle	Relictus solitarius
	bald eagle	Haliaeetus leucocephalus
	ferruginous hawk	Buteo regalis
	Swainson's hawk	Buteo swainsoni
	northern goshawk	Accipiter gentilis
	prairie falcon	Falco mexicanus
	peregrine falcon	Falco peregrinus
Mammals		
	long-eared myotis	Myotis evotis
	pygmy rabbit	Brachylagus idahoensis
Insects		
	White River wood nymph	Cercyonis pegala pluvialis
Plants		
	Pennell beardtongue	Penstomon leiophyllus vr. Francisci-pennellii

Table B.2. BLM Special Status species documented to occur in close proximity to the South Steptoe Valley Watershed.

	Common name	Scientific name
Birds		
	sage thrasher	Oreoscoptes montanus
	loggerhead shrike	Lanius ludovicianus
	Lewis's woodpecker	Melanerpes lewis
Mammals		
	dark kangaroo mouse	Microdipodops megacephalus

Table B.3. BLM Special Status bat species documented to occur at the Steptoe Valley Wildlife Management Area adjacent to the South Steptoe Valley Watershed (Williams and Neel 2006).

Common name	Scientific name
pallid bat	Antrozous pallid
Townsend's big-eared bat	Corynorhinus townsendii
big brown bat	Eptesicus fuscus
hoary bat	Lasiurus cinereus
silver-haired bat	Lasionycteris noctivagans
western small-footed myotis	Myotis ciliolabrum
long-eared myotis	Myotis evotis
little brown myotis	Myotis lucifugus
long-legged myotis	Myotis volans
Brazilian free-tailed bat	Tadaria brasiliensis

Table B.4. Additional bat species documented to occur within White Pine County (Bradley et al. 2006).

Common name	Scientific name
spotted bat	Euderma maculatum
western red bat	Lasiurus blossevillii
California myotis	Myotis californicus
fringed myotis	Myotis thysanodes
western pipistrelle	Pipistrellus hesperus

The following data reflect survey blocks and/or incidental sightings of bird species within the allotments boundaries from the Atlas of the Breeding Birds of Nevada (Floyd et al. 2007). These data represent birds that were confirmed, probably, or possibly breeding within or near the project boundaries. The list also includes Species of Conservation Concern that have a high probability of inhabiting the project area. These data are not comprehensive, and additional species not listed here may be present within the project boundary.

Table B.5. Bird species and breeding status reported within Atlas of the Breeding Birds of Nevada (Floyd et al. 2007) adjacent or within the South Steptoe Valley Watershed.

Breeding Status	Alpha Code	Common Name
Confirmed	AMCO	American coot
Probable	AMKE	American kestrel
Confirmed	AMRO	American robin
Probable	AUWA	Audubon's warbler
Possible	BHGR	black-headed grosbeak
Confirmed	BRBL	Brewer's blackbird
Confirmed	BRSP	Brewer's sparrow
Confirmed	BTGW	black-throated grey warbler
Confirmed	BTHU	broad-tailed hummingbird
Confirmed	BUSH	bushtit
Probable	CAFI	Cassin's finch
Confirmed	CHSP	chipping sparrow
Confirmed	CLNU	Clark's Nutcracker
Possible	COFL	Cordilleran flycatcher
Possible	CONI	common nighthawk
Possible	COPO	common poorwill
Probable	CORA	common raven
Probable	DEJU	dark-eyed junco
Confirmed	GHJU	gray-headed junco
Confirmed	GTGR	great-tailed grackle
Probable	GTTO	green-tailed towhee
Probable	HAFL	Hammond's flycatcher
Probable	HAWO	hairy woodpecker
Confirmed	HETH	hermit thrush
Probable	HOFI	house finch
Probable	KILL	killdeer
Confirmed	MGWA	MacGillivray's warbler
Confirmed	MOBL	mountain bluebird
Confirmed	MOCH	mountain chickadee
Probable	MODO	mourning dove
Probable	NOFL	northern flicker
Possible	OCWA	orange-crowned warbler
Confirmed	PBGR	pied-billed grebe
Confirmed	PIJA	pinyon jay
Confirmed	PISI	pine siskin

Confirmed	RBNU	red-breasted nuthatch
Possible	RCKI	ruby-crowned kinglet
Possible	RTHA	red-tailed hawk
Confirmed	RWBL	red-winged blackbird
Probable	SAVS	savannah sparrow
Possible	SPSA	spotted sandpiper
Probable	SPTO	spotted towhee
Possible	SSHA	sharp-shinned hawk
Confirmed	STJA	Steller's jay
Possible	SWTH	Swainson's thrush
Possible	TOSO	Townsend's solitaire
Possible	TUVU	turkey vulture
Probable	VGSW	violet-green swallow
Probable	VIWA	Virginia's warbler
Possible	WAVI	warbling vireo
Confirmed	WBNU	white-breasted nuthatch
Confirmed	WEME	western meadowlark
Confirmed	WESJ	western scrub jay
Probable	WETA	western tanager
Possible	WEWP	western wood-pewee
Possible	WISA	Williamson's sapsucker
Confirmed	VESP	vesper sparrow
Confirmed	YHBL	yellow-headed blackbird

Table B.6. Raptor species documented to occur in the South Steptoe Valley Watershed.

Common name	**Scientific name**
Cooper’s hawk	Accipiter cooperi
northern goshawk	Accipiter gentilis
sharp-shinned hawk	Accipiter striatus
red-tailed hawk	Buteo jamaicencis
roughleg hawk	Buteo lagopus
ferruginous hawk	Buteo regalis
Swainson's hawk	Buteo swainsoni
northern harrier	Circus cyaneus
merlin	Falco columbarius
prairie falcon	Falco mexicanus
peregrine falcon	Falco peregrinus
American kestrel	Falco sparverius
bald eagle	Haliaeetus leucocephalus
osprey	Pandion haliaetus
golden eagle	Relictus solitarius
short-eared owl	Asio flammeus

This page intentionally
left blank

Appendix C. Biophysical Setting Classes

SOUTH STEPTOE VALLEY WATERSHED SUMMARY									
						OVERALL PROPOSED ACTION		DEPARTURE FROM DFC BY PERCENT COMPOSITION	
ROCKY MOUNTAIN ASPEN FOREST AND WOODLAND	BpS MODEL & CLASS		CURRENT ACRES	CURRENT % COMPOSITION	DESIRED FUTURE CONDITION	PROPOSED ACTION RESULT (ACRES)	PROPOSED ACTION RESULT (% COMPOSITION)	PROPOSED ACTION	CURRENT CONDITION
	1011	A	168	23%	14%	514	71%	57%	9%
		B	182	25%	40%	45	6%	-34%	-15%
		C	52	7%	45%	38	5%	-40%	-38%
		D	122	17%	1%	79	11%	10%	16%
		E	0	0%	0%	0	0%	0%	0%
		U	197	27%	0%	45	6%	6%	27%
	TOTALS		720	100%	100%		100%	25%	18%
GREAT BASIN PINYON JUNIPER WOODLAND	BpS MODEL & CLASS		CURRENT ACRES	CURRENT % COMPOSITION	DESIRED FUTURE CONDITION (DFC)				
	1019	A	0	0%	5%	136	1%	-4%	-5%
		B	1	0%	5%	204	1%	-4%	-5%
		C	1467	9%	20%	1761	11%	-9%	-11%
		D	4396	28%	35%	4123	26%	-9%	-7%
		E	4044	26%	35%	3684	23%	-12%	-9%
		U	5818	37%	0%	5818	37%	37%	37%
	TOTALS		15726	100%	100%		100%	12%	12%
INTER-MOUNTAIN SUBALPINE LIMBER-BRISTLECONE PINE WOODLAND	BpS MODEL & CLASS		CURRENT ACRES	CURRENT % COMPOSITION	DESIRED FUTURE CONDITION (DFC)				
	1020	A	135	17%	20%	135	17%		
		B	125	16%	20%	125	16%		
		C	191	24%	60%	191	24%		
		D	0	0%	0%	0	0%		
		E	0	0%	0%	0	0%		
		U	333	42%	0%	333	42%		
	TOTALS		783	100%	100%		100%		
ROCKY MOUNTAIN MESIC MONTANE MIXED CONIFER FOREST	BpS MODEL & CLASS		CURRENT ACRES	CURRENT % COMPOSITION	DESIRED FUTURE CONDITION (DFC)				
	1052	A	343	13%	10%	526	20%	10%	3%
		B	2027	75%	30%	1519	56%	26%	45%
		C	325	12%	30%	651	24%	-6%	-18%
		D	0	0%	20%	0	0%	-20%	-20%
		E	0	0%	10%	0	0%	-10%	-10%
		U	0	0%	0%	0	0%	0%	0%
	TOTALS		2696	100%	100%		100%	12%	16%

ROCKY MOUNTAIN SUBALPINE DRY MESIC SPRUCE FIR FOREST AND WOODLAND	BpS MODEL & CLASS		CURRENT ACRES	CURRENT % COM-POSITION	DESIRED FUTURE CON-DITION (DFC)				
	1055	A	0	3%	35%	4	31%	-4%	-32%
		B	8	56%	25%	2	16%	-9%	31%
		C	5	33%	5%	6	43%	38%	28%
		D	1	10%	35%	1	9%	-26%	-25%
		E	0	0%	0%	0	0%	0%	0%
		U	0	0%	0%	0	0%	0%	0%
	TOTALS		14	101%	100%		100%	13%	19%
INTER-MOUNTAIN BASINS ASPEN-MIXED CONIFER FOREST AND WOODLANDS	BpS MODEL & CLASS		CURRENT ACRES	CURRENT % COM-POSITION	DESIRED FUTURE CON-DITION (DFC)				
	1061	A	178	10%	14%	723	41%	27%	-4%
		B	49	3%	40%	8	0%	-40%	-37%
		C	36	2%	35%	97	5%	-30%	-33%
		D	20	1%	10%	170	10%	0%	-9%
		E	486	27%	1%	105	6%	5%	26%
		U	1012	57%	0%	678	38%	38%	57%
	TOTALS		1781	100%	100%		100%	23%	28%
INTER-MOUNTAIN BASINS MOUNTAIN MAHOGANY WOODLAND AND SHRUBLAND	BpS MODEL & CLASS		CURRENT ACRES	CURRENT % COM-POSITION	DESIRED FUTURE CON-DITION (DFC)				
	1062	A	14606	52%	10%	15180	54%	44%	42%
		B	6102	22%	20%	6102	22%	2%	2%
		C	2705	10%	10%	2653	10%	0%	0%
		D	821	3%	15%	811	3%	-12%	-12%
		E	3602	13%	45%	3090	11%	-34%	-32%
		U	22	0%	0%	22	0%	0%	0%
	TOTALS		27858	100%	100%		100%	15%	15%
GREAT BASIN XERIC MIXED SAGEBRUSH SHRUBLAND	BpS MODEL & CLASS		CURRENT ACRES	CURRENT % COM-POSITION	DESIRED FUTURE CON-DITION (DFC)				
	1079	A	1	0%	13%	2356	4%	-9%	-13%
		B	85	0%	52%	8581	15%	-37%	-52%
		C	4867	9%	13%	4980	9%	-4%	-4%
		D	6354	11%	9%	4386	8%	-1%	2%
		E	0	0%	0%	0	0%	0%	0%
		U	45134	80%	13%	36137	64%	51%	67%
	TOTALS		56441	100%	100%		100%	17%	23%

INTER-MOUNTAIN BASIN BIG SAGEBRUSH SHRUBLAND	BpS MODEL & CLASS		CURRENT ACRES	CURRENT % COM-POSITION	DESIRED FUTURE CON-DITION (DFC)				
	1080	A	0	0%	12%	2466	5%	-7%	-12%
		B	24	0%	38%	5755	11%	-27%	-38%
		C	25833	48%	19%	26256	49%	30%	29%
		D	2958	5%	4%	2601	5%	1%	1%
		E	12388	23%	3%	6833	13%	10%	20%
		U	12824	24%	24%	10117	19%	-5%	0%
	TOTALS		54028	100%	100%		100%	13%	17%
INTER-MOUNTAIN BASIN MIXED SALT DESERT SCRUB	BpS MODEL & CLASS		CURRENT ACRES	CURRENT % COM-POSITION	DESIRED FUTURE CON-DITION (DFC)				
	1081	A	0	0%	2%				
		B	8	1%	20%				
		C	1134	83%	19%				
		D	0	0%	0%				
		E	0	0%	0%				
		U	230	17%	59%				
	TOTALS		1372	100%	100%				
ROCKY MOUNTAIN LOWER MONTANE-FOOTHILL SHRUBLAND	BpS MODEL & CLASS		CURRENT ACRES	CURRENT % COM-POSITION	DESIRED FUTURE CON-DITION (DFC)				
	1086	A	9	1%	5%	41	4%	-1%	-4%
		B	0	0%	20%	1	0%	-20%	-20%
		C	1011	98%	70%	978	95%	25%	28%
		D	0	0%	5%	0	0%	-5%	-5%
		E	0	0%	0%	0	0%	0%	0%
		U	10	1%	0%	9	1%	1%	1%
	TOTALS		1029	100%	100%		100%	9%	10%
COLUMBIA PLATEAU LOW SAGEBRUSH STEPPE	BpS MODEL & CLASS		CURRENT ACRES	CURRENT % COM-POSITION	DESIRED FUTURE CON-DITION (DFC)				
	1124	A	0	0%	10%				
		B	0	0%	70%				
		C	812	32%	20%				
		D	0	0%	0%				
		E	0	0%	0%				
		U	1755	68%	0%				
	TOTALS		2567	100%	100%				

INTER-MOUNTAIN BASINS MONTANE SAGEBRUSH STEPPE	BpS MODEL & CLASS		CURRENT ACRES	CURRENT % COM-POSITION	DESIRED FUTURE CON-DITION (DFC)				
	1126	A	0	0%	20%	1511	5%	-15%	-20%
		B	14	0%	50%	5886	21%	-29%	-50%
		C	7175	25%	15%	6675	24%	9%	10%
		D	2519	9%	10%	2216	8%	-2%	-1%
		E	15145	53%	5%	9408	33%	28%	48%
		U	3508	12%	0%	2666	9%	9%	12%
	TOTALS		28361	100%	100%		100%	15%	24%
INTER-MOUNTAIN BASINS MIXED SEMI-DESERT SHRUB STEPPE	BpS MODEL & CLASS		CURRENT ACRES	CURRENT % COM-POSITION	DESIRED FUTURE CON-DITION (DFC)				
	1127	A	0	0%	30%				
		B	0	0%	70%				
		C	0	0%	0%				
		D	0	0%	0%				
		E	0	0%	0%				
		U	1753	100%	0%				
	TOTALS		1753	100%	100%				
INTER-MOUNTAIN BASINS GREASEWOOD FLAT	BpS MODEL & CLASS		CURRENT ACRES	CURRENT % COM-POSITION	DESIRED FUTURE CON-DITION (DFC)				
	1153	A	0	0%	4%				
		B	604	90%	85%				
		C	0	0%	0%				
		D	0	0%	0%				
		E	0	0%	0%				
		U	65	10%	11%				
	TOTALS		670	100%	100%				
INTER-MOUNTAIN MONTANE RIPARIAN SYSTEMS	BpS MODEL & CLASS		CURRENT ACRES	CURRENT % COM-POSITION	DESIRED FUTURE CON-DITION (DFC)				
	1154	A	0	0%	35%	84	3%	-32%	-35%
		B	270	9%	30%	269	9%	-21%	-21%
		C	599	19%	25%	599	19%	-6%	-6%
		D	0	0%	5%	0	0%	-5%	-5%
		E	0	0%	5%	0	0%	-5%	-5%
		U	2244	72%	0%	2160	69%	69%	72%
	TOTALS		3113	100%	100%		100%	23%	24%

Appendix D. Departure Matrix

BPS MODEL NAME	CURRENT		PROPOSED ACTION		NET GAIN/LOSS
	DEPARTURE (%)	FRCC	DEPARTURE (%)	FRCC	
ROCKY MOUNTAIN ASPEN FOREST AND WOODLAND	58	2	54	2	4
GREAT BASIN PINYON JUNIPER WOODLAND	53	2	51	2	2
INTER-MOUNTAIN SUBALPINE LIMBER-BRISTLECONE PINE WOODLAND	62	2	62	2	0
ROCKY MOUNTAIN MESIC MONTANE MIXED CONIFER FOREST	59	2	49	2	10
INTER-MOUNTAIN BASINS ASPEN-MIXED CONIFER FOREST AND WOODLANDS	71	3	58	2	13
INTER-MOUNTAIN BASINS MOUNTAIN MAHOGANY WOODLAND AND SHRUBLAND	51	2	52	2	-1
GREAT BASIN XERIC MIXED SAGEBRUSH SHRUBLAND	63	2	39	2	24
INTER-MOUNTAIN BASIN BIG SAGEBRUSH SHRUBLAND	55	2	29	1	26
INTER-MOUNTAIN BASIN MIXED SALT DESERT SCRUB	47	2	47	2	0
ROCKY MOUNTAIN LOWER MONTANE-FOOTHILL SHRUBLAND	35	2	35	2	0
COLUMBIA PLATEAU LOW SAGEBRUSH STEPPE	57	2	57	2	0
INTER-MOUNTAIN BASINS MONTANE SAGEBRUSH STEPPE	60	2	38	2	22
INTER-MOUNTAIN BASINS MIXED SEMI-DESERT SHRUB STEPPE	70	3	70	3	0
INTER-MOUNTAIN BASINS GREASEWOOD FLAT	26	1	26	1	0
INTER-MOUNTAIN MONTANE RIPARIAN SYSTEMS	56	2	55	2	1
SOUTH STEPTOE WATERSHED	57	2	41	2	16

This page intentionally
left blank

Appendix E. Public Comment Matrix

Comment Number	Commenter	Comment	Response
1	Zane L. Marshall, Southern Nevada Water Authority	We concur there is an immediate and vital need for watershed restoration. The proposed treatment regimes also seem appropriate given the current status of the sagebrush plant community in the area. The success of the Proposed Project will greatly improve watershed function and restore native sagebrush habitat for both gazing and wildlife.	Noted
2	Zane L. Marshall, Southern Nevada Water Authority	The pinyon juniper removal plots conducted by the BLM in the Cold Springs allotment during 2008 and 2009 were highly successful in breaking up the fuel loading in the area, as well as providing conditions for native grasses, forbs, and shrubs. Information gained from the plots that could add to the success of the Proposed Project should be considered.	Noted. This and other projects were used to formulate the proposed action and will also guide the specific treatment design at the time of implementation.
3	Zane L. Marshall, Southern Nevada Water Authority	When planning restoration treatment areas, rehabilitating the lower and upper portions of elevation draws at the same time may be beneficial. The lower elevation draws in the Cold Spring allotment contain over-mature sagebrush. It may prove to be highly successful to rehabilitate these draws and stabilize the soils with vegetation (i.e. Basin wildrye) at the same time as conducting the higher elevation pinyon juniper treatments to decrease the potential for damaging draws through excessive erosion.	Noted. The specific treatment design will be determined at the time of implementation.
4	Zane L. Marshall, Southern Nevada Water Authority	SNWA's livestock grazing permit is for the use of the Cold Spring grazing allotment, which is primarily located within the northeastern portion of the Treatment Unit 1 and along the northeastern segment of Treatment Unit 3 in Horse Camp Wash. While working in the area, SNWA staff has confirmed the expansion of pinyon and juniper into sagebrush scrublands. This expansion is reducing the available acreage for sheep grazing in the southern half of the allotment. According to the Preliminary EA, approximately one third of the Cold Spring allotment will be unavailable for grazing during implementation of the Proposed Project and the vegetation rest and recovery period (two or more years). SNWA requests that the Final EA clearly state that the remainder of the allotment will be available for grazing use as previously permitted.	The BLM will work with affected permittees to reduce the impacts of grazing closures where possible through design and timing of the proposed treatments over the next several years. Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
5	Zane L. Marshall, Southern Nevada Water Authority	SNWA was granted a geothermal lease on July 10, 2010, which is primarily located along the northwest boundary of proposed Treatment Unit 1 and the northern portion of Treatment unit 3, which encompasses the banks of Horse Camp Wash. It is not anticipated that the proposed mechanical, chemical, and seeding treatments for sagebrush and rabbitbrush will limit SNWA's ability to access areas or conduct activities on the leased lands. However, since chemical treatment is being prescribed in areas utilized by SNWA staff, SNWA requests the BLM to provide SNWA with notification one to two weeks prior to the implementation of any treatments in these areas.	Noted

6	Steve Shell, State of Nevada Division of Water Resources	A review of the area, Hydrographic Basin #179, Steptoe Valley indicates there are a large number of active water rights in the vicinity of the described lands in this proposed project including springs, streams, and underground rights. Please be advised that wells and/or points of diverting water on these lands, whether new or existing, shall require prior approval from the Nevada Division of Water Resources. All waters of the State belong to the public and may be appropriated for beneficial use pursuant to the provisions of Chapters 533 and 534 of the Nevada Revised Statutes (NRS), and not otherwise, including those used for geothermal projects. Any water or monitor wells, or boreholes that may be located on either acquired or transferred lands are the ultimate responsibility of the owner of the property at the time of the transfer and must be plugged and abandoned as required in Chapter 534 of the Nevada Administrative Code. If artesian water is encountered in any well or borehole it shall be controlled as required in NRS § 534.060(3). Any water used on the described project for construction, dust control, or maintenance should be provided by an established utility or under permit or waiver issued by the State Engineer's Office. If artesian water is located in any well or borehole it shall be controlled as required in NRS 534.060(3).	Noted
7	John Hiatt	It is apparent from the document that the BLM doesn't (in this case at least) consider designated Wilderness a special designation.	The description in Table 3.1 was modified to clarify the separation of wilderness from the other special designations. Wilderness was analyzed individually in the EA due to its presence in the project area.
8	John Hiatt	There is no substantive discussion of how prescribed fire would be managed within the Wilderness area. Prescribed fire projects typically involve construction of firelines, use of roads and use of mechanical equipment; none of which are really relevant with regard to prescribed actions within Wilderness Areas.	Prior to any proposed treatments , a burn plan would be completed in accordance with Section 2.3.2.4 of the EA. Additionally, the Highland Ridge, Mount Grafton, South Egan Range, and Far South Egans Wilderness Management Plan is currently being developed and will further clarify the level of activity permitted to occur within the wilderness boundary. Section 2.3.1.14 EA also incorporates the requirement to prepare a Minimum Requirement Decision Guide for any actions taking place within wilderness areas.
9	John Hiatt	If seeding is used post fire there is no mention of whether native seed would be sourced locally or whether it might even be a cultivar from a commercial source.	Local seed is preferred, but may be substituted if it is unavailable at the time seeding should occur.

10	John Hiatt	There is no meaningful discussion of how visual impacts to a Class I Visual Resource Area would be dealt with.	An objective has been added for Treatment Unit 7 to clarify the requirement to meet Class I visual resource management objectives.
11	John Hiatt	There are only a few small groves of aspen in treatment unit seven and it is worthwhile to remove the confers in order to stimulate reproduction. However, there is no mention of how this would be done in such a manner that new sprouts in these areas would not suffer from excessive herbivory by elk.	Fencing will be used where necessary based on the outcome of a Minimum Requirements Decision Guide in accordance with Section 2.3.1.14 Wilderness Restrictions.
12	John Hiatt	There is a significant amount of cheatgrass in the lower elevations of the Mt. Grafton Wilderness. There is no real discussion of just how prescribed fire could be used without greatly increasing the prevalence of this noxious invasive.	A burn plan will be written prior to any prescribed fire treatment that will take into account the current populations of cheatgrass and other invasive or noxious species in the area at the time of implementation. Best management practices and mitigation measures, as stated in Appendix A: Risk Assessment for Noxious and Invasive Weeds, will also be incorporated into the treatment design.
13	John Hiatt	Unless there is another document coming forth which will detail how restoration in the Mt. Grafton Wilderness will actually be implemented then this EA is too vague to be of much use to the public. Wilderness areas really are special areas and actions such as those proposed in this EA need to be spelled out in clear terms.	This EA provides site-specific analysis of the impacts of prescribed fire, seeding, and fencing, which are the only treatments proposed within the wilderness area. Additionally, the Highland Ridge, Mount Grafton, South Egan Range, and Far South Egans Wilderness Management Plan will further clarify other aspects of wilderness management when it is completed.
14	John Hiatt	There is no mention of phasing in terms of the overall plan. It might be worthwhile to concentrate restoration actions in non-Wilderness portions of the watershed in order to get some local experience with what works and what doesn't before tackling a Wilderness Area with its own set of special problems and fewer restoration options available.	No prioritization has been made as of yet, this comment will be noted as treatments are selected for implementation.
15	John Hiatt	Also, the Bureau needs to follow the directive from the Secretary and start looking at how climate change will impact proposed actions.	Addressed in the Climate Change sections of the EA.
16	Curt Baughman, Nevada Department of Wildlife	The ratio of mowed versus unmowed areas in the previous treatments in South Steptoe Valley should have been switched to allow a greater percentage of unmowed areas.	Noted, modifications to the ratio of the required mosaic pattern will be considered during future treatment design.

17	Curt Baughman, Nevada Department of Wildlife	Prescribed fire would be desirable in higher elevations and removal of younger trees with less disturbance would be good at lower elevations.	Noted. The Proposed Action would support this method of treatment.
18	Curt Baughman, Nevada Department of Wildlife	Rabbitbrush is too thick in some locations	Noted. Treatment Unit 3 specifically addresses the presence of rabbitbrush in identified drainages.
19	Curt Baughman, Nevada Department of Wildlife	High encroachment in upper elevations is just as much as lower benches, would respond well to prescribed fire.	Prescribed fire has been included in the Proposed Action for many of the high elevation areas that currently exhibit a high density of pinyon pine and juniper.
20	Curt Baughman, Nevada Department of Wildlife	Tall, big sage in draws should be preserved and Wyoming sage on the benches should be carefully considered. There are a lot of things worse than monotypic sagebrush stands.	Noted. An evaluation of the understory and other on-the-ground conditions at the time of implementation will help develop a treatment design that most effectively achieves the objectives stated in the EA.
21	Katie Fite, Western Watersheds Project	Excessive livestock grazing is having severe adverse impacts on native vegetation, watersheds, watershed processes, soils, microbiotic crusts, and habitats and populations of rare native animals and plants.	Potential impacts are addressed in the Livestock Grazing sections of the EA.
22	Katie Fite, Western Watersheds Project	Detailed mapping and analysis of ALL past treatments, burns, mastication, chaining, seedings (included exotic species), etc. must be provided.	Pertinent past treatments have been included in the Cumulative Effects section.
23	Katie Fite, Western Watersheds Project	Is BLM also proposing to remove/purge sagebrush from seedings where it has re-established, as well as native sites in the South Steptoe or other areas? What would the cumulative impacts be?	BLM is not proposing to remove sagebrush from any previously-seeded areas.
24	Katie Fite, Western Watersheds Project	Is Ely in reality trying to eliminate sage-grouse and other rare species like the pygmy rabbit and pinyon jay – perhaps so they are not an impediment to the Southern Nevada Water Authority, and various energy developers? Is Ely following a plan of purposeful habitat destruction to get rid of rare species "problems" for ranchers, SNWA (who is also a permit holder and runs cattle/sheep on public lands) and all manner of energy developers and miners?	Many of the proposed treatments are targeted at improving habitat for sagebrush obligate species where understory has been reduced or depleted.
25	Katie Fite, Western Watersheds Project	Ely BLM must analyze the cumulative impacts of this massive hugely expensive and wasteful destruction of woody vegetation, on top of the SNWA water grab proposal to essentially "mine" and export groundwater in a series of massive wells and pipelines.	The SNWA Groundwater Development Project is included in the Cumulative Effects section in Chapter 4.
26	Katie Fite, Western Watersheds Project	A full accounting of the tens of millions of dollars that Ely BLM has spent in the past 10 years alone on vegetation "treatments" must be provided.	This information is available through a FOIA request.
27	Katie Fite, Western Watersheds Project	Please provide us with a hard copy of all watershed inventory and assessment documents involved in this and ALL processes of this sort.	This information is available through a FOIA request.

28	Katie Fite, Western Watersheds Project	The prescribed fire will destroy significant mature and old growth forested areas, as well as expand cheatgrass and other weeds. The fire will make the sites hotter, drier and more fire prone.	The required burn plans for any proposed prescribed fires would limit implementation to times when conditions would support the targeted intensity necessary to achieve the stated objectives in the EA. Prescribed fires are intended to precede and prevent stand-replacing wildfires that would exhibit the impacts described in this comment.
29	Katie Fite, Western Watersheds Project	A full range of alternatives must be considered that focuses on hand cutting of vegetation. Hand cutting also makes it much less likely that motorized use will proliferate in and through any "treated" areas. This also employs the maximum number of workers – rather than heavy equipment contractors suh as chipper/mower contractors - and BLM's fire crew for a fleeting instant.	An alternative focusing on hand cutting was reviewed by the interdisciplinary team and documented in Section 2.5 Alternatives Considered but not Analyzed in Detail.
30	Katie Fite, Western Watersheds Project	Comprehensive honest current information and assessment of rangeland health –and the role of livestock grazing and trampling disturbance in promoting weeds, harming microbiotic crusts, disrupting watershed function, impairing rare species habitats, and associated adverse impacts must be provided.	The assessment and evaluation document that preceded the EA provides data on compliance with current rangeland health standards and was used to develop the alternatives analyzed in the EA. Potential impacts are addressed in the Livestock Grazing sections of the EA.
31	Katie Fite, Western Watersheds Project	This large scale destruction of vegetation will promote and expand OHV use and disturbance, reduce screening cover that us needed to protect wildife from visual and aural disturbance – and human harassment and poaching. No matter what happens with any Travel Plan, unauthorized OHV use will be much more likely with large areas where woody vegetation has been removed.	OHV use in the South Steptoe Valley is being analyzed through a separate effort under the South Steptoe Travel Management Plan.
32	Katie Fite, Western Watersheds Project	Plus, the treatments spawn weeds that will then be spread by roads (combined with livestock use) into wild lands where the will be impossible to control.	Potential impacts are addressed in the Invasive Non-native and Noxious Species sections of the EA.
33	Katie Fite, Western Watersheds Project	It is very likely that fire danger will be increased by this action.	Potential impacts are addressed in the Fuels and Fire Management sections of the EA.

34	Katie Fite, Western Watersheds Project	A full range of alternatives must also include planting sagebrush in areas previously mowed and/or destroyed in crested wheatgrass seedings.	The crested wheatgrass seeding areas located in the watershed were reviewed by the interdisciplinary team and determined that further restoration efforts were not warranted due to existing establishment of native species, including sagebrush. Section 2.3.1.2 Treatment Design Restrictions limits further treatment of any shrubs that have reestablished in crested wheatgrass seedings.
35	Katie Fite, Western Watersheds Project	It is clear that an EIS is required to address all the direct, indirect and cumulative impacts of BLM treatment, grazing, energy development and other disturbance and Travel Planning here.	Following the completion of the EA, a determination will be made as to whether an EIS is required or if a Finding of No Significant Impact can be issued.
36	Katie Fite, Western Watersheds Project	The proliferation of vegetation treatments and all of their direct, indirect and cumulative adverse impacts on wildlife, recreation, watersheds, etc. – as well as cumulative impacts of SNWA pipelines and aquifer mining – to which this effort at deforestation is very likely tied as well, or of potential solar development, energy projects like giant industrial wind farms planned for all around the area, and abusive grazing practices must be fully examined. For example, there is a giant industrial wind farm in the Wilson Creek-Table Mountain area that would wipe out the best remaining sage-grouse habitats in the southern Ely District.	Pertinent past, present, and reasonably foreseeable future actions are addressed in the Cumulative Effects section of the EA.
37	Katie Fite, Western Watersheds Project	We are also greatly concerned about the impacts of this action on roadless/Wilderness/WSA lands. It will promote weeds that will be impossible to control, destroy scenic vistas, and otherwise greatly alter a beautiful wild landscape.	Potential impacts are addressed in the Wilderness, Invasive Non-native and Noxious Species, and Visual Resources sections of the EA.
38	Katie Fite, Western Watersheds Project	Ely cannot tier to the RMP - which is based on greatly out-dated and erroneous fire return interval (FRCC based on laughably short “disturbance” intervals long known to be erroneous) and other information, and seeks to destroy 2/3 of the native woody veg communities in the Ely District – at great cost to wildlife and the public.	The Ely RMP was adopted in August 2008 and includes a large amount of current information. The EA includes additional site-specific information to supplement any shortcomings or generalizations in the RMP.
39	Katie Fite, Western Watersheds Project	We request a site visit.	Site visit was conducted on August 24, 2011.
40	Katie Fite, Western Watersheds Project	Full and detailed analysis of project costs must be provided. This must include the costs of loss of pygmy rabbit habitat, beautiful recreational settings, increased desertification and erosion, and impacts to watersheds, and many other factors.	Potential impacts are addressed in Wildlife, Visual Resources, and Soils sections of the EA.

41	Katie Fite, Western Watersheds Project	Islands of sagebrush left in mowing pattern look better than the areas that were mowed and seeded. It appears that the habitat has been fragmented.	The mowed areas are intended to return the sagebrush to an earlier seral stage to allow diversity in age classes over a large area. Over time, the sage will reestablish to become more desirable habitat for sage grouse and other species when the existing stands become decadent and dense with an older seral class.
42	Katie Fite, Western Watersheds Project	An alternative should be considered to plant sagebrush in existing crested wheatgrass seedings. There was a recent proposed decision for grazing (Frank Reid) that should include management of the seedings.	Sagebrush seeding is included in the proposed action and livestock grazing levels must be addressed through the term permit renewal process.
43	Katie Fite, Western Watersheds Project	Grazing permit renewals should evaluate whole areas, not just the area used by each individual permitee.	Noted. Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
44	Katie Fite, Western Watersheds Project	Grazing needs to be dealt with, it would solve many of the vegetation problems.	Noted. Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
45	Katie Fite, Western Watersheds Project	The Watershed EA should be an EIS due to the past treatments in the area.	Pertinent past treatments have been considered in this EA. If, following the finalization of the EA, there are no significant impacts identified, a Finding of No Significant Impact will be issued.
46	Katie Fite, Western Watersheds Project	Cheatgrass is a major concern from the disturbance associated with these treatments.	Provisions for minimizing and treating cheatgrass and other invasive and noxious species have been addressed in the EA and will be incorporated in the specific treatment design at the time of implementation.
47	Katie Fite, Western Watersheds Project	Chaining is brutally destructive and a throwback to the ‘50s where man exerted control over nature.	Chaining has been used successfully on the Ely District and elsewhere and is being proposed to be used only in areas where conditions support it as the most effective treatment method available. All identified treatment methods will be considered at the time of implementation for each treatment unit.
48	Katie Fite, Western Watersheds Project	There are more benefits to sage grouse if treating (hand-cutting) young trees versus dense stand treatments.	Noted. The Proposed Action allows the flexibility to tailor treatment design to address the conditions on-the-ground at the time of implementation.

49	Katie Fite, Western Watersheds Project	Post-treatment grazing management is one of the greatest concerns.	Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
50	Katie Fite, Western Watersheds Project	Crested wheatgrass should be killed, no matter the method.	Provisions have been included to encourage increased shrub cover in existing crested wheatgrass seedings. Direct removal of crested wheatgrass is difficult and could result in infestation of invasive or noxious species.
51	Katie Fite, Western Watersheds Project	Rabbitbrush is more desirable than some of the alternative invasives. Would encourage planting rabbitbrush in some situations.	The large amount of rabbitbrush already present in the watershed does not support further planting of the species in this situation.
52	Katie Fite, Western Watersheds Project	Why wouldn't sage be seeded?	Sagebrush seeding has been included as part of the Proposed Action, but has proven to be difficult based on the amount of care needed to maintain the viability of sagebrush seed prior to use. Sagebrush will continue to be a major component of seed mixes used throughout the watershed.
53	Katie Fite, Western Watersheds Project	Use a lighter touch on Treatment Unit 4 of South Steptoe Valley Watershed to reduce encroachment because the heart of the valley is so trashed already.	A wide variety of treatment types are proposed within Treatment Unit 4, specific methods will be selected to directly address on-the-ground conditions at the time of implementation.
54	Katie Fite, Western Watersheds Project	Beetle-killed trees reduce the fuels load because they drop all their needles and are open underneath.	Noted.
55	Katie Fite, Western Watersheds Project	Completely opposed to biomass removal for commercial purposes. The heightened controversy associated with commercial biomass removal warrant an EIS.	Biomass may be made available to the public or private entities for harvest depending on the treatment method, location of the treatment, or other factors. A determination will be made at the time of implementation. Removal of biomass has not been suggested by any other parties as being controversial, therefore an EIS is not warranted based on this issue alone.

56	Katie Fite, Western Watersheds Project	This is PJ country and the trees are supposed to be here.	Pinyon pine and juniper are considered native species in the area but have, over many years of fire suppression, extended beyond the boundaries of their former areas and are now encroaching into areas formerly dominated by sagebrush communities.
57	Katie Fite, Western Watersheds Project	All sagebrush areas should be preserved and the focus should be placed on removal of PJ in key sage areas. Biomass should be left on site.	Both pinyon pine/juniper removal and sagebrush treatments have been proposed in this plan. No prioritization has been made as of yet. Biomass may be left on site or made available to the public or private entities for harvest depending on the treatment method, location of the treatment, or other factors. A determination will be made at the time of implementation.
58	Katie Fite, Western Watersheds Project	Diverse sagebrush stands already existed in areas prior to mowing treatments near Bullwhack Summit. Decadent sagebrush stands are the best habitat for pygmy rabbits and some other species, not necessarily for sage grouse	Noted. Treatment design restrictions listed in Chapter 2 require the use of a mosaic pattern to maintain a mix of habitats following treatment.
59	Katie Fite, Western Watersheds Project	Recent studies show that fire return intervals are longer than what was previously stated.	The most recent studies available were included in the development of the Ely District Resource Management Plan. Intervals were verified based on current research as part of the site-specific analysis for this EA.
60	Katie Fite, Western Watersheds Project	Sagebrush seed should be collected locally the same season it is used to make it the most viable for germination and success	This method has been used where possible, but the fluctuation in seed production from year to year makes it impossible for all seed harvesting. Supplementary seed is typically harvested from neighboring districts and stored until it can be distributed.
61	Katie Fite, Western Watersheds Project	Replanting sagebrush in existing crested wheatgrass seedings is a higher priority than the PJ treatments	No prioritization has been made as of yet, this comment will be noted as treatments are selected for implementation.

62	Katie Fite, Western Watersheds Project	It will be decades – and in some cases a hundred years or more until woody vegetation may regrow to its former density or occurrence. In many cases, such re-growth may never be achieved if weeds invade, if accelerated soil erosion occurs and so the potential to support vegetation becomes diminished, if concentrated livestock use occurs in cleared and opened areas – or if, as is very likely, cheatgrass and other weeds come to dominate the hotter, drier livestock-degraded and desertified cleared site. All of this, of course, is likely to promote more frequent flashy fires. Cleared or thinned sites will dry out earlier and the fire season will become longer, plus cheatgrass that thrives in hotter drier sites will increase flammability.	Potential impacts are addressed in the Invasive Non-native and Noxious Species, Vegetation, and Fuels and Fire Management sections of the EA.
63	Katie Fite, Western Watersheds Project	We are greatly concerned that if an alternative that focuses on large-scale treatment is chosen, the proposal will end up being just more expensive heavy equipment contractor projects involving juniper chipping and sagebrush mowing to promote cattle forage in an extraordinarily depleted landscape. Several recent Nevada projects we have reviewed appear to be aimed at this. Instead of focusing on long-term sustainability, a hand full of contractors work for a brief period at a very high price. See, for example, the Elko Tuscarora sagebrush "restoration" EA. In the end, only a very small land area would be treated. The bulk of the expense is for aerial herbicide, seeding, and ground-seeding of many exotic species and a bit of sagebrush.	The objectives for proposed treatment unit are stated in Chapter 2 of the EA and treatment methods will be selected based on the analysis in the EA and the conditions on the ground at the time of implementation.
64	Katie Fite, Western Watersheds Project	BLM must act to minimize and remove grazing from sensitive areas in this landscape, as well as any treated areas - rather than to try to eke out more cattle grazing in a landscape where sagebrush communities, pinyon-juniper communities, springs and streams are already being irreparably damaged by domestic livestock grazing. No new fencing should be built. Livestock use should be removed from allotments, or at a minimum from pastures as any "treatment" occurs. Passive restoration must be fully analyzed as a treatment under all alternatives– i.e. allowing natural recovery in the absence of livestock use.	Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA. A minimum two-year resting period for the treated areas has been included in the proposed action to prevent damage from livestock or wildlife species while vegetation is recovering to stated management levels.
65	Katie Fite, Western Watersheds Project	Please review all historical sources – from Surveyors records to accounts of mining deforestation to provide a Baseline for understanding forested vs. nonforested lands. See, for example, Dr. Ron Lanner's The Pinyon Pine, Dr, David Charlet's Shah-kan-daw paper, etc. This is necessary to properly understand Historical ranges of Variability, and any natural Fire Cycles. Please also consider all the recent work by Dr. William Baker and others on the very long return intervals for pinyon-juniper. (papers on cd).	Papers have not been provided on CD - unable to locate through web search

66	Katie Fite, Western Watersheds Project	We have observed a long-standing and consistent bias against forested vegetation from range Department folks at some colleges. We ask that BLM consult a broad range of foresters – Dr. Ron Lanner of California, Drs. William Baker and Shinneman of Wyoming, and others, to determine more accurately, from a forestry perspective, just what natural processes and any natural range of fire intervals may have been. It is increasingly understood that so-called "catastrophic" fires are natural in pinyon-juniper forests. Attempts to alter that by widespread manipulation are unnatural. Keeping lands (including native grass understories and microbiotic crusts) in the best shape pre-wildfire may be the best insurance against "unnatural" circumstances.	A BLM Forester was included as part of the interdisciplinary team preparing the document and universities within the Great Basin are regularly consulted to obtain the most current research and information applicable to the ecosystems and species found in the Ely District.
67	Katie Fite, Western Watersheds Project	There is also typically an elevation gradient involved with pinyon-juniper communities – with junipers at the very lowest elevations, then mixed pinyon-juniper, then pinyon. Please provide detailed mapping and analysis that shows the complex differences between forested vegetation types that are present in all areas of the Project landscape and cumulative effects area. So pinyon-juniper communities are very complex. Plus microbiotic crusts are an important part of the understory to stabilize sils, aid water infiltration, fix nutrients, and play an important part on fixing CO2 as well. They are ignored or downplayed in the Nevada range studies and reports.	The treatment units in the proposed action have been selected based on the different treatment objectives necessary for pinyon-juniper woodlands, other woodlands, and sagebrush-dominated sites.
68	Katie Fite, Western Watersheds Project	Please specifically identify 1) All forest/"woodland" sites based on charcoal, stumps surveyors records, trees present, precip zones, etc. This is necessary for a Baseline understanding. 2) The differentiate between juniper, pinyon-juniper and pinyon zones, including diversity related to aspect and slope.	Woodland sites were determined based on existing soil types and vegetation as part of the assessment process that preceded the EA.
69	Katie Fite, Western Watersheds Project	Creating even more bare, open areas through burns and chemicals will only propel expanded roading and weed infestations – especially with chronic livestock grazing disturbance.	Addressed in the Recreation and Invasive Non-native and Noxious Species sections of the EA.
70	Katie Fite, Western Watersheds Project	PJ "encroachment". We strongly disagree that this is encroachment. In most instances, it is re-occupation. The trees are holding these mining and grazing damaged watersheds together at present.	Noted
71	Katie Fite, Western Watersheds Project	Mule Deer are a weedy increaser species not thought to be very abundant under pre-settlement conditions in the Interior West. They use pinyon-juniper! BLM is wrongly claiming habitat declines in many areas – on order to justify killing trees for livestock and to placate trophy hunting interests who seem not to understand the values of forests – for big game security and other habitats.	Noted
72	Katie Fite, Western Watersheds Project	Catastrophic fires are natural in pinyon-juniper. Any effort to alter this takes BLM further from the HRV.	Noted.

73	Katie Fite, Western Watersheds Project	We oppose any further development of waters – as it will promote expanded livestock use in a landscape that already has a very high level of livestock disturbance. Removal of livestock and removal of facilities will greatly enhance surface water availability for horses and wildlife. Horses are being used as an excuse for expanding the livestock Footprint of intense use. Removing livestock competition and setting new AMLs based on accurately examining the relative effects of horses vs. livestock here is essential. We have seen far more sign of, and impacts of, cattle in these lands – compared to horses.	No water developments are proposed as part of this project.
74	Katie Fite, Western Watersheds Project	ANY treatment here should focus on hand-cutting of selective trees younger age-class trees, and permit retirement or at a minimum removal of livestock for a decade or more to allow some recovery of understory herbaceous vegetation and microbiotic crusts post-treatment.	Hand cutting is included in the proposed action and may be implemented in several of the treatment units. Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
75	Katie Fite, Western Watersheds Project	Thorough and comprehensive baseline studies and surveys for sage-grouse, pygmy rabbit, loggerhead shrike, ferruginous hawk, golden eagle, pinyon jay, rare bats that may roost in or forage over forests, etc. and other important species must be conducted. This must include a full analysis of viability, must occur over all portions of the landscape and affected populations. This must take into account the very existing and very foreseeable stressors and fragmentation that will result from utility corridor, mining, renewables such as geothermal or wind, oil and gas, and other development.	The BLM monitors wildlife habitat. NDOW is responsible for monitoring wildlife populations. The BLM utilizes NDOW's population data and data from other sources where it is available. Sage grouse population counts are conducted annually by NDOW within both the watersheds. Based on treatment design, minimal treatments will be conducted within pygmy rabbit and winter sage grouse habitats. NDOW's last inventory for golden eagles was conducted in 2011. If treatments are conducted within the MBTA nesting season, surveys will be conducted to avoid migratory bird nests (including raptor nests) with appropriate avoidance buffers. Additionally, the Great Basin Bird Observatory has conducted surveys throughout Nevada to determine potential breeding birds in the area. Bats are analyzed in the EA. Areas of known rare plants will be avoided.

76	Katie Fite, Western Watersheds Project	Will the sage-grouse, pygmy rabbit, pinyon jay, loggerhead shrike, and other species here be present in levels that provide viable populations in the short, mid and long-term – especially under continued livestock degradation of habitats, utility corridors, mining and energy development, etc.? With livestock degradation coupled with new mining, utility, energy developments? With livestock disturbance and cheatgrass and other weeds that grazing disturbance promotes on top of the cheatgrass and other weeds that would be promoted by the various de-vegetation and deforestation schemes you may be contemplating?	Potential impacts are addressed in the Wildlife and Cumulative Effects sections of the EA.
77	Katie Fite, Western Watersheds Project	As mitigation for this massive deforestation and sagebrush fragmentation scheme, we ask that BLM undertake permanent closure of these lands to domestic livestock grazing disturbance - the typical two growing seasons following even major fire disturbance is known to be grossly inadequate – recovery of sagebrush communities from disturbance takes several decades –or longer – depending on habitat type, climate change, etc.	Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
78	Katie Fite, Western Watersheds Project	Please fully examine the likelihood that these proposed Fuels and other "active" treatments - especially highly invasive treatments like mowing, fire, chemical poisons and logging with heavy equipment moving crosscountry and crushing soils and displacing rocks and boulders - will result in a hotter, drier site more prone to weeds and wildfire than existed before.	Potential impacts are addressed in the Climate Change, Invasive Non-native and Noxious Species, and Fuels and Fire Management sections of the EA.
79	Katie Fite, Western Watersheds Project	Science increasingly shows that big fire years are a result of climate change and climatic/precip conditions on years preceding and during the fire event. These are beyond agency control – and the actions that are proposed – removing shading vegetation, causing sites to dry out faster and earlier – are very likely to promote fire rather than enable any "control".	Noted
80	Katie Fite, Western Watersheds Project	How will treatment actions actually promote desertification, global warming and climate change processes here?	Potential impacts are addressed in the Climate Change section of the EA.
81	Katie Fite, Western Watersheds Project	At least two years of year-round surveys for sensitive species and important wildlife species use must be conducted prior to disturbance.	NDOW monitors wildlife populations. The BLM monitors wildlife habitat. The BLM utilizes NDOW's population data and data from other sources where it is available. See #40 above.
82	Katie Fite, Western Watersheds Project	Please systematically collect adequate baseline data on the current health of these lands and waters, and the role of livestock as a causal agent in: any habitat, hazardous fuels, understory depletion, desertification, rangeland health, woody species "invasion" and other problems that may exist on these lands.	Baseline data has been collected as part of the overall watershed assessment for the South Steptoe Valley Watershed. Monitoring will continue over the ten-year life of this plan to support appropriate decision making at the time of treatment implementation.

83	Katie Fite, Western Watersheds Project	We are very concerned that there are no adequate current livestock grazing analyses that show the seriously impaired current condition of many of the BLM lands in the region from chronic livestock grazing disturbance effects. The agency is managing lands based on long-outmoded mindsets that woody veg is undesirable and grass – even crested wheatgrass – is preferable.	Noted. Rangeland conditions for the South Steptoe Watershed were documented in the assessment and evaluation documents that preceded the EA.
84	Katie Fite, Western Watersheds Project	This out-moded livestock-industry biased science, and projects that seek to destroy sagebrush, other "brush" and trees - greatly ignore the needs of important and sensitive species –including pinyon jay, sage-grouse and pygmy rabbit. Both of the latter are undergoing precipitous habitat losses in Nevada through relentless grazing and other disturbances, linked cheatgrass/weed effects, as well as a legion of new utility corridor, energy, mining, industrial geothermal or wind farm and other proposals that you must thoroughly analyze in a cumulative impacts assessment here.	Potential impacts are addressed in Cumulative Effects section of the EA.
85	Katie Fite, Western Watersheds Project	A current ecological assessment or other information that accurately reveals the ecological condition of the land, which is critical to understanding the impacts of vegetation treatments to soils, waters, watersheds, special status species, important wildlife species, cultural sites, recreational and aesthetic values, etc. must be conducted.	A full analysis of the current conditions of the project areas was conducted and documented through the watershed assessment process.
86	Katie Fite, Western Watersheds Project	We emphasize "invasive species", not merely noxious weeds. It is the invasive species that are causing the most serious hazardous fuels problems in the Great Basin, and the large-scale disturbance that may be caused by treatments opens the door to catastrophic weed invasions. Please incorporate the circa 2003-2005 Great Basin and Nevada Rowland, Suring, Wisdom and other ecological models, and update them to address the increased understanding of risks here. These are available upon request at the Sagestep Internet site. But again, the data sets used for cheatgrass are already known to have been much too conservative. Please also include any other more current cheatgrass mapping – such as may be conducted by the Nevada Heritage Program, Peterson, or others.	The BLM acknowledges the importance of controlling both noxious and invasive species. Design features included in Chapter 2 of the EA and in the Risk Assessment for Noxious and Invasive Weeds (Appendix A) will be incorporated into all treatments at the time of implementation.
87	Katie Fite, Western Watersheds Project	Agencies often justify such proposals on claims of juniper or pinyon "invasions", but these claims are based on flawed interpretations of soil survey data that only reflected vegetation present on such sites at the time of the surveys, and not the historic, or climax, vegetation appropriate to the site. The full role of mining deforestation in removing forested vegetation must be examined here – so that an accurate understanding of site history and "invasion" can be obtained. Also, the scientific literature documents promiscuous burning by domestic sheep grazers as well in the historical period. So please do not insult our intelligence by using a photo from 1914 or some such time with no trees – and claiming it shows trees have "invaded".	Noted
88	Katie Fite, Western Watersheds Project	How might this proposal be linked to stripping woody cover and thus making it easier for crosscountry mining, geothermal, oil and gas and other exploration to occur?	Ease of access for energy exploration is not one of the stated objectives of the proposed project.

89	Katie Fite, Western Watersheds Project	How will this action promote OHV and new route proliferation? From site visits, it is clear that BLM can not even control off-road motorized use, and extensions of existing roads.	Potential impacts are addressed in the Recreation section of the EA.
90	Katie Fite, Western Watersheds Project	We support selective cutting of marked younger trees near sage grouse leks, and in some other strategically located areas, but this proposal may seek to deforest steep slopes, forest sites, and other areas not essential to sage grouse. Or it may seek to kill and thin sagebrush to promote cattle and domestic sheep forage grasses, under the guise of fuels reduction – and just end up promoting cheatgrass and other hazardous fuels. Or it may clear vegetation to aid mining exploration, geothermal/wind development, utility corridors, etc.	Noted
91	Katie Fite, Western Watersheds Project	ACEC-worthy landscapes are at stake, and irreversible losses may occur.	Noted
92	Katie Fite, Western Watersheds Project	Large-scale regional development changes are underway here in central Nevada's sagebrush and pinyon-juniper landscapes, with de-watering of aquifers to export water to Las Vegas, powerlines – SWIP, Westwide EIS corridors, mining powerlines or other infrastructure, potential pollution from coal-fired power plants, large-scale new and expanded mining disturbance for gold, copper and other minerals.	Noted
93	Katie Fite, Western Watersheds Project	Is this project linked to any biomass use or development in the future? Biomass from forests is highly controversial, will have a negative impact on CO2 and climate change processes, and burning results in chronic health impacts to the exposed human population.	Biomass may be made available to the public or private entities for harvest depending on the treatment method location of the treatment, or other factors. A determination will be made at the time of implementation.
94	Katie Fite, Western Watersheds Project	Fire is indiscriminant and non-selective – and carries with it significant risks. Mistakes, with cheatgrass or weed invasion following, are irreversible. Given our observations of significant cheatgrass problems in burned areas on the Ely BLM District, we urge BLM here to avoid use of prescribed fire. In many instances, it appears that agencies are willing to burn even if knowing that cheatgrass will come to permanently dominate the post-fire landscape – in order to get more livestock forage – as livestock eat cheatgrass, though it is not a sustainable forage.	Prevention methods for cheatgrass and other noxious and invasive species will be incorporated into all of the treatments per the stipulations in Chapter 2 and Appendix A of the EA.
95	Katie Fite, Western Watersheds Project	A full range of alternatives – including passive restoration and actions that address existing cheatgrass infestations and minimize spread must be developed. The alternatives MUST deal with all disturbance factors – including livestock – that contribute to any Fuels or habitat problems – and significantly change management direction.	The No Action Alternative would allow passive restoration for the vegetation treatments. Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
96	Katie Fite, Western Watersheds Project	Please conduct systematic baseline surveys for ALL special status species – pygmy rabbit, pinyon jay, loggerhead shrike, raptors, rare bats, rare plants, etc. over the course of all seasons for two years so that all habitat uses can be understood.	See #40 and #46 above.

97	Katie Fite, Western Watersheds Project	We ask that before the agency conducts any more hazardous fuels treatments that lead to cheatgrass increases, it needs to demonstrate to the public that it can control cheatgrass in post-fire treatment and other disturbance environments. A full range of alternatives reducing cheatgrass or other weeds as hazardous fuels must be considered. Please carefully map and identify these areas, including in all areas of past veg manipulation. Please also carefully examine the risk of expanded cheatgrass or other weed invasion in any treated areas. Please focus any "treatment" here on restoring cheatgrass or other highly fragmented areas – by planting sagebrush, pinyon-juniper, etc. – and not killing more.	Weeds are also treated outside of the watershed restoration process and the interdisciplinary team determined it was not necessary to include any specific treatment units as part of this proposal. Potential impacts are addressed in Invasive Non-native and Noxious Species section and Appendix A of the EA.
98	Katie Fite, Western Watersheds Project	How is this related to other agency actions? What development proposals may be underway in or near this area? What geothermal/corridor/wind, mining, oil and gas, exploration or development may be underway? Is there energy or power infrastructure or development slated to occur here? In the area of the various sage-grouse PMUs affected? What other large projects like this are you planning?	Potential impacts are addressed in the Cumulative Effects section of the EA.
99	Katie Fite, Western Watersheds Project	What is the current level, condition, demands on the aquifer underlying these lands that may be deforested? How is that projected to change with SNWA depletion in the region, various mines depleting waters, oil and gas and other energy, de-watering and aquifer mining proposals? How will removal of woody vegetation exacerbate site drying and desertification processes?	Potential impacts are addressed in Cumulative Effects section of the EA.
100	Katie Fite, Western Watersheds Project	Please present scientific information and analysis necessary to understand the role of livestock in causing fuels problems – including the role of ongoing livestock grazing across these lands.	Livestock grazing is one causal agent among many and the cumulative impact of all potential factors is analyzed in this EA.
101	Katie Fite, Western Watersheds Project	BLM may be operating under the false assumption that it can impose fire and other treatments to bring about "historical" ranges of fire occurrence and achieve an artificially derived "desired" future condition. This is not based on the facts of the disturbance that cattle and sheep grazing, treatments, and other human activities in these lands over the past 150 years has caused - and created an UNNATURAL environmental setting – often with massive topsoil loss, lowered site potential, depletion of large-sized native grasses, desertification, degradation or loss of microbiotic crusts, and great vulnerability of these lands to weed invasion following disturbance.	Noted
102	Katie Fite, Western Watersheds Project	Agencies have often not used scientific understanding of disturbance in the Great Basin in deriving models, desired conditions, and predicted outcomes of treatments. We hope that this effort will be better, and you will back off the use of fire, chemicals and large tree killing and sagebrush crushing apparatus.	Noted

103	Katie Fite, Western Watersheds Project	Please conduct systematic baseline surveys for old growth and mature pinyon and juniper trees here. Under any treatment scenario, please act to conserve these resources including through designations of ACECs. Please conduct similar studies for all old growth and mature sagebrush communities and place these "off limits" to ANY fragmentation/manipulation. Please identify all dense sagebrush vegetation, and act to preserve and protect them and keep them all intact for the pygmy rabbit. These vegetation types are increasingly rare across the landscape. Please restore sagebrush habitats between occupied areas. Removal of livestock in lands where sagebrush is still present will over time allow sagebrush to recover better structural attributes for pygmy rabbits. Please identify all areas that currently have minimal cheatgrass or other invasive species in understories, and avoid any disturbance to these lands. These areas should be restored passively. We wish to work with BLM in developing ACEC recommendations.	No prioritization has been made as of yet, this comment will be noted as treatments are selected for implementation.
104	Katie Fite, Western Watersheds Project	Please fully update the livestock grazing and vegetation allocation components of all affected grazing allotments in conjunction with this process – based on a current capacity, capability and suitability model.	The term permit renewal process is ongoing in various allotments and will be handled separately from this EA.
105	Katie Fite, Western Watersheds Project	Please consider current science, such as much more conservative stubble height standards necessary for riparian protection, utilization levels necessary for successful sage grouse nesting, or grazing systems that protect microbiotic crusts necessary for soil health and to keep cheatgrass and other weeds that cause extreme fuels problem from invading.	Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
106	Katie Fite, Western Watersheds Project	Please provide data on the current suitability, capability, carrying capacity and productivity of these lands in affected watersheds for livestock. This is essential to understand the current status, and causes, of any understory deficiencies, rangeland health, or fuels problems. It is also essential to understand the environmental risks of the potential actions here. Please review the papers by r. John Carter reviewing current "range" science. We stress that much lower levels of utilization are required to provide adequate nesting cover for sage-grouse.	The watershed assessment process included an evaluation and determination that presented information regarding the current status of the landscape with regard to the rangeland health standards adopted by the Northeastern Great Basin Resource Advisory Council.
107	Katie Fite, Western Watersheds Project	Who are the grazing permittees, base property owners, lessees, etc.? Is it mines, developers, hobby ranchers, others?	Permittees are listed in the Livestock Grazing section of the EA
108	Katie Fite, Western Watersheds Project	BLM post-fire or post-treatment policies do not adequately address the impacts of livestock (pre or post treatment) and do not provide for protections necessary to slow down or halt weed invasions and alterations of the fire cycle. The current scientific literature overwhelmingly shows that livestock grazing is a primary cause of problems affecting native vegetation, including altered fire frequencies and altered fuel situations.	Noted

109	Katie Fite, Western Watersheds Project	Agencies must grapple with fire, fuels and vegetation management on Nevada lands and address livestock grazing as a causal agent, and analyze the impacts of livestock grazing in causing "unnatural" fire cycle. It is necessary to examine the impact of livestock grazing on the ultimate outcome/effectiveness/success of any treatments. Without including significant changes in livestock grazing practices including reduced stocking rates and/or removal of livestock from lands at risk to cheatgrass invasion, or where restoration actions may be undertaken, and more protective levels and standards of use, the agency will be wasting taxpayer dollars on this effort.	Potential impacts are addressed in the Livestock Grazing section of the EA. Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
110	Katie Fite, Western Watersheds Project	Please fully address livestock as a causal agent in ecosystem disruption, and alteration of composition, structure and function of native ecosystems in the arid lands (see Fleischner 1994, Belsky and Gelbard 2000), including all direct, indirect and cumulative impacts of past and ongoing livestock use on rangeland health problems associated with fire, hazardous fuels (increased tree density), and flammable weeds. A wide range of up-to-date livestock management alternative components must accompany all alternatives in a new NEPA analysis. These should include analysis of a range of reductions in stocking rates, and their effects on ecosystem processes, fire, fuels, weeds, restoration, rehabilitation efforts.	Potential impacts are addressed in the Livestock Grazing section of the EA.

111	Katie Fite, Western Watersheds Project	Again, please fully analyze cessation of livestock use/grazing permit retirement as part of any treatment analysis that is conducted. Federal fire funds(or Clark County land sale funds) should be used to buyout the grazing permits on lands that are treated, or determined to be at risk to weed invasion, or determined to be at risk of crossing thresholds from which recovery may not be possible, and the inextricable link between fire/fuels problems and livestock grazing effects must be addressed. Information that needs to be acquired and assessed includes: Current stocking rates (average actual use as well as active permitted use) in all pastures and in all treatment areas of the allotments, and in all vegetation types/communities; Utilization levels allowed in all allotments and in all vegetation types; Presentation and analysis of all monitoring data (utilization, use pattern mapping, etc.); Season of grazing use; Condition of soils, waters (ground and surface), watersheds and vegetation communities; Condition of habitats related to stocking rates, levels of use allowed, etc. Trailing activity and effects All facilities, water hauling, slat/mineral sites and associated roading and other disturbances	This data is gathered as part of the term permit renewal process. Much of the data was used to support development of the Livestock Grazing section of the EA. Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.

112	Katie Fite, Western Watersheds Project	Please research original surveyor's records and other historical information to understand mining and other post-settlement deforestation, collect and analyze extensive baseline information on past fire and vegetation conversion or manipulation projects in the affected lands, and other factors that result in weed corridors, habitat fragmentation, increase likelihood of human-caused fires or disturbance, etc. Data and maps must be compiled and assessed that indicate where all past treatments have been conducted by state and federal land managers (and private – where known) within the watersheds and allotments where projects are planned. Without understanding the past dispersion and impacts of treatments and disturbance across the landscape, an agency can not adequately assess the impacts of various alternatives related to treatment, land health and hazardous fuels reduction (or increase –as in the case of likely cheatgrass invasion following treatment). Information that needs to be acquired and assessed includes data and maps of: Past disturbance events on the affected allotments, watersheds and habitats (fire- prescribed or wild, chemical treatment, mechanical treatment, other); Seedings or any other post-disturbance treatments that have occurred; Condition of seedings, including cheatgrass and other fine fuels and weeds in interspaces; Comparison of current seeding condition, productivity and stocking rate based on good or better condition seeding; Location of all livestock facilities and developments; Location of all livestock water haul and salting sites; Location of all roads; Relation of roads to past veg. projects or treatments.	Potential impacts from pertinent past, present, and reasonably foreseeable future actions are addressed in Cumulative Effects section of the EA.
113	Katie Fite, Western Watersheds Project	Please collect current information on: Vegetation species composition, its current ecological condition; livestock grazing regimen and standards of use; wildlife habitats and populations occurring here. Information on periods of rest, trespass, and other livestock factors must be included.	This type of information was collected as part of the assessment and evaluation phase that preceded the EA. Chapter 3 of the EA addresses current conditions of the watershed.

114	Katie Fite, Western Watersheds Project	We are alarmed that federal agencies are using scarce taxpayer dollars NOT to treat the extensive cheatgrass or wheatgrass seedings invaded by flammable exotics, or to close roads that are leading to increased human-caused fore across the FO, many of which have so altered and largely destroyed wildlife habitats, and which often form the basis of continuing to graze excessive numbers of livestock that also affect native vegetation and later fire cycles. Many crested wheatgrass seedings have become infested with cheatgrass, halogeton or other weeds and now contain continuous fine fuels. They are now not acting to stop fires, but instead are susceptible to burning. Plus, the harm and fragmentation of native species habitats caused by these seedings must be assessed – as it is important to understand their role in habitat fragmentation on top of the extensive alterations of habitat that have been conducted, and which are highly foreseeable in the future. Past treatments have removed much of the sagebrush habitat interfacing with juniper or pinyon-juniper, and replaced it with crested wheatgrass. This provides a perfect example of a woefully fragmented landscape where crested wheatgrass seedings have greatly fragmented sage grouse habitats across middle to lower elevations, and many are in very poor condition and have rampant cheatgrass, halogeton and other problems – as well as loss of forage. Yet, agencies persist in promoting the killing of native vegetation (junipers, mountain big sagebrush, pinyon, and other species) in higher elevations, or that have recolonized sites, while ignoring the habitat loss, and weed and fire risks, posed by the degraded seedings and other purposefully altered lands, including those agencies "treated" with fire, chaining, etc. and which have become weedlands.	Noted
115	Katie Fite, Western Watersheds Project	All exotic crested wheatgrass seedings with less than 15% sagebrush cover should be targeted for increased sagebrush. Any cheatgrass, or crested wheatgrass monoculture of dominated areas should be targeted for restoration with natives. ONLY native species should be used in any planting effort.	The crested wheatgrass seeding areas located in the watershed were reviewed by the interdisciplinary team and determined that further restoration efforts were not warranted due to existing establishment of native species, including sagebrush. Section 2.3.1.2 Treatment Design Restrictions limits further treatment of any shrubs that have reestablished in crested wheatgrass seedings.
116	Katie Fite, Western Watersheds Project	Cohesive Strategy and Fire's Natural Role. Please base analysis on current science including ecological understanding of disturbance and climate change in arid lands, and not the mis-begotten hope that fire or other treatments proposed will result in a "natural" outcome in many of the disturbed systems here. This is key to understanding that many DFCs/predictions are not attainable – especially if large-scale chronic disturbance factors like grazing continue unabated, and spread cheatgrass and weeds in their wake.	The analysis was based on the most current science available at the time the EA was written.

117	Katie Fite, Western Watersheds Project	An analysis of Age, Seral Status and other elements of soils and veg. communities must be based on an understanding of changes in composition, function and structure that exist in the real world as a result of livestock grazing and other disturbances, past vegetation treatments followed by livestock grazing, etc.	Noted
118	Katie Fite, Western Watersheds Project	Vegetation efforts can not be limited to disturbance-style treatments alone. Plant communities which are still healthy should be managed in a way to effectively: 1) prevent their conversion to weed-dominated communities; 2) prevent loss of biodiversity; 3) prevent changes in their fire frequencies and intensities; 4) prevent the conversion of shrub lands to woody thickets. The agency must NOT plant hybrid cultivars or other non-natives, but must use selected local ecotypes of native plants. Many of the so-called "native" grasses being used have been extensively bred to produce livestock forage, and no longer resemble any native grasses. And some, as in Secar "bluebunch" were derived from plants that are even in a different genus than the Great Basin native grasses.	Noted
119	Katie Fite, Western Watersheds Project	Please employ the analytical procedures described by Professors Holechek, Galt and others in its grazing management. This includes in setting stocking levels by first determining the amount of land area that is both "capable" and "suitable" for grazing. We stress that the Holechek, Galt and other utilization levels do not provide for sufficient sage-grouse, pygmy rabbit or other habitat features. See Attached Carter Reviews of this Range Science,and the increased weight and thus forage demands of livestock.	Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
120	Katie Fite, Western Watersheds Project	Please evaluate the "capability". Here an evaluation is made to determine the number of acres of lands that are "capable" of livestock grazing, based on specific slope, distance from water, rockiness, and other factors. Then, out of the "capable" lands, a further determination is made about which acres are "suitable" for grazing, based on considerations such as special management areas, fragile ecological resources, or other considerations. After this analysis is done, then the remaining lands that are both "capable" and "suitable" are assessed to determining grazing levels by setting proper stocking rates. This analytical process is central to ensure a proper grazing management system that does not degrade range resources, and must be considered as part of the determination under various alternatives of the impacts or effects of the outcomes of any of the many large-scale disturbance treatments or fuels projects such as this. In order to effectively address any fuels problems, the agency must get to the root of the problem – which is largely chronic livestock grazing disturbance.	Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
121	Katie Fite, Western Watersheds Project	Current stocking rates in many areas, and the actions needed to sustain them, results in grazing unsuitable lands and is a major contributing factor to rangeland health woes, and fuels and weeds problems.	Noted

122	Katie Fite, Western Watersheds Project	Please fully factor effects of Global Warming/climate change, and amplified increased risk of site desertification and weed invasion following "treatment", grazing or other - and overlapping - disturbances.	Potential impacts are addressed in the Climate Change and Non-native Invasive and Noxious Species sections of the EA.
123	Katie Fite, Western Watersheds Project	All alternatives must include after a period of post-treatment rest of 1 a minimum 0 years, a 15% or less allowable utilization of upland vegetation, no grazing during critical growing periods for native species, no grazing during nesting periods for migratory birds and sage grouse, measurement of livestock trampling damage to native vegetation and microbiotic crusts and means to minimize trampling damage, no movement of livestock from lands infested with exotics to more intact communities. A permanent grazing disturbance retirement alternative must be examined, along with a sagebrush restoration proposal that removes crested wheatgrass form sagebrush or other pinyon-juniper habitats.	Treated areas will be closed to grazing uses for a minimum of two years until stated vegetation objectives have been achieved. Other changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA. Text has been added to the EA to support the reestablishment of shrubs in existing crested wheatgrass seedings.
124	Katie Fite, Western Watersheds Project	Passive treatments primarily minimize site disturbance, and generally remove or minimize an environmental irritant that is affecting the health of the plant community. Thus, they have less risk of soil erosion, weed invasion or proliferation and other negative impacts associated with them. They also have a high probability of being beneficial to watersheds, native wildlife habitats and populations and the economic well-being of western communities that are increasingly dependent on tourism and recreational uses of public lands.	Noted

125	Katie Fite, Western Watersheds Project	An array of passive treatments exist that will enable you to treat many of the affected lands. Such treatments include: Limiting livestock grazing can reduce spread of flammable invasive species, heal damaged understories so that more natural, cool-burning fires can occur, and reduce the proliferation of doghair thickets of dense young trees which serve as ladder fuels. Treatments include significant reductions in livestock numbers accompanied by prudent utilization and trampling standards in plant communities found to have damaged understories vulnerable to invasion by flammable exotic species. Closure of pastures with known exotic/invasive species infestations. Closure of lands to grazing that have known exotic species infestations is a prudent first step toward control of spread of flammable, watershed-altering exotics. Closure of pastures "at risk" to weed invasion – such as any big sagebrush, or juniper communities that still contain relatively intact understories. This process should map and identify such areas in the allotments/watersheds/important habitats, as well as all areas where cheatgrass already dominates the understory. Livestock removal treatment: Grazing permit buyout and permit retirement using federal fire funds is a very reasonable treatment that will heal damaged lands, help restore natural fire cycles, minimize the spread of exotics and other hazardous fuels. Livestock facility removal treatment: Livestock facilities (fences, artificial watering sites – especially troughs associated with pipelines and water haul sites, corrals, etc.) serve as zones of livestock concentration, and result in areas of severe disturbance readily colonized by highly flammable exotic species. Removal of these facilities and restoration of disturbed zones will limit spread of invasive flammable species, and help develop healthy understories necessary to carry cool, light fires in surrounding lands. We strongly encourage you to incorporate such actions as part of fuels reduction treatments.	Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.

126		An array of passive treatments exist that will enable you to treat many of the affected lands. Such treatments include: Road/ORV trail closure and rehab/restoration treatment: Closures and restoration treatments quell the spread of flammable invasive species from disturbed road and trail edges. Roads are known to serve as conduits for weed invasion (Gelbard and Belnap 2003), and motorized and OHV use is increasingly setting fires across public lands. This will greatly benefit sage-grouse, pygmy rabbit and other sensitive species. See Knick et al. 2003, Connelly et al. 2004, Connelly and Knick 2009, USFWS Interim sage-grouse report 2008. Road closure coupled with grazing reductions can have large-scale positive effects on invasives and hazardous fuels problems, as roads that are weed conduits can be closed, and livestock reductions minimize spread of weeds already present within the area. Allowing natural successional processes and healing processes to occur in plant communities that are still relatively intact is the most cost-effective method of attaining natural fire cycles, reducing buildup of hazardous fuels over time, etc. Natural mortality occurs in sagebrush, sagebrush-bitterbrush and other vegetation types. Allowing natural processes to play out, while removing or minimizing those agents that are disturbing natural ecological processes takes patience, but minimizes risks of exotic invasion that accompany aggressive intervention such as fire or mowing.	Open, closed, and limited route designations for motorized use are being considered through the South Steptoe Travel Management Plan and are not addressed in this EA. Additionally, changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
127	Katie Fite, Western Watersheds Project	Restoration of native vegetation communities and ecological processes must be the goal of all treatments. Restoration means restoring and maintaining ecological integrity. Ecological integrity is the ability of an ecosystem to support and maintain a balanced, adaptive community of organisms having a species composition, diversity and functional organization comparable to that of natural habitats within the region.	Restoration of native sage, woodland, and aspen communities is a primary objective of the proposed project.
128	Katie Fite, Western Watersheds Project	Lands of primary focus for most active restoration should be: Lands that have been invaded by exotics such as cheatgrass, medusahead, knapweed, white top, etc. Lands purposefully seeded to exotics such as crested wheatgrass following past agency vegetation manipulation or fire. These should be prioritized for treatment on the basis of: Geographic location and continuity/connectivity of native habitats that restoration would provide for native species. For example, old crested wheatgrass seedings in the valleys and toeslopes/alluvial fans are located in an area of great importance to sage grouse and pygmy rabbit. Restoring the native sage-steppe vegetation on these sites as habitat for sage grouse and pygmy rabbit should be top priority, as well as prevention of any further degradation to still-native communities.	Areas with a high occurrence of noxious or invasive species are treated through a variety of processes in addition to this EA. No prioritization has been made for the treatments included in this plan. This comment will be noted as treatments are selected in the future as funding becomes available.

129	Katie Fite, Western Watersheds Project	Please focus significant treatment and restoration efforts and spending of federal fire funds on restoration of native species composition and function to crested wheatgrass that has been rampantly seeded as following ill-conceived sagebrush removal or as post-fire ”rehab”, and lands overrun by cheatgrass. The current abundance of federal fire funds should be used to follow-through on post-fire rehab actions that have failed in the past (please evaluate all seedings or areas now dominated by invasives, and identify failures and causes of failure), or where crested wheatgrass and other exotics were planted as a first step in arid lands rehabilitation. Agencies now have the opportunity to complete post-fire rehabilitation that has been undertaken, but has failed or had poor results on millions of acres across Nevada. As part of this process, please identify all lands where post-fire rehab/”emergency” stabilization with crested wheatgrass, intermediate wheatgrass and other exotics was conducted, and prioritize treatment of these lands to return them to native vegetation and restore natural fire cycles. Then, examine if the funds you would use to fragment sagebrush would better be used in other areas.	Funding has not been specifically identified for this project. Prioritization of projects will be considered at the time funding becomes available.
130	Katie Fite, Western Watersheds Project	Experimentation with new techniques, especially new chemicals, should be limited to lands overrun by cheatgrass and crested wheatgrass seedings.	All proposed techniques and chemicals are clearly stated in Chapter 2, no experimentation is authorized through this EA.
131	Katie Fite, Western Watersheds Project	For lands still in reasonable health and retaining reasonable ecological integrity, passive treatments should primarily be applied. Techniques which minimize soil and native vegetation disturbance should be the first steps taken. Try these first. See if they work.	Passive restoration was considered as an alternative in Section 2.5 Alternatives Considered but not Analyzed in Detail.
132	Katie Fite, Western Watersheds Project	As the result of past proliferation of purposeful seedings of exotic species by agencies in ESR situations, huge sterile monocultures of exotic species dominate millions of acres. These seedings, a result of activities to produce forage, sometimes under post-fire ESR, have had disastrous consequences for native ecosystems. Instead of restoring lands seeded immediately after fire to exotics, agencies have allowed these lands to remain in a highly altered and unnatural condition. These seeded lands remain permanent sacrifice zones to the livestock industry.	Noted
133	Katie Fite, Western Watersheds Project	Please fully assess the impacts of these past actions in order to understand the context of your current decisionmaking process, as well as to assess environmental impacts and reasonably foreseeable outcomes.	Outside the scope of this EA
134	Katie Fite, Western Watersheds Project	As part of spending the lavish amounts of funds that you are using to conduct hazardous fuels projects, please commit to restoration of native vegetation on all lands seeded to exotics as a part of past or future ESR activities.	Outside the scope of this EA

135	Katie Fite, Western Watersheds Project	Arid lands may become so degraded from purposeful alteration or mismanagement that they can never recover. These communities have been described (Archer and Smeins 1991) as crossing a "transition threshold" –with loss of topsoil, dominant species that have become locally extinct, and introduced species that have become so dense that weedy annuals become the climax species. All efforts must be made to keep plant communities from crossing this threshold, and thus requiring massive amounts of funds and elaborate treatments to attempt restoration. This is the proper application of a "state and transition" model, and not the UNR/ENLC version.	Noted
136	Katie Fite, Western Watersheds Project	Moderately degraded communities can become severely degraded if preventive action is not taken.	Noted
137	Katie Fite, Western Watersheds Project	Near-pristine and better ecological condition areas should be protected using all possible techniques, especially passive restoration techniques such as immediate removal of all livestock disturbance as they typically serve as important habitats for native species and protection of biodiversity. Economically, it is a lot more cost-effective to keep lands from becoming degraded than it is to conduct wide-scale treatments after they have become degraded.	Passive restoration was considered as an alternative in Section 2.5 Alternatives Considered but not Analyzed in Detail. Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
138	Katie Fite, Western Watersheds Project	Prevention is especially critical in upland communities, as they are less resilient to recovery following site disturbance than are riparian areas. Plus, the greater the aridity, the greater the difficulty of recover. This may even vary within the same geographic area, as south and west faces are more likely to face cheatgrass invasion following treatments. Global warming and climate change only decreases resiliency – and increases risk of weed invasion with disturbance. NOTE: We are NOT talking about the UNR/ENLC efforts to replace native veg and local ecotypes with livestock forage pseudo-native cultivars and exotic species in the names of "resiliency".	Noted.
139	Katie Fite, Western Watersheds Project	Almost universally throughout the region, wetlands (springs, seeps, streams, playas, etc.) have been heavily damaged by livestock grazing and trampling activity. This has altered their morphology, areal extent of water tables/wetted soil areas, plant and animal species composition, plant and animal ecology. However, the current path of livestock shifting use onto upland sites to take pressure off riparian areas is an ecologically destructive path, and prevention must be conducted in an integrated way. Both the riparian and upland areas are undergoing desertification processes, which ultimately make them less resilient, and less likely to be able to be restored to native systems.	Noted. Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
140	Katie Fite, Western Watersheds Project	Exotic species are invading lands in the Great Basin and Interior Columbia Basin at an alarming rate. Exotic species alter western ecosystems by increasing fire frequency, disrupting nutrient cycling and hydrology, increasing erosion, altering soil microclimates, reducing biodiversity, and reducing wildlife habitat.	Addressed in the Non-native Invasive and Noxious Species section of the EA.

141	Katie Fite, Western Watersheds Project	Disturbance related to livestock grazing, the agency's existing treatments/manipulations, livestock grazing facilities, ORVs and extensive road networks are causes of weed invasion. Removing these sources of disturbance from "at risk" lands, and any lands that have been treated is a vital and integral part of any treatment, as well as prevention and restoration.	Addressed in the Non-native Invasive and Noxious Species, Livestock Grazing, Recreation sections of the EA. Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
142	Katie Fite, Western Watersheds Project	Livestock and ORVs are weed seed vectors. Livestock carry weed seeds in fur, feces, mud on hooves, etc. They also disturb soils and created ideal sites for weed seed establishment (Belsky and Gelbard 1999).	Addressed in the Non-native Invasive and Noxious Species, Livestock Grazing, Recreation sections of the EA. Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
143	Katie Fite, Western Watersheds Project	Recent observations show that exotics like cheatgrass and medusahead may be only the first in a wave of exotics and that new infestations of aggressive species such as white top or knapweed occur in areas overtaken by cheatgrass and medusahead. Thus, current agency practice of failing to treat areas dominated by weeds, and using these weeded areas as "sacrifice zones" for excessive levels of livestock use only increases chances of invasion by new and even more aggressive exotic species.	Noted. The BLM is treating weeds through this and other projects and has not designated any "sacrifice zones" for increases in livestock grazing levels.
144	Katie Fite, Western Watersheds Project	Livestock grazing and trampling is the major cause of damage to arid upland plant communities and western ecosystems. They are also the major factor preventing recovery of these systems. Removal of livestock, including through use of funds to permanently buy out grazing permits, must be a treatment that is evaluated under all alternatives. Lands should be prioritized for buyouts, based on the need for passive and active treatment measures to be applied.	Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
145	Katie Fite, Western Watersheds Project	It makes no sense to spend hundreds of dollars an acre on "restoration", or $40 an acre on a "prescribed" fire treatment if livestock grazing disturbance is then to again occur and retard or destroy any "recovery". Livestock are the primary cause of vegetation/fuels problems. Allowing the primary causal agent of ill-health to then again be allowed to graze and trample these same lands, and cause a "need" for future treatments, makes no sense at all. Federal agencies typically receives around 13 cents or less an acre annually for livestock grazing on these lands, so the economic folly of returning livestock to treated lands is extreme – just like the ecological folly.	Noted. Treated areas will be rested from livestock grazing for a minimum of two years or until stated objectives have been achieved. Livestock grazing levels will be evaluated through the Term Permit Renewal process to balance usage with vegetative sustainability.
146	Katie Fite, Western Watersheds Project	Agency Fire EAs, land use plans, EFR and other activity plans are woefully deficient in providing adequate periods of rest from livestock grazing following treatments. In order to determine necessary rest periods, you must understand the condition of the community pre-treatment (see, for example, Eddleman et al 1994). Specific time periods must be applied, along with measurable recovery standards for soils, microbiotic crusts, herbaceous and woody vegetation recovery before livestock grazing can resume.	Treated areas will be rested from livestock grazing for a minimum of two years or until stated objectives have been achieved.

147	Katie Fite, Western Watersheds Project	Agencies cannot use “natural fire regimes”, historical ranges of variability and other models as a basis for any fire planning. The potential for anything resembling a ”natural ”fire regime has been drastically altered by 150 years of livestock grazing and chronic continued grazing disturbance, mining activity and deforestation, and other disturbance so that natural fire regimes no longer exist in many areas. As part of its assessment, please first determine the current condition of all the vegetation communities in the affected lands in the planning area. This information must be newly collected as part of this process, since most systematic veg inventories, are nearly 25 or more years old. This necessary is critical to understanding the risks of any treatment disturbance to these lands.	Data monitoring was conducted and a final evaluation was produced in 2007. Additional site visits have been completed throughout the watershed and additional assessments will be conducted at the time of implementation to determine appropriate design features based on current on-the-ground conditions.
148	Katie Fite, Western Watersheds Project	We believe that until effective answers are found for the vexing problems of noxious weeds and exotic annual grasses, a cautious and prudent fire suppression plan must be in place. This is also necessary because of the dramatically altered and unnatural condition of many sites caused by 150 years of livestock grazing.	Noted. The Ely District Fire Management Plan provides specific guidance for the use of fire throughout the Ely District. The prescribed fire treatments and the use of fire for resource benefit within the South Steptoe Valley Watershed are consistent with this plan.
149	Katie Fite, Western Watersheds Project	Shrub-Steppe Communities: Livestock grazing has fundamentally altered (and continues to alter and degrade) native understories, by killing and weakening native grasses and forbs and harming microbiotic crusts. As native bunchgrasses have been replaced by cheatgrass and other exotics in the wake of livestock grazing, upland plant communities are now subject to hot, early season fire instead of cooler, late-season fires. Cheatgrass provides dense, continuous fuel that causes fires to flash across the landscape. Cheatgrass results in frequent re-occurrence of fire, preventing regrowth of native vegetation. Plus, cheatgrass litter chokes soil surfaces, preventing germination of native shrubs (sagebrush, rabbitbrush). Fuels reduction in sage-steppe communities should focus on restoration of these cheatgrass-invaded sites and damaged understories. This is the primary active restoration measure/treatment that needs to be taken to fundamentally alter the nature of fire in these arid lands (Whisenant 1991, Billings 1994, Belsky and Gelbard 2000).	If cheatgrass occurs within a proposed treatment unit at the time of implementation, it will be addressed through the treatment design in accordance with the stipulations listed in Chapter 2 and Appendix A of the EA.
150	Katie Fite, Western Watersheds Project	Low Elevation Forests: Here too, livestock grazing has fundamentally altered (and continues to alter and degrade) native plant understories. By creating abundant areas of bare soils, it creates ideal conditions for increased densities of young trees. These become the fire-prone doghair thickets of young trees that create ladder fuels and other incendiary conditions in arid forests.	Noted

151	Katie Fite, Western Watersheds Project	Before Euro-American settlement, periodic fire cleared Ponderosa pine and Douglas fir understories, and the build-up of fuels was too slow to create hot canopy fires. With Euro-American settlement, and continuing to the present: 1) Selective logging of large trees occurred, and small, highly flammable trees were left; 2) Fire control was instituted; 3) Domestic livestock consumed grasses that carried low-intensity fires, and such fires became less frequent, and woody fuels built up.	Noted
152	Katie Fite, Western Watersheds Project	Hot fires occurred in the past, and were a part of natural forested ecosystems. In many areas away from human habitation, fuel reduction may not be necessary.	Noted
153	Katie Fite, Western Watersheds Project	To prevent buildup of woody, highly flammable fuels in arid forests at times need to be let burn under carefully controlled conditions. This should only occur in lands that are not at risk to exotic species invasion in the post-fire environment. Selective logging of old, fire-tolerant trees must be halted. Domestic cattle and sheep grazing must be decreased or ended.	The Ely District Fire Management Plan provides specific guidance for the use of fire throughout the Ely District. Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
154	Katie Fite, Western Watersheds Project	Recent USFS reporting shows that with climate change, any claimed "HRV" or effects of imposing a disturbance regime may have unpredicted consequences.	Noted
155	Katie Fite, Western Watersheds Project	Juniper and other woody vegetation throughout Nevada and the West have been vilified by the ranching industry. Their management is tainted by the application of range science lacking in ecological understanding of forested system, and range-oriented researchers, often tied to funding from land grant institutions, and with commodity-based biases against forested lands. In many areas, PJ has been greatly fragmented by purposeful fire, escaped prescribed fire and wild fire.	Noted
156	Katie Fite, Western Watersheds Project	No additional acreage should be treated by the haphazard methods you apply here, until-prescribed fire-ravaged or other "treated" lands are fully restored with native species.	Noted
157	Katie Fite, Western Watersheds Project	Tree removal should be highly selective, individual tree cutting of smaller-sized trees. Fire or extensive soil disturbance paves the way for weedy species invasion in juniper communities. Grazing causes juniper expansion by destroying and weakening native understories, and altering natural cool burning fires and fire cycles (Belsky 1996, Belsky and Uselman 1998).	An alternative focusing on selective hand cutting was reviewed by the interdisciplinary team and documented in Section 2.5 Alternatives Considered but not Analyzed in Detail.
158	Katie Fite, Western Watersheds Project	We support the cutting or thinning of trees in discrete areas, to serve as fire breaks – AFTER competent fire scientists and foresters determine the degree necessary to slow down fires, but believe that this should be based on science.	Noted
159	Katie Fite, Western Watersheds Project	Due to recent drought, insect infestations, climate change, grazing degradation/desertification of sites, there have been recent large-scale die-offs of pinyon, increasingly juniper, and sagebrush in many western lands.	Noted

160	Katie Fite, Western Watersheds Project	Due to the large die-off of pinyon pine in the Southwest, Nevada's pinyon (such as you may target for killing here under some alternatives) are an increasingly important resource – for pinyon jays and other dependent native biota, as well as for production of pine nuts for human uses. Retention and protection of forested and other evergreen vegetation is essential for buffering climate change effects.	Noted
161	Katie Fite, Western Watersheds Project	Recent research in the Southwest shows that standing dead pinyon and juniper may pose less fire risk than lives trees, and "hazardous fuels" projects that target such trees may be flawed.	Noted
162	Katie Fite, Western Watersheds Project	Livestock should not be used as a "tool". They are only a temporary, stop-gap measure and simply mowing weeds to ground level does not address the fundamental problem of eliminating weeds, and getting native species to grow. Native species will not recover if sites are grazed by livestock. In fact, the extreme disturbance caused by livestock will make sites MORE fire prone. In most instances, it would be just as effective to mow weeds as to use livestock, and would have far less impacts to soils. Plus, the possibility of introduction of new weedy species as a result of livestock disturbance would be minimized. Please examine the appalling fire history of lands in Idaho, such as the Jarbidge FO and assess how seeding of crested wheatgrass, heavy grazing, high stocking rates, etc. – have only resulted in more extensive and larger acreage fires.	Treated areas will be rested from livestock grazing for a minimum of two years or until stated objectives have been achieved. Weeds will also be addressed through this and other efforts in accordance with Appendix A of the EA.
163	Katie Fite, Western Watersheds Project	Herbicide use should be kept to an absolute minimum under all alternatives. Herbicides are known carcinogens. Many herbicides migrate in soils and infiltrate water supplies. In Idaho, federal agency (BLM) disastrous experience with the herbicide Oust demonstrates the dangers of herbicide use in wild land settings, and how despite reassurances in NEPA documents, things can go very wrong. Here, Oust blew on soil particles into neighboring fields, and inhibited crop germination. We have seen wild settings where application of Oust has likewise had disastrous results – including in the "dead zone" it created in Rice Canyon (Burley area) and in the Jarbidge WSA. For several years prior to the Oust drift disaster, the corporation that manufactured Oust aggressively marketed its use at seminars attended by federal agencies. We are quite suspicious of the role of chemical corporations in pushing the use of herbicides. The Forest should reject any further analysis of Tebuthiuron or other harmful chemicals.	Noted. Oust is not proposed for usage within the South Steptoe Valley Watershed. All appropriate measures will be taken to ensure proper usage of the herbicides included in the EA.
164	Katie Fite, Western Watersheds Project	In a Nevada post-"treatment" facility construction event, BLM was lulled into false assurances that once it sprayed cheatgrass and built a fence around the "treated" area, all would be well. Instead, the agency ended up killing wild horses due to unwise fence construction. This serves to demonstrate the significant resource problems associated with additional range facilities that often result from "treatment" projects. Unfortunately, agencies often divert fire funds to construct projects for which other sources of funding are lacking, so we do not believe the fence situation described here is uncommon.	Noted

165	Katie Fite, Western Watersheds Project	Tebuthiuron now being aggressively promoted by Dow-Elanco and other chemicals and used by Ely and Winnemucca BLM to kill sagebrush, may move into water, often kills non-target species, and kills vegetation over long periods of time. Thus, it may cause adverse impacts for a decade or more, including to animals that rely on burrows or waters.	Noted, all required safety precautions will be followed if Tebuthiuron is used for any of the treatments.
166	Katie Fite, Western Watersheds Project	At the best, herbicide use is only a temporary measure or intermediate step to be used, and it does not address the basic causes of weed problems. Sulfonylurea and acetolactate synthase-inhibiting herbicides should not be used due to their demonstrated ability to damage off-site plant species.	Noted
167	Katie Fite, Western Watersheds Project	We often encounter areas on public lands – such as white top or knapweed sprayed areas – where all native veg. has been killed by herbicides, and weeds continue to thrive. The likelihood of treatment disturbance increasing invasives for which chemical control will be largely ineffective must be assessed. Will multiple chemicals be used in the same project area? If so, what will be their effects?	The analysis of the proposed action includes potential impacts resulting from the use of the herbicides proposed in this EA.
168	Katie Fite, Western Watersheds Project	The role of continued livestock grazing post-treatment in continuing weed invasion must be addressed.	Potential impacts are addressed in the Grazing Restrictions and Invasive Non-native and Noxious Species sections of the EA.
169	Katie Fite, Western Watersheds Project	Any mechanical removal of woody vegetation must be carefully conducted. Removal of trees must be based on individual tree marking, with younger age class trees targeted for removal while older trees are retained. Mowing of sagebrush is causing rampant cheatgrass invasion in areas across Nevada. Examples: Elko BLM Owyhee fuelbreaks, Battle Mountain Austin BLM "greenstrips", etc.	Noted
170	Katie Fite, Western Watersheds Project	All off-road travel should be minimized, and any roading or soil disturbance rehabbed with native veg. Please commit to undertaking emergency closures in the federal register if roading or OHV use proliferate as a result of treatment.	Off-road travel related to proposed treatments is addressed in the Travel Restrictions section of the EA. Overall travel and access within the South Steptoe Valley is being addressed through a separate travel planning effort under the South Steptoe Valley Travel Management Plan.
171	Katie Fite, Western Watersheds Project	No treatments of any kind should be allowed during nesting periods for migratory birds, or in important or critical wildlife habitats during sensitive times of year. The role of all past and proposed treatments on habitat fragmentation must be assessed. See Knick et al. 2003, Connelly et al. 2004 to understand the tremendous fragmentation that exists. Please conduct necessary mapping and analysis to do this.	The Timing Restrictions and Treatment Design Restrictions sections of the EA provide guidance on specific seasonal and locational restrictions.

172	Katie Fite, Western Watersheds Project	Agency MBTA protocols appear to be aimed at only searching for raptor nests, and no others –typically in one-point-in-time survey, or merely using records in Databases. Is that correct? This does not comply with the MBTA, or the other federal laws.	Restrictions during migratory bird nesting season are addressed in the Timing Restrictions section of the EA and do not specifically target raptors.
173	Katie Fite, Western Watersheds Project	Use of pinyon-juniper or sagebrush material for biomass fuels should not be allowed. Biomass projects export nutrients from often nutrient-deficient sites, and is an extractive, commercial use of public lands with widespread harmful ecological impacts.	Noted. Under the Proposed Action, harvesting of biomass by the public or other organizations may be permitted as part of the treatment design at the discretion of the authorized officer.
174	Katie Fite, Western Watersheds Project	An independent assessment by qualified ecologists, fire scientists and foresters of the "need" for the proposed actions, and the risks of undertaking new disturbance must be conducted as part of this process. We would like to be involved with this effort, and would be happy to provide you with a list of names of scientists that could be involved in this. Since Healthy Forests discusses "collaboration", this is an important part of the collaborative process to us – i.e. working to ensure the use of best possible science based on current ecological science and the science of arid lands restoration. We also request a meeting and Site Tour, and inclusion of a broad range of passive and targeted active restoration alternatives.	While the BLM welcomes collaboration with other organizations, it also relies upon the expertise of its own specialists. Comments and input received throughout the NEPA process have been considered and incorporated where appropriate. A site tour was also conducted on August 24, 2011 to gather additional input from participants in the public comment period.
175	Katie Fite, Western Watersheds Project	A component of this should be an assessment of risks of new, additive or cumulative disturbances associated with the projects on top of existing disturbances. For example, if an area unrelentingly subjected to livestock grazing has previously been "thinned" by old herbiciding, or fire, what will the impact of a new treatment disturbance be on soils, vegetation, watersheds, water quality, native wildlife, etc.? We urge you to focus on actual Interfaces with habitation, and not the large-scale wild land disturbance typically proposed.	Potential impacts are addressed in the Cumulative Effects section of the EA.
176	Katie Fite, Western Watersheds Project	We are extremely concerned that monitoring and mitigation will not be adequate and do not even begin to address the large-scale disturbance of plant and animal community composition, function and structure that undertaking the large-sale treatments will affect.	Noted
177	Katie Fite, Western Watersheds Project	Monitoring. Please provide necessary monitoring, and decisive actions that will occur post-treatment if treatment protocols, livestock rest, etc. is violated. Please establish weekly post-treatment monitoring for livestock trespass, sound studies of soil health and stability, vegetation community recovery and health, etc. post-treatment.	Addressed in the Monitoring section of Chapter 2 in the EA.
178	Katie Fite, Western Watersheds Project	Mitigation. Large blocks of land (> 10,000 acres) should be established within watersheds where no fuels treatments are conducted, as reference areas for the outcomes/effectiveness/damage of the treatments that are proposed. These lands should be identified in the EIS. Other mitigation includes termination of grazing post-treatment, termination of grazing on reference areas, etc.	There are several areas within the watershed that are not proposed for treatment, as shown on Map 2.1 Proposed Action Treatment Units.

179	Katie Fite, Western Watersheds Project	Current agency enforcement of grazing closure restrictions is often lax. The problems of dealing with trespass livestock in Nevada are enormous – witness the many long-standing trespass situations. Thus, we have no assurances that any livestock-related post-treatment measures will be followed, and these can not be used as "mitigation" for treatments.	Noted
180	Katie Fite, Western Watersheds Project	Agencies must develop adequate mitigation for fuels activities. For example, if an agency wants to burn or Tebuthiuron 10,000 acres of sage grouse habitat or pinyon jay habitat, it should be removing livestock use from a nearby 100,000 acres of land to provide better quality nesting, wintering, and food-producing habitat.	Noted. Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
181	Katie Fite, Western Watersheds Project	Please develop a comprehensive monitoring plan, with all monitoring to be funded as part of the original "treatment" cost. Otherwise, timely and necessary monitoring will never occur.	Addressed in the Monitoring section of Chapter 2 in the EA.
182	Katie Fite, Western Watersheds Project	Please commit to using all local ecotype, non-cultivar native species in any post-treatment plantings. Use of all native seed with commitments to reseed repeatedly must be part of the planning and funding for all projects. Planned development of reliable supplies of native seed sources is essential.	Addressed in the Native Seed Only Alternative section of Chapter 2 in the EA.
183	Katie Fite, Western Watersheds Project	Any habitation interface projects must focus on projects at the actual interface with inhabited lands. This is an area of 1/8 mile or less. Any interface projects must be tied to private landowners taking strict efforts to control any fire danger on their own private lands. Intensive wildland-urban interface treatments include thinning, pruning, mowing, roof cleaning, replacement of flammable landscape and building materials). These actions should be limited to the interface, and the private property, and be use to create 1/8 mile of defensible space.	Noted
184	Katie Fite, Western Watersheds Project	In reality, the interface is to be the area where most federal fire funds are being spent, and we support using fire funds to treat legitimate interface areas. Instead, we often find BLM roaming far from any real interfaces in projects being conducted.	Noted
185	Katie Fite, Western Watersheds Project	Please provide an adequate cost:benefit analysis of all actions. For example, what are the costs vs. the benefits of spending $100 an acre to treat/restore lands where livestock grazing will again soon resume? What are the costs: benefit of treating 4000 acres in the middle of nowhere while cheatgrass near major roads and housing goes untreated? What are the costs of all treatments under all alternatives?	Accurate cost estimations are not possible due to the long life of the plan and the need to adapt the treatment design to the conditions on the ground at the time of implementation. However, as funding becomes available, the BLM will evaluate potential areas for treatment to determine the area where benefits would be maximized.

186	Katie Fite, Western Watersheds Project	What are the costs to recreational uses of public lands of large-scale treatments? We have been repeatedly contacted by hunters, hikers and birdwatchers who have had recreational outings – or favorite recreational sites - ruined by agency "treatments". What impact do such losses have on the local and regional economy? For example, in Idaho the flawed Jim Sage BLM EA (similar to this proposal), BLM planned to spend 6 million dollars to kill junipers across an entire mountain range, despite widespread weed problems throughout the lower and middle elevations – and grazing proposals would have increased grazing on the "treated" lands. Thus, taxpayers would have been funding increased livestock forage under the guise of fuels projects, while receiving only tiny amounts of grazing fee dollars in return. We fear this may be occurring here, as well.	Impacts to recreation users are addressed in the Recreation section of the EA. Impacts to the local and regional economy would be so small as to be incalculable due to the long life of the plan and the accommodations that will be required through the treatment design features included in Chapter 2 of the EA.
187	Katie Fite, Western Watersheds Project	Please adequately analyze a full range of alternatives based on sound economics. All alternatives should include use of federal fire funds to purchase grazing permits and permanently remove livestock from degraded lands, as this is a very foreseeable action during the life of this plan. We support alternatives that use preventive measures and passive restoration techniques, addresses causal agents of fire/fuels/vegetation problems such as livestock and ORV use, and which minimizes risks of invasive species spread stemming from any treatment that is applied.	Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA. Seven alternatives were considered by the interdisciplinary team and are addressed in Chapter 2 of the EA.
188	Katie Fite, Western Watersheds Project	Actions proposed will bring about widespread microbiotic crust loss, and soil erosion in wind and water. In order to understand the impacts of the actions, the current condition of all lands (soils, veg, microbiotic crusts, etc.) must be thoroughly assessed, as treatments. With multiple or overlapping treatments, for example, how will herbicide runoff be accelerated in burned landscapes? This also relates to air quality problems, and possible increased air or water pollution. Recently discovered mercury contamination of lands and lands from gold roasting operations must be considered in this analysis, also.	Potential impacts are addressed in the Soils section of the EA. There are no known gold roasting operations that occurred within the project area.
189	Katie Fite, Western Watersheds Project	BLM is embarking on many other fire-related projects in the region as well. The interrelationships of all ongoing or planned activities in this region, including across ownership boundaries, must be fully explored.	Projects within the immediate area of the South Steptoe Valley Watershed are addressed in the Cumulative Effects section of the EA.

190	Katie Fite, Western Watersheds Project	Use of Native Species: Please do not invasively treat any native vegetation that doe not have sufficient understory to recover on its own without seeding. In any seeding (as in alternatives that would remove crested wheatgrass) please commit to use local native species ecotypes in all restoration seedings in all instances. In the past, agencies have used exotic, soil depleting crested and Siberian wheatgrasses, and aggressive, invasive, weedy forage kochia and intermediate wheatgrass. Instead of focusing on larger exotic plants (primarily because they produce livestock forage, no matter how limited its palatability), natives, especially species like Poa bluegrass, Indian ricegrass, bottlebrush squirreltail and native not cultivar bluebunch in lower elevation sites. Sufficient periods of rest to allow successful establishment/recovery of native species.	Some of the treatment units were selected based on the need to restore sufficient understory. Appropriate treatment methods will be selected from the designated list for each treatment unit based on the on-the-ground conditions at the time of implementation. Native seeds will be preferred, but additional non-native varieties may be included in seed mixes where necessary to compete with invasive non-natives or noxious species.
191	Katie Fite, Western Watersheds Project	Sagebrush and other appropriate native shrubs must be included in all seedings, and repeated efforts must be made to establish native shrub cover, due to its importance to many native wildlife species.	Noted
192	Katie Fite, Western Watersheds Project	Please use some of its burgeoning fire funding to set up a reliable network and system for supply and storage of native seed of locally adapted ecotypes, so that this native seed is readily available in the wake of fire. You will then no longer have the excuse that “we couldn’t get native seeds, so had to plant cwg or Secar” (which is not even a bluebunch wheatgrass). It is time to act responsibly, and apply federal fire funds to setting up a reliable system of seed supply.	Noted. A seed warehouse has been established in Ely to provide a variety of seed types to be readily available when seed mixes are needed.
193	Katie Fite, Western Watersheds Project	No Need to Seed Herbaceous Species in Many Higher Elevation Sites: Many higher elevation sites require NO seeding of herbaceous species at all. Only sagebrush or other native shrubs should be seeded in these lands. It is essential, however, that these sites receive adequate rest from livestock grazing so that understory components, including microbiotic crusts, can recover. This is essential to prevent new weed invasion. The two grazing season rest – maybe – is not sufficient – a minimum of 10 years, and with attainment of measurable recovery criteria, must be the basis for any resumption of grazing.	Appropriate seed mixes will be determined based on on-the-ground conditions at the time of implementation in order to achieve the objectives stated for each treatment unit. Treated areas will be rested for a minimum of two years and must achieve the stated objectives prior to being reopened to grazing.

194	Katie Fite, Western Watersheds Project	WWP strongly supports using existing unburned pasture or allotment boundary fences as the structures that restrict livestock from treated lands. By closing larger land areas to livestock grazing, you will also provide some better grass cover and habitat for species like sage grouse, who face habitat loss and fragmentation as lands burn. A long-term closure of the pasture or allotment will result in ungrazed areas that help to provide grasses of sufficient height, or other necessary habitat components, for sage grouse and other native wildlife. We stress that recovery of sagebrush takes 50-200 years or more. Only temporary facilities should be allowed, if any are used at all – primarily electric fences. All post-fire rehab plans must specify removal dates for any livestock facilities that result from fire rehab activities. However, temporary electric fences have a long track record of failure – please review information in your files concerning trespass of burned areas or sensitive riparian areas that resulted from the use of temporary fences, rather than removing livestock to existing pasture or allotment boundary fences.	Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA. The most effective fence design will be selected at the time of implementation.
195	Katie Fite, Western Watersheds Project	AUMs Should Not Be Shifted Elsewhere: Please do not shift AUMs from treated lands to other areas. All AUMs from burned lands should be placed in temporary suspension until rehab, or restoration, success occurs. Please explain in great detail what will be done with any displaced livestock in the aftermath of treatments here. Full and detailed actual use info by pasture must be provided to serve as a basis for understanding how and where particular stocking levels have occurred.	Changes to grazing allowances must be handled through the Term Permit Renewal process and are not addressed in this EA.
196	Katie Fite, Western Watersheds Project	Wild Horses. BLM Must fully address and recognize that the HMAs are protected, and must not shift or intensify livestock use or disturbance into them. A new AML, that much more honestly examines the relative impacts of horses vs. livestock, must be provided.	There are no Herd Management Areas or Herd Areas located within the South Steptoe Valley Watershed.
197	Katie Fite, Western Watersheds Project	Regrettably, some agency offices have been shifting livestock use elsewhere, and thus impacts of livestock on watersheds, wildlife, habitat, etc. are magnified and amplified to the detriment of native species and the ecosystems upon which they depend. BLM has never assessed the impacts of these shifted AUMs.	Noted
198	Katie Fite, Western Watersheds Project	Area of Rested Lands Must Provide Habitat for Native Wildlife: Please protect land areas sufficient to provide habitat for sustaining viable and healthy populations of native wildlife as part of all treatment activities and decisions. This is particularly important for declining shrub-steppe species that are facing accelerated habitat loss and fragmentation (Knick et al. 2003, Connelly et al. 2004). Please assess the status of populations and habitats within the larger landscape area, and determine the likely effect of a fire on special status species and other important biota. Please take protective measures – not only on the fire-affected allotments, but also on surrounding lands, and to buffer habitat loss until the habitat that has been lost can be restored.	Addressed in Section 2.3.1 Treatment Restrictions Common to All Treatment Methods and in the Wildlife section of the EA.
199	Katie Fite, Western Watersheds Project	Watersheds/Water Quality: Resting sufficient areas – burned and unburned, treated and untreated - is essential for watershed protection.	Noted

200	Katie Fite, Western Watersheds Project	Risk Assessments: Please conduct assessments of the risks of treatment failure/habitat loss, watershed damage, loss of surface flows, disturbed microbiotic crusts, increased depletion, weed invasions, under various post-treatment grazing strategies and across a broad range of alternatives. What are the risks of seeding weakening and depletion if grazing is allowed to resume too soon?	Implementation decisions, including resuming grazing uses, will be based upon achievement of the stated objectives in the action alternatives.
201	Katie Fite, Western Watersheds Project	Minimal Use of Chemicals: Please strive to minimize use of chemicals in wild land settings. An increasing segment of the public has health problems related to chemical sensitivities. Chemicals may leach into water, blow on eroding soils into other sites. Wind erosion is far more significant in post-fire environments, as dark bare soil surfaces heat up, with the result of funnel-cloud erosion/dustdevils blowing soils away. Cancer, respiratory problems and many other human health effects of herbicides and other treatment chemicals are well-known. Plus earlier snowmelt that exacerbates climate change effects is being caused by dust.	All chemical usage will be in compliance with all applicable regulations and best management practices to minimize impacts to surrounding areas.
202	Katie Fite, Western Watersheds Project	If chemicals are used, the treated lands, and surrounding areas, must be posted with signs that warn the recreational public of chemical use and possible exposure. The BLM's disastrous use of Oust demonstrates the uncertainty associated with use o chemical sin wild land settings, where wind erosion or water runoff may transport chemicals to unintended areas with unintended consequences.	Proper safety precautions will be enforced at the time of each chemical treatment implementation.
203	Katie Fite, Western Watersheds Project	Periods of Rest: Please require adequate periods of rest from all livestock grazing to ensure that full recovery, or establishment of seeded vegetation, occurs. This time period is much longer than typically ever required, and is often dependent on the condition and health of vegetation communities pre-fire. Eddleman et al. (1994) described 4-5 year periods of rest as necessary for degraded western juniper communities. Given the now widespread acknowledgement of cheatgrass risk amplified by climate change, a closure of a minimum of 10 years, or permanently following treatment or wildfire, must be required. This would minimize risk of livestock disturbance fostering and promoting weeds.	Length of rest periods will be a minimum of two years and based upon the achievement of the objectives stated in the action alternatives.
204	Katie Fite, Western Watersheds Project	Low elevation sagebrush-steppe communities may require a decade or more, and repeated seeding efforts during periods of favorable weather, to allow minimal re-establishment of some native vegetation. Sagebrush recovery may take 100 to 200 years. Please address these necessary periods of rest, and not base its actions on the convenience of the livestock industry.	Length of rest periods will be based upon the achievement of the objectives stated in the action alternatives.

205	Katie Fite, Western Watersheds Project	Analysis of Past Treatment Areas. As part of this NEPA process, please assess all its post-fire rehab efforts and treatments in the past 30-40 years, or however long records have been kept. Following this, BLM must collect site-specific data on the current condition, health, wildlife, recreational and other values of these areas seeded post-fire. How many new fences, pipelines, troughs, etc. have been built using ESR funds, or put in place along with treatments? What impacts have they had? A complete analysis must be presented in this NEPA document.	All of the pertinent past actions were included in the Cumulative Effects section in Chapter 4 of the EA. Other improvements using ESR funds are not pertinent to the impacts of proposed treatments and have not been cataloged in this EA. These past improvements would have undergone their own NEPA analysis prior to implementation where the impacts were evaluated. Site-specific data has been collected throughout the project area as part of the overall watershed assessment process.
206	Katie Fite, Western Watersheds Project	Please assess impacts of poor pre-treatment land conditions and management on the outcomes of any post-fire recovery, and of the likelihood of success of any post-fire rehab.	The EA's assessment of impacts uses the current conditions of the land as the baseline, as documented through the watershed assessment process.
207	Katie Fite, Western Watersheds Project	We believe you must provide extensive analysis of impacts of any post-fire “salvage” logging or thinning. What are impacts to soils, vegetation, weed invasion risks, wildlife habitats, fisheries, recreational and other uses of the affected lands? What have been the impacts to, and what is the condition of, lands where this has occurred in the past?	Harvesting of downed wood may be permitted following treatments in specific circumstances determined by the Authorized Officer at the time of implementation. Considerations for potential restrictions were included in Section 2.3.1.6 Travel Restrictions.
208	Katie Fite, Western Watersheds Project	Are you potentially burning trees so as to dry out standing trees for future use in biomass in relation to various energy developments? What effects might development of a powerplant have on the affected lands and resources of the project areas?	The objectives for this project are stated in Section 1.3 Purpose and Need and do not involve any direct support for the biomass or energy industries.
209	Katie Fite, Western Watersheds Project	What is meant by “encroached”, or “invaded”, and what is the evidence of this?	Encroached is the term typically used to describe the spread of a species into an area where it historically has not been part of the natural vegetative distribution, according to the reference conditions determined by soil type.

210	Katie Fite, Western Watersheds Project	We request a tour, and hope to work with BLM on minimizing the adverse effects of disturbance actions as well as recovery actions for sensitive and imperiled species that do not raze one habitat in the name of "saving" another.	A tour was conducted August 24, 2011.
211	Katie Fite, Western Watersheds Project	CDs with Attachments will be sent separately.	No attachments or CDs have been provided.