



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Ely Field Office

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In Reply Refer to:
9214 (NV-044)

Dear Interested Party:

The preliminary environmental assessment (EA NV-040-08-07) for the *South Spring Valley Sagebrush Habitat Restoration Project* is enclosed for a 30-day public review and comment period. The EA can also be accessed on the Ely Field Office website at www.nv.blm.gov/ely/nepa/ea_list.htm.

Two action alternatives that would meet the project objectives along with the No Action Alternative (not completing the project) have been analyzed in the preliminary EA. Alternatives were analyzed based on input received during the public scoping process. The Proposed Action is currently the BLM's preferred alternative.

Comments should be received in the Ely Field Office by Thursday, May 22, 2008. Comments can be sent to the address listed in the letterhead above or by contacting Nicholas Brunson, Fire Management Specialist at (775) 289-1891 or e-mail at Nicholas_Brunson@blm.nv.gov. Also, if you wish to receive a copy of the final EA and Decision Record and remain on the mailing list for this project, please notify us.

Sincerely,

Cody Coombs
Field Manager
Schell Field Office

Enclosure: Copy of Preliminary EA NV-040-08-07

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

**Environmental Assessment NV-040-08-07
Month, Date, Year
04/17/2008**

**Project Title
South Spring Valley Sagebrush Habitat Restoration
Project**

Location:

**South Spring Valley
Township 8 North
Ranges 67 and 68 East
Lincoln County, Nevada**

Applicant/Address:

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1.0 BACKGROUND

1.1 Introduction

The project area analyzed in this environmental assessment (EA) is located in South Spring Valley within Township 8 North and Ranges 67 and 68 East; Mount Diablo Meridian (MDM); Lincoln County, Nevada (Map 1). The project area is located primarily along the lower and mid benches on the east side of the Fortification Range in the South Spring Valley watershed. The primary vegetation within the project area consists of sagebrush communities and established stands of pinyon and juniper. Perennial grasses and forbs occur at levels under site potential on a majority of the project area. The total project area parameter includes approximately 4,000 acres, although only an estimated 60 to 70 percent of the total acreage within the boundary is targeted for treatment. All of the lands within the project area parameter are public lands administered by the BLM.

The project proposed in this EA would facilitate the following goals:

- *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment, Ten-Year Comprehensive Strategy* was a policy developed in 2001 that placed emphasis on reducing risk to communities and the environment by managing wildland fire, hazardous fuels and ecosystem restoration and rehabilitation on both forests and rangelands. Three of the four goals outlined in this policy include: (1) Improve fire prevention and suppression; (2) Reduce hazardous fuels and (3) Restore fire adapted ecosystems.
- 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".
- The *Healthy Forests Restoration Act (HFRA)* (2003) was signed into law on December 3, 2003. It is designed to improve the capacity of the Department of Interior and the Department of Agriculture to implement the National Fire Plan and to conduct hazardous fuels reduction projects to protect communities, watersheds and other at-risk lands from catastrophic wildfire.

On August 22, 2002, President Bush announced the Healthy Forests Initiative for Wildfire Prevention and Stronger Communities. The Healthy Forests Initiative implements core components of the Cohesive Strategy agreed to by Federal, State and local agencies as well as Tribal Governments and stakeholders. The purpose of the Cohesive Strategy is to ensure a coordinated effort to provide fire protection for communities while improving the health of watersheds and vegetative communities.

The hazardous fuels reduction portion of the strategy states, "Assign the highest priority for hazardous fuels reduction to communities at risk, readily accessible municipal watersheds, threatened and endangered species habitat and other important local features where conditions favor uncharacteristically intense fires." (Protecting People and Sustaining Resources in Fire-Adapted Ecosystems: A Cohesive Strategy, page 9)

The South Spring Valley Sage Brush Restoration and Fuels Reduction Project responds to the fuels reduction element of the Cohesive Strategy.

1.2 Need for the Proposal

The South Spring Valley Watershed Evaluation Report has not yet been completed. The primary vegetation types within the South Spring Valley project area are Wyoming big sagebrush, Black and Wyoming sagebrush semi-desert, and pinyon/juniper woodlands. The Black and Wyoming sagebrush semi-desert and salt desert shrub vegetation type within the watershed have rating at FRCC 2. This indicates that fire regimes have been moderately altered from their historical range. Fire frequencies are departed from historical frequencies by multiple return intervals. Risk of losing key ecosystem components is moderate. Vegetation attributes have been moderately altered from their historical range. The Wyoming big sagebrush and pinyon and juniper woodlands within the watershed have a rating at FRCC 3. Fire frequencies are departed from historical frequencies by multiple return intervals. Risk of losing key ecosystem components is high. Vegetation attributes have been highly altered from their historical range. There is a need to assure each fuel type with the project area is within the natural regime. The goal is to meet FRCC 1 for each fuel type within the project area. Using data collected in soil surveys of the project area pinyon/juniper has encroached on a Wyoming sagebrush ecological site, which means that this area has been altered from their historic range in the FRCC rating.

Section 102(a)(8) of the Federal Land Policy and Management Act (FLPMA) of 1976 mandates that "the public lands be managed in a manner that will...provide food and habitat for fish and wildlife and domestic animals" In accordance with the FLPMA, the BLM's Ely District Office proposes to implement project 1 and 2 of the Lincoln County Sage Grouse Conservation Plan (LCP). Project 1 of the LCP intends to "Remove all trees within 0.5 miles of lek sites including pinyon, juniper and other tree species with exception of riparian species within the Lincoln population management unit (PMU)" using strategies to "Increase the amount and improve condition of sagebrush habitats by implementing all appropriate means to treat pinyon and juniper sites (e.g., mechanical, chemical and or prescribed fire) that are historic sagebrush ecological sites" followed by the implementation of these strategies (LCP, 2004). Project 2 of the LCP intends to "Remove large areas of pinyon and juniper from sites dominated by such and seed with appropriate grass/brush mixtures to reach desired plant communities. Convert sites that are transitioning, or have transitioned to pinyon and juniper dominated sites back into sagebrush grassland sites." Strategies for implementing project 2 are to "Use all appropriate means (e.g., mechanical, chemical and/or fire etc.) to treat pinyon and juniper sites that have the potential or were historically sagebrush habitats."

The implementation of this plan would occur through improving greater sage grouse habitat quality by restoring approximately 4,000 acres of marginal sage grouse habitat at sites with high restoration potential within a 5 km buffer zone of known sage-grouse lek sites. Marginal habitat

is characterized by poor nesting, brood rearing and foraging areas. There are large areas of decadent sagebrush with little or no understory vegetation in the project area. Replacement of native vegetation by invasive grasses has detrimentally affected habitat quality in previously suitable areas. Aggressive sagebrush establishment has also caused decreases in **perennial** grass cover and **forb** composition that in turn has reduced habitat diversity and condition in some areas. For these reasons the goals of the LCP include maintaining and improving existing sagebrush habitat, maintaining or increasing sage grouse populations, and restoring sagebrush plant communities (LCP, 2004). The treatment area is located in South Spring Valley as suggested by the LCP (Map 1).

1.2a Goals of the South Spring Valley Sagebrush Restoration Project

Table 1. Overview of the sage grouse habitat restoration project goals, objectives, and indicators of desired future conditions

Goals	Objectives for Quality Foraging and Nesting Habitat:	Indicators of Desired Future conditions based on the LCP(2004)*
<p>Improve sage grouse vegetative cover consistent with foraging and nesting needs</p>	<p>Objective 1: Reduce pinyon/juniper cover to promote re-establishment of sagebrush suggested by the LCP</p> <p>Objective 2: Restore the cover of perennial grasses and forbs based on the LCP</p>	<p>Perennial Grass >= 10% Basal Cover</p> <p>Forbs >= 5% Basal Cover</p> <p>Shrubs 15% to 25% Crown Cover</p>

*These figures are based on precipitation zones of 10-12" proposed treatment areas fall into an 8-10" precipitation zone. These indicators may be reduced to be more consistent with an 8-10" precipitation zone.

The proposal is being considered in order to achieve the following resource management goals:

- Reduce pinyon and juniper establishment on sagebrush ecological sites in order to improve the overall vegetative composition within the ecological site potential and improve the health, vigor and production of perennial grass, forb and shrub species
- Improve the available habitat for neighboring sage grouse, mule deer and elk populations
- Reduce the risk of large, uncontrolled wild fires by reducing fuel loading and continuity within the South Spring Valley watershed and meet FRCC 1
- Restore the historic disturbance regime within the project area

Resource management objectives include the following:

Short Term (immediately post treatment)

- Reduce the canopy cover of single-leaf pinyon (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*) by at least 75 percent on Wyoming big sagebrush (*Artemisia*

tridentata wyomingensis) and black sagebrush (*Artemisia nova*) ecological sites on an estimated 60 to 70 percent (approximately 2,400 – 2,800 acres) of the 4,000 acre project area parameter

Long Term (5 to 10 years post treatment)

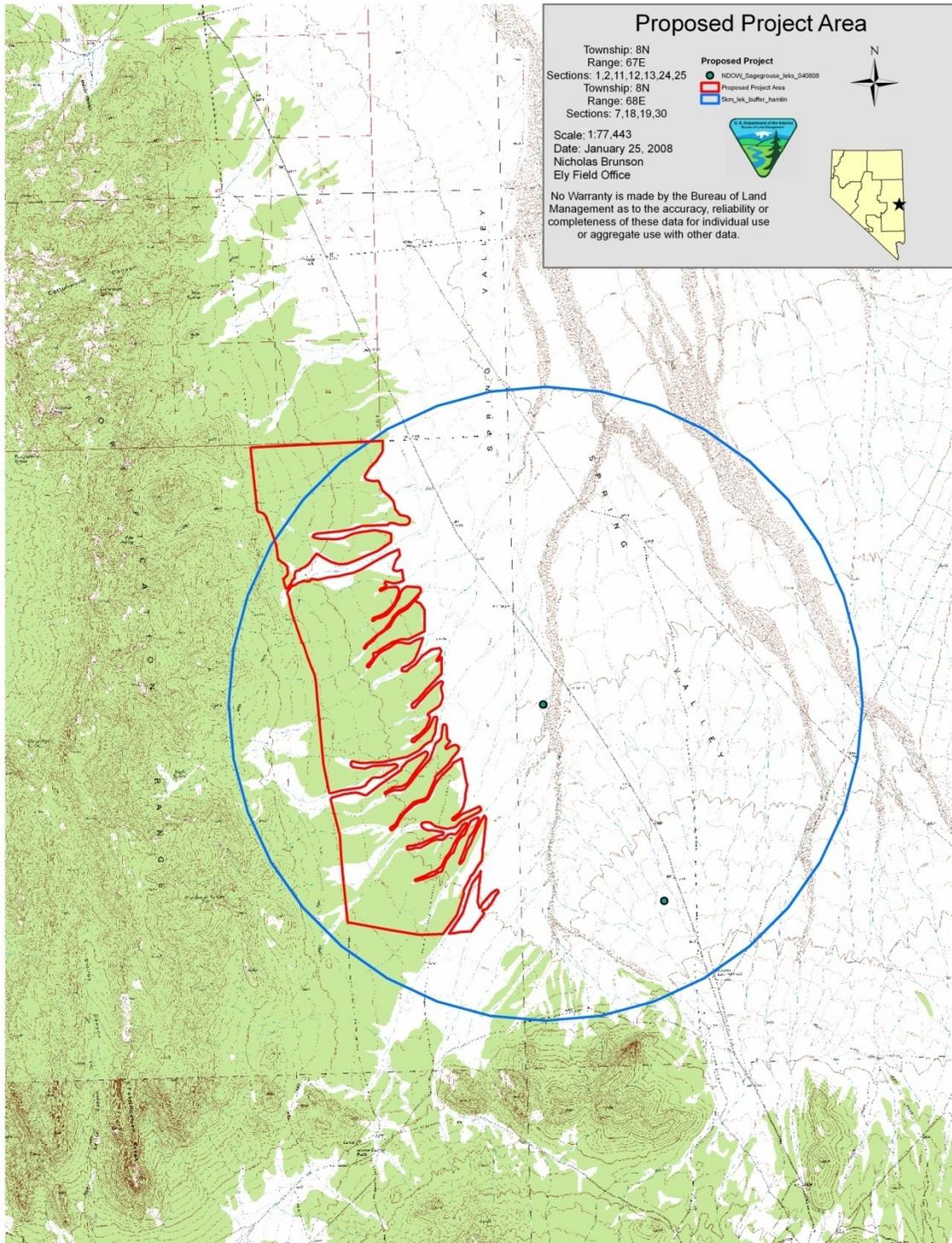
- Increase the percent composition by weight (lbs/acre) of perennial grasses and forbs to a minimum of 75 percent of the ecological site potential on sagebrush ecological sites within 5 to 10 years following completion of the proposed treatments
- Increase the percent composition by weight (lbs/acre) of sagebrush species to a minimum of 50 percent of the ecological site potential on sagebrush ecological sites within 5 to 10 years following completion of the proposed treatments

The targeted areas for treatment would include those areas identified in the South Spring Valley Watershed Analysis where pinyon and juniper trees have become established on sagebrush ecological sites. The project would be completed when funding and resources become available.

Pinyon and juniper woodlands throughout the Great Basin and other geographic regions are expanding onto habitats historically dominated by perennial grasses, sagebrush and other native shrubs (Tausch, 1999; Brockway, et. al, 2002; West, et. al, 1998). In some areas, long-term fire suppression efforts, excessive grazing impacts and drought-related conditions have led to the conversion of sagebrush/grass communities to areas dominated by homogenous stands of sagebrush, with declining, remnant populations of native perennial forbs and grasses. In some areas, the establishment of pinyon and juniper on sagebrush/grass sites has not only resulted in the loss of the grass and forb component, but in the decadence and low vigor of important shrub species such as antelope bitterbrush. When valuable grass, forb and shrub species decline, excessive surface runoff and soil erosion, reduced soil moisture and decreased groundwater recharge may occur (Bedell, 1993; Thurow, 2005). Reduced soil moisture and the competition of woody species for light, nutrients and moisture has resulted in reduced forage for wildlife, livestock and wild horses. Critical winter habitat and structural plant diversity needed by mule deer and other wildlife, continues to decline (Thurow, 2005; USGS, 2005). Additionally, on many woodland ecological sites, the natural diversity of successional stages has been changed toward a preponderance of mature even-aged stands which do not support a natural diversity of grasses, forbs and shrubs. Proper functioning ecological sites have a diversity of grasses, forbs, shrubs and trees and are essential to watershed integrity by stabilizing soils, promoting water infiltration and providing sufficient soil cover. A decline in the ecological condition of these plant communities adversely affects rangeland health, wildlife habitat, soil stability and other watershed values over the long-term. There is a need to restore ecological site conditions in order to improve a wide array of watershed values.

Key components of sage grouse habitat include adequate canopy cover of tall grasses and medium height shrubs for nesting, abundant forbs and insects for brood rearing and availability of riparian herbaceous species for late growing season forage (USDI-BLM, 2004). Management recommendations for the improvement and enhancement of sage grouse habitat include the control of pinyon and juniper establishment on sagebrush habitats with prescribed fire or mechanical methods (Commons et al. 1999, Miller and Rose 1999, USDI-BLM et al. 2000). There is a need to reduce the shrub and tree component and increase the herbaceous, understory species to meet sage grouse and other wildlife species habitat needs. The 2002 National Cohesive Strategy defines fire regimes as a generalized description of fire's historic role within an ecosystem. Table 1 outlines each fire regime group:

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1.3 Relationship to Planning

The Proposed Action and Alternative Action are in conformance with, and tiers to the analysis completed for the following Land Use Plan:

- Schell Resource Area Management Framework Plan (MFP) and Record of Decision (ROD) (approved in June and July of 1983, respectively) The Proposed Action and Alternative Action are in conformance with the following specific objectives and decisions:
 - CR-1 Develop protective measures for specific significant sites within the resource area.
 - W-1 Reduce soil loss and sediment production in the resource area.
 - WL-2 Increase present forage production to meet wildlife demand.
- ROD WL-2.0, WL-3.0, WL-4.0, WL-5.0, WL-7.0. “The goal of [...]promote plant diversity, make improvements in grazing management that take into account wildlife needs, promote riparian vegetation, and provide water” (ROD, p.4).
- ROD Wildlife 8. “Protect the crucial habitat of [. . .] sage grouse.” Crucial habitat is the habitat absolutely needed to sustain the existence of the wildlife during critical periods of its life cycle (ROD, p. 5).
- ROD Watershed 4, W-1.8. “Rehabilitate areas which have had vegetation cover destroyed by wildlife, flood, or mechanical disturbance [. . .]. Rehabilitation areas must be protected from grazing until adequate seedling establishment has been attained” (ROD, p.6).

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

- Schell Grazing Environmental Impact Statement (EIS) ROD (July of 1983)
- Final EIS- Vegetation Treatments Using Herbicides on BLM lands in the 17 Western States and Record of Decision (ROD) (approved in 2007)
- Ely District Managed Natural and Prescribed Fire Plan (2000) Page 13 of the *Programmatic EA for the Ely District Managed Natural and Prescribed Fire Plan (2000)* states that the management goals are to reintroduce fire using managed natural and prescribed fire, to allow fire to resume a more natural ecological role within the Ely District in designated areas and to reduce wildfire suppression costs and acres requiring rehabilitation. Pages 13 and 14 also state that the vegetation management objectives are to manage for the desired plant community for each vegetative type. The proposed project area is within the Northern Valleys and Southern Benches Fire Management Units (FMUs). The Proposed Action and Alternative Action are consistent with the resource objectives for these FMUs in that they support the use of prescribed fire and other treatments in order to enhance and improve rangeland health, forest health, habitat

conditions and other watershed values through vegetative regeneration, establishment, species diversity and age-class diversity.

- Final EIS - Vegetation Treatments on BLM Lands in Thirteen Western States (1991) "Selection Criteria for Treatment Methods" identified in the *Record of Decision for Vegetation Treatments on BLM Lands in Thirteen Western States* (page 3) states in part, "Tree removal will be considered where it is determined that pinyon/juniper stands or other woody species no longer meet the desired plant community due to crowding out of understory vegetation important for wildlife and livestock forage and watershed management." The objectives of the proposed project are in conformance with priorities 1, 2 and 3 identified in the above document (page 4).
- The Lincoln County Elk Management Plan (July 1999) 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, hunting guides, Lincoln County Public Lands Committee, Farm Bureau 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 231, which was identified as a maintenance area for project development for habitat improvement projects to improve habitat and promote growth of the elk herd. The estimated population of elk within Management Unit 231 was 330 animals in 1998, and long term goals were to have 900 animals within this unit.

1.4 Issues

Issues are impacts or potential impacts to the human environment. The identification of issues for this environmental assessment was accomplished by considering the resources that could be affected by implementation of the proposed action or any of the alternatives, as well as through involvement with the public and input from an interdisciplinary team. The issues identified were in regards to the resource conditions of soils, vegetation, woodland resources, riparian and wildlife habitat, noxious weed and invasive species infestations, cultural resources, other land uses in the area and the projected cost of implementing the project.

2.0 DESCRIPTION of PROPOSED ACTION and ALTERNATIVES

2.1 Proposed Action

The proposal is to conduct a sagebrush habitat improvement project along selected areas on the east side of the Fortification Range. This project will be done separately from the other proposed sagebrush restoration project in this same area. The targeted areas will be for a chaining treatment and would include areas identified in the South Spring Valley Watershed where pinyon and juniper trees have become established on sagebrush ecological sites. The total project area would include 4,000 acres. An estimated 60 to 70 percent (approximately 2,400 to 2,800 acres)

would be targeted for chaining treatments on the proposed 4,000 acre unit. The mechanical treatment, chaining, uses a large anchor chain approximately 100-200 feet long pulled in a “U” shape behind two tractors or dozers. Most green chaining are done as a two-way, meaning chained one way and then chained back the opposite way for higher tree mortality. Seeding of the project usually occurs after the one-way chaining of the project area.

Seeding would be conducted on the treated sites during the fall or early winter months, preferably prior to snow fall. Dominant, perennial, herbaceous species would be determined by using the appropriate Ecological Site Guides as developed by the USDA - Natural Resources Conservation Service (NRCS). Seeded species would include perennial species which are able to successfully compete with invasive annuals (e.g., cheatgrass) and are adapted to site characteristics. Seeding would occur through aerial application on the chaining treatment area.

All treatment areas that create surface disturbance would be inventoried for cultural resources to identify eligible (Historic Properties) and sensitive sites prior to implementing treatments. Identified cultural resource sites would be recorded and evaluated to determine eligibility for the National Register of Historic Places. Eligible cultural resources would be avoided or impacts mitigated as necessary before any surface disturbing treatments (i.e., mechanical thinning, chaining) are initiated.

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 claims which are presently staked would be avoided to the extent practical. Active mining claim markers that are destroyed 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 assure accurate, legal staking procedures that would minimize damage to claims.

The Ely Field Office Noxious Weed Prevention Schedule would be adhered to during all phases of project implementation. Mitigation measures identified in the Risk Assessment for Noxious Weeds (Appendix 8.1) would be implemented as part of the proposed action.

If any mining sites or dumps are discovered within the project area, chaining operations would avoid these sites in order to minimize risk from hazardous materials.

All utility lines and other rights-of-way (ROW) structures would be avoided during chaining operations. Above ground structures associated with buried utility lines would also be avoided in association with the chaining activities. Any potential ROW holders in the immediate vicinity of the treatments would be notified prior to conducting any chaining activities.

Raptor nesting sites would be identified and protected in areas of the proposed vegetative manipulation. Treatment designs that would minimize impact to any occupied pygmy rabbit habitat would be incorporated. All treatment actions would comply with the *Ely District Policy Management Actions for the Conservation of Migratory Birds* (Instruction Memorandum NV-040-2008-050) or the most current policy at the time of the treatments.

No new roads would be constructed or created during project implementation. Off-road travel with dozers and other heavy equipment would occur during chaining activities. Loading and unloading any equipment would occur on existing roads to minimize off-road disturbances and impacts.

Signs would be posted along roads within or adjacent to the treatment areas in regards to travel restrictions in order to assist in mitigating impacts from future cross country travel.

Livestock grazing would not be scheduled within the treatment areas during chaining practices. Following the mechanical treatments and seeding, livestock would not be allowed to graze within the treatment areas for two complete growing seasons or until the following vegetation objectives have been achieved:

- The establishment of at least 6 desirable, perennial plants per 9.6 square foot hoop or ten percent perennial vegetative cover

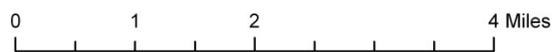
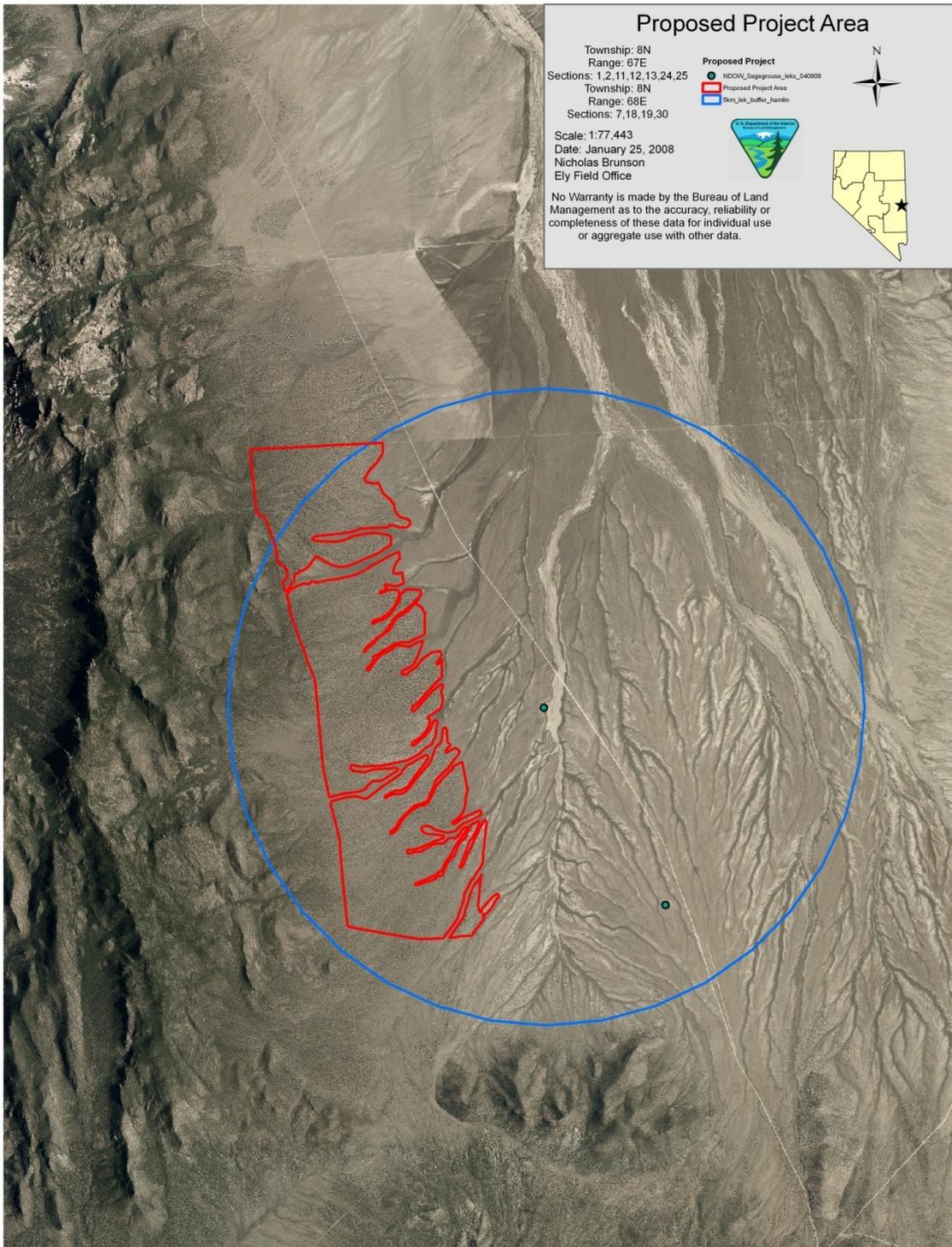
Progress towards meeting habitat objectives would be measured from selected monitoring sites using random density 9.6 square foot plots. Monitoring sites would be established within one year following treatment completion and measured annually. The closure period may be extended pending the rate of progress towards vegetative establishment. No new fencing is being proposed in order to prevent livestock from entering the treated areas. The livestock grazing permittee would be required to keep livestock out of the treatment area by employing other means of livestock control (e.g., herding or removing livestock from the allotments). Livestock grazing could resume as normally scheduled after the closure period, or when vegetation cover objectives have been met. An interdisciplinary team would conduct a review of 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.

The project area would be inspected prior to the mechanical treatments to solidify those areas targeted for each specific treatment in order to achieve the desired resource management objectives.

The treatment areas would be monitored following project implementation to determine success towards meeting resource management objectives. All monitoring techniques would follow BLM approved methods. Vegetative establishment would be monitored to determine if the project is promoting soil protection, providing forage and protective cover and improving the overall ecological and watershed conditions. All vegetative trend monitoring site locations would be marked and recorded. Common methods which may be used include, but are not limited to, line and point intercept for cover, belt transects with a macroplot for density and photographs. The treatment areas would be monitored to ensure any potential noxious weeds and undesirable species infestations are controlled. If noxious weeds are found, suppression measures would be taken. The noxious weed infestations would be reported to the Ely Field Office Weed Coordinator in order to be included on the treatment schedule as soon as possible.

Existing projects which occur within or adjacent to the proposed project area include the SNPLMA Sage brush restoration project. The projects would be inspected and repaired if damaged during implementation of the proposed treatments.

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2.2 Alternative Action

The alternative action is to conduct chemical treatments using a pellet form of the herbicide Tebuthiuron (trade name Spike 20P) along selected areas on the east sides of the north Fortification Range. The targeted areas for treatment would include areas identified in the South Spring Valley Watershed Analysis where pinyon and juniper trees have become established on sagebrush ecological sites. The total project area would include 4,000 acres. An estimated 60 to 70 percent (approximately 2,400 to 2,800 acres) would be targeted for chemical treatment

Tebuthiuron is an herbicide that primarily affects woody species (e.g., pinyon, juniper, sagebrush and other shrubs). The herbicide would be applied using aerial (helicopter or airplane) resources. The pilot will be required to have a pesticide applicator's license and the aircraft would need to be equipped to precisely dispense the herbicide. 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 Sheet provided for Spike 20P would also be adhered to.

Application rates and procedures would follow directions as listed on the herbicide specimen label for sagebrush, pinyon and juniper. Target areas for herbicide treatment would be those areas where pinyon and juniper have established on sagebrush ecological sites and sites where older, decadent, even-aged stands of sagebrush exist. Any areas containing stands of antelope bitterbrush would be avoided to the extent possible.

The preferred time of application would be during the fall prior to the first snow fall, however, the herbicide could be applied during 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 include a "no application" buffer zone of at least 100 feet from drainage bottoms and 300 feet around springs and perennial water sources. Project design features as listed on pages 1-33 to 1-34 in the *Final Environmental Impact Statement for Vegetation Treatment on BLM Lands in Thirteen Western States* would be incorporated. The standard operating procedures and project design features adopted in the *Record of Decision for Vegetation Treatment on BLM Lands in Thirteen Western States* would be incorporated as additional project design features. The above incorporated project design features provide prescriptions for herbicide treatment along with appropriate mitigating measures. The standard operating procedures listed in *Record of Decision for Vegetation Treatments Using Herbicides on BLM lands in 17 Western States* would be followed throughout the application of chemical treatments.

Herbicide effectiveness of Tebuthiuron depends on the soil depth and texture and the amount of clay and organic matter content of the soil. Information from the most current soil survey would be utilized or 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.

Vegetative monitoring, in order to determine treatment effectiveness, would be conducted in the same manner as identified under the Proposed Action.

No new roads would be constructed or created during project implementation. No off-road travel would occur during herbicide application (aerial application). Loading and unloading any equipment would occur on existing roads to minimize off-road disturbances and impacts. Signs would be posted along roads within or adjacent to the treatment areas in regards to travel restrictions in order to assist in mitigating impacts from future cross country travel.

Seeding would be conducted in the same manner as described under the proposed action.

The Ely Field Office Noxious Weed Prevention Schedule would be adhered to during all phases of project implementation. Mitigation measures identified in the Risk Assessment for Noxious Weeds (Appendix 8.1) would be implemented as part of the alternative action.

Following application, livestock grazing would be allowed to occur, until the total effects of herbicide were realized or when seeding was implemented. After seeding had occurred, livestock grazing would be scheduled the same as identified under the proposed action.

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.

The treatment areas would be monitored following project implementation to determine success towards meeting resource management objectives in the same manner as identified under the Proposed Action.

2.3 No Action Alternative

The No Action Alternative is the current management situation. Under this alternative, there would be no treatments applied within the project area and fuel conditions would continue to accumulate beyond levels representative of the natural (historic) fire regime. Habitat values would continue to decline as perennial, herbaceous and shrub understory would further be reduced in the long term.

2.4 Alternatives Considered but Eliminated from Detailed Analysis

One alternative considered was prescribed burning to thin or remove pinyon and juniper which has established on sagebrush sites. This alternative was eliminated from detailed analysis because of the difficulty in keeping fire within the targeted vegetation types and the inability to prevent the burning of the existing shrub and grass understory. The goal is to maintain the existing shrub and grass component and remove enough trees in order to allow the shrub and

grass component to reach ecological site potential. Cheatgrass invasion could occur with prescribed burning in this area also and was another factor considered with eliminating this alternative. The use of hand crews were considered and eliminated because of such a large project area, time frames for a contract would be too long.

3.0 DESCRIPTION of the AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES and CUMULATIVE IMPACTS

3.1 General Description

The proposed project area occurs within the South Spring Valley watershed. The area is located in Townships 8 North and Ranges 67 and 68 East. The area is located along the lower and mid benches on the east side of the Fortification Range. Elevations range from approximately 5,000 to 6,000 feet and slopes range from an estimated 2 to 15 percent. Annual precipitation levels average from approximately 8 to 14 inches. The primary vegetation within the project area consists of pinyon and juniper and sagebrush communities.

No wilderness areas, floodplains, waste (hazardous or solid), areas of critical environmental concern, wild and scenic rivers or prime or unique farmlands occur within the project area. No lower income or minority populations (environmental justice) would be disproportionately affected by the Proposed Action or any of the alternatives. The Fortification Wilderness Area occurs west of the project area.

The affected environment is described below followed by the environmental consequences for each resource.

3.2 Vegetation

Affected Environment

The primary vegetation within the project area consists of pinyon and juniper and Wyoming big sagebrush communities. Stansbury cliffrose is scattered across some portions, in the higher elevations of the project area. Perennial grasses and forbs occur at levels well below ecological site potential.

Native, perennial, cool-season¹ grasses within the project area include species such as Indian ricegrass (*Oryzopsis hymenoides*), needle and thread (*Stipa comata*), galleta (*Pleuraphis jamesii*), bottlebrush squirreltail (*Sitanion hystrix*), sandberg bluegrass (*Poa secunda*), Nevada bluegrass (*Poa nevadensis*), western wheatgrass (*Pascopyrum smithii*), sand dropseed (*Sporobolus cryptandrus*) and threeawn (*Aristida* L.). Non-native, perennial cool-season grasses

¹ cool-season plant A plant that makes most or all of its growth during the winter and early spring when ambient air temperatures are cooler [e.g. Indian ricegrass (*Oryzopsis hymenoides*), crested wheatgrass (*Agropyron cristatum*), needle and thread (*Stipa comata*), bottlebrush squirreltail (*Sitanion hystrix*), globemallow (*Sphaeralcea*)] (American Society for Range Management, 1964).

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. Warm-season² grasses are not common within the project area. 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*), Stansbury cliffrose (*Purshia stansburiana*), antelope bitterbrush (*Purshia tridentata*), serviceberry (*Amelanchier sp.*), Douglas' rabbitbrush (*Chrysothamnus sp.*), and Nevada ephedra (*Ephedra nevadensis*). Some of the sagebrush communities are comprised of older, even-aged, decadent plants which have low vigor and poor nutritional value for browsers. The primary tree species are single-leaf pinyon pine (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*).

There has been an overall reduction in the production and vigor of perennial, cool-season grasses and native forbs on sites within the proposed treatment areas and also in the production and vigor of the Wyoming big sagebrush. Pinyon and juniper is becoming established on sagebrush habitats within the proposed treatment area which are, historically comprised of native shrubs and grasses.

Tree Density data was collected close to the northern boundary of the proposed project area and also near the southern boundary. Plots were randomly selected areas where tree densities could be collected with a variation of levels in which pinyon and juniper occur on sagebrush ecological sites. Areas where sagebrush and tree densities were about equal, tree densities were calculated at 54 trees per acre, but in areas where pinyon and juniper dominated the site tree densities were calculated at 183 trees per acre. Juniper is the primary tree cover occurring on site with some pinyon trees scattered throughout the upper elevations of the proposed project area.

Direct and Indirect Impacts

Under the Proposed Action, vegetative 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 to provide a more palatable and nutritional source of forage for livestock, wildlife and wild horses and also protect the soil resource and other associated watershed values. The rejuvenation of decadent, even-aged stands of sagebrush and reducing the establishment of pinyon and juniper would assist in improving the ecological condition of sites within the project area. It is expected that the plant species diversity and the plant species composition would be in better balance with the endemic³ native wildlife needs when at ecological site potential. The expansion of pinyon 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 succession⁴. The proposed

² warm-season plant A plant that makes most or all of its growth during the spring and summer [e.g. galleta (*Pleuraphis jamesii*), blue grama (*Bouteloua gracilis*), bush muhly (*Muhlenbergia porteri*)] (American Society for Range Management, 1964).

³ endemic restricted or peculiar to a locality or region

⁴ succession change in the vegetative composition of an ecosystem due to plant response from human-induced impacts and natural changes in the environment

treatments would help the project area meet FRCC 1 by reducing fuel loading and continuity. Residual woody vegetation which would consist of slash/biomass created from mastication equipment or scattered trees from the chaining treatment would provide protection to regenerating grasses and shrubs which could be grazed by wildlife and wild horses. 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 South Spring Valley watersheds in conforming to the Standards and Guidelines for Nevada's Mojave and Southern 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."

Under the Alternative Action, overall impacts to vegetative communities are expected to be very similar to those as described under the Proposed Action. The primary difference is that vegetative response under the Alternative Action may occur at a slower rate due to the time required for the herbicide effects to occur. More standing woody vegetation is expected to remain under the Alternative Action for an undetermined period of time. Aerial application of the herbicide would result in less ground disturbance than that of the chaining, thus resulting in a lower possibility of cheatgrass invasion. The affected woody plants are expected to remain standing following the effects of the herbicide, until such time that standing dead plant material degrades and falls naturally. The residual woody vegetation would continue to provide some protective cover for wildlife species. Once the affected woody vegetation degrades and is no longer standing, some protection would be provided from grazing and browsing to the grasses and shrubs which have established. Although livestock would not be allowed to graze or browse the treatment areas until some vegetative establishment has occurred, wildlife and wild horses would have access to the treatment areas at all times. As mentioned under the Proposed Action, 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 Alternative Action would not provide protection for intense wildfire behavior for the short term, as dead needles would be present for approximately 3 to 5 years. Once the needles drop, the potential for intense fire behavior would be reduced by eliminating the chance for crown fires. Fuel types which consist of standing tree canopy present a unique fire hazard with the potential for crown fires. Crown fires typically burn at higher wind speeds and are more difficult to control. Under dry conditions and at high wind speeds, the possibility of total vegetative loss from intense wildfire will be reduced under the Proposed Action.

Conformance with the Standards and Guidelines for Nevada's Mojave and Southern Great Basin and the Fundamentals of Rangeland Health (Title 43 CFR 4180) would be expected within the treatment areas under the Alternative Action.

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 native and non-native, perennial grasses and native shrubs would decline in the long-term due to a combination of factors including potential overgrazing and browsing by livestock, wildlife and wild horses; competition for nutrients, sunlight and water with older, decadent shrubs and the establishment of pinyon and juniper, and a lack of disturbance (ie. Wildfires). Future drought related factors would also contribute to the decline in condition of upland vegetative communities. The increase of pinyon and juniper in 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 No Action Alternative may also eventually prevent portions of the allotments within the project area from conforming to the Standards and Guidelines for Nevada's Mojave and Southern Great Basin and the Fundamentals of Rangeland Health (Title 43 CFR 4180).

Cumulative Impacts

Cumulative impacts are the effects on the environment which result from the incremental impacts of actions in this EA when added to other past, present and reasonably foreseeable actions. 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 which have burned. Long term changes in ecological conditions affect vegetative diversity and habitat quality. Past actions to adjust livestock, wild horse 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. Implementing the Proposed Action, Alternative Action or a combination thereof, combined with present and future actions, would improve the overall condition of vegetative communities, their resiliency to future disturbance and provide a mosaic of differing ecological conditions which would reduce and minimize cumulative impacts.

3.3 Soils

Affected Environment

The primary soil mapping units within the project area include the Yotes-Sevenmile Association, the Cath-Chuckridge Association, and the Chuckridge-Cath-Sevenmile Association (USDA - NRCS, 2005).

The Yotes-Sevenmile Association occurs from 5,400 to 7,000 feet in elevation and within the 8 to 12 inch precipitation zone (PZ). These soils occur on slopes from 2 to 15 percent. The soil

association is comprised of gravelly ashy loams; ashy sandy loams; gravelly loams; fine sandy loams and silt loams. These soils are well drained, have moderate to moderately rapid permeability⁵ and have low to very low runoff potential.

The Cath-Chuckridge Association occurs from 5,900 to 6,500 feet in elevation and within the 8 to 12 inch PZ. These soils occur on slopes from 0 to 8 percent. The soil association is comprised of gravelly loams; gravelly, fine, sandy loams and silt loams. These soils are well drained, have moderate permeability and have medium to very high runoff potential.

The Chuckridge-Cath-Sevenmile Association occurs from 6,150 to 6,750 feet in elevation and within the 8 to 14 inch PZ. These soils occur on slopes from 0 to 15 percent. The soil association is comprised of gravelly sandy loams; ashy sandy loams and gravelly loams. These soils are well drained, have moderately slow permeability and have very low to very high runoff potential.

The project area is within Major Land Resource Area (MLRA) 28A. The physiographic, climatic, soils and vegetative characteristics of these sites are outlined in USDA - NRCS Ecological Site Descriptions (2003).

Direct and Indirect Impacts

Under the Proposed Action, there would be minimal soil erosion expected from implementation of the thinning and chaining treatments. The thinning and chaining treatments would target pinyon and juniper trees which have established on sagebrush ecological sites and older, decadent stands of sagebrush. Under the thinning treatment, minimal to no impacts are expected to the existing grass and shrub communities which would remain on the site and provide for soil protection and stability. Under the chaining treatment, impacts to the existing grass community and younger shrub communities are also expected to be minimal. Chaining would remove the targeted pinyon and juniper trees and older, decadent shrubs on the project site. The grasses and younger shrubs would remain and continue to provide for soil protection and stability and the trees and larger shrubs which were chained would be left on the landscape in a scattered fashion. The scattered material would provide a protective layer for soils from erosion and promote soil fertility by increasing organic matter over time through decomposition. The recruitment and establishment of perennial grasses and native shrubs following both the thinning and chaining treatments would further promote soil health over the long term along with assisting the ecological sites in achieving site potential. However, once the treatment area is seeded and perennial grasses and shrubs become established, soils would be protected from erosion due to increased ground cover by the deeper rooted grasses and shrubs. Over the long term, standing plant density is expected to increase and plant biomass or litter is expected to increase which will stabilize and protect the soil resource. No new roads would be constructed or created during the treatments, therefore, future soil disturbance from vehicular travel should be limited.

Under the Alternative Action, erosion potential would increase as the effects from the herbicide occur, as vegetation would not be able to intercept raindrop or overland flow impact. Erosion

⁵ permeability The movement of water and air through the soil which is affected by all soil characteristics such as texture, structure and consistence (Land Judging in Oklahoma, 1979).

impact potential should be minimal for the first few years, as vegetation would be removed at a slower rate over a period of time. The impacts would be expected to be the greatest after the second year of implementation when herbicidal effects to vegetation are noticeable. Seeding in areas with minimal understory would mitigate impacts to soil erosion. Once perennial grasses and native shrubs have established on the treated sites, erosion and runoff potential is expected to be minimal.

Under the No Action Alternative, current erosion rates would continue until such time that an uncontrolled wildfire occurs. If trees continue to establish on sagebrush ecological sites, the perennial grass and shrub component would continue to be reduced. Following an uncontrolled wildfire event which removes a majority of the vegetation on site, the soils would be more exposed and vulnerable to water events. Grasses and shrubs regenerate at a much faster rate than tree species. If the grass and shrub component continues to be reduced over time and a high intensity wildfire event occurs in the area, regeneration from vegetation would be minimal after a fire and the likelihood of cheatgrass establishment becomes much greater. Soils would be more vulnerable to erosion due to the absence of desirable, perennial grasses and native shrubs which provide much greater protection to soils than undesirable annuals due to root depth and longevity. Higher erosion rates would occur and increased potential for gully formation. Sedimentation in lower drainage areas is expected to occur under such a situation.

Cumulative Impacts

Past actions, such as from wildfires, have increased soil erosion on areas outside the proposed project area. 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 would persist. 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, Alternative Action or a combination thereof 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.

3.4 Wildlife; Migratory Birds; Special Status Species (Federally Listed, Proposed or Candidate Threatened and Endangered Species); State Protected Species; BLM Sensitive Species

Affected Environment

The South Spring Valley Watershed is within the Spring Valley/Garrison Sage Grouse Population Management Unit (PMU) and has 6 known sage grouse leks within the watershed boundaries. There are 126,260 acres of sage grouse nesting habitat; 150,635 acres of summer habitat and 197,198 acres of winter habitat; the total year-long sage grouse habitat is 204,731 acres. The South Spring Valley Watershed is also within the Lincoln Sage Grouse PMU and has

3 known sage grouse leks within the watershed boundaries. There are 10,159 acres of sage grouse nesting habitat; 39,526 acres of summer habitat and 11,949 acres of winter habitat. Sage grouse year long habitat occurs along the eastern edge of the proposed project area, and there are two known leks within 1/2-2 miles from the project area.

Direct and Indirect Impacts

Under the Proposed Action, there would be an overall net benefit to mule deer, elk, pronghorn antelope and sage grouse populations within the project area by improving vegetative production, regeneration, diversity and vigor. Ecological conditions should be improved and progress towards the potential natural community. There would be a net overall increase in perennial grasses and forbs and regeneration in the existing shrub community. Woodland sites would remain and continue to provide soil protection on those sites as well as thermal protection and escape cover for many species. The treatments would leave a mosaic pattern of vegetation in the area, with natural woodland sites being undisturbed and grass and shrub communities targeted for restoration. A mosaic pattern is expected to benefit wildlife populations by allowing for greater vegetative diversity, diverse age-class distribution and a patchiness effect which provides thermal and protective cover. However, once the treatment area is seeded and perennial grasses and shrubs become established, habitat values in terms of forage and protective cover would improve as ground cover by deeper rooted perennial grasses and shrubs would establish and increase over time. The establishment of desirable, perennial herbaceous and shrub species would benefit wildlife species such as sage grouse, mule deer, elk and smaller birds and mammals. The Proposed Action is expected to meet the key components of sage grouse habitat requirements and is expected to achieve the resource management objectives at a more rapid rate than any of the alternatives. Sage grouse year long, summer, winter and brooding and nesting habitat occur along the eastern edge of the proposed project area. The proposed action would reduce predation by raptors and would increase the range of area use by sage grouse. Trees left on the ground from chaining could provide great habitat for nesting birds and also may provide area for new leks.

Implementation of the Proposed Action is expected to benefit wildlife populations, the associated habitat conditions and assist the South Spring Valley watershed in conforming with Rangeland Health Standard 3 (Habitat) which states the following:

"Habitats exhibit a healthy, productive and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species."

As indicated by:

*Vegetation composition (relative abundance of species);
Vegetation structure (life forms, cover, heights or age classes);
Vegetation distribution (patchiness, corridors);
Vegetation productivity and vegetation nutritional value"*

Under the Alternative Action, there would also be an overall net benefit to mule deer, elk, pronghorn antelope and sage grouse populations within the project area by improving vegetative production, regeneration, diversity and vigor as mentioned under the Proposed Action. There would be a net overall increase in perennial grasses and forbs and regeneration in the existing shrub community. Woodland sites would remain and continue to provide soil protection on those sites as well as thermal protection and escape cover for many species. Ecological conditions should be improved and progress towards the potential natural community should be achieved.

Progress towards meeting the objectives is expected to occur at a less rapid rate than under the Proposed Action.

Implementation of the Alternative Action is also expected to benefit wildlife populations, the associated habitat conditions and assist the South Spring Valley watershed in conforming with Rangeland Health Standard 3 (Habitat) as mentioned above under the Proposed Action.

All treatment actions would comply with the *Ely District Policy Management Actions for the Conservation of Migratory Birds* (Instruction Memorandum NV-040-2008-050).

Under the No Action Alternative, resource conditions are expected to stay the same for a short-term period. The continued establishment of pinyon and juniper onto sagebrush ecological sites and the continued decline in the production, vigor and diversity of grass, forb and shrub species would result in a further decline in habitat conditions. Forage values would continue to decline in terms of both nutrition and palatability. The build-up of pinyon, juniper and increase in the amount of decadent stands of sagebrush communities could result in an eventual large, uncontrolled wildfire which has the potential to eliminate large acreages of existing habitat for an undetermined period of time. The increase in pinyon and juniper on sagebrush ecological sites would result in a decline in the local sage grouse populations through a reduction in food availability and a decrease in suitable nesting cover. Sage grouse are further affected by pinyon and juniper establishment on sagebrush habitats. The increase in pinyon and juniper on sagebrush habitats potentially limits available strutting grounds, summer habitat and nesting habitat. The desired range of conditions suggests that approximately 40 percent of these communities should be in the shrub dominant state and 60 percent in the herbaceous dominant state. This type of condition would afford habitat resilience and meet habitat needs for sagebrush obligates.

Cumulative Impacts

Cumulative impacts on wildlife habitat within the project area include past seedings and water developments. Cumulative impacts on wildlife could include livestock grazing; road construction and maintenance; recreation activities including off-highway travel, camping and hunting; fence construction; uncontrolled wildfire and rights-of-way construction. 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, providing long-term cumulative benefits to wildlife. BLM policy and guidance on sage grouse; raptors; pygmy

rabbits; migratory birds and threatened, endangered and special status species would help to reduce overall impacts to the species.

3.5 Riparian and Wetland Areas

Affected Environment

There are no perennial water sources (springs) within the proposed project area. There are some natural springs that are located east of the project area in the upper elevations of the Fortification range.

3.6 Wild Horses and Burros

Affected Environment

The South Spring Valley watershed contains a portion of the Wilson Creek Wild Horse Herd Management Area (HMA). The Appropriate Management Level (AML) for the entire HMA is 160 wild horses. Wild horses move freely across public lands. The proposed project area is used by wild horses on a regular basis. Wild horse use occurs primarily in the summer and fall, but some year-round use does occur by individual bands.

Direct and Indirect Impacts

Under both the Proposed Action and the Alternative Action, additional forage should be provided and the habitat structure should be changed for wild horse populations. Currently, wild horses in the South Spring Valley watershed use the pinyon and juniper for shelter and escape cover. The pinyon and juniper are important habitat components for wild horses, but the proposed treatment would not eliminate enough protective and escape cover to adversely affect the existing wild horse population. The proposed treatment should result in a subsequent increase of perennial, herbaceous plants which are important for the maintenance of wild horses, rangeland health and multiple other watershed values.

The increased activity within the project area could lead to increased shyness by resident wild horses. Wild horses are not expected to be harmed by aerial application of herbicide. Wild horses are also not expected to be harmed by chaining, as they will readily avoid these activities.

Under the No Action Alternative, no changes in management would occur. Habitat for wild horses would continue to change resulting in more pinyon and juniper woodlands, more decadent shrubs and less perennial, herbaceous plants for forage. There would be increased user conflict between livestock, wildlife and wild horses due to competition for desirable forage. Rangeland health would continue to decline which would affect multiple watershed values over the long-term.

Cumulative Impacts

Cumulative impacts on wild horses within the project area include past seedings and water developments. Cumulative impacts on wild horses could include livestock grazing; road construction and maintenance; recreation activities including off-highway travel, fence construction; uncontrolled wildfire and rights-of-way construction. 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, providing long-term cumulative benefits to wild horses. BLM policy and guidance on wild horses and the implementation of appropriate management levels (AML) would help to reduce overall impacts.

3.7 Livestock Grazing

Affected Environment

The project area lies within the Cottonwood No. 00132 grazing allotments. The permitted grazing use on these allotments is as follows:

Cottonwood Allotment No. 00132

Livestock	Season of Use	Scheduled AUMs	Preference (AUMs)		
			Active	Conservation	Authorized
250 Cattle	11/01-06/15	2,248	1,862	386	2,248

Cottonwood Allotment: The total preference for the allotment includes 2,248 AUMs. Of the total, 386 AUMs will be placed in mandatory non-use each year. Historical total preference was 4,106 AUMs, a grazing decision on May 2, 1997 resulting in 1,858 AUMs being suspended. 1,862 AUMs, of the total 2,248 AUMs, are in active use. There are four fenced crested wheatgrass seedings within the allotment totaling in 2,300 acres. All 2,248 AUMs are allocated to cattle.

Direct and Indirect Impacts

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, wildlife and wild horses 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 of the Standards and Guidelines for Mojave-Southern 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 potential natural community.

Implementation of the Proposed Action would eventually improve overall livestock performance and improve the economic stability of the permittees due to an increase in the quantity and quality of grasses and other herbaceous forage which are important to livestock grazing. With an increase in the production and vigor of herbaceous plant communities, the forage base would probably more adequately support the existing herd sizes and would improve overall livestock performance (e.g. increased cattle weights, increased calving crops, increased weaning weights, etc.). The Cottonwood allotment supports a traditional and historical lifestyle for livestock permittees in the South Spring Valley watershed. The permittees are dependent on these allotments to help generate a large portion of their annual income. Implementation of the Proposed Action should assist in eliminating any future conflicts between livestock, wildlife and wild horses.

Currently, livestock grazing use does occur within the proposed project area, but due to increasing pinyon and juniper trees most use within the project area would be most likely for shade during summer months. Therefore, implementation of the Proposed Action should not result in any short-term economic affect 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 complete growing seasons or until vegetation management objectives have been met as identified under the proposed action. The rest period may be extended pending the rate of progress towards vegetative establishment.

Seed germination, drought-related influences, wildfire or other natural unforeseen 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.). Seedling 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 those 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 the permittees by providing more palatable, nutritious forage for livestock due to the establishment of seeded perennial vegetation and due to the recovery and improved vigor of existing vegetation. Overall, more palatable vegetation should be available on the allotments for livestock, wildlife and wild horses. Long-term viability of the vegetative treatments would be expected so long as utilization levels are within acceptable limits and the season of use corresponds with plant phenology characteristics. Any adjustments in stocking levels, the incorporation of management guidelines such 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. Less than 10 percent of the allotment is identified for treatment. The proposed project area lies east

and west of the areas currently used by livestock. Cattle use occurs in the valley bottom during the late fall through the early spring season and cattle have grazed into the tree covered areas to utilize the shade of the trees.

Under the Alternative Action, long term impacts to livestock performance would be very similar to those impacts described above under the Proposed Action. As mentioned under the Proposed Action, no reduction or increase in livestock permitted use would occur as a result of increased forage availability from the project. The potential for meeting vegetation objectives through herbicide application (Alternative Action) is expected to be similar to the chaining treatment (Proposed Action). The short term impacts and long term resource benefits are also expected to be very similar.

Impacts to the permittees' grazing schedules would be very similar to those as described under the Proposed Action. The primary difference is that grazing and herding by sheep would probably not occur on the proposed treatments areas under the Alternative Action until the needles drop from the trees which would probably occur within 3 to 5 years. Until the needles drop from the standing dead trees, herding sheep would likely continue to be difficult as it currently is with the dense live tree cover.

Under the No Action Alternative, there would be no short term impacts to the current livestock grazing on the Cottonwood allotment. In the long term, forage species for livestock would continue to diminish as pinyon, juniper, sagebrush and undesirable annuals increased in density and grasses and forbs declined. 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 wild horses and competition for nutrients, sunlight and precipitation with older, decadent shrubs and expanding pinyon and juniper woodlands. Future drought related factors would also contribute to the decline in condition of upland vegetative communities. The expansion of pinyon 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. Grazing areas would be reduced over a period of time. With continued forage decline, adjustments to the permitted grazing use would likely be required which would financially impact the grazing permittees over the long term. Conformance with Standard No. 1 of the Standards and Guidelines for the Mojave-Southern Great Basin Area and the Fundamentals of Rangeland Health (Title 43 CFR 4180) would likely not be met due to the continued declines in the quantity and quality of herbaceous vegetation and preventing those ecological sites from achieving the potential natural community.

The No Action Alternative is expected to eventually affect overall livestock performance and the economic stability of the permittees due to a reduction in the quantity and quality of grasses and other herbaceous forage which are important to sheep and other grazing animals. With a reduction in the production and vigor of herbaceous plant communities, the forage base would probably not adequately support the existing herd sizes and would adversely affect livestock performance (e.g. decreased cattle weights, decreased calving crops, decreased weaning weights, etc.). The Cottonwood allotment supports a traditional and historical lifestyle for the permittees

in South Spring Valley watershed. The permittees are dependent on the allotments to help generate a large portion of their annual income.

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, wildlife and wild horses.

Cumulative Impacts

Past actions within the proposed project area have impacted livestock grazing by reducing livestock numbers. 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 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. Present actions combined with reasonably foreseeable future treatments could 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, reduce erosion potential and improving water quality; and increasing the quantity and quality of forage for livestock use which would promote herd health and economic stability. Over a period of time, forage conditions would improve which would benefit long term livestock grazing management. Overall, cumulative impacts would be negligible, if any.

3.8 Wilderness Values, Visual Resource Management and Recreation

Affected Environment

No special wilderness designations occur within the proposed project area. The Fortification Wilderness area is located approximately one half mile to the west of the proposed project area. Recreation opportunities within the area include hunting, heritage tourism, off-highway vehicle use and horseback riding. The project area occurs within a Visual Resource Management (VRM) Class IV zone. The objective of Class IV zones is to provide for management activities which require major modification of the existing character of the landscape.

Direct and Indirect Impacts

Under the Proposed Action, there would be no adverse impacts anticipated to visual resources from the thinning and chaining activities. All actions under the Proposed Action would comply with BLM VRM Design Procedures in BLM Manual 8400. In the long term, restoration to proper functioning ecological sites would improve visual resources within the project area. Recreation opportunities may be limited for the short term during the treatment phase. Thinning

and chaining activities may lead to future cross country travel by reducing vegetation barriers to vehicles. Posting signs along roads within or adjacent to the treatment areas in regards to travel restrictions would assist in mitigating impacts from future cross country travel. Once desirable vegetation has re-established, hunting opportunities and wildlife viewing opportunities would be improved due to the increase in palatable forage for wildlife species such as mule deer, elk and sage grouse. Sufficient vegetation for thermal cover and protection would remain around the parameter of the proposed thinning and chaining treatment areas.

Under the Alternative Action, direct impacts to visual resources would include stands of dead sagebrush and pinyon and juniper as the result of the herbicide application. All actions under the Alternative Action would comply with BLM VRM Design Procedures in BLM Manual 8400. The application of herbicides would not result in temporary or long term limitations on recreation opportunities within the project area. It is not anticipated that increases in cross country travel would occur over the short term. Over the long term, the potential for cross country travel may increase once dead woody plant material decomposes or is removed through the use of biomass. However, posting signs along roads within or adjacent to the treatment areas in regards to travel restrictions would assist in mitigating impacts from future cross country travel. Over the long term, hunting opportunities and wildlife viewing opportunities for mule deer, elk and sage grouse would be improved due to an overall improvement in habitat conditions.

Under the No Action Alternative, impacts to recreational opportunities such as hunting and wildlife viewing would be impacted in the long term due to declining habitat conditions for mule deer, elk and sage grouse. The potential exists for impacts to visual resources and other recreational opportunities in the long term if a large, uncontrolled wildfire were to occur.

Cumulative Impacts

Cross country vehicular travel within the proposed project area has occurred for several years. The Proposed Action and Alternative Action may contribute to impacts of past and present cross country vehicular travel by allowing for easier access by removing existing vegetative barriers. Future actions such as the development of travel management plans would help eliminate cross country vehicular travel. Recreational opportunities such as hunting and wildlife viewing have also occurred within the project area for several years. Present vegetation treatments combined with future vegetation treatments would improve overall habitat conditions for wildlife and promote better hunting and wildlife viewing opportunities over the long term.

3.9 Cultural Resource Values

Affected Environment

Cultural resources sensitivity for the Project Area based on the sensitivity model (Drews and Ingbar, 2004) shows the project area to be mostly in the moderate range with areas of high and low. The project area is located near the historic Atlanta Mining District and within an active ranching region. Therefore both prehistoric and historic cultural resources are expected requiring cultural resource inventories for any ground disturbing activities.

Direct and Indirect Impacts

Under the Proposed Action, cultural resources could be affected. There is a possible risk that mechanical equipment could damage or destroy some resources. However, this risk would be minimal as mitigation measures would be implemented prior to conducting the proposed thinning treatment or the proposed chaining treatment in order to minimize the potential for impacts to eligible cultural resources and historic structures. Impacts to these resources would not occur through seeding on the thinning and chaining units, as seeding would be conducted through aerial methods. Due to the expected ground disturbance a cultural resource inventory will be conducted and all eligible cultural resources would be avoided or impacts mitigated as necessary before the surface disturbing mechanical treatments (i.e., chaining) are initiated.

Under the Alternative Action, radiocarbon dating issues and concerns have risen from other consultation efforts regarding the effects of Tebuthiuron on cultural resources. Based on previous discussions and research for similar projects conducted by BLM Ely Field Office personnel, it has been determined that radiocarbon dating associated with rangeland treatment of Tebuthiuron on cultural resources had minimal affects. For the Alternative Action, there would be no cultural inventory conducted. Since there would be no prescribed burning, fire sensitive resources would not be at risk. However, Historic Properties and cultural sites would continue to be at high risk of wildfire, maybe more so as the vegetation changes occur following treatment over approximately a four-year period. Extensive dead, woody vegetation would be available and be susceptible to natural fire events with a potential higher than normal fire intensity during the first few years.

Under the No Action Alternative, there would be no immediate impacts to cultural properties. However, in the long term, the vulnerability for impacts with potential disastrous results to these resources could result. Historic properties and cultural resources could be destroyed by future wildfire due to a continued increase in dense vegetation. In addition, the increase of dense vegetation such as sagebrush and pinyon and juniper trees reduces the understory species and impacts cultural sites by increasing their vulnerability to erosion during heavy rain events.

The Proposed Action and Alternative Action would conform with Rangeland Health Standard 4 (Cultural Resources) which states the following:

"Land use plans will recognize cultural resources within the context of multiple use."

Cumulative Impacts

Extreme wildfires threaten the entire complex of cultural resources (fire sensitive and non-fire sensitive type sites) for an area. Future fuels treatments and wildland fire use for resource benefits, if applied in thoughtful consideration of the known historical resources, could prolong the existence of most of these resources. The inevitable vegetative changes in South Spring Valley could adversely impact cultural resources on a site-specific basis as pinyon and juniper increases and sagebrush/grass communities are reduced. Planned activities such as fuels treatments have overall beneficial effect on cultural resources by protecting the resources before

a large, uncontrolled wildfire or erosion events occur. A wildfire proposes the opposite side of the spectrum in its unplanned randomness and tendency to produce effects on fire sensitive cultural features over larger areas.

3.10 Fire and Hazardous Fuels

Affected Environment

The proposed project area is within the Northern Valleys and Southern Benches Fire Management Units (FMUs) as described in the Ely District Managed Natural and Prescribed Fire Plan (2000).

Historically, the South Spring Valley area and adjacent mountains were fire adapted. Fire played a regular disturbance role in the ecosystem. Fire exclusion has occurred throughout the west since Europeans arrived, which is thought to have affected the natural role of fire. Vegetation volume has increased, and vegetative composition has changed as a result of this natural disturbance alteration resulting in mature sagebrush with increasing dead to live woody material and decreasing understory grasses and forbs. Fires prior to European settlement once carried through fine fuels and created structural and age class diversity in sagebrush sites. According to Miller and Tausch (2001), infrequent fires in the past 130 years have allowed pinyon and juniper to establish on sagebrush sites. This fuel type presents a unique fire hazard as the potential for crown fire is higher. Crown fires typically burn at higher wind speeds and are more difficult to control. When this occurs, fires are usually stand replacing with crown fire domination. When fires occur with little wind, as when a high pressure system is in place over the area, fires will typically burn minimal trees.

Fire history and fire effects in the Great Basin are a vital component of resource health. There is evidence to support the existence of repeated wildland fires in eastern Nevada. It is not uncommon to find thin lines of charcoal exposed in arroyo cuts, marking episodes of prehistoric burning. Often, more than one episode is visible in the exposure. In the pinyon and juniper woodlands, ancient burned-out stumps can sometimes be found among mature stands of trees.

The typical burn cycles for pinyon, juniper and sagebrush vegetation types vary from 15 to 50 years. The current burn cycle is about a 125 years. This has led to an accumulation of fuel loadings, increased stand densities and pushed the project area into higher fire regime condition classes.

Direct and Indirect Impacts

Under the Proposed Action, fire behavior would be decreased as a result of reduced fuel loading. Future natural fires would be less extensive and smaller in size. Smaller wildfires would be easier to manage, reducing the risk to multiple natural resources, private lands, private withholdings, physical structures associated with ROWs and aesthetic values. The danger of large, uncontrolled wildfires would be reduced under this alternative. Under the Proposed Action, the FRCC should be within the natural (historic) range. Studies have shown that fuels treatments conducted prior to a large, uncontrolled fire event reduce fire burn severity and extreme fire behavior. These treatments modify stand structure and extreme wildfire behavior.

In a report written by the Apache-Sitgreaves National Forest in 2002 titled, "Rodeo-Chediski Fire Effects Report", studies showed the lessening of burn severity on treated areas prior to a wildfire burning through the area.

Under the Alternative Action, the herbicide treatment would increase the amount of standing dead material and decrease the quantity of live fuel for the short-term. The increase in the quantity of standing dead material could potentially result in higher intensity burns in the area. The risk associated with this type of treatment would be the highest during the period prior to needle fall on the pinyon and juniper trees. The risk would be the lowest following needle fall and after a majority of the dead shrub branches have come in contact with the soil surface from physical forces and decomposition factors. The Alternative Action would result in higher fuel loads and higher intensity fires (if ignited) than the Proposed Action for at least a short-term period. In the long-term, impacts to fire behavior and fuel loading would be similar to that described under the Proposed Action.

Under the No Action Alternative, fuels would continue to increase which would also increase the burn intensity potential. The risk of a large, uncontrolled wildfire would remain much greater. If a wildfire does occur in the area, fuel loading and the associated fire intensity would be reduced. In comparison to the Proposed Action and Alternative Actions, the No Action Alternative would result in the highest fuel loading and fire intensity potential in the long-term.

Cumulative Impacts

The potential exists for future wildfire events in the area, as does additional habitat and fuels management activities. The possibility also exists for wildland fire use as a resource benefit tool. With planned disturbances such as future habitat improvement and fuels reduction projects through chemical, mechanical, prescribed fire and possible wildland fire use, opportunities for reducing the risks of large, uncontrolled wildfire will be possible. Overall, cumulative impacts from all past, present and future actions would be minimal and FRCC I would be achieved over the long term.

3.11 Invasive, Non-Native Species (Including Noxious Weeds)

Affected Environment

The BLM defines a weed as a non native plant that disrupts or has the potential to disrupt or alter the natural ecosystem function, composition and diversity of the site it occupies. A weeds presence deteriorates the health of the site, it makes efficient use of natural resources difficult, and it may interfere with management objectives for that site. It is an invasive species that requires a concerted effort (manpower and resources) to remove from its current location, if it can be removed at all. "Noxious" weeds refer to those plant species which have been legally designed as unwanted or undesirable. This includes national, state and county or local designations.

No Field weed surveys were completed for this project. Instead the Ely District weed inventory data was consulted. While there are currently no known noxious weeds within the project area, the following species are found along some roads in the area:

<i>Cirsium vulgare</i>	Bull Thistle
<i>Lepidium draba</i>	Hoary cress
<i>Linaria dalmatica</i>	Dalmation toadflax
<i>Onopordum acanthium</i>	Scotch Thistle
<i>Tamarix spp.</i>	Salt Cedar

There is also the possibility of cheatgrass (*Bromus tectorum*), halogeton (*Halogeton glomerus*), and Russian thistle (*Salsola kali*) scattered along roads in the area. The project area was last inventoried for noxious weeds in 2004.

Direct and Indirect Impacts

Under the Proposed Action, noxious and non-native invasive weeds could become established within the project area. In areas with the absence of existing perennial grasses and forbs, cheatgrass could be expected to increase prior to desirable, perennial grasses, forbs and shrubs become established. Also, many thistle species are progressive during wet spring seasons and could become established before desirable vegetation becomes established.

New species could be introduced to the area as a result of vehicles, heavy equipment and activities associated with the use of the vehicles and equipment. However, conformance with the Ely District Noxious Weed Prevention Schedule would reduce this risk. If sufficient, desirable, perennial understory vegetation exists, then these desirable species should become established and out-compete any potential noxious weeds or invasive species. If minimal desirable, perennial understory species exists, then seeding following treatment implementation should allow for the establishment of desirable species and competition from noxious weeds and invasive species should be limited.

Mitigation measures identified in the Risk Assessment for Noxious Weeds (Appendix 8.1) would be implemented as part of the Proposed Action which would minimize the potential for noxious weed establishment.

Under the Alternative Action, there would be minimal to no surface disturbing activities which would reduce the potential for the spread of noxious weed species. Seeding would not be conducted until most of the treatment effects were realized. If minimal desirable, perennial grasses and forbs exist on areas which respond quickly to the herbicide application, this could potentially allow for the establishment of noxious weeds and invasive species weeds to establish due to the delay in seeding. Areas with a rapid herbicide response and a delay in seeding could become vulnerable for noxious weed and invasive species establishment due to the exposed soil surface. However, it is expected that a majority of the treatment area would respond to the chemical in a timely manner and on an even scale which would allow for seeding to be conducted prior to the establishment of any noxious weeds and most invasive species. The cheatgrass communities would likely make it more difficult for desirable, perennial herbaceous and shrub species to establish resulting in a continued decline in soil protection, wildlife habitat, ecological conditions and other resource values.

Mitigation measures identified in the Risk Assessment for Noxious Weeds (Appendix 8.1) would be implemented as part of the Alternative Action which would minimize the potential for noxious weed establishment.

Under the No Action Alternative, noxious weeds may eventually increase into the targeted treatment area, particularly along traveled roads. Declining understory species in sagebrush and woodland sites would increase the risk of noxious weeds and invasive species establishment following a natural disturbance (e.g., wildfire) due to the lack of competition from desirable, perennial grasses and forbs. Increasing the density of woodlands would also increase the size and effect of a potential wildfire, which indirectly would provide large areas for noxious weeds and undesirable species to establish following a wildfire event.

Cumulative Impacts

The possibility of future wildfire in the area is expected, as is additional fuels management activities and possibly wildland fire use for resource benefit. Following past wildfires, unforeseen situations have been discovered. Pre-existing, yet undetected stands of noxious weeds have been discovered and eradication or control actions have been initiated. This effect could be expected in the South Spring Valley area following proposed or future unplanned disturbances due to nearby detected infestations outside the proposed project area. With planned disturbances such as mechanical treatments or other treatment methods, opportunities for detecting additional noxious weed infestations prior to disturbance could occur. Implementing the Proposed action, Alternative Action or a combination thereof would improve the ability of the vegetation community to compete with and prevent noxious weed and invasive species establishment through the development of a more vigorous, diverse and productive community. Completing additional treatments in patches over time, followed by seeding, would reduce the potential of invasions from noxious weeds or invasive species over a large area. All past, present and future treatments, followed by seeding, would make the areas more resistant to noxious weed and invasive species invasion and establishment by increasing the density and composition of perennial understory species which compete with the undesirable species. The overall cumulative impacts from all past, present and future actions are expected to be minimal.

3.12 Water Quality (Drinking/Ground)

Affected Environment

It is expected that the current water quality with the proposed project area is meeting State standards except during those periods of time during spring runoff, flash floods and other natural events. During these events, water quality may not be meeting State standards over a short term period.

Direct and Indirect Impacts

Under the Proposed Action, there is a possibility intense precipitation events related to soil erosion could result in short-term impacts to water quality. It is anticipated that the impacts would be short duration, not lasting long after the initial sediment influx or the initial high water

flow. Over time, the South Spring Valley watersheds have had periods in the past of degraded water quality resulting from precipitation events or rapid snowmelt. Any potential runoff events resulting from implementation of the Proposed Action would not be expected to increase the frequency or intensity of events above historical occurrence. Over the long term, the establishment of desirable, perennial herbaceous and shrubs species on cheatgrass infested areas would provide soil protection and stability which would reduce the potential for soil erosion during flooding and other natural weather events and in turn, reduce the potential for sedimentation into nearby riparian areas.

Under the Alternative Action, impacts to water quality are expected to be minimal. Tebuthiuron binds tightly to clay particles in the soil. Soils with high clay content reduce the chance of overland flow of Tebuthiuron pellets, as those pellets would be bound to clay particles and transported only if soil movement occurred. In soils with low clay content, infrequent, high-intensity precipitation events could be the most important potential factor that would transport Tebuthiuron pellets into surface or ground waters. Tebuthiuron is water soluble, so it would be dispersed into the soil or carried over the surface and dispersed in another location when saturated with water.

Leaching and a shallow water table are factors which influence the movement of Tebuthiuron to ground water. Tebuthiuron typically does not leach below the top 24 inches of the soil surface (Information Ventures, 1995). Most water tables are much deeper than 24 inches, so impacts should not occur to ground water sources. Due to break-down factors, Tebuthiuron usually does not persist in the soil past a 15 month period (Information Ventures, 1995). The possibility of chemicals entering the water table would be reduced by incorporating a "no-application" buffer of 100 feet from all drainage bottoms and 300 feet from springs.

Under the No Action Alternative, there would be no effects anticipated to water quality over the short-term. Long-term impacts could result in reduced water quality as watershed stability would decrease through a decline in ecological conditions and accelerated soil erosion potential on each of the treatment sites. Future wildfires would likely be larger and more intense, resulting in more continuous areas void of vegetation cover which would increase the overall erosion potential. Runoff would likely occur for an extended period of time as rehabilitation would take a longer period of time due to decreased vegetative diversity and competition from undesirable annuals such as cheatgrass.

Cumulative Impacts

Past, present and reasonably foreseeable future actions would have minimal impact on water quality above the natural fluctuations resulting from seasonal events. Implementing the Proposed Action, the Alternative Action or a combination thereof would result in impacts similar to those already discussed in their respective sections. Future treatment actions combined with present actions should improve the overall watershed stability provided that the treatments are conducted in manageable acreages and in areas where ecological conditions are in a downward trend. Combining past, present and future treatments should minimize cumulative impacts to water quality by improving watershed stabilization and vegetation conditions. Improved

vegetative conditions and overall resource and watershed stabilization should minimize the amount of sedimentation that could be deposited into riparian and wetland areas which would minimize the cumulative impacts to water quality.

3.13 Air Quality

Affected Environment

It is expected that the current air quality within the proposed project area is within acceptable limits and meets State standards. The proposed project area is not within an area containing residential or industrial development. There are currently no activities occurring within the area which would affect air quality standards.

Direct and Indirect Impacts

The Proposed Action would only be expected to affect air quality for the short term. The use of heavy mastication equipment and/or chainsaws during the thinning treatment and the use of dozers and chains during the chaining treatment would result in both exhaust emissions and/or dust. The emissions are not expected to exceed Nevada and National Ambient Air Quality Standards. Air quality would be minimally impacted, as wind would sufficiently transport particles from the area and all State and National air quality standards are expected to be met. Failure to implement the treatments described under the Proposed Action is expected to eventually result in a further decline in perennial, herbaceous species which will result in more exposed bare soil. If more bare soil exists, then air quality will likely be affected on a periodic basis when high wind events are present and wind erosion occurs.

Under the Alternative Action, impacts from the aerial application of Tebuthiuron and seed should cause no long term impacts to air quality. The only anticipated impacts to air quality would be short term and would occur as a result of aircraft emissions.

Under the No Action Alternative, fuel loading would continue to increase which would increase the chance of an uncontrolled wildfire. In the event of a wildfire, uncontrollable emissions from smoke would be released into the atmosphere. Smoke sensitive areas, such as roadways and distant communities could be impacted in the short term. Periodic, short term impacts to air quality from soil erosion associated with wind events may occur as described under both the Proposed Action and Alternative Action.

Cumulative Impacts

There would be no cumulative impacts to air quality associated with the past, present and future habitat improvement and fuels reduction treatments as the duration associated with these treatments would be short term.

3.14 Land and Realty Uses

Affected Environment

Rights of Way (ROWs)

There are no surface or subsurface ROWs recorded within the proposed project area boundaries.

Public Water Reserves (PWRs)

Public Reserve No. 107 (April 17, 1926) (Amended the Pickett Act of 1912) states “every smallest legal subdivision of public land which is vacant, un-appropriated, unreserved, public land and contains a spring or water holes, and all land within one quarter of a mile on every spring or water hole located on un-surveyed public lands be withdrawn from settlement, location, sale or entry and reserved for public use in accordance with the provisions

National Forest (BLM Withdrawn) Lands

There are no withdrawn public lands within the boundaries of the proposed project area boundaries (Nev-047860, Public Law 167, Public Land Order 1487, Withdrawal for the Humboldt National Forest).

Private Land (Excluding Mineral Patents)

Private land parcels were primarily granted under the Homestead Entry Act. There are no private lands in the South Spring Valley watershed which occur within the proposed project area boundaries.

Range Improvements

As previously mentioned under the Livestock Grazing Section, the existing range improvement projects which occur near the proposed project area include the Sage Grouse Habitat Restoration proposed projects and the Deer Flat Seeding.

Direct and Indirect Impacts

Under the Proposed Action and Alternative Action, there are no underground utility lines, above ground utility infrastructure or other ROWs which would be affected by the mechanical treatments, the chemical treatments or other actions described under the Proposed Action or Alternative Action. The only ROW within or along the parameter of the proposed project area boundaries are existing roads. No impacts to the roads would be incurred as a result of implementation of the Proposed Action or Alternative Action.

Under the No Action Alternative, none of the actions described under the Proposed Action or Alternative Action would be implemented (e.g., mechanical treatments, chemical treatments,

etc.). No vegetative treatments would occur under the No Action Alternative. As mentioned, the only ROWs within or along the parameter of the proposed project area boundaries are existing roads. However, the possibility for future uncontrolled wildfires could potentially result in the loss of distant above ground utility infrastructure (e.g., power lines, telephone lines) which occur outside the targeted treatment area but within the South Spring Valley watershed. Under the No Action Alternative, the potential for adverse impacts to ROWs, PWRs, private lands and other Federal lands under Forest Service jurisdiction will become greater over time in the event of uncontrolled wildfires.

Cumulative Impacts

Cumulative impacts to ROWs, PWRs, private lands and other Federal lands under Forest Service jurisdiction should be negligible, if any, under the Proposed Action and Alternative Action. Cumulative impacts from past, present and foreseeable actions would reduce fuel continuity and loading and alter fire behavior. Past, present and future treatment actions would reduce the damage that could be caused by future uncontrolled wildfires.

3.15 Commercial Products

Affected Environment

Portions of the proposed project area serve as a potential area for harvest of posts and firewood.

Direct and Indirect Impacts

Under the Proposed Action and Alternative Action, impacts are expected to be minimal to the harvest of commercial products within the project area. By reducing the overall fuel loading within the area, there is a reduced chance of a large, uncontrolled wildfire occurring and destroying large tracts of land within and adjacent to the project area which could remove large acreages of trees and other vegetation. Areas immediately adjacent to and within the general project area would remain available for the harvest of commercial products. Under the Proposed Action and Alternative Action, tree availability would be reduced within the immediate project area. The decrease in tree density should improve conditions for the production of pine nuts over the long term, as the pinyon trees would have less competition and should be more productive once regeneration begins.

Under the No Action Alternative, the potential for a large, uncontrolled wildfire would increase which could result in large acreages of trees and other vegetation being removed within the project area, areas immediately adjacent to the project area and other areas within the South Spring Valley watershed.

Cumulative Impacts

A reduction in the overall fuel loading within the proposed project area would reduce the possibility of a large, uncontrolled wildfire occurring and destroying large tracts of land within and adjacent to the project area which could remove large acreages of trees and other vegetation. Since other areas immediately adjacent to the project area and within the South Spring Valley watershed would remain available for the harvest of commercial products, implementation of the Proposed Action, Alternative Action or a combination thereof combined with any past, present or future treatments is not expected to result in any cumulative impacts to the harvest of commercial products and may provide increased production for commercial products such as pine nuts over the long term.

3.16 Native American and Religious Concerns

Affected Environment

Presently there are no known traditional cultural properties identified within the project area. On February 14, 2008, local Native American tribes were consulted on the project proposal, objectives and treatment intentions in accordance with BLM Manual Handbook H-8160-1. The purpose of the consultation was to identify any traditional or religious areas within the project area and to receive comments and input from the tribes on the proposed project. Although consultation discussed the possibilities that the project area may be a cultural sensitive area, no additional comments were expressed or received which has indicated that no concerns exist for the proposed project.

Direct and Indirect Impacts

It is anticipated that no impacts would be incurred to Native American and religious concerns under the Proposed Action, Alternative Action or No Action alternatives. Cumulative impacts would be negligible, if any. There are no known paleontological resources within or near the project area therefore no impacts are to be expected.

4.0 PROPOSED MITIGATION MEASURES

Mitigation measures have been incorporated into the Proposed Action and the Alternative Action. Mitigation measures include considerations for sage grouse; migratory birds; livestock grazing; range improvement projects; cultural resources; noxious weeds and invasive species; water quality; mining claims and utility lines and other ROWs.

5.0 SUGGESTED MONITORING

Monitoring has been incorporated into the Proposed Action and the Alternative Action. Monitoring has been implemented to establish baseline conditions and to measure the effects of the proposed treatments over a period of time. Monitoring would also be used to determine if, and when, resource management objectives have been achieved. Monitoring information would be used to determine when livestock grazing could continue within the project area. An interdisciplinary team, including members of the public expressing interest, would be included in

the monitoring efforts. Monitoring information would be collected, analyzed and interpreted using BLM approved methods. Monitoring data would be available for review at the BLM Ely Field Office.

6.0 CONSULTATION and COORDINATION

A. Public Interest and Record of Contacts who Commented

- | | | |
|----|------------------------------------|--|
| 1. | D. Bradford Hardenbrook | Supervisory Habitat Biologist (NDOW Southern Region) |
| 2. | Maria Ryan | Southern Nevada Water Authority |
| 3. | Peter Ford | Interested Citizen |
| 4. | Katie Fite | Western Watersheds Project |
| 5. | Krista Coulter (Coordinator) | Nevada State Clearinghouse |
| 6. | Nevada Division of State Lands | |
| 7. | State Historic Preservation Office | |
| 8. | Eastern Nevada Landscape Coalition | |
| 9. | PLUAC | |

Public involvement also consisted of the following:

1. a letter to all the identified public interests on January 28, 2008;
2. a Tribal coordination meeting conducted on February 14, 2008;
3. a notice under the "NEPA Projects" on the Ely Field Office website located at <http://www.nv.blm.gov/ely> on January 28, 2008;
4. continued contact with the permittees that could be affected by the proposed action or alternatives;
5. and through consultation with partner agencies such as NDOW

B. Internal District Review

<u>Name</u>	<u>Title</u>	<u>Resources</u>
Nicholas Brunson	Fire Management Specialist	Fire, Fuels, Vegetation
Paul Podborny	Wildlife Biologist	Wildlife, T&E/Sensitive Species, Riparian
Mark Lowrie	Rangeland Management Spec.	Livestock Grazing
Benjamin Noyes	Wild Horse and Burro Spec.	Wild Horses
Gary Medlyn	Watershed Project Manager	Soil, Water, Air, Floodplains
Shawn Gibson	Archeologist	Cultural/Paleontological/Historical Res.
Melanie Peterson	Environmental Protection Spec.	Hazardous Materials
Bonnie Waggoner	Noxious Weed Coordinator	Noxious Weeds, Invasive Species
Dave Jacobson	Wilderness Planner	Wilderness Values, VRM, Recreation
Elvis Wall	Civil Engineering Technician	Native American Religious Concerns

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8.0 APPENDICES