



**Environmental Assessment
NV-040-06-051
North Antelope Valley Habitat Improvement
and Fuels Reduction Project**

Location

**North Antelope Valley
Townships 25 and 26 North
Ranges 66 and 67 East
White Pine County, Nevada**

Prepared By

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1.0 BACKGROUND

1.1 Introduction

The project area analyzed in this environmental assessment (EA) is located along the mid and upper benches on both the east and west sides of the northern end of the Antelope Range in the Steptoe A and North Antelope Valley watersheds. The project area is located in Townships 25 and 26 North and Ranges 66 and 67 East; Mount Diablo Meridian (MDM); White Pine County, Nevada (Map 1). 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 perimeter includes approximately 12,010 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 North Antelope Valley Habitat Improvement and Fuels Reduction Project responds to the fuels reduction element of the Cohesive Strategy.

1.2 Need for the Proposal

Pinyon and juniper trees 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. There is also a need to reduce cheatgrass infestations on the Sampson Creek Fire of 2004 in order to improve ecological conditions, rangeland health, wildlife habitat, promote soil protection and reduce the fire hazard and soil erosion potential. Cheatgrass establishment on some portions of the Sampson Creek Fire area has inhibited the establishment of desirable, perennial, herbaceous and shrub species and has created a greater fire hazard by increasing the quantity of fine, flashy fuels.

An Ecological Site Inventory (ESI) was conducted within the proposed project area in 1992 and 1993. The resource management objectives outlined on pages 6 and 7 are based on and supported by the ESI data and the associated ecological site potential. Overall, data indicates that there is a reduction in the grass and forb components and an increase in the shrub and/or tree component in relation to the ecological site potential. Refer to the Vegetation Section 3.2 for a detailed comparison of ESI data and the associated ecological site potential.

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:

Table 1 – Fire Regime Groups

FIRE REGIME GROUP	DESCRIPTION
I	0-35 year frequency, low severity
II	0-35 year frequency, stand replacement severity
III	35-100+ year frequency, mixed severity
IV	35-100+ year frequency, stand replacement severity
V	200+ year frequency, stand replacement severity

Frequency is the average number of years between fires. Severity is the effect of fire on the dominate over story vegetation. The primary fuels (sagebrush semi-desert and pinyon/juniper woodlands) within the North Antelope Valley project area are in Fire Regime Groups IV and V, respectively (LANDFIRE Biophysical Setting Models, 2006).

Fire Regime Condition Class (FRCC) is an interagency, standardized tool for determining the degree of departure from reference condition vegetation, fuels and disturbance regimes (<http://www.frcc.gov/>). Assessing FRCC can help guide management objectives and set priorities for treatments. The classification is based on a relative measure describing the degree of departure from the historical natural fire regime. This departure is described as changes to one or more of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure and mosaic pattern); fuel composition; fire frequency, severity and pattern; and other associated disturbances (e.g. insects and disease mortality, grazing and drought). The three classes are based on low (0-33% departure; FRCC1), moderate (34-66% departure; FRCC2) and high (67-100% departure; FRCC3) departure from central tendency of the natural (historical) regime. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside the range of variability. The FRCC rating is accompanied by a series of indicators of the potential risks that may result from the changes to the associated ecological components when disturbance is applied. Reference descriptions for a typical FRCC1 community have been developed for most major vegetation types. Reference conditions are compared to actual conditions for purposes of determining current FRCC classes.

The Steptoe A and North Antelope Valley Watershed Evaluation Report (June 2006) analyzed four main vegetation groups (salt desert shrub, sagebrush semi-desert, mountain shrub and pinyon/juniper woodlands) for the North Antelope Valley watershed using the FRCC methodology, available ecological site inventory, cover composition data and resource specialist input. The North Antelope Valley watershed overall FRCC rating was 2 (moderate departure). The primary vegetation types within the North Antelope Valley project area are salt desert shrub, sagebrush semi-desert, mountain shrub and pinyon/juniper woodlands. The sagebrush semi-desert vegetation type within the watershed has been rated 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 salt desert shrub, mountain shrub and pinyon and juniper woodlands within the watershed have been rated 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. The Steptoe A and North Antelope Valley Watershed Evaluation Report (June 2006) analyzed two main vegetation groups (sagebrush semi-desert and pinyon/juniper woodlands) for the Steptoe A Watershed using the FRCC methodology, available ecological site inventory, cover composition data and resource specialist input. The Steptoe A watershed overall FRCC rating was 3 (highly departed). The primary vegetation types within the Steptoe A project area are sagebrush semi-desert and pinyon/juniper woodlands. The sagebrush semi-desert and the pinyon/juniper woodlands within the watershed have a FRCC of 3. This indicates that fire regimes have been highly altered from their historical range. 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.

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
- Reduce cheatgrass infestations on the Sampson Creek Fire of 2004 to improve ecological conditions, rangeland health, wildlife habitat, promote soil protection and reduce the fire hazard and soil erosion potential
- 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 Steptoe A and North Antelope Valley watersheds and meet FRCC 1
- Restore the historic disturbance regime within the project area

Resource management objectives include the following:

Short Term (immediately post treatment)

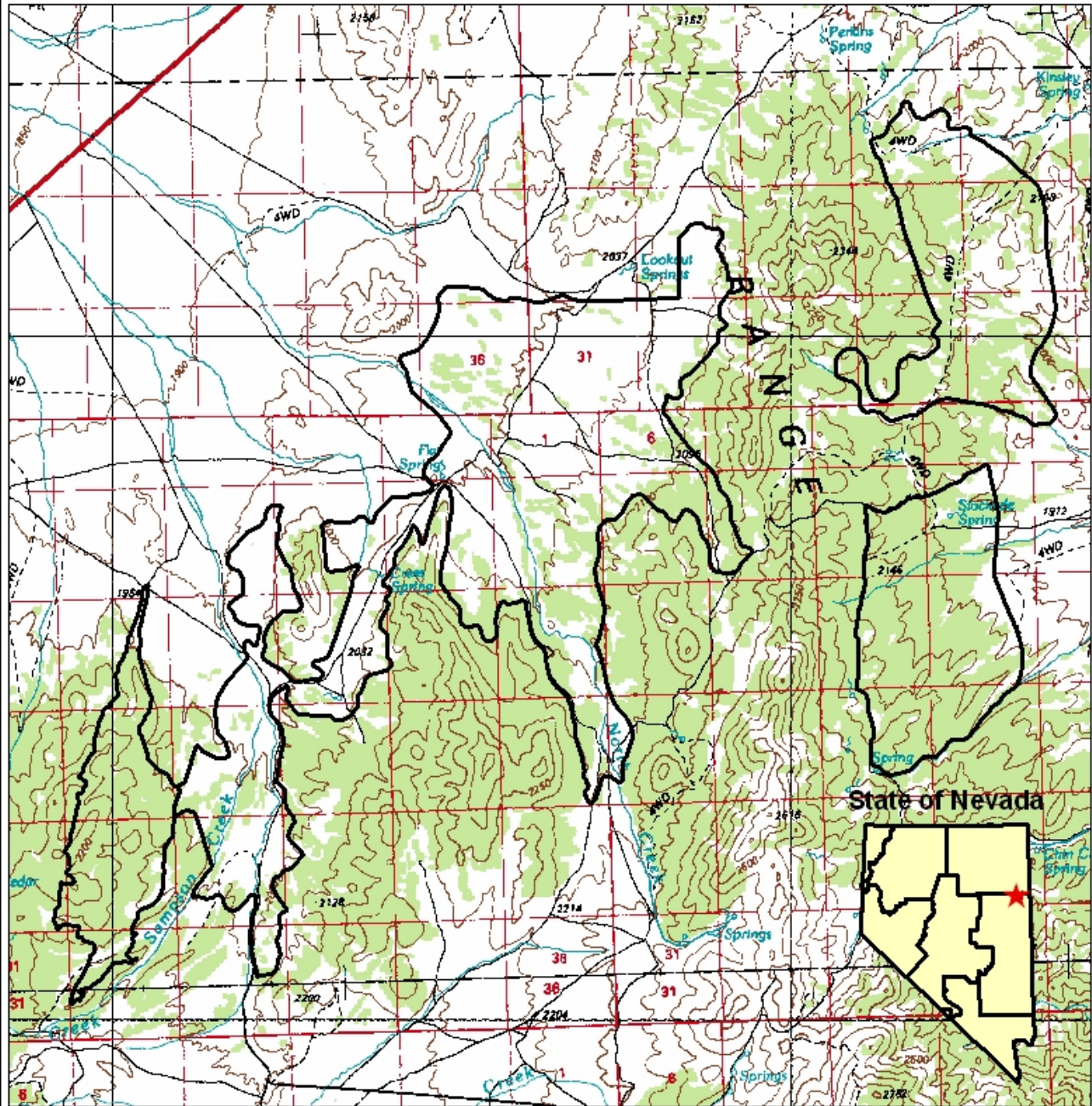
- Reduce the canopy cover of single-leaf pinyon (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*) by at least 75 percent on Wyoming big sagebrush (*Artemisia tridentata wyomingensis*) and black sagebrush (*Artemisia nova*) ecological sites on an estimated 60 to 70 percent (approximately 7,200 – 8,400 acres) of the 12,010 acre project area parameter
- Reduce the canopy cover of cheatgrass (*Bromus tectorum*) on approximately 500 acres within the parameter of the Sampson Creek Fire by at least 75 percent or greater within one year following treatment

Long Term (5 to 10 years post treatment)

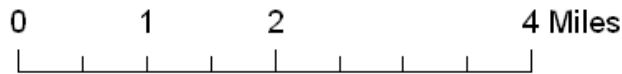
- Increase the percent composition by weight (lbs/acre) of perennial grasses and forbs to a minimum of 75 percent of the ecological site potential on sagebrush ecological sites within 5 to 10 years following completion of the proposed treatments
- Increase the percent composition by weight (lbs/acre) 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
- Increase the percent composition by weight (lbs/acre) of perennial grasses and forbs to a minimum of 75 percent of the ecological site potential and increase the percent composition (lbs/acre) of shrubs to a minimum of 50 percent of the ecological site potential on cheatgrass dominated sites within the Sampson Creek Fire boundary within 5 to 10 years following seeding

The targeted areas for treatment would include those areas identified in the Steptoe A and North Antelope 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.


Map 1 - North Antelope General Project Area



Scale: 1:78,000
Date: September 2006
Ely Field Office
Jeff Fenton



Townships 25 and 26 North
Ranges 66 and 67 East
MDM, NAD83
White Pine County, NV

 General Project Area
12,010 Acres

No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.



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.

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)
- 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 Mountains, Northern Benches and Schell 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).
- Page 8 of the White Pine County Public Land Use Plan (May 1998) states, "Identify habitat needs for wildlife species, such as adequate forage, water, cover, etc. and provide for those needs so as to, in time, attain appropriate population levels compatible with other multiple uses as determined by public involvement."
- The White Pine County Elk Management Plan (March 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 and the Goshute Indian Tribe. The plan identified vegetation conversion projects by NDOW management units that would improve wildlife habitat by creating a more diverse mixture of grasses, forbs and shrubs. The project area lies within NDOW Management Unit 111, which was identified as a maintenance area for project development because elk target numbers were effectively reached in 1998.

- Standards and Guidelines for Nevada's Northeastern Great Basin Area The Nevada Northeastern Great Basin Resource Advisory Council (RAC), as chartered by the Department of the Interior to promote healthy rangelands, has developed Guidelines for vegetation management on approximately 16.2 million acres of public lands administered by the Bureau of Land Management within the designated geographic area of the Northeastern Great Basin within the State of Nevada.

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 thinning treatments along selected areas on the west side of the north Antelope Range, chaining treatments along selected areas on the east side of the north Antelope Range and chemical treatments with Oust XP (also known as Landmark XP) on cheatgrass dominated sites within the boundaries of the Sampson Creek Fire of 2004 (Map 2). The targeted areas for thinning and chaining treatments would include areas identified in the Steptoe A and North Antelope Valley Watershed Analysis where pinyon and juniper trees have become established on sagebrush ecological sites. The total project area would include 12,010 acres. An estimated 60 to 70 percent (approximately 4,075 to 4,750 acres) would be targeted for thinning treatments on the proposed 6,799 acre unit. An estimated 60 to 70 percent (approximately 2,400 to 2,800 acres) would be targeted for chaining treatments on the proposed 4,021 acre unit. The targeted areas for chemical treatments would include approximately 500 acres of cheatgrass dominated sites lacking perennial, herbaceous vegetation and native shrubs.

The thinning treatments would be conducted by manual methods (chainsaw) and/or mechanical methods such as a bull hog, feller buncher or similar piece of equipment that masticates trees. Slash/biomass removal would depend on the type of method used. Slash/biomass created from manual methods or equipment which provides whole tree cutting methods would be consolidated into piles and disposed of

later through prescribed burning or hauled off site for use as biomass. Slash/biomass created from mastication equipment would be left on site to degrade by natural means.

Oust XP herbicide is labeled for non-crop habitat restoration to control species such as cheatgrass. 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 (MSDS) provided for Landmark XP or Oust XP herbicide would also be adhered to. Application rates and procedures would follow directions as listed on the herbicide specimen label for cheatgrass.

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 thinning and chaining treatments and broadcasted by tractor or ATVs on the chemical 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 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 by thinning or chaining operations would be re-staked using a legal mining claim marker. The re-staking of mining claim markers would occur in coordination with the existing mining claimants to 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, thinning and 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 thinning and chaining operations. Above ground structures associated with buried utility lines would also be avoided in association with the thinning and chaining activities. Any potential ROW holders in the immediate vicinity of the treatments would be notified prior to conducting any thinning and 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-040-2001-02) 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 and thinning 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 thinning and 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 vegetation 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.

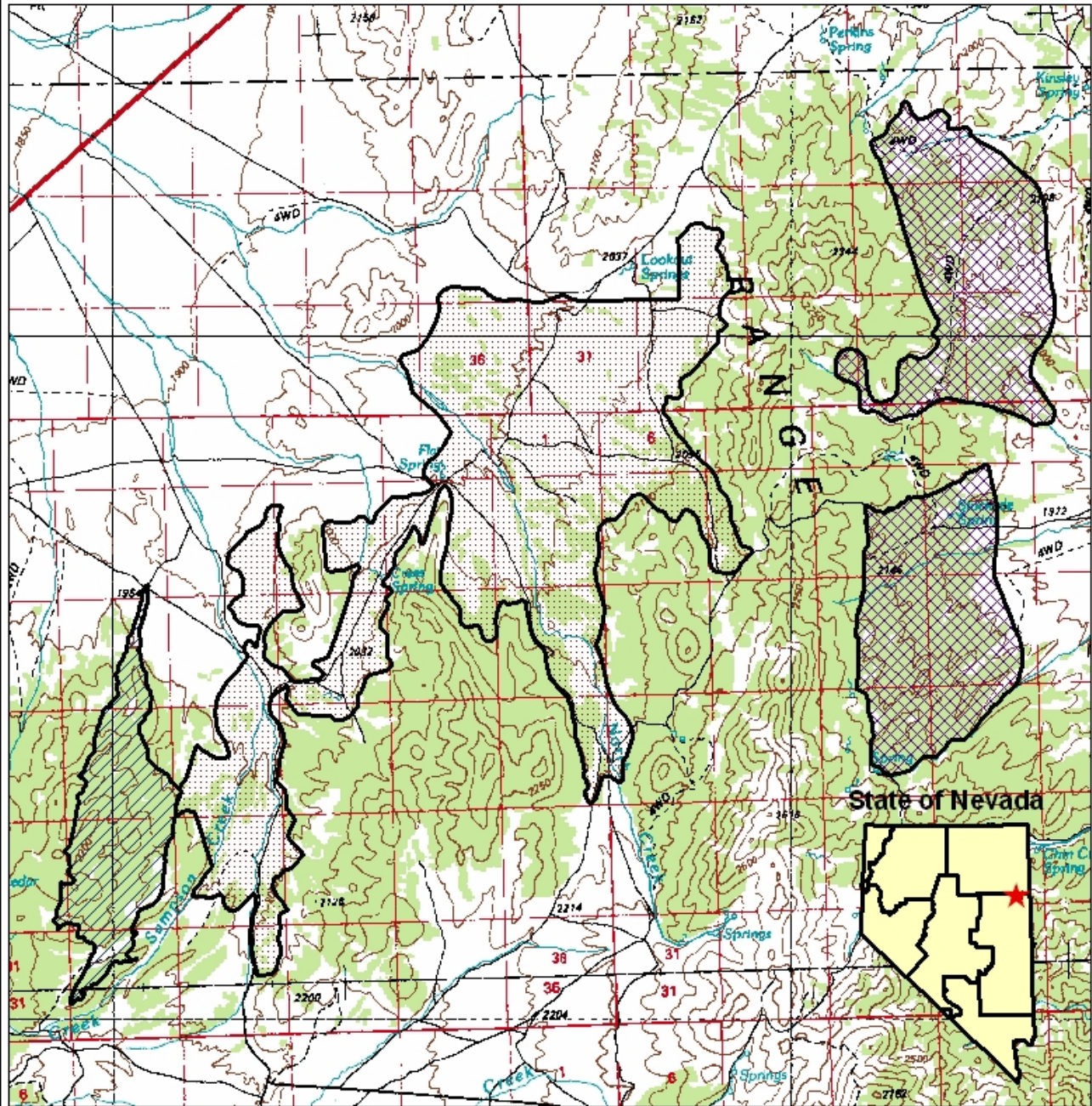
The project area would be inspected prior to the mechanical treatments to solidify those areas targeted for each specific treatment in order to achieve the desired resource management objectives.

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

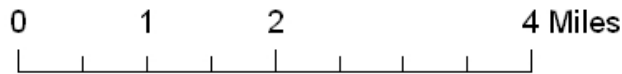
weeds are found, suppression measures would be taken. The noxious weed infestations would be reported to the Ely Field Office Weed Coordinator in order to be included on the treatment schedule as soon as possible.

Existing projects which occur within or adjacent to the proposed project area include the Flat Spring, Cress Spring, Stockade Spring, Becky/Chin Creek Fence, Becky/Chin Creek Fence Cattle Guard No. 1, Stockade Pipeline and Flat Nose Spring Seeding. The projects would be inspected and repaired if damaged during implementation of the proposed treatments.

Map 2 - North Antelope Proposed Treatment Areas



Scale: 1:78,000
 Date: September 2006
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Townships 25 and 26 North
 Ranges 66 and 67 East
 MDM, NAD83
 White Pine County, NV

- Chemical Treatment Area
- Thinning Treatment Area
- Chaining Treatment Area

Chemical Treatment (1,190 Ac)
 Thinning Treatment (6,799 Ac)
 Chaining Treatment (4,021 Ac)
 - Upper Portion (2,089 Ac)
 - Lower Portion (1,932 Ac)

No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.



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 both the west side and east sides of the north Antelope Range (Map 3). The targeted areas for treatment would include areas identified in the Steptoe A and North Antelope Valley Watershed Analysis where pinyon and juniper trees have become established on sagebrush ecological sites. The total project area would include 10,820 acres. An estimated 60 to 70 percent (approximately 6,500 to 7,575 acres) would be targeted for chemical treatment. The Oust XP chemical treatment on cheatgrass dominated sites within the boundaries of the Sampson Creek Fire, as described under the proposed action, would not occur under the alternative action.

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 would 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.

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.

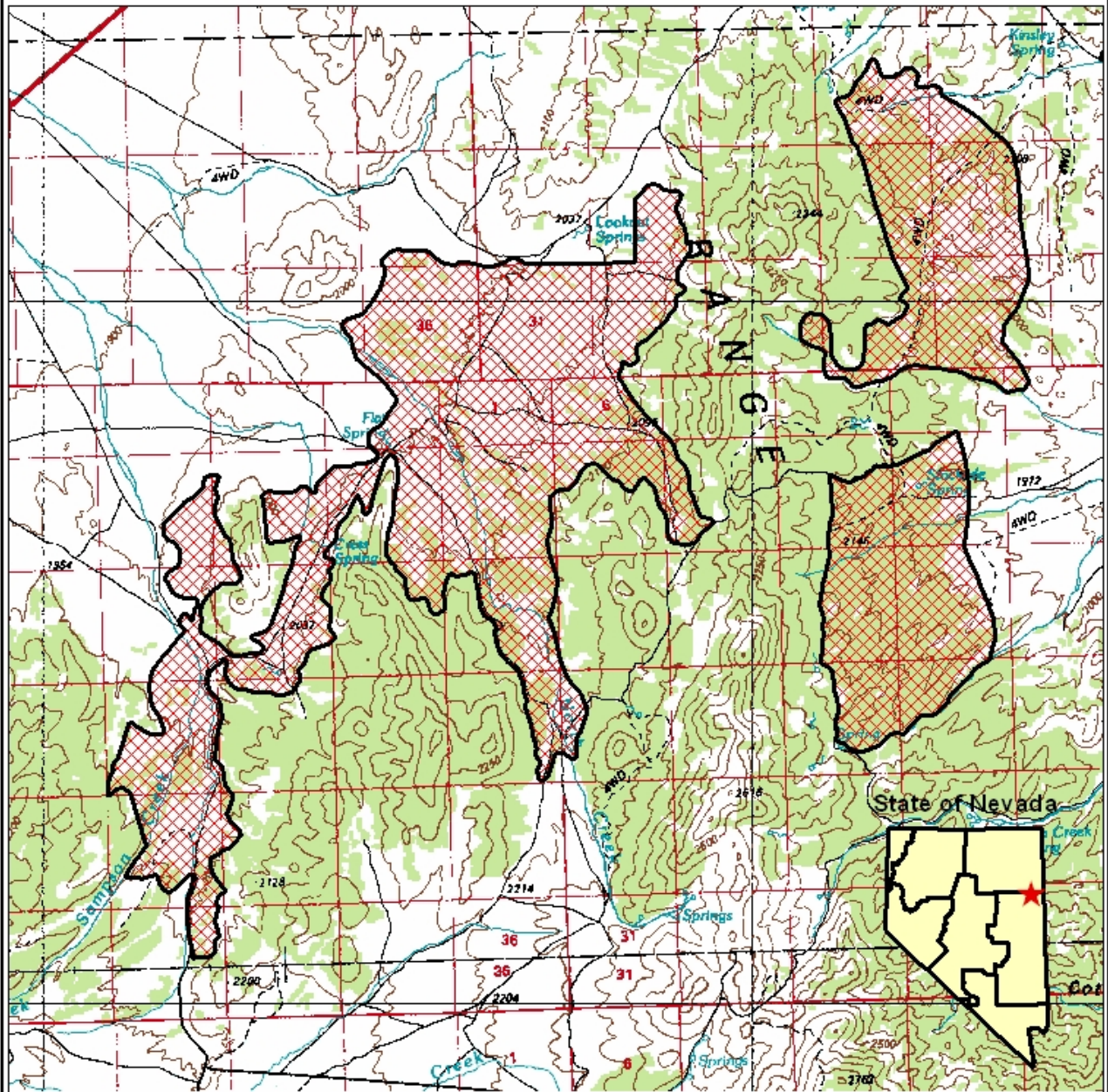
The Ely Field Office Noxious Weed Prevention Schedule would be adhered to during all phases of project implementation. Mitigation measures identified in the Risk Assessment for Noxious Weeds (Appendix 8.1) would be implemented as part of the alternative action.

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.

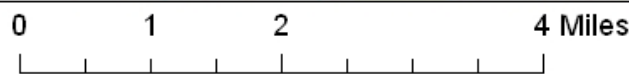
The project area would be inspected prior to the chemical treatment to solidify those areas targeted for each specific treatment in order to achieve the desired resource management objectives.

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.

Map 3 - North Antelope Spike Treatment Areas



Scale: 1:78,000
Date: September 2006
Ely Field Office
Jeff Fenton



Townships 25 and 26 North
Ranges 66 and 67 East
MDM, NAD83
White Pine County, NV

 Spike Treatment Area
10,820 Acres

No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.



2.3 No Action Alternative

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

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, therefore, it would not meet the identified needs of the proposal.

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

3.1 General Description

The proposed project area occurs within the Steptoe A and North Antelope Valley watersheds. The area is located in Townships 25 and 26 North and Ranges 66 and 67 East. The area is located along the mid and upper benches on the west and east sides of the north Antelope Range. Elevations range from approximately 6,000 to 7,000 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 affected environment is described below followed by the environmental consequences for each resource. Refer to the *Steptoe A and North Antelope Valley Watershed Assessment Report* (June 2006) for other resource information relevant to the project area.

3.2 Vegetation

Affected Environment

The primary vegetation within the project area consists of pinyon and juniper and sagebrush communities. Antelope bitterbrush is scattered across some portions of the project area. Perennial grasses and forbs occur at levels below ecological site potential.

Native, perennial, cool-season ¹ grasses within the project area include species such as Indian ricegrass (*Achnatherum hymenoides*), western wheatgrass (*Pascopyrum smithii*), needle and thread (*Hesperostipa comata*), bottlebrush squirreltail (*Elymus elymoides*), sandberg bluegrass (*Poa secunda*), Nevada bluegrass (*Poa nevadensis*), bluebunch wheatgrass (*Pseudoroegneria spicata*) and sand dropseed (*Sporobolus cryptandrus*). Non-native, perennial cool-season grasses include species such as crested wheatgrass (*Agropyron cristatum*), an excellent drought-tolerant and fire resistant grass which is commonly used for reclamation and spring forage production in arid sections of the western United States (Ogle, 2003). Many of the existing perennial, cool-season grasses exhibit low vigor and reduced seed and vegetative production. Warm-season ² 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*), curlleaf mountain mahogany (*Cercocarpus ledifolius*), antelope bitterbrush (*Purshia tridentata*), serviceberry (*Amelanchier sp.*), rabbitbrush (*Chrysothamnus sp.*), and Nevada tea (*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*).

The pinyon and/or juniper woodlands comprise 10 percent (4,600 acres) of the North Antelope watershed. A majority of the woodlands are over mature, as indicated by canopy cover greater than 35 percent. The pinyon and juniper woodlands range from 25 to 60 percent canopy cover as determined through line point intercept methods conducted in 2004. This indicates that most of the woodlands do not meet the upland and habitat standards. Forestland ecological site descriptions indicate that the average overstory canopy should be 20 to 35 percent for trees in the pinyon and juniper woodland. Currently there is more than 35 percent average canopy cover.

The pinyon and/or juniper woodlands comprise 28 percent (13,000 acres) of the Steptoe A watershed. A majority of the woodlands are over mature, as indicated by canopy cover averaging 50 percent. The pinyon and juniper woodlands range from 30 to 90 percent canopy cover as determined through line point intercept methods. This indicates that most of the woodlands do not meet the upland and habitat standards. Forestland ecological site descriptions indicate that the average overstory canopy should be 20 to 35 percent for trees in the pinyon and juniper woodland. Currently there is more than 35 percent average canopy cover.

Sagebrush communities comprise approximately 32,000 acres within the Steptoe A Watershed. Approximately 31,000 acres exhibit minimal herbaceous understory with increasing sagebrush composition and increasing pinyon and juniper canopy cover which do not meet the upland and habitat standard. Sagebrush communities comprise approximately 30,000 acres within the North Antelope Watershed. Approximately 28,800 acres exhibit minimal herbaceous understory with increasing sagebrush composition and increasing pinyon and juniper canopy cover which do not meet the upland and habitat standard.

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).

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

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. Pinyon and juniper is becoming established on sagebrush habitats within the proposed treatment area which are comprised of native shrubs and grasses.

Table 2 - A comparison of the potential vegetative composition by weight (lbs/ac) for each ecological site to the percent composition by weight (lbs/ac) from the ESI is summarized in the following table:

Ecological Site	Potential Vegetative Composition by Weight (lbs/ac)		ESI % Composition by Weight (lbs/ac)	
028BY003NV (ARTRT/LECI4)	Grasses	85%	Grasses	5%
	Forbs	5%	Forbs	1%
	Shrubs/Trees	10%	Shrubs	88%
028BY005NV (ARTR2/HECO26-ACHY-ELLAL)	Grasses	55%	Grasses	9%
	Forbs	10%	Forbs	
	Shrubs/Trees	35%	Shrubs	91%
028BY006NV (ARNO4/PSSP-ACHY)	Grasses	60%	Grasses	6%
	Forbs	5%	Forbs	1%
	Shrubs/Trees	35%	Shrubs	73%
028BY007NV (ARTR2/ACTH7-PSSP)	Grasses	65%	Grasses	14%
	Forbs	10%	Forbs	5%
	Shrubs/Trees	25%	Shrubs	78%
028BY008NV (ARNO4/PSSP-ACHY)	Grasses	55%	Grasses	12%
	Forbs	5%	Forbs	1%
	Shrubs/Trees	40%	Shrubs	71%
028BY010NV (ARTRW/ACHY-HECO26)	Grasses	50%	Grasses	6%
	Forbs	5%	Forbs	1%
	Shrubs/Trees	45%	Shrubs	76%
028BY011NV (ARNO4/ACHY-HECO26)	Grasses	50%	Grasses	5%
	Forbs	5%	Forbs	1%
	Shrubs/Trees	45%	Shrubs	89%
028BY016NV (ARNO4/ACHY-HECO26)	Grasses	40%	Grasses	11%
	Forbs	5%	Forbs	1%
	Shrubs/Trees	55%	Shrubs	86%
028BY028NV (SAVE4-ARTR2/LECI4)	Grasses	20%	Grasses	9%
	Forbs	5%	Forbs	
	Shrubs/Trees	75%	Shrubs	89%
028BY037NV (ARAR8/PSSP-ACTH7)	Grasses	50%	Grasses	15%
	Forbs	10%	Forbs	3%
	Shrubs/Trees	40%	Shrubs	35%
028BY039NV (ARAR8/PSSP-ACTH7-POSE)	Grasses	40%	Grasses	4%
	Forbs	15%	Forbs	
	Shrubs/Trees	45%	Shrubs	56%
			Trees	40%

Table 2 (continued)

Ecological Site	Potential Vegetative Composition by Weight (lbs/ac)		ESI % Composition by Weight (lbs/ac)	
028BY045NV (ARTRW/LECI4-ACHY-ELLAL)	Grasses	40%	Grasses	
	Forbs	5%	Forbs	1%
	Shrubs/Trees	55%	Shrubs	99%
Trees				
028BY052NV (ARTRW-GRSP/ACHY)	Grasses	45%	Grasses	8%
	Forbs	5%	Forbs	1%
	Shrubs/Trees	50%	Shrubs	85%
Trees			6%	
028BY080NV (ARTRW/ACHY-HECO26)	Grasses	55%	Grasses	4%
	Forbs	10%	Forbs	1%
	Shrubs/Trees	35%	Shrubs	90%
Trees			5%	
028BY087NV (ARVA2/PSSP-ACTH7)	Grasses	55%	Grasses	13%
	Forbs	15%	Forbs	
	Shrubs/Trees	30%	Shrubs	36%
Trees			51%	
028BY093NV (ARNO4/PSSP-ACTH7)	Grasses	60%	Grasses	15%
	Forbs	5%	Forbs	
	Shrubs/Trees	35%	Shrubs	65%
Trees			20%	
028BY094NV (ARTR2/PSSP-ACHY)	Grasses	60%	Grasses	37%
	Forbs	5%	Forbs	6%
	Shrubs/Trees	35%	Shrubs	44%
Trees			13%	

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 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

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

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 treatment of approximately 500 acres within the perimeter of the Sampson Creek Fire with Oust XP would assist in the decrease and control of cheatgrass. The use of Oust XP herbicide is important in helping to prevent the buildup of combustible fine fuels in plant communities, stopping the displacement of desirable shrubs and grasses and control certain invasive weeds such as cheatgrass. Oust XP helps eliminate some of the causes of failed grass rehabilitation projects, which result in the loss of landscape ecological functions. Seeding the Sampson Creek Fire treatment area one year later would allow for the establishment of desirable, perennial, herbaceous and shrub species which would improve ecological site conditions, wildlife habitat, soil protection and other watershed health values. The use of Oust XP herbicide would assist the treatment area in achieving ecological site potential over the long term. The Proposed Action is also expected to assist the Steptoe A and North Antelope Valley watersheds in conforming with the Standards and Guidelines for Nevada's Northeastern Great Basin and the Fundamentals of Rangeland Health (Title 43 CFR 4180) by improving soil protection, vegetative diversity, habitat quality and other watershed values. Rangeland Health Standard 1 (Upland Sites) states the following:

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

As indicated by:

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

Under the Alternative Action, the primary difference is that vegetative response may occur at a slower rate than the proposed action 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. 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.

Under the Alternative Action, cheatgrass dominated sites within the boundaries of the Sampson Creek Fire are expected to remain the same without the application of Oust XP or another cheatgrass control herbicide and desirable, perennial, herbaceous and shrubs species would likely continue to occur at lesser rates than site potential.

Conformance with the Standards and Guidelines for Nevada's Northeastern Great Basin and the Fundamentals of Rangeland Health (Title 43 CFR 4180) would be expected within the treatment areas under the Alternative Action except for the areas identified with cheatgrass establishment within the boundaries of the Sampson Creek Fire.

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. Future drought related factors would also contribute to the decline in condition of upland vegetative communities. The establishment of pinyon and juniper onto sagebrush ecological sites would continue and the older, decadent even-aged shrub communities would further decline in health and vigor affecting the recruitment and establishment of new grasses, forbs and shrubs which are important for grazing, browsing, soil protection, soil stability and other watershed values. Under the No Action Alternative, impacts to cheatgrass dominated sites within the boundaries of the Sampson Creek Fire are expected to be the same as described under the Alternative Action, inhibiting the establishment and progression of desirable, perennial, herbaceous species. The No Action Alternative may also eventually prevent portions of the allotments within the project area from conforming with the Standards and Guidelines for Nevada's Northeastern 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 Wala-Tarnach Association, the Palino-Urmafot Association, the Pioche-Chen Association, the Eastwell-Shabliss-Izar Association, the Eastwell-Shabliss Association and the Atlow-Chen-Pioche Association (USDA - NRCS, 2005).

The Wala-Tarnach Association occurs from 5,700 to 6,900 feet in elevation and within the 8 to 12 inch precipitation zone (PZ). These soils occur on slopes from 4 to 50 percent. The soil association is comprised of channery⁵ loams; gravelly loams; gravelly, sandy loams and rock outcrop. These soils are well drained, have moderate permeability⁶ and have medium to very high runoff potential.

The Palino-Urmafot Association occurs from 6,200 to 7,450 feet in elevation and within the 8 to 14 inch PZ. These soils occur on slopes from 2 to 15 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 very high runoff potential.

The Pioche-Chen Association occurs from 6,700 to 8,600 feet in elevation and within the 10 to 16 inch PZ. These soils occur on slopes from 15 to 50 percent. The soil association is comprised of stony loams; cobbly loams and gravelly loams. These soils are well drained, have slow to very slow permeability and have a very high runoff potential.

The Eastwell-Shabliss-Izar Association occurs from 6,300 to 6,850 feet in elevation in the 8 to 10 inch PZ. These soils occur on slopes from 0 to 30 percent. The soil association is comprised of gravelly, sandy loams; gravelly, fine, sandy loams; gravelly loams; gravelly, silt loams and silt loams. These soils are well drained to somewhat excessively drained, have moderate permeability and have a very high runoff potential.

The Eastwell-Shabliss Association occurs from 5,950 to 6,950 feet in elevation in the 8 to 10 inch PZ. These soils occur on slopes from 2 to 15 percent. The soil association is comprised of gravelly loams; gravelly, fine, sandy loams; gravelly, coarse, sandy loams and gravelly, sandy loams. These soils are well drained, have moderate permeability and have a very high runoff potential.

The Atlow-Chen-Pioche Association occurs from 6,500 to 8,000 feet in elevation in the 8 to 16 inch PZ. These soils occur on slopes from 0 to 50 percent. The soil association is comprised of gravelly loams; cobbly loams; stony loams; silt loams; gravelly, sandy loams; silt loams and rock outcrop. These soils are well drained, have very slow to moderately slow permeability and have a very high runoff potential.

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

⁵ Channery Relating to soil material which has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone or schist as much as 6 inches along the longest axis. A single piece is referred to as a channer.

⁶ 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).

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. Under the chaining treatment, impacts to soils would result in some soil scarification and furrowing to depths up to approximately 4 to 6 inches. The uprooting of targeted trees will create holes or impressions where the root mass occurred but would eventually fill in or level out over time. The grasses and younger, more vigorous shrubs would remain and continue to provide for soil protection and stability and the trees and larger, more decadent 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. Under the Oust XP treatment, impacts to soils would be expected for the short term. The removal of cheatgrass may create bare soil exposure, especially where limited perennial grasses and shrubs currently exist. Soils would be vulnerable to wind and water erosion for the short term. 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 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 Alternative Action, cheatgrass dominated sites within the boundaries of the Sampson Creek Fire are expected to remain the same without the application of Oust XP or another cheatgrass control herbicide and desirable, perennial, herbaceous and shrubs species would likely continue to occur at lesser rates than site potential.

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. Under the No Action Alternative, impacts to cheatgrass dominated sites within the boundaries of the Sampson Creek Fire are expected to be the same as described under the Alternative Action.

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

In the Steptoe A Watershed, there are 35,608 acres of pronghorn antelope habitat. There are no crucial habitats for pronghorn antelope within the watershed. In the North Antelope Watershed, there are 36,315 acres of pronghorn antelope habitat. There are 1,163 acres of crucial pronghorn antelope winter range within the watershed.

In the Steptoe A Watershed, there are a total of 42,177 acres of elk habitat. Of the total habitat, 321 acres are crucial elk summer range. In the North Antelope Watershed, there are a total of 34,215 acres of elk habitat. Of the total habitat, 2,231 acres are crucial elk summer range.

In the Steptoe A Watershed, there are 35,122 acres of mule deer habitat. There are no crucial habitats for mule deer within the watershed. In the North Antelope Watershed, there are 21,005 acres of mule deer habitat. There are no crucial habitats for mule deer within the watershed.

There are 7,699 acres of pronghorn antelope habitat and 9,299 acres of mule deer and elk habitat within the proposed project area. There are no crucial wildlife habitats identified within the proposed project area.

Migratory bird species of concern in sagebrush habitat include sage thrasher, Brewer's sparrow and sage sparrow. All of these species are common in Nevada and have a high probability of being found within

the proposed project area. Large expanses of sagebrush communities in good condition are favored by all three species, but especially the sage thrasher. Migratory bird species of concern in pinyon/juniper habitat include pinyon jay, gray vireo, juniper titmouse and black-throated gray warbler. All of these species are common in Nevada. The pinyon jay, juniper titmouse and black-throated gray warbler have a high probability of being found within the proposed project area and prefer dense stands of pinyon/juniper woodlands. The gray vireo has a moderate probability of being found in the area and prefers open pinyon/juniper woodlands.

There are no federally listed, proposed or candidate threatened or endangered species found within the proposed project area. No known raptor nesting sites are located within the proposed project area. The sage grouse is a BLM sensitive species that may utilize sagebrush habitat within the proposed project area.

The Steptoe A Watershed is within the Schell Range/Antelope Valley Sage Grouse Population Management Unit (PMU) and has 6 known sage grouse leks, only one of which is active. There are 30,983 acres of sage grouse nesting habitat; 37,320 acres of summer habitat and 25,102 acres of winter habitat. Sagebrush communities comprise approximately 32,000 acres within the Steptoe A Watershed. Approximately 31,000 acres exhibit minimal herbaceous understory with increasing sagebrush composition and increasing pinyon and juniper canopy cover which do not meet the upland and habitat standard. The North Antelope Watershed is also within the Schell Range/Antelope Valley Sage Grouse PMU and has 2 known sage grouse leks, one of which is active. There are 10,159 acres of sage grouse nesting habitat; 39,526 acres of summer habitat and 11,949 acres of winter habitat. Sagebrush communities comprise approximately 30,000 acres within the North Antelope Watershed. Approximately 28,800 acres exhibit minimal herbaceous understory with increasing sagebrush composition and increasing pinyon and juniper canopy cover which do not meet the upland and habitat standard.

There is one known sage grouse lek within the proposed project area. This lek was last active in 1982. The closest active leks are found within one half mile of the north end of the Sampson Creek Fire in the Steptoe A Watershed and about one mile from the Stockade Spring in the North Antelope Valley Watershed. There are also 6,360 acres of sage grouse nesting and early brood rearing habitat, 9,245 acres of sage grouse summer habitat and 5,156 acres of sage grouse winter habitat within the proposed project area.

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. Reducing pinyon and juniper trees on sagebrush sites and improving the production of perennial grasses, forbs and shrubs would favor the sage thrasher, Brewer's sparrow and sage sparrow. There would be little to no effect on pinyon jay, juniper titmouse and black-throated gray warbler populations since the proposed treatments would occur on sagebrush ecological sites and there are many acres of dense pinyon/juniper woodlands in the mountains adjacent to the proposed project area. The proposed action would benefit the gray vireo since it prefers open pinyon/juniper woodlands. 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.

Under the Oust XP treatment, impacts to wildlife habitat would not be expected in the short term. The removal of cheatgrass may create bare soil exposure, especially where limited perennial grasses and shrubs currently exist. 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 mammals. The active ingredients in Oust XP have been found to have very low toxicity to mammals, birds and insects when used in accordance to the label (DuPont Company, 2004-2006). 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.

Implementation of the Proposed Action is expected to benefit wildlife populations, the associated habitat conditions and assist the Steptoe A and North Antelope Valley watersheds 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. The Alternative Action is also expected to meet the key components of sage grouse habitat requirements except on the areas identified with the Sampson Creek Fire. Under the Alternative Action, cheatgrass dominated sites within the boundaries of the Sampson Creek Fire are expected to remain the same without the application of Oust XP or another

cheatgrass control herbicide and desirable, perennial, herbaceous and shrubs species would likely continue to occur at lesser rates than site potential.

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 Steptoe A and North Antelope Valley watersheds in conforming with Rangeland Health Standard 3 (Habitat) as mentioned above under the Proposed Action, except for the areas identified with cheatgrass establishment within the boundaries of the Sampson Creek Fire.

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 22 percent of these communities should be in the shrub dominant state and 72 percent in the herbaceous dominant state. This type of condition would afford habitat resilience and meet habitat needs for sagebrush obligates. Under the No Action Alternative, impacts to cheatgrass dominated sites within the boundaries of the Sampson Creek Fire are expected to be the same as described under the Alternative Action, inhibiting the establishment and progression of desirable, perennial, herbaceous species and resulting in declining habitat values. Under the No Action Alternative, conformance with Rangeland Health Standard 3 is not expected to be met over the long-term.

Cumulative Impacts

Previous actions, such as from past seedings and water developments, have increased forage production, water availability and distribution for wildlife. Activities such as livestock grazing; road construction and maintenance; recreation activities including off-highway travel, camping and hunting; fence construction; uncontrolled wildfire and rights-of-way construction have potentially altered wildlife habitat or affected wildlife behavior and distribution. Most of these activities are expected to continue to some degree in the future and would continue to impact wildlife in a similar fashion. However, as additional forage is provided through vegetative treatments, competition for resources and habitat would decrease, 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 perennial water sources (springs) within the proposed project area. Proper Functioning Condition (PFC) assessments were conducted on springs during 2003. There are no lotic ⁷ riparian areas within the proposed project area. PFC assessments were conducted on the following lentic ⁸ riparian areas:

Name	Location	Function	Trend	Acres	Riparian Type
Flat Spring	T25N, R66E, Sec 2	PFC *		10.0	Lentic
Cress Spring	T25N, R66E, Sec 10	FAR **	Not Apparent	0.10	Lentic
Unnamed Spring	T25N, R66E, Sec 15	NF ***	Not Apparent		Lentic
Stockade Spring	T25N, R67E, Sec 10	PFC		0.10	Lentic

* PFC – Proper Functioning Condition

** FAR – Functioning at Risk (The spring source was fenced to exclude livestock grazing and wild horse use and improve the functioning condition of Cress Spring)

*** NF – Non-functional

Impacts

Under the Proposed Action, the removal of conifer trees which occur near springs or along ephemeral washes through thinning or chaining treatments is expected to improve and enhance riparian values and improve overall riparian habitat conditions. The removal of upland species such as juniper and sagebrush is expected to result in an increase in desirable riparian species over the long term and may result in the eventual presence of surface water along ephemeral washes. An increase in surface water would encourage the establishment of desirable riparian woody species, riparian grasses or riparian grass-like species which would improve bank cover and stability on soils which are vulnerable to scouring and degradation from natural activities such as flooding. Application of Oust XP would not occur directly to any natural or manmade water sources, therefore, no impacts to riparian vegetation are expected. In addition, due to the rapid degradation, Oust XP is not likely to concentrate in groundwater and has a very low potential to adversely impact surface water quality. Over the long term, the establishment of desirable, perennial herbaceous and shrub 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.

Implementation of the Proposed Action would help springs, creeks and ephemeral washes in maintaining PFC or make progress towards achieving PFC over the long term and conforming with Rangeland Health Standard 2 (Riparian and Wetland Sites) which states the following:

⁷ lotic Relating to actively moving waters (e.g., streams, rivers, etc.)

⁸ lentic Relating to still waters; not flowing (e.g., lakes, ponds, swamps, etc.)

"Riparian and wetland areas exhibit a properly functioning condition and achieve state water quality criteria.

As indicated by:

Stream side riparian areas are functioning properly when adequate vegetation, large woody debris, or rock is present to dissipate stream energy associated with high water flows. Elements indicating proper functioning condition such as avoiding accelerating erosion, capturing sediment and providing for groundwater recharge and release are determined by the following measurements as appropriate to the site characteristics:

- Width/Depth ratio;*
- Channel roughness;*
- Sinuosity of stream channel;*
- Bank stability;*
- Vegetative cover (amount, spacing, life form);*
- Other cover (large woody debris, rock)*

Natural springs, seeps, and marsh areas are functioning properly when adequate vegetation is present to facilitate water retention, filtering, and release as indicated by plant species and cover appropriate to the site characteristics.

Chemical, physical and biological water constituents are not exceeding the State water quality Standards."

Under the Alternative Action, herbicides would not impact riparian or wetland areas due to a "no treatment" buffer zone that would be implemented near these areas. Adherence to the Standard Operating Procedures and Project Design Features for Herbicide Applications as identified in the *Final Environmental Impact Statement and the Record of Decision for Vegetation Treatment on BLM Lands in Thirteen Western States* would help in mitigating impacts to riparian and wetland areas. The Alternative Action would help ensure maintenance to existing spring sources. The overall long term impacts to ephemeral washes in regards to the establishment of surface water and riparian vegetation would be very similar to those identified under the Proposed Action, however, these benefits would likely occur at a slower rate. Not applying Oust XP herbicide and seeding cheatgrass infested areas within the Sampson Creek Fire would not affect riparian areas in the short term. However, in the long term, the absence or low density of desirable, perennial herbaceous and shrubs species on cheatgrass infested areas is expected to result in reduced soil protection and stability which would increase potential for soil erosion during flooding and other natural weather events. The soil erosion would likely result in the increase of future sedimentation into nearby riparian areas. Overall, the implementation of the Alternative Action would assist in maintaining PFC or making progress towards achieving PFC at spring sources and assist creeks and ephemeral washes over the long term in conforming with Rangeland Health Standard 2 (Riparian and Wetland Sites).

Under the No Action Alternative, adverse impacts to riparian and wetland areas are expected to occur over time with a continued increase in the establishment of pinyon, juniper and other upland species in these zones. The establishment of these species would reduce the opportunity for the establishment of

desirable riparian species and the potential for perennial surface water flow at springs, creeks and ephemeral washes. With a decreased level of surface water production and a decreased level of desirable riparian woody species, riparian grasses or riparian grass-like species, stream bank protection and stability would eventually be reduced resulting in an increasing vulnerability to scouring and degradation from natural activities such as flooding. Impacts to riparian areas due to the absence or low density of desirable, perennial herbaceous and shrub species on cheatgrass infested areas within the boundaries of the Sampson Creek Fire would be the same as described under the Alternative Action.

Impacts to riparian and wetland areas could also occur in the event that a large wildfire burned and resulted in large scale vegetative destruction. Following an event of this nature, major run-off events would be expected to impact drainages and riparian areas through soil deposition and erosion patterns. Erosion potential following an uncontrolled wildfire would likely be high due to the potential size and intensity of a wildfire, particularly on those sites with a denser pinyon and juniper fuel type which are capable of producing crown fires. Under a natural wildfire event, water flow at spring sources would likely increase more than or similar to the Proposed Action and Alternative Action due to widespread vegetation removal that could occur. The decreased water intake by burned vegetation would cause flow at spring sources to increase, although sedimentation that would occur as a result of erosion associated with a large wildfire could potentially destroy existing riparian vegetation.

The No Action Alternative would not assist springs, creeks and ephemeral washes in maintaining PFC or make progress towards achieving PFC over the long term and conforming with Rangeland Health Standard 2 (Riparian and Wetland Sites).

Cumulative Impacts

Some of the past and current actions on riparian/wetland areas within the project area include moderate to heavy sheep and wild horse use, low water levels and hummocking. Other actions to riparian areas include, but are not limited to, water diversions from pipelines, road construction and maintenance, noxious weed infestations, recreational activities including off-highway travel, fence construction along riparian areas (creates livestock trailing affects), uncontrolled wildfire and rights-of-way construction. Most of the existing activities are expected to continue to some extent in the future and would continue to impact riparian/wetland areas in a similar fashion. The potential for additional activities to occur in the future also exists. Current vegetative treatments combined with future vegetative treatments would assist in approving overall riparian/wetland health. Riparian/wetland policy and guidance would also help to reduce overall impacts to riparian resources.

3.6 Wild Horses and Burros

Affected Environment

The Steptoe A and North Antelope Valley watersheds contain a portion of the Antelope Wild Horse Herd Management Area (HMA). The Appropriate Management Level (AML) for the entire HMA is 324 wild horses. The Ely District's Antelope HMA is managed with the Elko District's adjacent Antelope Valley HMA. 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.

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 Steptoe A and North Antelope Valley watersheds 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.

The primary difference in impacts to wild horses under the Proposed Action and Alternative Action would be that cheatgrass infested areas within the boundaries of the Sampson Creek Fire would continue to persist under the Alternative Action. The failure to implement the Oust XP herbicide treatment and seeding would result in continued amounts of perennial herbaceous species and shrubs at levels lower than site potential. Forage levels on this site would likely be minimal for wild horses over the long term.

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 among 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. Forage levels within the Sampson Creek Fire parameter would likely remain less than optimal on cheatgrass infested areas as mentioned under the Alternative Action.

Cumulative Impacts

Past and current actions on wild horses within the project area include past seedings and water developments. Actions affecting wild horses have included 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 portions of the Becky Springs No. 10101 and Chin Creek No. 10104 grazing allotments. The permitted grazing use on these allotments is as follows:

Becky Springs Allotment No. 10101

Livestock	Season of Use	Scheduled AUMs	Preference (AUMs)		
			Active	Suspended	Total
267 Cattle	11/15-2/28	930	930	0	930
2,024 Sheep	11/1-11/30	399	2,912	0	2,912
2,541 Sheep	12/1-2/28	1,504			
2,517 Sheep	3/1-4/30	1,009			

Chin Creek Allotment No. 10104

Use Area	Livestock	Season of Use	AUMs	Preference (AUMs)				
				Active	Suspended	Voluntary Non-Use	Conservation Non-Use	Total
Spring Valley	3,600 Sheep	4/15-6/15	1,468	1,468	130	178	779	13,245
Spring Valley	1,000 Sheep	6/16-7/15	198	198				
Antelope Range	1,000 Sheep	7/16-9/19	434	434		5	2446	
Antelope Valley *	718 Cattle	11/1-5/31	5,004 *	3,564			2076	
Black Hills	1,000 Sheep	9/20-10/31	277	277				
Black Hills	1,036 Sheep	11/1-4/30	1,242	1,242		6	442	

Chin Creek Allotment The total preference for the allotment includes 13,245 AUMs. Of the total, 130 AUMs are historical suspended; 7,183 AUMs are active; 5,743 AUMs are in non-use for conservation and protection of rangeland resources; and 189 AUMs are in voluntary non-use. The Stipulation to Withdrawal Appeals placed the 5,743 AUMs in non-use for conservation and protection of rangeland resources and placed the 189 AUMs into voluntary non-use. 3,564 of the active AUMs are allocated to cattle and 3,619 of the active AUMs are allocated to sheep. These total active AUMs do not include the 189 AUMs placed in voluntary non-use, which can be activated at any time.

* The 5,004 AUMs includes a rotation schedule administered by the Elko BLM District. The active AUMs for the Chin Creek Allotment (Antelope Valley Use Area) is 3,564 AUMs. 2,076 AUMs are designated as non-use for the conservation and protection of the Federal range within the Ely BLM District.

The proposed treatment areas occur primarily within the Antelope Range and Spring Valley use areas within the Chin Creek Allotment which are primarily all in sheep grazing use areas.

The permittees on the Becky Springs Allotment are Need More Sheep Company and Kay Lear. The primary use within the proposed project area is fall, winter and early spring sheep use.

The permittees on the Chin Creek Allotment are Need More Sheep Company and CL Cattle Company. The primary use within the proposed project is early spring and summer sheep use.

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 Nevada's Northeastern Great Basin Area and the Fundamentals of Rangeland Health (Title 43 CFR 4180) by increasing the quantity and quality of herbaceous vegetation and assisting those ecological sites in progressing toward achieving the 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 sheep weights, increased lambing crops, increased weaning weights, etc.). The Becky Spring and Chin Creek allotments support a traditional and historical lifestyle for livestock permittees in the Steptoe A and North Antelope Valley watersheds. 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 mitigating any future conflicts among livestock, wildlife and wild horses.

Currently, minimal livestock grazing use occurs within the proposed project area due to the lack of forage and inaccessibility due to pinyon and juniper cover and season of use. 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. The overall impacts to the grazing permittees on the Becky Spring and Chin Creek allotments would be minimal, as the permittees could herd livestock and avoid the treatment areas while they are being rested or deferred. If vegetative re-establishment is prolonged as a result of unforeseen circumstances, the permittees would likely not have to find alternative grazing lands to accommodate their livestock operations since the proposed project area currently receives very minimal livestock use.

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. Currently, one band of sheep is rotated north to south during odd numbered years and south to north during even years along the Antelope Range. The proposed project area lies east and west of the areas currently used by livestock. The east portion of Antelope Range is seldom used by livestock. The dense tree canopy cover prohibits herding and grazing by sheep. Cattle use occurs in the valley bottom during the late fall through the early spring season and cattle have not grazed in the pinyon/juniper and sagebrush communities at the higher elevations. The area is primarily used by wild horses and wildlife.

The treatment areas on the west side of the Antelope Range have been used by sheep in the Becky Springs Allotment in the past, however, livestock (sheep) herding can be effective to avoid the treatment areas. Cattle use in the Becky Springs portion of the allotment is largely along the western portion of the allotment outside of the proposed treatment area. Sheep use in the Chin Creek Allotment has occurred primarily in the Spring Valley drainage of the Spring Valley Use Area. Sheep use has been minimal in the Steptoe portion of the use area where the proposed project area is located. Herding would be an efficient tool which could be used to keep the sheep out of the proposed project area.

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. Cheatgrass infested areas within the boundaries of the Sampson Creek Fire would continue to persist under the Alternative Action. Not applying the Oust XP herbicide and not applying seed to the treatment area would result in continued amounts of perennial herbaceous species and shrubs at levels lower than site potential. Forage levels on this site would likely be minimal for livestock over the long term. However, the cheatgrass treatment site comprises a small percentage of the overall allotment acreage, so impacts from losses in AUMs is expected to be minimal.

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 Becky Spring and Chin Creek allotments. 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 Nevada's Northeastern 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 sheep weights, decreased lambing crops, decreased weaning weights, etc.). The Becky Spring and Chin Creek allotments support a traditional and historical lifestyle for the permittees in Steptoe A and North Antelope Valley. 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. 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.

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. The cheatgrass infested areas within the boundaries of the Sampson Creek Fire would not be treated with Oust XP herbicide and seeded under the Alternative Action. Therefore, the aesthetics of this site would likely not be improved due to the low levels of desirable, perennial vegetative species and the lack of vegetative diversity.

Under the No Action Alternative, no immediate direct impacts to visual resources or recreational opportunities would occur except for those described under the Alternative Action on the existing cheatgrass dominated sites with the Sampson Creek Fire boundaries. 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 implementation of the new Ely District Resource Management Plan (RMP) followed by 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, Paleontological and Historical Resource Values

Affected Environment

Very limited historical documentation is known to exist within or immediately adjacent to the proposed project area which suggests that the area may have not been a historically important development of eastern Nevada, except for possible limited agricultural purposes such as livestock grazing, limited mining activity and a possible transportation corridor. The nearest modern ranch is located approximately 12 miles south of the southernmost boundary of the proposed project area.

Impacts

Under the Proposed Action, cultural and historic resources could be affected, however, due to the necessary cultural clearances and reporting requirements, it is unlikely these resources would be impacted if discovered during operations. There would still be some 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, the proposed chaining treatment and the proposed chemical 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. However, the 500 acres which would be treated for cheatgrass infestations within the boundaries of the Sampson Creek Fire would be broadcast seeded with tractors or ATVs. As aforementioned, 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. The failure to treat cheatgrass infested areas with Oust XP herbicide and seed with more fire resistant perennial species would further increase the danger to fire sensitive resources.

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 Steptoe A and North Antelope 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 Benches and Antelope/North Schell Creek Range Fire Management Units (FMUs) as described in the Ely District Managed Natural and Prescribed Fire Plan (2000).

Historically, the North Antelope 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.

There were 74 fires that occurred within a 15 mile radius of the North Antelope project area from 1980 to 2005, in North Spring Valley and the Antelope Mountain Range. The burned acreage varied from 1/10 of an acre to 2,300 acres in size, in which 16 of these fires burned greater than 10 acres. The total acreage burned in this area over the last 25 years totaled 55,712 acres or about 12 percent of the area.

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.

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. The use of Oust XP herbicide is important in helping to prevent the buildup of combustible fine fuels in plant communities, stopping the displacement of desirable shrubs and grasses and control certain invasive weeds such as cheatgrass. Fine, flashy, annual fuels would be removed from the Sampson Creek Fire area and replaced with less volatile, perennial species. 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 cheatgrass infested sites within the parameter of the Sampson Creek Fire would remain a high fire hazard due to the fine, flashy, annual fuels. 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, fuel conditions would continue to increase and accumulate beyond levels representative of the natural (historic) fire regime which would 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. Impacts to the cheatgrass infested sites within the parameter of the Sampson Creek Fire would likely remain the same as described under the Alternative Action. 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 only noxious weed infestations documented within the project area boundary include bull thistle (*Cirsium vulgare*), although Canada thistle (*Cirsium arvense*) and musk thistle (*Carduus nutans*) occur on sites outside the project parameter boundary. Cheatgrass (*Bromus tectorum*) is an invasive, annual species which also occurs within the project area. Refer to Appendix 8.1 (Risk Assessment for Noxious Weeds) and the associated map for a detailed description of noxious weeds and invasive species within the project area boundary.

Impacts

Under the Proposed Action, noxious weeds which have been identified within and surrounding the project area could increase and new noxious weeds and invasive species could become established. 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. Cheatgrass would be removed on approximately 500 acres within the Sampson Creek Fire parameter, however, could be replaced by other undesirable species for the short term until such time that seeding occurs and desirable, perennial herbaceous and shrub species establish.

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. Cheatgrass populations are expected to continue to persist on the Sampson Creek Fire area due to the absence of the Oust XP herbicide treatment. 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. Cheatgrass communities would remain on the Sampson Creek Fire area and impacts would likely be the same as discussed under the Alternative Action.

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 Steptoe A and North Antelope 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

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.

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 Steptoe A and North Antelope 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. The application of Oust XP would not occur directly to any natural or manmade water sources, therefore, no impacts to water quality are expected. In addition, due to the rapid degradation, Oust XP is not likely to concentrate in groundwater and has a very low potential to adversely impact surface water quality. 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.

The failure to treat cheatgrass infested areas within the boundaries of the Sampson Creek Fire is likely to result in soil erosion and deposition in to nearby riparian areas due to the absence or minimal

distribution of deep-rooted herbaceous and shrub species. The impacts could be reduced over the long term if desirable, perennial, herbaceous and shrub species are able to establish naturally.

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.

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. Failure to treat cheatgrass infested areas and seed within the Sampson Creek Fire area could result in periodic, short term declines in air quality due to soil erosion from wind events as described under the Proposed Action.

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”

The only PWRs which occur within the boundaries of the proposed project area include Flat Spring, Cress Spring and Stockade Spring.

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 Steptoe A or North Antelope Valley watersheds 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 within the proposed project area include the Flat Spring, Cress Spring, Stockade Spring, Becky/Chin Creek Fence, Becky/Chin Creek Fence Cattle Guard No. 1, Stockade Pipeline and Flat Nose Spring Seeding.

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 Steptoe A or North Antelope Valley watersheds. Private lands and withholdings and nearby Forest Service lands outside the targeted treatment area could also be adversely impacted as a result of a potential, uncontrolled wildfires. 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 Christmas tree harvest area, as well as a potential area for harvest of posts and firewood.

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 Proposed Action, the Oust XP herbicide treatment would not affect the harvest of commercial products, as the treatment would be applied on a previously burned site which is primarily void of woodland products and Oust XP herbicide does not impact woodland species. Under the Alternative Action, the failure to apply the Oust XP herbicide on cheatgrass areas would likely increase the chances of a large uncontrolled wildfire which could potentially destroy commercial woodland resources within or adjacent to the project area.

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 Steptoe A and North Antelope Valley watersheds.

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 Steptoe A and North Antelope Valley watersheds 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 October 17, 2006, 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.

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.

4.0 PROPOSED MITIGATION MEASURES

Appropriate mitigation measures have been incorporated into the Proposed Action and the Alternative Action and none are proposed in response to the anticipated impacts. Mitigation measures include considerations for sage grouse; migratory birds; livestock grazing; range improvement projects; historic and cultural resources; noxious weeds and invasive species; water quality; mining claims and utility lines and other ROWs.

5.0 SUGGESTED MONITORING

Appropriate monitoring has been incorporated into the Proposed Action and the Alternative Action and no additional monitoring is suggested. 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. | Curt Baughman | Game Biologist (NDOW - Southern Regional Office) |
| 2. | Jason Williams | Non-Game Biologist (NDOW - Southern Regional Office) |
| 3. | Steve Foree | Supervisory Habitat Biologist |
| 4. | Need More Sheep Company | Becky Spring and Chin Creek Allotments Permittee |
| 5. | Kay Lear | Becky Springs Allotment Permittee |
| 6. | CL Cattle Company | Chin Creek Allotment Permittee |
| 7. | Katie Fite | Western Watersheds Project |
| 8. | Ed Naranjo (Tribal Administrator) | Confederated Tribes of the Goshute Res. |
| 9. | Zosia Targosz (Coordinator) | Nevada State Clearinghouse |
| 10. | Nevada Division of State Lands | |
| 11. | State Historic Preservation Office | |
| 12. | Eastern Nevada Landscape Coalition | |

Public involvement also consisted of the following:

1. a letter to all the identified public interests on October 5, 2006;
2. a Tribal coordination meeting conducted on October 17, 2006;
3. a notice under the "NEPA Projects" on the Ely Field Office website located at <http://www.nv.blm.gov/ely> on October 4, 2006;
4. continued contact with the permittees that could be affected by the proposed action or alternatives;
5. a project area tour to all public interests on November 8, 2006;
6. and through consultation with partner agencies such as NDOW

B. Internal District Review

<u>Name</u>	<u>Title</u>	<u>Resources</u>
Jeff Fenton	Fire Planner	Fire, Fuels, Vegetation
Paul Podborny	Wildlife Biologist	Wildlife, T&E/Sensitive Species, Riparian
Brett Covlin	Rangeland Management Spec.	Livestock Grazing
Benjamin Noyes	Wild Horse and Burro Spec.	Wild Horses
Gary Medlyn	Watershed Project Manager	Soil, Water, Air, Floodplains
Kurt Braun	Archeologist	Cultural/Paleontological/Historical Res.
Melanie Peterson	Environmental Protection Spec.	Hazardous Materials
Bonnie Waggoner	Noxious Weed Coordinator	Noxious Weeds, Invasive Species
Steve Leslie	Wilderness Planner	Wilderness Values, VRM, Recreation
Elvis Wall	Civil Engineering Technician	Native American Religious Concerns
Doris Metcalf	Realty Specialist	Lands and Realty Uses
David Henson	Supervisory Range Technician	Fire History Summary
Jake Rajala	Planning Environmental Coord.	NEPA Compliance

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8.0 APPENDICES

Appendix 8.1

Risk Assessment for Noxious Weeds

In November of 2006, a Noxious Weed Risk Assessment was completed for the North Antelope Valley Habitat Improvement and Fuels Reduction Project. The proposed project area is located in the Steptoe A and North Antelope Valley watersheds within Townships 25 and 26 North and Ranges 66 and 67 East; Mount Diablo Meridian (MDM); White Pine County, Nevada. Both the west and east portions of the project area occur within the Becky Spring and Chin Creek allotments. The project area parameter includes approximately 12,010 acres, although an estimated 60 to 70 percent of the total acreage would be targeted for treatment. The proposed project area has been officially surveyed for noxious weed infestations.

The only infestations which have been recorded within the project parameter include bull thistle (*Cirsium vulgare*) and musk thistle (*Carduus nutans*), although Canada thistle (*Cirsium arvense*) infestations occur outside the project area boundaries. The musk thistle infestations located within the parameter of the Sampson Creek Fire of 2004 were recorded in 2003.

Cheatgrass (*Bromus tectorum*) is an invasive, annual species which also occurs within the project area, with the higher densities occurring within the boundaries of the Sampson Creek Fire.

Factor 1 assesses the likelihood of noxious weed and invasive species spreading to the project area. For this project, the factor rates as Moderate (4) at the present time. This means that noxious weed species are located immediately adjacent to or within the project area. Project activities are likely to result in some areas becoming infested with noxious weed species even when preventative management actions are followed. Control measures are essential to prevent the spread of noxious weeds within the project area.

Vegetative disturbance associated with the thinning and chaining treatments will create openings in the existing vegetative community which could be susceptible to noxious weed and invasive species (e.g. cheatgrass) encroachment and establishment from nearby existing infestations.

The risk in the mechanical treatment areas would be mitigated by seeding drought tolerant and fire resistant species which are capable of competing with noxious weeds and invasive species. Once established, the seeded species would provide long-term protection against future noxious weed and cheatgrass invasions. During project implementation, existing noxious weed infestations (riparian corridors outside the target areas) would be avoided to the extent possible.

Even with appropriate mitigation measures during project implementation, there is still a potential for noxious weed establishment within the project area due existing noxious weed infestations outside the project's target area. Weed detection would be incorporated into post-project monitoring and appropriate suppression actions would be implemented if noxious weeds were established. Suppression measures would include reporting the weeds to the Ely Field Office Weed Coordinator in order to have the infestations incorporated into the noxious weed treatment schedule as soon as possible. Cheatgrass

establishment would also be incorporated into monitoring activities and mitigating measures would be implemented to the extent possible to prevent cheatgrass invasions.

Factor 2 assesses the consequences of noxious weed establishment in the project area. For this project, the factor rates as Moderate 4 at the present time. This means that there are possible adverse effects on site and possible expansion of infestations within the project area. Cumulative effects on native plant communities are likely, but limited.

The location of roads within the vicinity of the project area has the potential for noxious weed establishment through vehicular travel and the presence of cheatgrass within the project area could serve as vectors for noxious weed and invasive species establishment. Disturbance created within the project area could provide optimum establishment areas for noxious weeds and invasive species. However, the successful establishment of desirable, seeded species should reduce the potential for noxious weed and undesirable species establishment.

The Risk Rating is obtained by multiplying Factor 1 by Factor 2. For this project, the Risk Rating is Moderate (16) at the present time. This means that preventative management measures for the proposed project should be developed to reduce the risk of introduction or spread of noxious weeds into the area. Preventative management measures should include modifying the project to include seeding the area to occupy disturbed sites with desirable species. The area should be monitored for at least 3 consecutive years. Control should be provided for newly established populations of noxious weeds and follow-up treatments should be provided for previously treated infestations.

Vehicles and other equipment used for construction and implementation of the project should be washed before and after implementing the proposed project to remove any vegetation and potential noxious weed and undesirable species parts. Seed should be tested to ensure that no noxious weeds are present. Noxious weed detection would be incorporated into both pre and post monitoring strategies to identify avoidance areas and to eliminate the spread of noxious weeds. If post-monitoring indicates the invasion and establishment of noxious weeds, appropriate eradication actions (mentioned above) would be implemented. The project area would be monitored for at least 3 consecutive years to provide for the control of newly established populations of noxious weeds and follow-up treatment for previously treated infestations.

Reviewed by:

/s/ Bonnie Waggoner on November 20, 2006
BLM Noxious Weed Coordinator