

**U.S. Department of the Interior
Bureau of Land Management (BLM)**

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**Lincoln County Sage Grouse Habitat
Restoration Project**

U.S. Department of the Interior
Bureau of Land Management
Ely Field Office
HC 33 Box 33500 (702 N. Industrial Way)
Ely, Nevada 89301-9408
<http://www.nv.blm.gov/ely>
Phone: 775-289-1800
Fax: 775-289-1910

BLM



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CHAPTER 1: NEEDS AND GOALS FOR ACTION

1.1 Need for the Proposed Action

Long-term fire suppression, historic grazing management, and drought related conditions have led to the conversion diverse sagebrush communities to areas dominated by homogenous stands of sagebrush, with little or no understory of **perennial**¹ grasses and **forbs**. Increasing pinyon and juniper trees and habitat fragmentation throughout the Great Basin have also contributed to an increased loss of suitable sage grouse (*Centrocercus urophasianus*) habitat. The sage-grouse's life cycle relies heavily on diverse sagebrush stands with a rich understory of **perennial** grasses and **forbs** for cover and food.

Sage grouse have been identified as a BLM special status species and is a federal candidate for listing. The BLM management objectives for special status species is that which would prevent listing of the species. Section 102(a)(8) of the [Federal Land Policy and Management Act \(FLPMA\) of 1976](#) mandates that “the **public lands** be managed in a manner that will...provide food and habitat for fish and wildlife and domestic animals” In accordance with the FLPMA, the BLM's Ely District Office proposes to implement project 6 of the [Lincoln County Sage Grouse Conservation Plan](#) (LCP). Project 6 of the LCP intends to “Where appropriate restore dynamic sagebrush plant communities throughout each population management unit (PMU)” using strategies to “Identify sagebrush plant communities where there is a uniform age stand of decadent sagebrush that could provide better quality habitat, and investigate methods for remedy” followed by the implementation of these strategies ([Clifton, et al., 2004](#)).

The implementation of this plan would occur through improving sage grouse habitat quality by restoring approximately 9500 acres of marginal sage grouse habitat at sites with high restoration potential within a 5 km buffer zone of active sage grouse leks. Marginal habitat is characterized by poor nesting, brood rearing and foraging areas. There are large areas of decadent sagebrush with little or no understory vegetation in the project area. Replacement of native vegetation by **invasive** grasses has detrimentally affected habitat quality in previously suitable areas. Sagebrush establishment has also caused decreases in **perennial** grass cover and **forb** composition that in turn has reduced habitat diversity and condition in some areas. For these reasons the goals of the LCP include maintaining and improving existing sagebrush habitat, maintaining or increasing sage grouse populations, and restoring sagebrush plant communities ([Clifton, et al., 2004](#)). The treatment areas are located in Hamblin Valley, South Spring Valley, Cave Valley, Lake Valley, and Patterson Wash as suggested by the LCP ([Map C1](#)).

¹ Definitions of bolded words in text can be found in the [glossary](#).

1.2 Goals of the Lincoln County Sage-Grouse Habitat Restoration Project

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

Goals	Objectives for Quality Foraging and Nesting Habitat:	Long Term management Indicators of Desired Future conditions based on the LCP(2004)*
Improve sage grouse vegetative cover consistent with foraging and nesting needs	<p>Objective 1: Reduce sagebrush cover to site- specific suitable levels suggested by the LCP</p> <p>Objective 2: Restore the cover of perennial grasses and forbs based on the LCP and site- specific analysis</p>	<p>Perennial Grass \geq 10% Crown Cover</p> <p>Forbs \geq 5% Crown Cover</p> <p>Shrubs 15% to 25% Crown Cover</p>

*These figures are based on precipitation zones of 10-12" proposed treatment areas fall into an 8-10" precipitation zone.

1.3 Relevant Plans, EAs, Laws, Regulations, and Other Relevant Documents

This EA fulfills the National Environmental Policy Act (NEPA) requirement for a site-specific analysis.

The proposed action is in conformance with the decisions stated in the following Land Use Plans (LUP):

BLM Schell Management Framework Plan (MFP) (1983)

- W/L-2.3 “All vegetative manipulation projects will be designed with irregular boundaries and islands of original vegetation.”
- W/L-2.4 “Use the various activity plans to help improve plant diversity consistent with the plan’s objectives.”
- W/L-6.3 “Conduct on site examinations for all occupancy or vegetative disturbing activities within a 2 mile radius of sage grouse strutting grounds. This will be done in accordance with sage grouse guidelines as published by Western States Sage Grouse Committee.”
- RM-1.2 “Seedings are to be implemented within the general areas [...]. All seedings are to be designed for multiple uses. [...] An EA must be done to evaluate and mitigate site specific impacts.

Egan Resource Management Plan (RMP) (1987)

- “All vegetation would be managed for those succession stages which would best meet the objective of this proposed plan” (p. 19-20).
- Standard Operating Procedures (SOP) #1 “Environmental assessment will be conducted before project development so that, depending on impact, modification or abandonment of the proposed project may be considered” (p. 25).
- SOP #4 “Cultural resource protection [...]. Prior to project inventories will be conducted in specific areas that would be impacted by implementing activities. If cultural or paleontological sites are found, every effort will be made to avoid impacts” (p.25)

- SOP #7 “Deferral of livestock use will be in effect for a minimum of two growing seasons following vegetation conversion projects so vegetation may be reestablished. This may require a temporary nonuse agreement with the rancher involved to suspend part of the use in the allotment until the vegetation can be properly managed for grazing” (p. 26).
- SOP #10 “Alteration of sagebrush areas either through application of herbicides, prescribed burning, or by mechanical means will be in accordance with procedures specified in the Memorandum of Understanding between the Nevada Department of Wildlife (NDOW) and BLM relating to the Western States Sage Grouse Guidelines” (p.26)
- SOP #12 “Soils Inventories will be completed prior to planning vegetation conversions to determine land treatment feasibility” (p.26).

The proposed action is also consistent with other federal, state, and local plans including, but not limited to, the following:

[Northeastern Great Basin Resource Advisory Council \(RAC\) Standards and Guidelines](#) (1997)

- Grazing Standard 3 (Habitat) states, in part, “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.”
- Grazing Standard 4 (Cultural Resources) states “Land use plans will recognize cultural resources within the context of **multiple uses.**”

[Mojave-Southern Great Basin RAC Standards and Guidelines](#) (1997)

- Habitat and Biota. “Management practices will promote the conservation, restoration, and maintenance for special status species.” (p. A-10)
- Habitat and Biota. “Vegetation manipulation treatments may be implemented to improve native plant communities [....]” (p. A-10).

[Lincoln County **Public Land** and Natural Resource Management Plan](#) (1997)

- Policies for Grazing: “Grazing shall be managed to support a healthy **range** resource.” (p. 15)
- Policies for Recreation “Public lands are for the use of the people. The policy shall be that the public lands will be managed for the benefit is its own citizenry while welcoming the constructive development of recreational activities and beneficial use of other natural resources.” (p.12)

[Ely District Managed Natural and Prescribed Fire Plan](#) (2000)

- “The management goals are to [...] to reduce wildfire suppression costs and acres requiring rehabilitation” (p. 13).
- “The vegetation management objectives are to manage for the desired plant community for each vegetation type” (p. 13, 14).

Ely Field Office Fire Management Plan (2004)

- “[...] non-fire fuels treatments (mechanical, chemical, and biological) will be developed and implemented in order to [...] and restore ecosystem health” (p. 22).

This analysis is tiered to the following Environmental Impact Statements (EIS):

Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States EIS (2007)

- Impacts to resources from the active ingredients in herbicides proposed for use are disclosed in the aforementioned EIS, and the application and types of herbicides proposed for use within this EA are within these parameters.

Final Vegetation Treatment on BLM Lands in Thirteen Western States EIS (1991) and Vegetation Treatments on BLM Lands in Thirteen Western States Programmatic Environmental Report (PER, 2007)

- Discloses the general effects on the environment of using non-herbicide treatment methods including fire use, mechanical, manual, and biological control methods to treat hazardous fuels, **invasive** species, and other unwanted or competing vegetation. Treatment methods proposed in this EA are within the scope of the selection criteria for treatment methods considered.

Schell Grazing EIS (1983)

The proposed action also complies with the following laws, regulations, policies, and procedures:

- National Historic Preservation Act of 1966 (as amended)
- The Archaeological Resources Protection Act of 1979 (as amended)
- The American Indian Religious Freedom Act of 1976
- The Native American Grave Protection and Repatriation Act of 1989
- Wild and Free Roaming Horse and Burro Act of 1971 (as amended)
- The Endangered Species Act of 1973 (as amended)
- Executive Order 13186 (2001) in relation to migratory birds
- Visual Resource Management Classifications
- Ecosystems for BLM-Administered Lands in Nevada
- Federal Land Policy and Management Act of 1976
- State Air Quality Standards
- The Clean Water Act of 1987 (Surface & Ground) Safe Drinking Water Act Amendments of 1996

1.4 Resources analyzed in Detail

The following resources were analyzed in detail based on potential impacts to the human environment. The identification of impacts for this EA was accomplished by considering resources that could be affected by implementation of the proposed action, as well as through involvement with the public and input from an interdisciplinary team. The following resources were identified as having potential impacts and have been analyzed within the consequences section of chapter 3.

- Non-native **invasive species** including **noxious weeds**
- Vegetation
- Soil
- Livestock Grazing
- Wild horses
- Recreation & visual resource management (VRM)
- Wildlife
- Migratory birds
- Special status species
- Fire management

CHAPTER 2: PROPOSED ACTIONS

2.1 Proposed Actions

The Ely District BLM proposes to restore sage grouse habitat in Lincoln County, Nevada using a combination of mechanical and chemical treatments with or without seeding. The proposed restoration sites have high restoration potential, and were chosen due to factors including decadent sagebrush with cover exceeding the recommended levels, and the amount of **perennial** grasses and **forbs** in the understory. The method used for each treatment area would be determined based on existing biological (i.e. cheatgrass density, presence of **perennial** grasses and **forbs**, % of sagebrush cover) environmental and physical conditions. Treatments would not exceed 20% of the 5 km buffer area surrounding the active leks, and would total approximately 9,500 acres of known sage grouse habitat. All treatments would be implemented starting in September of 2008. See Table 2 below for the proposed treatments, location, and extent of treated areas.

Table 2. The proposed treatments, location, and approximate acres of treated areas

Proposed Treatment	5 Kilometer Buffer Area					Total Acres Of Various Treatment Methods
	Hamblin Valley (24,600 acres)* (Map C2)	Lake Valley (28,500 acres)* (Map C3)	South Spring Valley (15,500 acres)* (Map C4)	Cave Valley (22,800 acres)* (Map C5)	Patterson Wash (16,800 acres)* (Map C6)	
Alternating Strip SPIKE 20P Application	800	1,900	0	0	0	2,700
Smooth Double Chaining with Aerial Seeding	1,400	0	1,000	0	0	2,400
Roller Chopper with Broadcast Seeding	0	0	1,300	1,800	1,300	4,400
Acres of Sage-Grouse Habitat Area Treated	2,200	1,900	2,300	1,800	1,300	9,500
% of 5 kilometer buffer Area Treated	8.94%	6.67%	14.84%	7.89%	7.74%	

*Acres of 5 kilometer buffer areas

2.1.1 Livestock Management Options

A rest period from livestock grazing is necessary in order to facilitate the establishment, protection, and long-term viability of the sage grouse habitat restoration project. Meetings would be arranged with affected **permittees** to discuss which of the livestock management options below are most suitable. The rest period would be for a minimum of two complete growing seasons to allow for proper seed establishment. Establishment criteria would consist of a minimum 7% herbaceous seeded and native species. The rest period may be adjusted pending vegetation establishment and environmental conditions. An interdisciplinary team would conduct a field examination to determine when best grazing management practices would be implemented within the treatment areas.

Option 1: Temporary Fencing

Temporary fencing would be constructed to allow rest for selected treatment areas. The fence would be built to meet standards regarding cattle and wildlife specifications (BLM H-1741-1), consisting of a smooth bottom wire and three strands of barbed wire with steel posts placed every 16 feet 6 inches. White flagging, 8 to 24 inches long, would be attached to the top wire between posts during construction to alert livestock, wild horses, and wildlife to the new fence. Placement of one-way gates (finger gates) would be determined by the wild horse specialist (dependent on location of water sources) if fencing completely closes off an area within wild horse herd management areas (HMA). Finger gates are constructed of gate panels that are held closed by gate springs. Pressure on the gate panels allows the gate to open which forms a funnel like opening that allows for one-way access out of the treatment enclosure for wild horses that may enter the area.

Construction of the temporary fences would commence during the summer/autumn 2008. Cross country travel by vehicles and construction equipment would be permitted along the fence line during construction and for maintenance. A minimum amount of vegetation would be removed to facilitate fence construction. Equipment would be washed with high-pressure equipment prior to entering the treatment areas and after treatments to help prevent weed establishment.

The BLM would supervise and monitor fence construction to insure specifications and best management practices (BMPs) are followed, particularly those that would minimize impacts to vegetation resources. The BMPs for the proposed action are approved by management and listed in Appendix B. Temporary fencing would be removed when the rest period has ended.

Option 2: Water Distribution

Water distribution would be utilized through authorization of new watering sites and/or closure of existing watering sites to allow for rest of the treatment areas. Cattle will normally not travel more than 3 miles from their water source during warm season grazing. Placement of water sites greater than 3 miles from treatment areas would generally allow rest from cattle grazing. Water troughs would be placed near existing roads or in previously disturbed areas and would be filled as necessary by a water hauling truck. Water troughs would be removed at the end of each grazing season.

Option 3: Herding

In treatment areas where sheep are present, herding would be a viable option allowing necessary rest. Sheep **permittee(s)** would be provided with maps, and a description of the area to facilitate avoiding treatment areas. If necessary the area could be marked with flagging.

Option 4: Use Area/Pasture Closure

Use area/pasture closure to livestock grazing would be a viable option for those **permittee(s)** who have additional resources available to relocate the livestock displaced from temporary use area/pasture closure. No new fences would be constructed.

2.2 Treatment Descriptions

2.2.1 Smooth Double Chaining with Aerial Seeding

Smooth anchor double chaining would be implemented using a 90 ft long chain pulled in a ‘U’ shape between two tractors driving a distance of approximately 30 ft apart. The first chaining pass would be followed with aerial seeding and a second pass in the opposite direction. This method decreases shrub canopy releasing any existing understory vegetation and creating moderate soil disturbance encouraging seed establishment. This treatment would be used in drainage bottoms consisting of taller, dense sagebrush stands with little to no understory species ([Table 2](#)).

Seeding would occur on sites with limited seed sources and limited understory species ([Table 2](#)). Seed would be acquired from various suppliers and applied using broadcast or aerial seeding. Seed purchased would be tested for purity and **noxious weeds**. Seed mixes containing **noxious** seeds would be rejected. Seed mixes for the seeded areas would be chosen based on the **Ecological Site Description (ESD)**, the existing **forb** and **perennial** grass components within each treatment area, and the availability of seed supplies. The following table summarizes the proposed seed mixes with the respective seeding rates (**pure live seed (PLS)/ft²**).

Table 3. Summary of the proposed seed mixes, acres seeded, and seeding rates listed by the associated areas

Treatment Areas within 5 Kilometer Buffer Areas	Seed Mix	Seeding Rates (PLS/ft²)
Hamblin Valley (~1,400 acres) (Map C2)	Basin Wildrye (<i>Leymus cinereus</i>)	15.9
	Lewis Flax, Maple Grove (<i>Linum lewisii</i>)	2.3
	Indian Ricegrass (<i>Achnatherum hymenoides</i>)	8.0
South Spring Valley (~1,000 acres) (Map C4)	Scarlet Globemallow (<i>Sphaeralcea coccinea</i>)	1.9
	White Western yarrow (<i>Achillea millefolium</i>)	1.9
Total	5 Species (3 perennial grasses, 2 forbs)	30.09

2.2.2 Roller Chopper with Broadcast Seeding

A roller chopper is a large hollow drum with triangular wedges welded onto the outside surface and pulled behind a tractor. Varying amounts of water would be added to the drum to adjusting the weight and the degree of sagebrush reduction. A broadcast seeder attached to the roller chopper would spread seed during treatment. This method reduces shrub density and shrub cover by crushing vegetation and releasing the existing understory. It also prepares soil for seed application by creating some moderate soil disturbance. Soil disturbance increases water infiltration and retains runoff encouraging seed establishment. This treatment method would be used on benches with shorter, even-aged, dense sagebrush stands with little to no understory species ([Table 2](#)).

Seeding would occur on sites with limited seed sources and limited understory species ([Table 2](#)). Seed would be acquired from various suppliers and applied using broadcast or aerial seeding. Seed purchased would be tested for purity and **noxious weeds**. Seed mixes containing **noxious** seeds would be rejected. Seed mixes for the seeded areas would be chosen based on the **Ecological Site Description (ESD)**, the existing **forb** and **perennial** grass components within each treatment area, and the availability of seed supplies. The following table summarizes the proposed seed mixes with the respective seeding rates (**pure live seed (PLS)/ft²**).

Table 4. Summary of the proposed seed mixes, acres seeded, and seeding rates listed by the associated areas

Treatment Areas within 5 Kilometer Buffer Areas	Seed Mix	Seeding Rates (PLS/ft²)
South Spring Valley (~1,300 acres) (Map C4) Cave Valley (~1800 acres) (Map C5)	Lewis Flax, Maple Grove (<i>Linum lewisii</i>)	2.3
	Bottlebrush Squirreltail (<i>Elymus elymoides</i>)	1.9
	Indian Ricegrass (<i>Achnatherum hymenoides</i>)	12.1
	Sandberg's Bluegrass (<i>Poa secunda</i>)	8.1
	Needle and thread (<i>Hesperostipa comate</i>)	2.1
	Scarlet Globemallow (<i>Sphaeralcea coccinea</i>)	1.9
	White Western yarrow (<i>Achillea millefolium</i>)	1.9
Total	7 species (4 perennial grasses, 3 forbs)	30.33
Patterson Wash (~1,300 acres) (Map C6)	Lewis Flax, Maple Grove (<i>Linum lewisii</i>)	3.1
	Indian Ricegrass (<i>Achnatherum hymenoides</i>)	12.1
	Scarlet Globemallow (<i>Sphaeralcea coccinea</i>)	2.9
	Blue grama (<i>Bouteloua gracilis</i>)	12.0
Total	4 species (2 perennial grasses, 2 forbs)	30.00

2.2.3 Alternating Strip Spike 20P (Active Ingredient Tebuthiuron) Application

Spike 20P would be used to reduce sagebrush cover consistent with project objectives of 15 to 25%. It would be applied to areas that already have a suitable understory component ([Table 2](#)) thereby providing the existing vegetation with conditions that would promote growth of **forbs** and **perennial** grasses. Pellet application would occur by using fixed wing aircraft in an alternating strip pattern creating a mosaic of sagebrush cover. Typically, the highest density of pellet application would occur directly under the plane and would decrease as the distance from the plane increases. This creates areas of higher sagebrush reduction (50-75%) as well as areas of little to no sagebrush reduction (0-10%). Typical reduced application rates of 1-1.5 lbs/acre (0.2-0.3 lbs active ingredient/acre) would produce 50-75% canopy reduction. These rates and associated canopy reductions are base on soils with average clay components and actual canopy reduction is dependent on site characteristics. Actual application rates would be determined by an authorized Spike 20P distributor using site specific soil testing prior to application ensuring sagebrush canopy reduction consistent with the shrub cover objectives. The use of Spike 20P for this project would follow the herbicide's label at all times and the application would be completed by a licensed Nevada Pesticide Applicator. The herbicide applications will at all times follow the mitigation measures and standard operating procedures spelled out in the Final Vegetation Treatment on BLM Lands in Thirteen Western States EIS.

2.3 Mitigations Incorporated into the Proposed Actions

2.3.1 Invasive Species/ Noxious Weeds

Mitigation measures identified in the Risk Assessment for **Noxious** and **Invasive** Weeds ([Appendix A](#)) would be implemented as part of the proposed action minimizing the potential for weed establishment. The herbicide applications will at all times follow the mitigation measures and standard operating procedures spelled out in the Final Vegetation Treatment on BLM Lands in Thirteen Western States EIS.

2.3.2 Cultural Resources

Cultural resource inventories would be conducted on all areas that would experience ground disturbance and have not had a survey within the last 10 years. This includes the proposed treatment areas and any off road areas surrounding the treatment areas which may have vehicle traffic, staging areas, and fence construction. All National Register of Historic Places (NRHP) eligible sites would be avoided with a 20 meter buffer zone.

2.3.3 Soil

No new roads would be constructed or created during project implementation. Some off-road travel would occur during the implementation of the proposed action, and the pre- and post-monitoring of the treatment areas. Loading and unloading equipment would occur on existing roads to minimize off-road disturbances and minimize soil erosion.

2.3.4 Livestock Grazing

Existing **range** improvements would be avoided during implementation of the proposed action.

2.3.5 Recreation & Visual Resource Management (VRM)

Mechanical and chemical treatments would create a patchwork design and/or use the natural landscape borders of the proposed treatment areas to ensure variability in sagebrush percent cover and visual patchiness. A buffer would be implemented near known designated trails or off-highway vehicle (OHV) routes deterring route proliferation.

2.3.6 Migratory Birds

To protect migratory birds during the nesting period, proposed action implementation would not occur between March 1st and August 31st. These dates were chosen based on nesting periods of migratory birds in the project area.

2.4 Monitoring and Inspection

2.4.1 Pre-treatment

An assessment of the current vegetation composition would occur prior to treatment implementation. Line-intercept sampling ([BLM, 1996](#)) and/or Daubenmire plots ([Sather-Blair, Makela, Carrigan, & Anderson, 2000](#)) would be utilized to analyze vegetation cover and composition. This would establish a comparative baseline data in which to measure the treatment progress. It would also provide data to compare weed densities and how **invasive** species respond to various treatments. Photo points would also be established to provide a visual representation of the progress of the project objectives.

Sage grouse movements would be documented prior to treatment implementation using radio collars. This pre-treatment data would be used to compare sage grouse use patterns before and after vegetation treatments.

2.4.2 Post-treatment

Post-treatment vegetation monitoring (Line-intercept sampling ([BLM, 1996](#)) and/or Daubenmire plots ([Sather-Blair, Makela, Carrigan, & Anderson, 2000](#)) and photo points would occur annually until sage grouse habitat restoration goals have been met ([Table 1](#)). Grazing by wildlife, wild horses, and unauthorized livestock would also be monitored using visual inspections and utilization studies ([BLM, 1996 Revised in 1997,1999](#)). Post treatment vegetation surveys would also determine the response of **invasive species** and **noxious weeds** to the various treatments.

Where implemented, temporary fence construction may decrease available grazing area. The affected **allotments** would be monitored by the BLM ensuring proper range management.

Sage grouse populations and movements would continue to be monitored following treatment implementation.

2.5 No Action Alternative

Under the no action alternative, there would be no treatments applied within the project area and sage grouse habitat quality would continue to decline, as **perennial** herbaceous understory deteriorates over the long term.

2.6 Alternatives Considered but Eliminated from Detailed Analysis

- Use of disking and pipe harrowing as a treatment was eliminated from detailed analysis due to unnecessary soil disturbance and erosion.
- Use of prescribed fire as a treatment was eliminated from detailed analysis due to lack of control and greater potential for cheatgrass establishment.
- Use of mowing as a treatment was eliminated from detailed analysis due to the inability to create sage grouse specific habitat requirements. Mowing would remove all sagebrush cover to a specified height; this would remove necessary brush cover for nesting habitat.

CHAPTER 3: AFFECTED ENVIRONMENT AND CONSEQUENCES

3.1 General Description and Introduction

The project area is located within the Hamblin, Lake, South Spring, Cave Valleys and Patterson Wash within the northern portion of Lincoln County, Nevada. Annual precipitation ranges from 8 to 10 inches and average temperatures range from 21.4 to 88 deg F. Treatment areas are located in valley benches and drainages within Wyoming sagebrush habitat.

The mandatory items, as identified by the BLM Manual 1790-1, are listed in [Table 5](#) below. Items that may be affected are further described in the consequences section of this EA. Negligible impacts to resources are not analyzed in detail.

Table 5. BLM mandatory items of the human environment and rationale for decision on level of analysis

Mandatory Items	No/ Effect	May Affect	Not Present	Rationale for Detailed Analysis or No Analysis
Air Quality	X (Negligible*)			The proposed action would increase the production of temporary localized dust and exhaust. State air quality standards would not be violated.
Areas of Critical Environmental Concern			X	No Treatment proposed within any designated or proposed ACEC
Cultural Resources	X			Cultural resource inventories would occur on all areas proposed for disturbance. Cultural resources identified would be avoided with a 20 meter buffer. Cultural sensitivity of the treatment an area have been analyzed and appears in Appendix D .
Environmental Justice	X			No minority or low-income groups would be affected by disproportionately high and adverse health or environmental effects.
Prime and Unique Farm Lands	X			Potential prime or unique farmlands exist within Cave Valley and Patterson Wash treatment areas; however, there is no current existing irrigation within the treatment areas. None of the proposed treatments would impact the soil enough to cause it to miss one of the criteria for any of the farmland designations, causing it to lose that designation.
Flood Plains	X (Negligible*)			Floodplains exist within Hamblin and Lake Valleys. Flooding (<5% chance) is possible but only under extremely unusual weather patterns. The proposed action would improve the functionality of the floodplains in the long term.
Migratory Birds		X		Proposed Action may .have indirect negative effects on individual Migratory birds.
Native American Religious Concerns			X	Local tribes were informed of the proposed treatments and had no religious concerns.
Non-Native Invasive Species, Including Noxious Weeds		X		Treatment methods have the potential to increase the densities of non-native invasive species, including noxious weeds.
Threatened and Endangered Species			X	Resource is not present.
Special Status Species		X		Other than the intent of the proposed action, impacts to Special Status Species could result in the loss of individuals of special status species may occur due to heavy equipment use.
Visual Resources		X		Proposed action would improve the landscape characteristics of the visual resource classifications
Wastes (hazardous or solid)	X (Negligible*)			All refuse, waste, and additional construction material will be cleaned up and removed from the project site upon project completion.
Water Quality (Surface, Ground, & Drinking)	X (Negligible*)			There are no municipal drinking waters in the proposed project area and no ground water would be encountered or infiltrated during the proposed action. Temporary soil sedimentation may occur during intense precipitation events. This EA tiers to Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States (ROD, 2007) and the application and types of herbicides proposed for use within this EA are within these parameters.
Wetlands/Riparian			X	Resource is not present.
Wild Horses and Burros		X (Horses)	X (Burros)	The proposed action may temporarily displace wild horses. Burros are not present. The proposed action would improve habitat for horses in localized areas.
Wild and Scenic Rivers			X	Resource is not present.
Wilderness			X	Resource is not present.

*Negligible: Acknowledgment of some impacts however not enough to warrant a detailed analysis.

In addition to the mandatory items, the BLM considers other resources and uses that occur on **public lands**. The potential resources and uses that were determined to be affected are listed in [Table 6](#) and are further analyzed in the consequences section of this EA.

Table 6. Other resources and uses, with rationale for decision of analysis

Resource or Use	Rationale for Detailed Analysis or No Analysis
Soil	Soil erosion may occur due to mechanical treatments.
Vegetation	Vegetation composition, cover, and density would be altered.
Wildlife	Alteration of decadent sagebrush may impact some individual animals by displacement or mortality.
Livestock Grazing/Range	Livestock use would be altered to provide treatment area rest temporarily. The proposed action would provide additional forage for livestock in localized areas.
Fire Management	Proposed treatments would have the potential to change fuel loads.
Recreation	Proposed treatments may temporarily restrict recreation during treatment implementation.

Assumptions for analysis

- The potential for wildland fires would exist throughout the proposed treatment areas and would be subject to fire management strategies specific to each fire management unit (FMU).
- **Invasive/noxious weed** infestations could increase and become more established within these areas. **Invasive/noxious weed** management will continue according to weeds management protocol developed and administered by the Ely Field Office’s **Noxious** and **Invasive Weeds** Coordinator.
- Wild horse populations could increase beyond appropriate management level (AML) in the times between gathers, and impacts to resources resulting from horse use are expected to continue.
- Recreational activities including hunting would continue within the project area.

3.2 Non-Native Invasive Species, Including Noxious Weeds

3.2.1 Affected Environment

No infestations have been documented within the proposed treatment areas, although **noxious weed** infestations have been documented within Hamblin, Lake, Cave, and South Spring Valley 5 kilometer buffer areas ([Table 7](#)). Refer to [Appendix A](#) (Risk Assessment for **Noxious** and **Invasive Weeds**) for a detailed description of **noxious weeds** and **invasive species** in and around the project area.

Table 7. Invasive species and noxious weeds found within the 5 kilometer buffer areas.

			Hamblin Valley	Lake Valley	South Spring Valley	Cave Valley	Patterson Wash
Common Name	Scientific Name	Status*					
Bull thistle	<i>Cirsium vulgare</i>	Other	X	X			
Musk thistle	<i>Carduus nutans</i>	Category B	X				
Russian knapweed	<i>Acroptilon repens</i>	Category B				X	
Scotch thistle	<i>Onopordum acanthium</i>	Category B	X				
Whitetop/Hoary Cress	<i>Lepidium draba</i>	Category C			X		

*See glossary for definition of status.

Cheatgrass (*Bromus tectorum*)

Cheatgrass is a non-native **invasive annual plant** species which occurs within the 5 kilometer buffer areas and proposed treatment areas. Efforts have been made to choose treatment areas which have very little to no cheatgrass establishment. This species usually germinates in the early winter, sets seeds in the early spring, then dies in the hot summer months.

3.2.2 Consequences of the Proposed Action

Under the proposed action, **invasive species/noxious weeds** could become established. Cheatgrass density may increase following mechanical treatments in the absence of existing native **perennial** understory grasses and **forbs**. The major concern is its widespread geographic distribution and its ability to form monoculture stands in disturbed areas. This is a problem for wildlife and livestock due to its low nutrient value (compared to native **perennial** grasses) and ability to increase the fire frequency of an area that is heavily infested. Thistle species are often progressive during wet spring seasons and could become established before **perennial** grasses and **forbs** in drainages and draws.

Invasive species/noxious weeds could also be introduced to new areas as a result of vehicle and equipment traffic in addition to ground disturbance (i.e. fence construction, and water distribution sites). However, conformance with the Ely District BMPs for **noxious weed/invasive species** ([Appendix B](#)) would reduce this risk. If treatment intensity is low to moderate and understory vegetation responds rapidly within the treatment areas, then chances of **noxious weed** establishment would be less. If sufficient native **perennial** grasses and **forbs** exist, then these species would have greater success at competing with any potential **noxious weeds** or **invasive species**. Seeding would encourage establishment of native **perennial** grasses and **forbs**.

No impacts would occur from herding or use area/pasture closure.

3.2.3 Consequences of the No-Action Alternative

Under the no action alternative, **noxious** and **invasive weeds** may eventually increase in the proposed treatment areas, particularly along traveled roads. Declining understory species in sagebrush 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 native **perennial** grasses and **forbs**. Increasing sagebrush densities would also increase the intensity and size of a potential wildfire that would provide large areas for **noxious weeds** and **invasive species** to establish.

3.3 Vegetation

3.3.1 Affected Environment

The project area is within Major Land Resource Area (MLRA) 28A. The **ESD** for the proposed treatment areas are listed in [Appendix E](#). The Ely District BLM has compiled vegetation data included in the Northern Lincoln County Watershed Assessment for Cave Valley, South Spring Valley, Lake Valley, and Hamblin Valley. The following description of the affected vegetation is based on the watershed assessment results. The proposed project is located in sagebrush habitat with Wyoming big sagebrush (*Artemisia tridentata* ssp. (subspecies) *wyomingensis*) being the dominant shrub species. Other common but less dominant shrub species are basin big sagebrush (*A. tridentata* ssp. *tridentata*), Douglas' rabbitbrush (*Chrysothamnus viscidiflorus*), rubber rabbitbrush (*Ericameria nauseosa*), and

Nevada ephedra (*Ephedra nevadensis*). Grass species that are common in these valleys are squirreltail (*Elymus elymoides*), Indian ricegrass (*Achnatherum hymenoides*), needle and thread grass (*Hesperostipa comata*), and crested wheatgrass (*Agropyron cristatum*) Common **forb** species are milkvetch (*Astragalus* species), *Cryptantha* species, *Penstemon* species, buckwheat (*Erigonum* species), globemallow (*Sphaeralcea* species), *phlox* species, and fleabane (*Erigeron* species). **Perennial** grasses and **forbs**, that are important understory components to sagebrush communities, are depleted in these valleys due to a lack of disturbance, past historic grazing practices, and changing climate.

3.3.2 Consequences of the Proposed Action

The proposed action would improve the overall health and vigor of sagebrush communities. Reducing the canopy cover with mechanical and chemical treatments would activate the growth of existing understory **perennial** grass and **forb** species. Seeding would also increase establishment of **perennial** grasses and **forbs**. Creating a mosaic of sagebrush heights and increasing **perennial** grass and **forb** species cover is important for creating a diverse sagebrush system.

Temporary fence construction and maintenance would require the removal of a limited number of sagebrush. Impacts could be minimized by limiting travel along the fence corridor and employing ATVs more than full sized trucks. Vegetation along the temporary fence corridor could also be impacted by cattle trailing. Cattle trailing along a fence line are considered natural livestock behavior and could not be mitigated.

A disturbed area of vegetation of approximately ½ acre would develop around the water distribution sites from cattle congregation. Impacts to vegetation outside the disturbed ½ acre would be minimal. Long-term impacts would be minimized through seasonal site rotation.

Sheep herding would cause a change in grazing use patterns, as herders shift their herding patterns to avoid the treatment areas.

All livestock management options would increase the growth and vigor of vegetation within the treatment areas.

3.3.3 Consequences of the No Action Alternative

Under the no action alternative, no immediate direct impacts to vegetation would occur. The overall health sagebrush communities would continue to decline resulting in a loss of **perennial** grass and **forb** species and an increase decadent sagebrush stands.

3.4 Soil

The primary soil mapping units within the project include Lojet-Chuckmill-Sevenmile, Zoda-Cath, Littleailie-Lien-Sevenmile, Cath-Chuckridge, Chuckridge-Cath-Sevenmile, Linoyer-Heist, Yotes-Sevenmile, and Heist-Chuffa Associations, and the Roval series ([USDA – NRCS, 2007](#)).

3.4.1 Affected Environment

The soil associations within the treatment areas fall within a range of 0-8% slope.

The Lojet-Chuckmill-Sevenmile Association occurs in the Hamblin treatment area between 5,750 to 6,500 feet in elevation and within the 8 to 12 inch precipitation zone (PZ). The soil series within treatment areas are Lojet, Sevenmile, and Devildog. These series are well to excessively drained, with moderate **permeability**, and low to medium runoff potential.

The Zoda-Cath and Littleailie-Lien-Sevenmile Associations occur in the Lake Valley treatment area from 5,850 to 7,100 feet in elevation and within the 8 to 12 inch PZ. The soil series within treatment areas are Zoda, Heist, and Handpah. These series are well drained; have slow to moderate **permeability** and medium to low runoff potential, except for Handpah which has very high surface runoff.

Cath-Chuckridge, Chuckridge-Cath-Sevenmile, Linoyer-Heist, and Yotes-Sevenmile Associations occur in the South Spring treatment areas from 5,900 to 6,750 feet in elevation and within the 8 to 12 PZ. The soil series within treatment areas are Heist, Cath, and Chuckridge. These series are well drained, have slow to moderate **permeability**, and slow to moderate runoff potential.

The Heist-Chuffa Association occurs in Cave Valley treatment areas from 6,000 to 6,150 feet in elevation and within the 8 to 10 inch PZ. The Springbar and Oupico series occur within treatment areas and are somewhat excessively drained, with negligible to high surface runoff, and moderate to moderately rapid **permeability**.

The Roval series occurs in the Patterson Wash treatment area from 5,700 to 6,100 feet and is within the 8 to 10 inch PZ. This series is well drained, has medium runoff, and moderately slow **permeability**.

3.4.2 Consequences of the Proposed Action

Under the proposed action, there would be some soil erosion expected from the implementation of proposed treatments. Spike 20P application would not disturb the soil. Chaining and roller chopper treatments would cause moderate soil disturbance. Soil disturbance would allow for better seed to soil contact that would increase germination. Scattered litter would decrease erosion and increase organic material in the soil. **Perennial** grasses, younger shrubs, and new growth would also provide soil stability. Over the long term soils would become stabilized as a more diverse plant community becomes established.

Temporary fence construction would cause short term impacts to soils. An increase in soil compaction resulting from vehicle and equipment during construction may occur. Soil loss could occur as a result of wind and water erosion. Soils immediately along the fence corridor would become compacted by cattle trailing. Soil characteristics would not be negatively impacted outside the immediate fence corridor.

Water distribution sites would cause a new area of soil disturbance approximating ½ acre around each site.

No impacts would occur due to herding or use area/pasture closure.

3.5.3 Consequences of the No Action Alternative

Under the no action alternative, current erosion rates would continue.

3.5 Livestock Grazing

3.5.1 Affected Environment

The treatment areas lie within portions of the 4 **allotments** presented in [Table 8](#) and [Map C7](#). The Wilson Creek **Allotment** is subdivided into uses areas of which only four contain treatment areas. The **allotments** containing treatment areas are actively grazed.

Table 8. Project area grazing allotments containing treatment areas including permitted grazing regime

Allotment Name	Allotment Number	Use Area	Livestock #	Grazing Period	Active AUMs	Permittee
Cottonwood	00132		250 Cattle	11/1 – 6/15	1,865	1 Permittee
Shingle Pass	00906		541 Cattle	5/16 – 10/15	2,721	1 Permittee
Sunnyside	21023		539 Cattle	6/1 – 3/31	5,387	
Wilson Creek	01201	Hamblin	1,735 Sheep	11/01-4/30	2,076	1 Permittee
	01201	Hamblin	250 Cattle	11/1 – 4/15	2,633	2 Permittees
	01201	Atlanta	1,233 Sheep	11/1- 1/31	746	1 Permittee
	01201	Atlanta	120 Cattle	4/16 – 10/31	787	1 Permittee
	01201	South Lake Valley	3,767 Sheep	4/16 – 5/31	1,130	1 Permittee
	01201	South Lake Valley	184 Cattle	3/15-9/30	1,392	1 Permittees
			93 Cattle	11/1-12/30		
	01201	South Lake Valley	677 Cattle	11/1 – 12/30	1,336	3 Permittees
01201	Miller	205	4/16 – 6/30	717	1 Permittee	
			10/01-10/31			

3.6.2 Consequences of the Proposed Action

Under the proposed action the required rest from grazing may affect **permittees** utilizing the identified **allotments** and use areas ([Table 8](#)). The implementation of treatments would temporarily displace livestock from the treatment areas. Over the long term, an increased quantity of higher quality forage would be available in localized portions of the project areas as a result of the proposed treatments.

Meetings would be held to consult with affected **permittees** in deciding which livestock management options would allow continued grazing and provide a necessary rest period. These livestock management options have been incorporated in the proposed actions and no additional mitigations are proposed based on the impact analysis.

Treatment methods, environmental factors, and site conditions may affect herbaceous establishment within treatment areas. Wild horses and other wildlife utilizing the treatment areas may further delay reaching the establishment criteria. These factors may have an indirect affect on livestock grazing by lengthening the duration of the rest period.

Temporary fencing, water distribution, herding, and use area/pasture closures may increase the cost and time associated with managing livestock (i.e. extra employees, fuel).

3.5.3 Consequences of the No Action Alternative

Under the no action alternative, there would be no direct impacts to livestock grazing. In the long term, forage quality and quantity for livestock would continue to diminish as sagebrush increased in density and **perennial** grasses and **forbs** declined. Forage decline leading to adjustments in permitted grazing use, financially impact the grazing permittee.

3.6 Wild Horses

3.6.1 Affected Environment

South Spring, Hamblin, and Lake Valleys, as well as, Patterson Wash treatment areas are within the Wilson Creek HMA with a current population estimate of 155 wild horses. Portions of the Cave Valley treatment area are within the Dry Lake HMA with a current population estimation of 95 wild horses. The Appropriate Management Level (AML) for the Wilson Creek HMA is 160 wild horses, and the AML for Dry Lake is 90 wild horses. The latest gather for the Wilson Creek HMA was executed in February 2007 and the Dry Lake HMA was last gathered in December of 2006. Wild horses move freely across **public lands** and are known to utilize the project area

3.6.2 Consequences of the Proposed Action

Under the proposed action, implementation of treatments would temporarily displace wild horses from the treatment areas. Over the long term, an increased quantity of higher quality forage would be available in localized portions of the HMAs as a result of the proposed treatments.

Fencing may cause the loss of individuals however; these impacts would be minimized through the implementation of fence construction BMPs outlined in [Appendix B](#) and the strategic placement of one-way finger gates.

Water distribution could alter the availability and location of water which may cause altered wild horse utilization patterns.

No direct or indirect impacts to wild horses would result from sheep herding or use area/pasture closure.

3.6.3 Consequences of the No-Action Alternative

Under the no action alternative, direct impacts to wild horses would not occur, although forage quantity and quality would remain in its current declining state.

3.7 Recreation & VRM

3.7.1 Affected Environment

Recreation opportunities available within the proposed treatment valleys include but are not limited to; hunting, wildlife viewing, hiking, antler shed collecting, camping, horseback riding, casual OHV use, OHV trail riding on designated trails, organized and competitive OHV use, heritage tourism, and opportunities for unconfined recreation, solitude and wilderness area tourism. Not all of these recreation activities may occur within the identified treatment areas. However, it is likely the proposed treatments

may either detract or enhance opportunities for one or more of the identified recreation opportunities in a short term or long term fashion.

Within the proposed treatment areas, Visual Resource Management (VRM) Class II and IV zones exist. The majority of the proposed treatment areas occur on lands classified as **Class IV**. Some small areas within Lake and Hamblin Valleys occur on lands classified as **Class II**. Some designated Wilderness areas exist closely to some of the proposed treatment areas. Wilderness areas automatically carry a VRM I classification.

3.7.2 Consequences of the Proposed Action

Under the proposed action, treatment implementation may have short term impacts to recreation due to noise and temporary closure of treatment areas. Roads or trails may be inaccessible while treatments are being done. Recreation may benefit long term from the proposed action. Wildlife species such as sage grouse, elk and deer may utilize treated areas in greater numbers and intensity than they may have before treatment, providing more viewing and hunting opportunities for the public. In this way, the recreation opportunities may be increased in both quantity and quality.

Under the proposed action, Visual Resource Management, **Class II zones** may experience short term impacts from Spike 20P, roller chopping, and chaining due to the production of dead vegetation. Long term, VRM improvements would occur due to creation of a variety of patterns, forms, and textures. This would be consistent with **Class II zones** by retaining the existing character of the landscape. **Class IV zones** are the least scenic of all the visual resources which lends to management activities which require major modification of the existing character of the landscape. Although major modifications to the landscape are allowed under VRM Class IV classifications, every attempt will be made to minimize the impacts of the proposed action through careful location, minimal disturbance and repetition of the basic visual elements of form, line, color and texture as it relates to the proposed action.

Activities associated with the proposed action such as temporary fencing, water distribution, herding, and use area/pasture closures would be done in a way as to not impact recreation and VRM in a negative way.

3.7.3 Consequences of the No Action Alternative

Under the no action alternative, no immediate direct impacts to visual resources or recreational opportunities would occur. Impacts to recreational opportunities, such as hunting and wildlife viewing, may be negatively impacted in the long term due to declining habitat conditions. VRM values would not change.

3.8 Wildlife

3.8.1 Affected Environment

Many species of wildlife are dependent on sagebrush communities for all or part of their life cycle. The Great Basin pocket mouse (*Perognathus parvus*), sagebrush vole (*Lemmiscus curtatus*), and sagebrush lizard (*Sceloporus graciosus*) rely on sagebrush for feeding, breeding and nesting habitat. These species rely heavily on a productive understory to provide invertebrates for prey items. Black-tailed jackrabbits (*Lepus californicus*) and desert cottontail rabbits (*Sylvilagus audubonii*) also rely on an herbaceous

understory for food and cover, and are also known to eat sagebrush leaves. Coyotes (*Canis latrans*) and kit foxes (*Vulpes macrotis*) frequently hunt for rodents and rabbits that live in sagebrush habitat. Game species such as elk (*Cervus elaphus*), mule deer (*Odocoileus hemionus*), and pronghorn antelope (*Antilocapra americana*) rely heavily on herbaceous understory and sagebrush for grazing.

3.8.2 Consequences of the Proposed Action

The proposed action may temporarily displace wildlife or destroy burrows and dens during treatment implementation. Habitat and dispersal corridors for small vertebrates could be lost or drastically altered. Alteration of vegetation may lead to the loss of some individuals; however the long term results of the proposed treatments should foster diverse vegetation conditions that support population growth. Additionally, less than 20% of the sage grouse habitat area would be treated within each 5 km buffer area, providing a diverse landscape which is critical to supporting various wildlife populations.

During fence construction, wildlife would be temporarily displaced. There may be direct mortality of individuals due to fence construction. Fence posts provide additional perches for raptors increasing the mortality rate for small wildlife within the area. Additionally, game animals could collide with the fence; however, the fence will be constructed to large game standards to minimize impacts ([Appendix B](#)).

Authorization of the water distribution sites would temporarily displace resident wildlife. Bird ramps would be placed in the troughs to minimize wildlife drowning ([Appendix B](#)). Water distribution sites may cause temporary displacement of wildlife; however, water sites may provide a water source for wildlife.

Herding may cause short term displacement of wildlife, as wildlife may avoid those areas where herding is present.

No impacts would occur to wildlife from use area/pasture closure.

3.8.3 Consequences of the No Action Alternative

Under the no action alternative, no immediate direct impacts to wildlife would occur. However, the overall health of sage grouse habitat would continue to decline from decadent sagebrush stands and loss of understory **perennial** grass and **forb** species these factors would negatively impact wildlife populations.

3.9 Migratory Birds

3.9.1 Affected Environment

Based on the Atlas of the Breeding Birds of Nevada (Floyd *et al.* 2007), the following species and others are common in Nevada and have a high probability of occurring within the proposed treatment areas. The Brewer's sparrow (*Spizella breweri*), sage thrasher (*Oreoscoptes montanus*), and sage sparrow (*Amphispiza belli*) are sagebrush obligate species of concern that require large expanses of sagebrush habitat for ideal nesting conditions. Other species of concern that nest in sagebrush shrubs include loggerhead shrike (*Lanius ludovicianus*), gray flycatcher (*Empidonax wrightii*), and green-tailed towhee (*Pipilo chlorurus*) ([Paige & Ritter 1999](#)).

3.9.2 Consequences of the Proposed Action

Under the proposed action, treatment methods would reduce the sagebrush height which may affect birds that prefer to nest in taller sagebrush stands ([Paige & Ritter, 1999](#)). Restoration would improve overall sagebrush health increasing herbaceous understory species for forage and increasing prey insect populations. Creating a mosaic of sagebrush heights and shrub cover with various treatment methods would benefit many different bird species ([Paige & Ritter, 1999](#)). Additionally, less than 20% of the 5 kilometer buffer area would be altered, providing a diverse landscape which is critical to supporting various migratory bird populations.

The use of the herbicide Spike 20P will result in long-term loss of sagebrush habitat resulting in displacement of some migratory birds.

Temporary fences would provide new raptor perches and possibly increase migratory bird mortality within the area.

No impacts would occur to migratory birds from water distribution, herding, or use area/pasture closure.

Appropriate mitigations ([Section 2.3.6](#)) have been included within the proposed action and no additional mitigation is proposed based on the impact analysis.

3.9.3 Consequences of the No Action Alternative

Consequences of the no action alternative would be consistent with those discussed for all wildlife.

3.10 Special Status Species

3.10.1 Affected Environment

The following special status species are known to occur ([Table 9](#)) and are considered BLM Special Status Species or Nevada State Protected Species protected under NRS 501. These species have been identified within the valleys, 5 kilometer buffer areas, or treatment areas derived from spatial data provided by the Nevada Natural Heritage Program (NNHP) and NDOW. Special status species not documented within a treatment area still have a high probability of occurrence within a treatment area. There are no documented occurrences of loggerhead shrike, sage thrasher, vesper sparrow (*Pooecetes gramineus*), and Brewer's sparrow within the project area but a high probability of occurrence may still exist ([Paige & Ritter, 1999](#)).

Table 9. Special status species documentation

Scientific Name	Common Name	Treatment Valleys														
		Hamblin			Lake			South Spring			Cave			Patterson Wash		
		Valley	5 Kilometer Buffer	Treatment Area	Valley	5 Kilometer Buffer	Treatment Area	Valley	5 Kilometer Buffer	Treatment Area	Valley	5 Kilometer Buffer	Treatment Area	Valley	5 Kilometer Buffer	Treatment Area
Birds:																
<i>Athene cunicularia hypugaea</i>	Western burrowing owl (burrow)		X													
<i>Aquila chrysaetos</i>	Golden eagle	X	X		X			X	X		X			X		
<i>Buteo regalis</i>	Ferruginous hawk (nest or bird)	X	X		X	X		X	X							
<i>Centrocercus urophasianus</i>	Greater Sage-grouse	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Falco mexicanus</i>	Prairie falcon				X	X		X						X		
<i>Haliaeetus leucocephalus</i>	Bald eagle	X														
Mammals:																
<i>Brachylagus idahoensis</i> *	Pygmy rabbit*	X	X	X					X							
<i>Microdipodops megacephalus</i>	Dark kangaroo mouse								X			X				

* Special status species identified within a proposed treatment area are discussed in detail below.

Based on spatial data, there is one record of pygmy rabbits within the Hamblin Valley treatment area. Pygmy rabbits inhabit dense tall sagebrush stands with deep, loose soil needed to dig burrows. They primarily eat sagebrush, with some grasses and **forbs**.

No special status plant species are known to occur within the project areas.

3.10.2 Consequences of the Proposed Action

Under the proposed action, habitat and dispersal corridors for special status species could be lost or drastically altered due to treatments. Loss of individuals or damage to burrows could occur by heavy equipment used for implementation. However impacts to populations would not occur and would not lead to a change in species status. In the long-term, treatments would improve sagebrush community health which would benefit future populations.

During fence construction, special status species would be temporarily displaced and there may be loss of individuals. Fence posts would provide additional perches for raptors increasing the mortality rate for special status species in the area.

Water distribution would cause a loss of habitat in the area immediately surrounding the water distribution site.

No impacts would occur to special status species from herding or use area/pasture closure.

Appropriate mitigations, for those special status species also classified as migratory birds, have been included within the proposed action ([Section 2.3.6](#)) and no additional mitigation is proposed based on the impact analysis.

3.10.3 Consequences of the No Action Alternative

Consequences of the no action alternative would be consistent with those discussed for all wildlife.

3.11 Fire Management

3.11.1 Affected Environment

Historically, fire played a natural disturbance role throughout sagebrush ecosystems creating structural and age class diversity. Fire suppression has increased fuel loads and altered vegetative composition. These factors have made wildland fire control more difficult due to increased fire intensity and expanse. Also historic land management practices (i.e., livestock grazing and fire suppression) and climatic change have caused an increase in wildland fire severity. In addition, exotic species, such as cheatgrass, become established and replacing native species which can lead to a pattern of annual flash fires ([Ely District Managed Natural and Prescribed Fire Plan of 2000](#)). All of the proposed treatment areas are within various FMUs as described in the [Ely Field Office Fire Management Plan of 2004](#).

Table 10. List of treatment areas by valley and the corresponding involved FMUs

Fire Management Unit (FMU)	Hamblin Valley	Lake Valley	South Spring Valley	Cave Valley	Patterson Wash
Highlands & South Egan Range (p.269*)		X	X	X	X
Northern Valleys (p.111*)	X	X	X	X	
Southern Benches—VEG (p. 62*)		X		X	X
Southern Benches—HVH (p. 185*)	X	X	X		
Bullwack (p. 234*)				X	

* Ely Field Office Fire Management Plan of 2004

General Fire Characteristics of the involved FMUs:

The fire season is approximately May through October. Fires are normally **Class A** fires and are caused by lightning. Fires in the FMU are wind driven and live fuel moisture plays a very small role in the variability of fire size. Whereas wind can vary daily, historical live and dead fuel moisture varies seasonally, however moisture levels vary little annually ([Ely District Managed Natural and Prescribed Fire Plan of 2000](#)).

3.11.2 Consequences of the Proposed Action

Under the proposed action, treatments have the potential to increase the available fuel loads temporarily. Chaining and roller chopping are normal fuel reduction practices. Autumn and winter months provide the area with more available moisture decreasing the chance for ignition during our treatment

implementation. In the long-term the patchwork sagebrush distribution and increased establishment of fire tolerant species would decrease the chance of large scale wildland fires.

No impacts would occur to fire management from temporary fencing, water distribution, herding, or use area/pasture closure.

3.11.3 Consequences of the No Action Alternative

Under the no action alternative, hazardous fuel conditions would continue to accumulate beyond levels representative of the historic fire regime and increasing the possibility fire size and intensity.

CHAPTER 4: CUMULATIVE IMPACTS

“Cumulative impacts result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” ([CEQ Regulations Sec. 1508.7](#)).

This section identifies past, present and reasonably foreseeable future actions so that their contribution to cumulative impacts can be considered. Past actions are those that have been completed to date; present actions may have been started in the past but are ongoing and are not yet completed; and future actions are those for which there is a reasonable belief they will occur and are not merely speculative.

4.1 Projects within the Resource Areas of Affected Resources

In cumulative impact analyses, each resource must be analyzed in terms of its specific resource parameter. Tables [11](#), [12](#), and [13](#) show resources and issues identified during scoping that are affected by the proposed action as well as other past, present, and foreseeable future actions. These actions when added to the proposed actions have the possibility of creating some degree of cumulative impact. The overall effects of the cumulative impacts could be classified as collectively beneficial, detrimental, or neutral.

The cumulative impact area for **invasive species/noxious weeds**, vegetation, and soils would be the watershed management units within the project area. This includes South Spring, Hamblin, Cave, Lake Valleys, and Patterson Wash.

4.1.1. Past Actions

Table 11. Past projects and the resources they impact

Interrelated Projects/Actions	Resource									
	Fire Management	Special Status Wildlife Species	Migratory Birds	Wildlife	Recreation & Visual Resources	Wild Horses	Livestock Grazing	Soil	Vegetation	Invasive Species/Noxious Weeds
Vegetation/Habitat Restoration	X	X	X	X	X	X	X	X	X	X
Agricultural Developments	X	X	X	X	X	X	X		X	X
Treatment of noxious weeds	X	X	X	X	X		X		X	X
Horse gathers				X		X		X	X	X
Special Recreation Permits		X	X	X	X		X	X	X	X
Wilderness Management Activities	X	X	X	X	X				X	X
Grazing	X	X	X	X		X		X	X	X
Emergency Stabilization & Rehabilitation	X	X	X	X	X	X	X	X	X	X
Fire Suppression	X	X	X	X	X	X	X	X	X	X
Mineral Development		X	X	X	X	X		X	X	X
Gravel Pits		X	X	X	X	X		X	X	X
Oil & Gas Developments		X	X	X	X	X		X	X	X
Rights of Way	X	X	X	X	X	X	X	X	X	X

4.1.2. Present Actions

Table 12. Present projects and the resources they impact

Interrelated Projects/Actions	Resources									
	Fire Management	Special Status Wildlife Species	Migratory Birds	Wildlife	Recreation & Visual Resources	Wild Horses	Livestock Grazing	Soil	Vegetation	Invasive Species/Noxious Weeds
Vegetation/Habitat Restoration	X	X	X	X	X	X	X	X	X	X
Agricultural Developments	X	X	X	X	X	X	X		X	X
Treatment of noxious weeds	X	X	X	X	X		X		X	X
Horse gathers				X		X		X	X	X
Off Highway Vehicle use		X	X	X	X			X	X	X
Special Recreation Permits		X	X	X	X		X	X	X	X
Wilderness Management Activities	X	X	X	X	X				X	X
Recreation Improvements (Trails, Trailheads, Campgrounds, etc.)/ Silver State Trail	X	X	X	X	X	X		X	X	X
Grazing	X	X	X	X		X		X	X	X
Fire Management	X	X	X	X	X	X	X	X	X	X
Rights of Way (i.e. SNWA Groundwater)	X	X	X	X	X	X	X	X	X	X
Emergency Stabilization & Rehabilitation	X	X	X	X	X	X	X	X	X	X
Mineral Developments i.e. Aiken placer gold testing			X	X	X	X	X		X	X
Active Gravel Pits (NDOT and Lincoln Co Roads)		X	X	X	X	X		X	X	X

4.1.3. Reasonably Foreseeable Future Actions

Table 13. Foreseeable future projects and the resources they impact

Interrelated Projects/Actions	Resources									
	Fire Management	Special Status Wildlife Species	Migratory Birds	Wildlife	Recreation & Visual Resources	Wild Horses	Livestock Grazing	Soil	Vegetation	Invasive Species/Noxious Weeds
Vegetation/Habitat Restoration	X	X	X	X	X	X	X	X	X	X
Agricultural Developments	X	X	X	X	X	X	X		X	X
Treatment of noxious weeds	X	X	X	X	X		X		X	X
Horse gathers				X		X		X	X	X
Off Highway Vehicle use		X	X	X	X			X	X	X
Special Recreation Permits		X	X	X	X		X	X	X	X
Wilderness Management Activities	X	X	X	X	X				X	X
Recreation Improvements (Trails, Trailheads, Campgrounds, etc.)	X	X	X	X	X	X		X	X	X
Grazing	X	X	X	X		X		X	X	X
Fire Management	X	X	X	X	X	X	X	X	X	X
Gravel Pits		X	X	X	X	X		X	X	X
Oil Exploration Activity		X	X	X	X	X		X	X	X
Mineral Developments			X	X	X	X	X		X	X
Rights of Way (i.e. Wind Energy and SNWA Groundwater)	X	X	X	X	X	X	X	X	X	X

4.2 Narrative of the Potential Cumulative Impacts

4.2.1 Invasive Species/Noxious Weeds

The identified projects/actions have the potential to spread existing **invasive** and **noxious weed** infestations through surface disturbance, land clearing, and increased traffic (Tables [11](#), [12](#), & [13](#)). Current management activities such as annual weed treatments and the adherence to the Ely District BMPs for **noxious weed/invasive species** ([Appendix B](#)) combat this spread.

4.2.2 Vegetation

The identified projects/actions have the potential to impact vegetation through the alteration of natural disturbances regime, spreading of **invasive species** and **noxious weeds**, supporting the historic grazing management, and watershed function. These actions have lead to large changes in the vegetative community (Tables [11](#), [12](#), & [13](#)).

4.2.3 Soil

The identified projects/actions have the potential to impact soils through short term increases of erosion and sedimentation initially (Tables [11](#), [12](#), & [13](#)). Vegetation restoration would result in a reduction of erosion and sedimentation long term. Best management practices and mitigations would reduce the degree of short term erosion and sedimentation impacts. Soil quality would decrease in localized project areas but would improve over widespread areas with successful vegetation restoration.

4.2.4 Livestock Grazing

The cumulative impact area for livestock grazing includes the **allotments** which contain treatment areas and the surrounding **allotments**. The identified projects/actions have the potential to impact livestock grazing through affecting available vegetation within the project area (Tables [11](#), [12](#), & [13](#)). However, the projects/actions would reduce short term availability of forage but would increase the long term availability of forage.

4.2.5 Wild Horses

The cumulative impact area for wild horses includes the HMAs within the project area. These are the Wilson Creek and Dry Lake HMAs. The identified projects/actions have the potential to impact wild horses through alteration of vegetation and natural disturbance regimes, spread of **noxious weeds/invasive species**, and fence construction (Tables [11](#), [12](#), & [13](#)). Large scale vegetation restoration, effective herd management, and mitigations would improve wild horse populations.

4.2.6 Recreation & Visual Resource Management

The cumulative impact area for this resource would be confined to the treatment areas. The identified projects/actions have the potential to impact recreation and visual resources some projects restrict or promote recreation activities others may increase or decrease the scenic value of the areas (Tables [11](#), [12](#), & [13](#)).

4.2.7 Wildlife

The cumulative impact area for wildlife includes the valleys containing treatments and the surrounding mountain ranges. The actions related to the sage grouse habitat restoration project and other interrelated projects involving vegetation restoration would improve wildlife habitat conditions on the watershed and landscape levels in the short and long term. However, other identified projects/actions have the potential to impact wildlife through direct mortality, displacement, habitat loss or alteration, and increased habitat fragmentation (Tables [11](#), [12](#), & [13](#)). The habitat improvement resulting from the vegetation restoration treatments should offset a portion of the habitat losses and damage from the interrelated projects.

4.2.8 Migratory Birds

The cumulative impact area for migratory birds includes the valleys containing treatments and the surrounding mountain ranges. The identified projects/actions have the potential to impact migratory birds in the same way wildlife would be affected (Tables [11](#), [12](#), & [13](#)).

4.2.9 Special Status Species

The cumulative impact area for special status wildlife species includes the valleys containing treatments and the surrounding mountain ranges. The interrelated projects identified have produced or would continue to result in direct mortality, displacement of individuals, habitat loss or alteration, and habitat fragmentation and possible population reductions of some special status species (Tables [11](#), [12](#), & [13](#)). Impacts related to the proposed actions may offset a portion of negative impacts from the interrelated projects by improving habitat conditions for some special status species. However, local populations of sage grouse may still be reduced in numbers because of development in and around breeding habitat of adjacent areas regardless of the habitat improvements of the proposed actions.

4.2.10 Fire Management

The cumulative impact area for fire management would be the FMUs containing treatment areas. These would include Highlands & South Egan Range, Northern Valleys, Southern Benches—VEG, Southern Benches—HVH, and Bullwack FMUs. The identified projects/actions have the potential to impact fire management through offsetting the increased frequency of accidental ignitions expected from the escalating use of area for recreation, industrial development, and OHV use (Tables [11](#), [12](#), & [13](#)).

4.3 Magnitude of Impacts

The table below summarizes the degree of effects from interrelated projects on each resource (Tables [11](#), [12](#), & [13](#)). The cumulative effects column depicts the extent of impacts from past, present, and future actions in relation to the proposed action.

Table 14. Summary of the degree of effects from interrelated projects on each resource

Resource	Past Actions	Present Actions	Proposed Action	Future Actions	Cumulative Effect
Invasive Species/Noxious Weeds	-	-	+	-	-
Vegetation	-	+	+	+	+
Soil	-	+	+	+	+
Livestock Grazing	+	+	+	+	+
Wild Horses	-	+	+	+	+
Recreation & VRM	-	-	+	-	+
Wildlife	-	-	+	+	+
Migratory Birds	-	-	+	-	+
Special Status Wildlife	-	-	+	-	-
Fire Management	-	+	+	+	+
KEY:	(--) Detrimental Effect (+) Beneficial Effect (0) No Effect				

4.3 Conclusion

The cumulative impacts of the sage grouse restoration project, when considered in combination with past, present and reasonably foreseeable future actions, would be beneficial to most resources and offsetting some adverse affects of other projects/actions. Though there are many short-term, localized impacts to resources, no long-term negative impacts resulting from the proposed action would occur. Cumulative effects would not approach a level of significance for any resource analyzed.

CHAPTER 5: CONSULTATION AND COORDINATION

5.1 Persons, Groups and Agencies Consulted (or would be consulted)

Name	Purpose & Authority for Consultation or Coordination	Findings and Conclusions
Nevada State Historic Preservation Office (SHPO)	Consultation for undertakings as required by the National Historic Preservation Act (16 USC 1531)	The cultural survey report would be sent to SHPO for a determination of no adverse effect. If no response is received within 30 days from the submission of any of the reports. Consultation would be considered closed.
Local Tribes	Federal mandate to consult with American Indian tribes concerning the identification of cultural values, religious beliefs, and traditional practices of American Indian people, as well as any other environmental and social concerns.	Consultation with local tribes resulted in a determination of no religious concerns.
Livestock Grazing Permittees	Discussion of methods to manage livestock grazing use while giving treatment areas rest from grazing	Meetings would be held to determine livestock management options used.
Southern Nevada Water Authority	To acquire utility corridor information.	GIS coverage of the utility corridor acquired.

Other Agencies Consulted With

- NDOW
- Betsy Macfarlan, Eastern Nevada Landscape Coalition
- Clint Anderson, Natural Resource Conservation Service (NRCS)

5.2 List of Preparers

Environmental Assessment Written By

- Christy White, NEPA Specialist, Great Basin Institute
- Nancy Williams, Wildlife Biologist, Eastern Nevada Landscape Coalition
- Karie Wiltshire, NEPA Specialist, Great Basin Institute
- Moira Ilg, NEPA Specialist, Great Basin Institute

BLM Employees Interdisciplinary Team Reviewing this Environmental Assessment

- Paul Podborny: Project Lead, Wildlife Biologist
- Gary Medlyn: Project Manager, Watershed Analysis
- Sheri Wysong: Planning and Environmental Coordinator
- Bonnie Waggoner: **Noxious** and **Invasive** Weeds Specialist

- Chris Mayer: **Range** Management Specialist
- Shirley Johnson: **Range** Management Specialist
- Chelsey Simerson: **Range** Management Specialist
- Mark Lowrie: **Range** Management Specialist
- Shawn Gibson: Archaeologist
- Ben Noyes: Wild Horse Specialist
- Elvis Wall: Native American Religious Concerns
- Nick Brunson: Fire Ecologist
- Dave Jeppesen: Recreation, Visual Resource Manager
- Dave Jacobson: Wilderness Planner

CHAPTER 6: REFERENCES, GLOSSARY, APPENDICES, AND ACRONYMS

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6.2 Acronyms

AML - Appropriate Management Level
AUM - Animal unit month
BLM - Bureau of Land Management
CFR - Code of Federal Regulations
DR - Decision Record
EA - Environmental Assessment
EIS - Environmental Impact Statement
ENBB - Environmental Notification Bulletin Board
FLPMA - Federal Land Policy and Management Act
FMU - Fire Management Unit
FONSI - Finding of No Significant Impact
HMA - Horse Management Area
ID - Interdisciplinary
IM - Instructional Memorandum
LCP - Lincoln County Sage Grouse Conservation Plan
MLA - Mineral Leasing Act
NEPA - National Environmental Policy Act
NOS - Notice of Staking
NRHP - National Register of Historic Places
PLS - Pure Live Seed
PNVG - Potential Natural Vegetation Group
RFAS - Reasonably Foreseeable Action Scenario
RMP - Resource Management Plan
ROD - Record of Decision
ROW - Right of Way
VRM - Visual Resource Management
WO - Washington Office

6.3 Glossary

Animal Unit Month (AUM): The amount of forage needed to sustain one cow, five sheep, or five goats for a month.

Annual Plant: A plant that completes its life cycle and dies in 1 year or less.

Allotment: An area of land where one or more individuals graze their livestock. An allotment generally consists of federal **rangelands**, but may include intermingled parcels of private, state or federal lands. BLM and the Forest Service stipulate the number of livestock and **season of use** for each allotment.

Category A weeds: weeds which are generally not found or that are limited in distribution throughout the State.

Category B weeds: weeds which are generally established in scattered populations in some counties of the state.

Category C weeds: weeds which are generally established and generally widespread in many counties of the state.

Class I Zone Objectives: “To Preserve the existing character of the landscape. [...] change [...] should be very low and must not attract attention (BLM Manual H-8410-1 - Visual Resource Inventory).”

Class II Zone Objectives: “[...] retain the existing character of the landscape. The level of the change should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape (BLM Manual H-8410-1 - Visual Resource Inventory).”

Class IV Zone Objectives: “[...] provide for management activities which require major modification of the existing character of the landscape. The level of the change can be high. These management activities may dominate the view and be the major focus of viewer attention; however, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements (BLM Manual H-8410-1 - Visual Resource Inventory).”

Class A fire: fires fueled by materials that, when burned, leaves a residue in the form of ash; includes materials such as wood, paper, cloth, rubber, and certain plastics.

Cultural Sensitivity: probability a cultural site would be found when surveyed

Ecological Site Description (ESD): “a written narrative of the description of soils, climate, vegetation, uses, and potential of a kind of land with specific physical characteristics to produce distinctive kinds and amounts of vegetation (BLM 2001).”

Forb: An herbaceous plant that is not a grass, sedge, or rush

Invasive Species: Species of plants or animals not native to a region that have been introduced.

Multiple Use: A combination of balanced and diverse resource uses that considers long-term needs for renewable and nonrenewable resources, including recreation, **rangeland**, timber, minerals, watershed, and wildlife, along with scenic, scientific, and cultural values.

Noxious weeds: native or non-native plants which are unwanted in a particular area at a particular time due to their highly aggressive and competitive behavior with more beneficial desired plant species and which have been legally designated as unwanted or undesirable. This includes national, state and county or local designations.

Perennial Plant: A plant that has a life cycle of 3 or more years.

Permeability: the movement of water and air through the soil which is affected by all soil characteristics such as texture, structure and consistence

Permittee: One to whom a permit is given to use resources on state, federal, or certain privately-owned lands.

Pure Live Seed: Percentage of pure germinating seed determined by multiplying by the pure seed percentage by its own germination percentage and dividing the product by one hundred.

Public Lands: As defined in Public Law 94-79, public lands are any land and interest in land outside of Alaska owned by the United States and administered by the Secretary of the Interior through BLM. In common usage, public lands may refer to all federal land no matter what agency has responsibility for its management.

Range or Rangeland: Rangelands, forests and woodlands, and **riparian** zones that support an understory or periodic cover of herbaceous or shrubby vegetation amenable to rangeland management principles or practices.

Riparian: Areas of wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence.

Season of Use: The time during which livestock grazing is permitted on a given range area, as specified in the grazing permit.

6.4 Appendices

6.4.1 Appendix A – Noxious & Invasive Weeds Risk Assessment

RISK ASSESSMENT FOR NOXIOUS & INVASIVE WEEDS

Sage Grouse Habitat Restoration Project

Lincoln County, Nevada

On January 2nd, 2008 a **Noxious & Invasive** Weed Risk Assessment was completed for the sage grouse habitat improvement project located in the South Spring Valley, Hamlin Valley, Cave Valley, Lake Valley, and Patterson Wash in Lincoln County, Nevada. The proposed action is to treat 9,500 acres of decadent sagebrush to try and improve sage grouse habitat. There will be three different treatment methods employed: a Spike 20P herbicide treatment applied via fixed wing aircraft, a two-way smooth chaining with aerial seeding, and a roller-chopper with broadcast seeding. The treatment areas would then be closed to grazing until restoration objectives have been met.

No field weed surveys were completed for this project. Instead the Ely District weed inventory data was consulted. While there are currently no known **noxious weeds** within the treatment areas, the following species are found along nearby roads and drainages within the project valleys:

<i>Acrotilon repens</i>	Russian knapweed
<i>Carduus nutans</i>	Musk thistle
<i>Centaurea diffuse</i>	Diffuse knapweed
<i>Centaurea stoebe</i>	Spotted knapweed
<i>Cirsium vulgare</i>	Bull thistle
<i>Lepidium draba</i>	Hoary cress
<i>Linaria dalmatica</i>	Dalmatian toadflax
<i>Onorpodum acanthium</i>	Musk thistle
<i>Tamarix spp.</i>	Salt cedar

There is also cheatgrass (*Bromus tectorum*), halogeton (*Halogeton glomerus*), puncturevine (*Tribulus terrestris*), and Russian thistle (*Salsola kali*) scattered along roads in the area.

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

None (0)	Noxious/invasive weed species are not located within or adjacent to the project area. Project activity is not likely to result in the establishment of noxious/invasive weed species in the project area.
Low (1-3)	Noxious/invasive weed species are present in the areas adjacent to but not within the project area. Project activities can be implemented and prevent the spread of noxious/invasive weeds into the project area.
Moderate (4-7)	Noxious/invasive weed species located immediately adjacent to or within the project area. Project activities are likely to result in some areas becoming infested with noxious/invasive weed species even when preventative management actions are followed. Control measures are essential to prevent the spread of noxious/invasive weeds within the project area.
High (8-10)	Heavy infestations of noxious/invasive weeds are located within or immediately adjacent to the project area. Project activities, even with preventative management actions, are likely to result in the establishment and spread of noxious/invasive weeds on disturbed sites throughout much of the project area.

For this project, the factor rates as Moderate (6) at the present time. While there are no known infestations within the proposed project areas the types of weed species found in the area, the amount of ground disturbance, and the amount of heavy machinery proposed all contribute to this factor rating.

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

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

This project rates as High (8) at the present time. If new infestations establish within the project area this could adversely impact those native plant communities since the proposed treatment areas are currently considered to be weed-free. Also, any increase of cheatgrass could alter the fire regime in the area.

The Risk Rating is obtained by multiplying Factor 1 by Factor 2.

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

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

- Monitoring will be conducted for a period no shorter than three years and the spread of **noxious weeds** is noted, appropriated weed control procedures will be determined in consultation with BLM personnel and will be in compliance with the appropriate BLM handbook sections and applicable laws and regulations.
- Prior to entering **public lands**, the contractor will provide information and training regarding **noxious weed** management and identification to all personnel who will be affiliated with the implementation and maintenance phases of the project. The importance of preventing the spread of weeds to areas not infested and of controlling existing populations of weeds will be explained.
- To eliminate the transport of vehicle-borne weed seeds, roots, or rhizomes all vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground disturbing activities or for authorized off-road driving will be free of soil and debris capable of transporting weed propagules. All such vehicles and equipment will be cleaned with power or high pressure equipment prior to entering or leaving the work site or project area. Cleaning efforts will concentrate on tracks, feet and tires, and on the undercarriage. Special emphasis will be applied to axels, frames, cross members, motor mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out and refuse will be disposed of in waste receptacles. Cleaning sites will be recorded using global positioning systems or other mutually acceptable equipment and provided to the Field Office Weed Coordinator or designated contact person.
- Removal and disturbance of vegetation would be kept to a minimum through construction site management (e.g. using previously disturbed areas and existing easements, limiting equipment/materials storage and staging area sites, etc.)

- Methods used to accomplish weed and insect control objectives would consider seasonal distribution of large wildlife species.

Reviewed by: _____
Bonnie Waggoner
Ely District **Noxious & Invasive** Weeds Coordinator

1/2/2008
Date

6.4.2 Appendix B – Best Management Practices

The following BMPs that apply to the proposed action should be adhered to for the sage grouse habitat restoration project:

Fencing

1. Fences in pronghorn antelope winter ranges, deer crucial winter ranges, and known migration routes would be constructed to minimal standards (3-strand wire fence with bottom wire smooth and top two barbed), monitored annually, and modified if necessary to facilitate reasonable movement by wildlife.
2. To protect wild horses and wildlife flag all new fences every 16 feet with white flagging that is at least 1 inch wide and has at least 12 inches hanging free from the top wire of the fence. These will remain for a time sufficient to allow deer and antelope to see the newly constructed fence.
3. Pursuant to 43 CFR 10.4(G) the holder of this authorization must notify the authorized officer by telephone, with written confirmation immediately upon discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined at 43 CFR 10.2). Further, pursuant to 43 CFR 10.4 (c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.
4. Construction activities will be limited to times when soils are not wet or saturated, to lessen soil compaction by equipment. In addition, construction activities may be delayed by the authorized officer due to severely dry conditions, to prevent unnecessary erosion of soil resources.
5. Vehicle travel shall only be permitted along the proposed fence line corridor during the construction phase. Access will be via existing roads and trails whenever possible. Where existing roads are not available, off road travel will be kept to the minimum necessary for construction.
6. Removal of vegetation along the fence construction area would be kept to a minimum.
7. All equipment and assorted materials associated with the construction of the project must be removed to an approved sanitary landfill.
8. If the need to use, store, and/or dispose of hazardous materials arises, which is not identified in this EA, the authorized person(s) constructing the project would notify and seek authorization from the BLM.
9. One-way finger gates for wild horses would be installed to provide access out of the enclosed treatment areas.

Water Distribution

1. Place water haul sites at least 0.5 mile away from **riparian** areas, cultural sites, and special status species locations.
2. Limit water hauling to existing roads or previously disturbed areas when possible.
3. Bird ladders would be placed in each trough as escape ramps for wildlife.

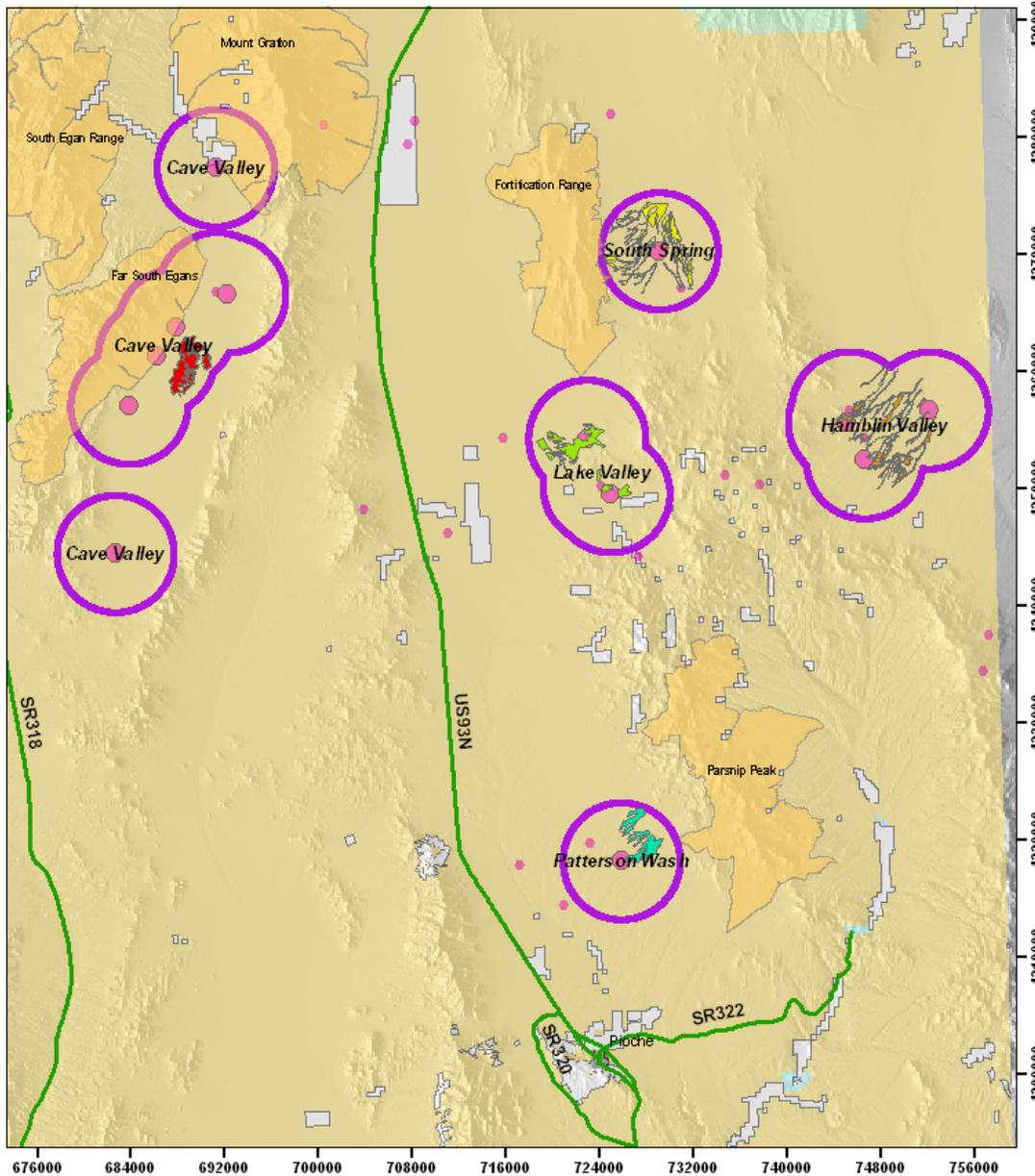
Noxious Weeds/Invasive Species

1. Monitoring will be conducted for a period no shorter than three years and the spread of **noxious weeds** is noted, appropriated weed control procedures will be determined in consultation with BLM personnel and will be in compliance with the appropriate BLM handbook sections and applicable laws and regulations.
2. Prior to entering **public lands**, the contractor will provide information and training regarding **noxious weed** management and identification to all personnel who will be affiliated with the implementation and maintenance phases of the project. The importance of preventing the spread of weeds to areas not infested and of controlling existing populations of weeds will be explained.

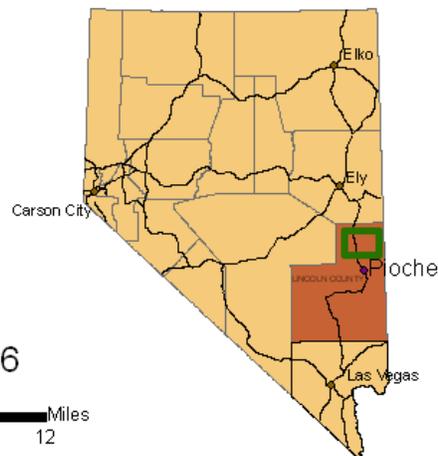
3. To eliminate the transport of vehicle-borne weed seeds, roots, or rhizomes all vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground disturbing activities or for authorized off-road driving will be free of soil and debris capable of transporting weed propagules. All such vehicles and equipment will be cleaned with power or high pressure equipment prior to entering or leaving the work site or project area. Cleaning efforts will concentrate on tracks, feet and tires, and on the undercarriage. Special emphasis will be applied to axels, frames, cross members, motor mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out and refuse will be disposed of in waste receptacles. Cleaning sites will be recorded using global positioning systems or other mutually acceptable equipment and provided to the Field Office Weed Coordinator or designated contact person.
4. Removal and disturbance of vegetation would be kept to a minimum through construction site management (e.g. using previously disturbed areas and existing easements, limiting equipment/materials storage and staging area sites, etc.)
5. Methods used to accomplish weed and insect control objectives would consider seasonal distribution of large wildlife species.

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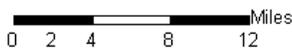
Map 1: Project Area Overview

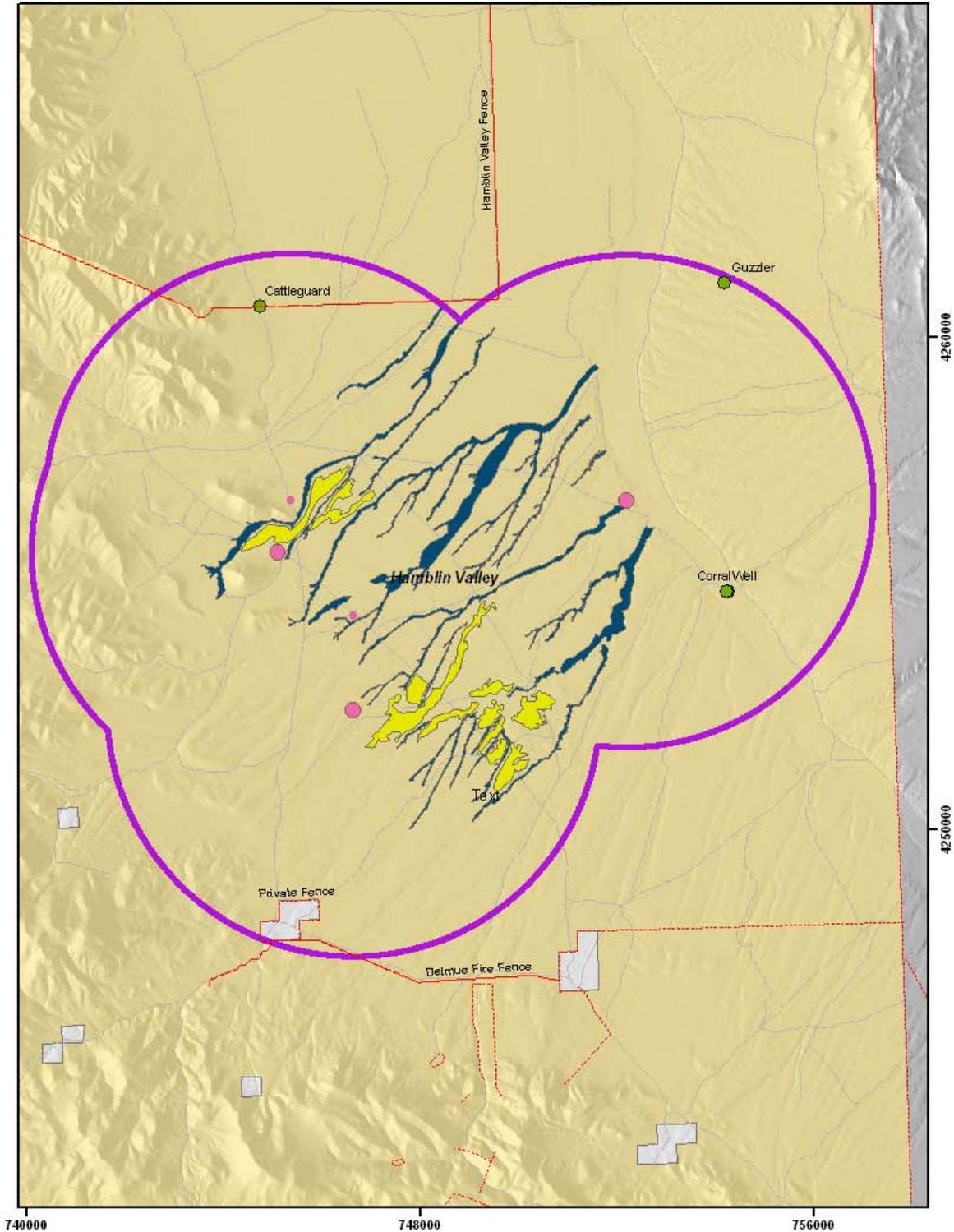


- South Spring Valley Treatment Area
- Lake Valley Treatment Area
- Patterson Wash Treatment Area
- Hamblin Treatment Area
- Cave Valley Treatment Area
- State Road
- Focus Leks
 - Active Focus Area Lek
 - Inactive Lek
 - 5 km buffer area



1:444,976





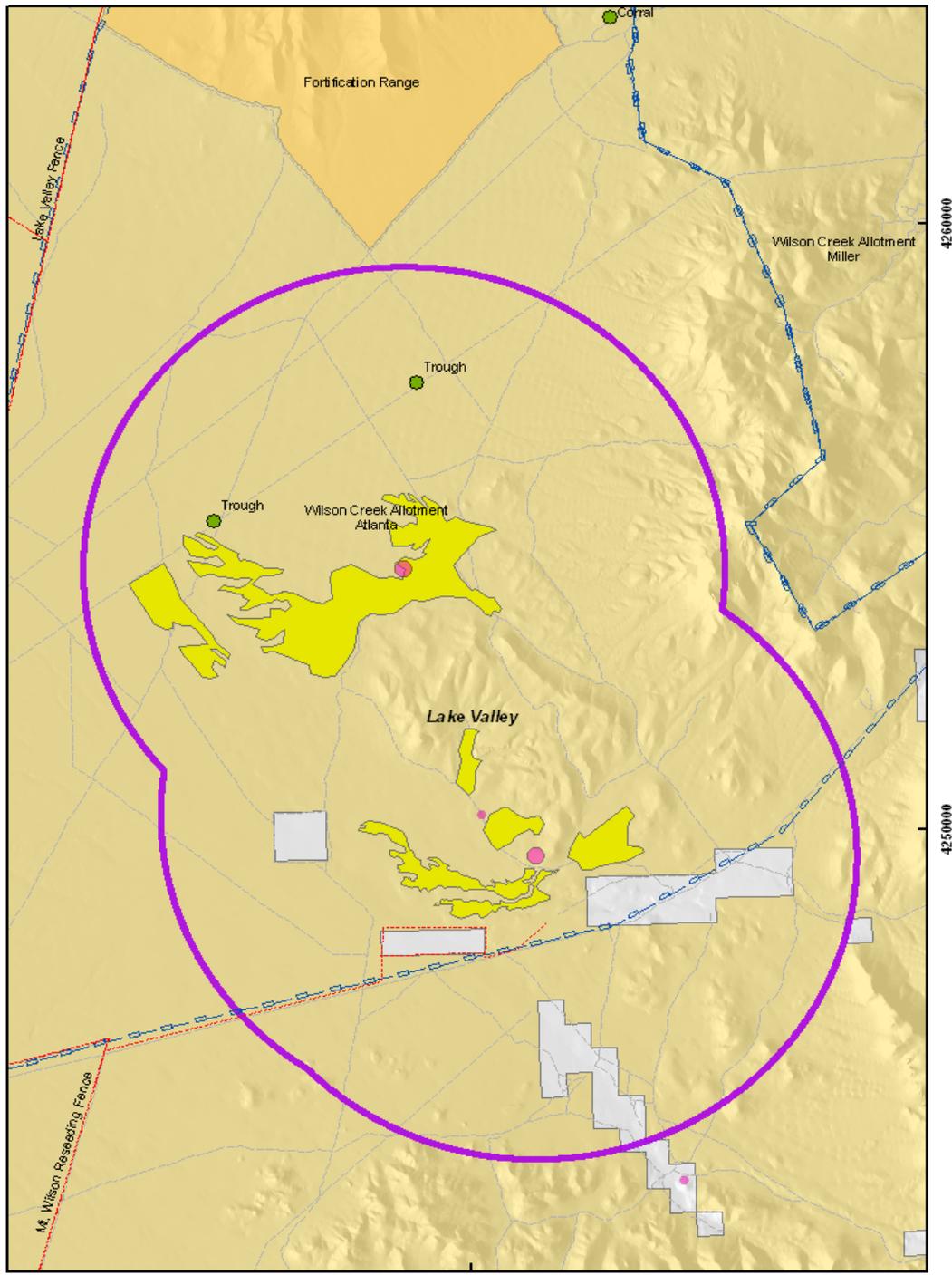
Map 2
Hamblin Valley Habitat Area



- - - - - Fence
- Pipeline
- Range Land Improvement
- Allotments Boundaries
- Hamblin Valley Treatment Area
- Spike 20
- Smooth double chaining and seed

- Focus Leks**
- Active Focus Area Lek
- Inactive Lek
- 5 kilometer buffer
- Roads
- Wilderness





724000
Map 3
Lake Valley Treatment Area

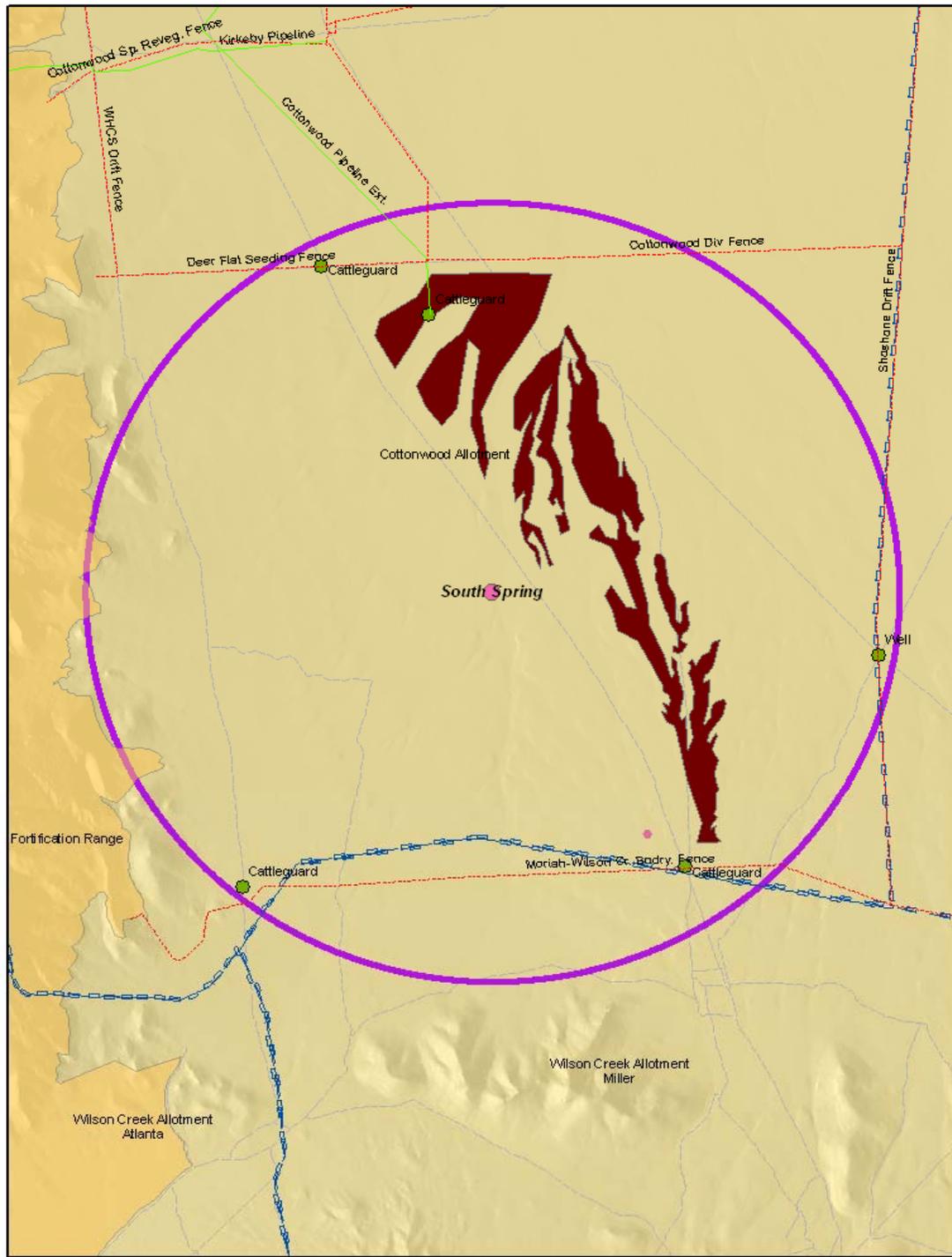


- - - - - Fence
- Pipeline
- Range Land Improvement
- - - - - Allotments Boundaries
- Lake Valley Treatment Area
- Spike 20
- Focus Leks
 - Active Focus Area Lek
 - Inactive Lek
- 5 kilometer buffer
- Roads
- Wilderness

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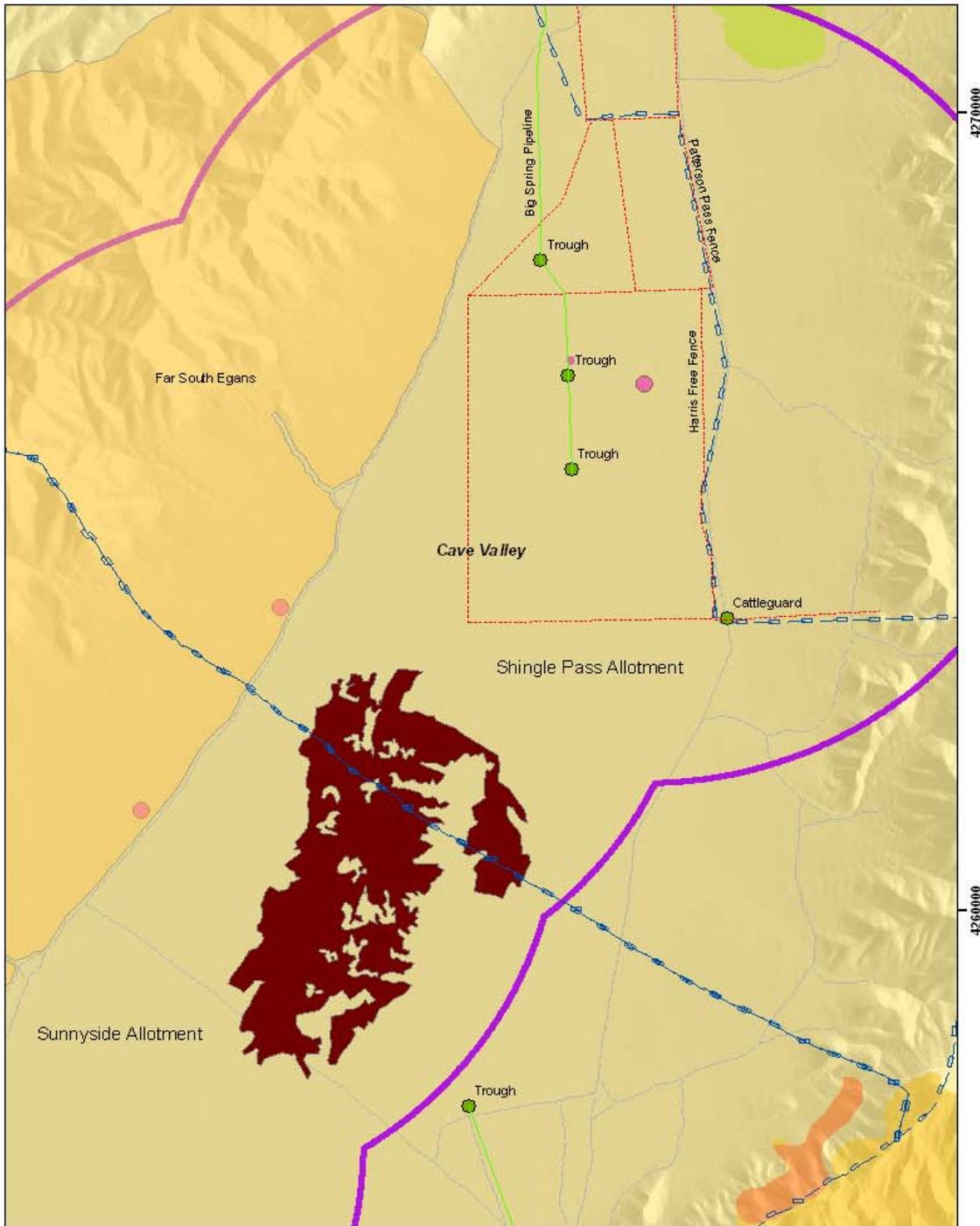


Map 4
South Spring Valley Treatment Area



- | | |
|---|--|
| <ul style="list-style-type: none"> - - - - Fence — Pipeline ● Range Land Improvement Allotments Boundaries South Spring Treatment Area Smooth double chaining and seed Rollerchop and Seed | <ul style="list-style-type: none"> ● Focus Leks ● Active Focus Area Lek ● Inactive Lek 5 kilometer buffer — Roads Wilderness |
|---|--|

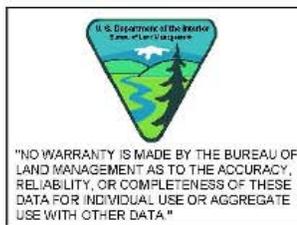


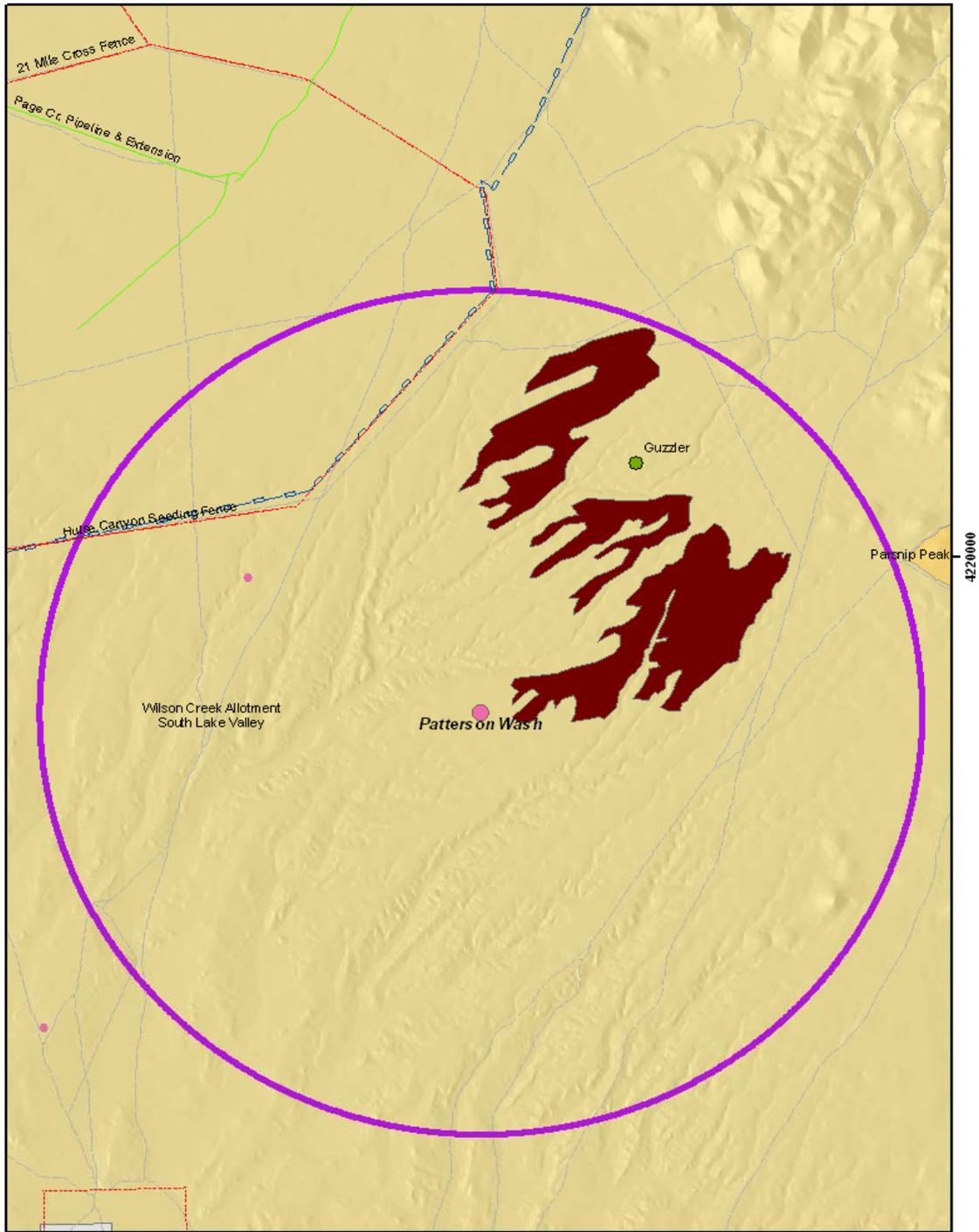


Map 5
Cave Valley Treatment Area



- Fence
- Pipeline
- Range Land Improvement
- Allotments Boundaries
- Rollerchop and seed
- Focus Leks**
- Active Focus Area Lek
- Inactive Lek
- 5 kilometer buffer
- Roads
- Wilderness
- state_roads_elyblmdist



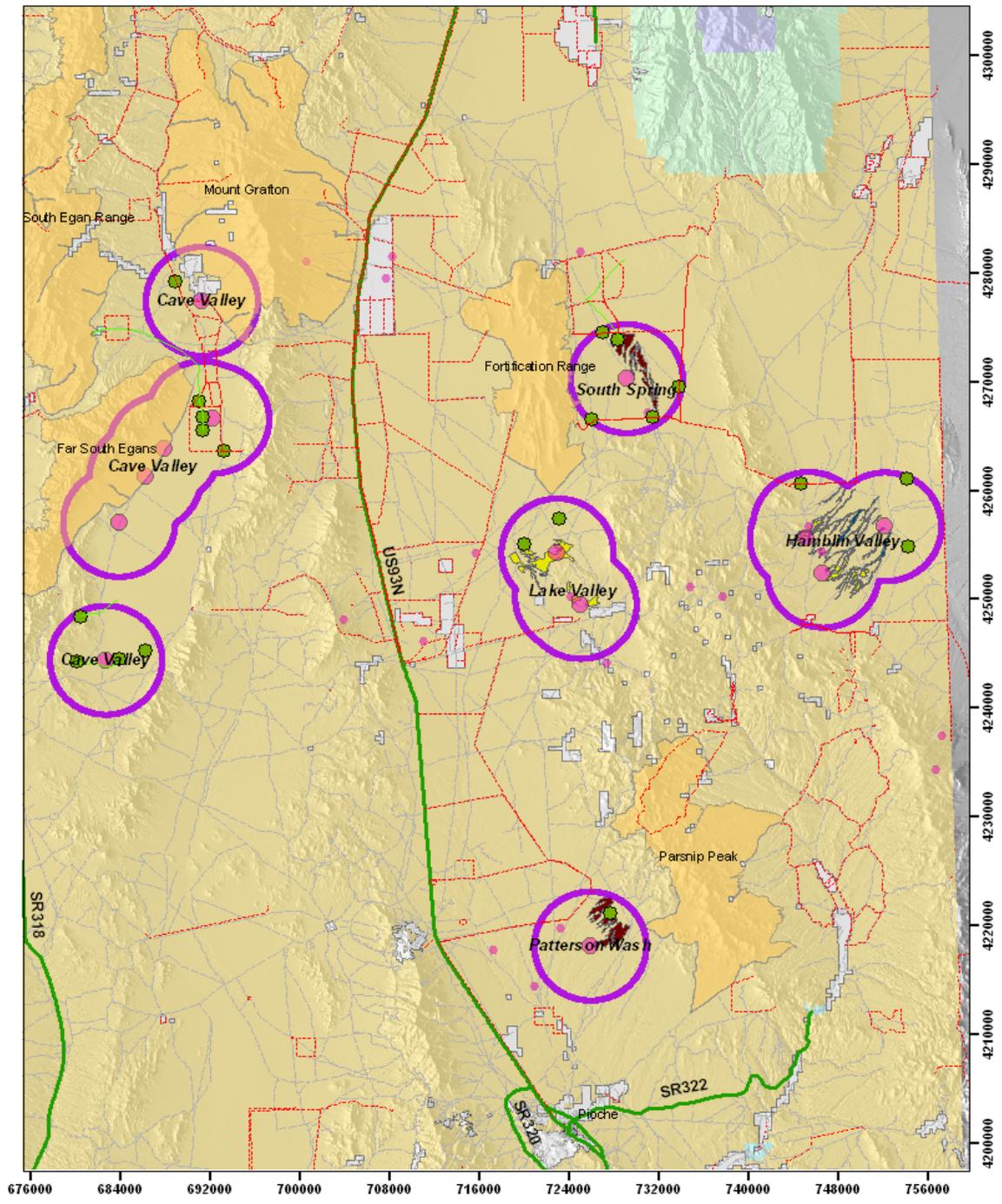


Map 6
Patterson Wash Treatment Area



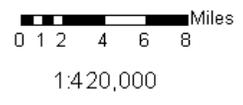
- - - - Fence
- Pipeline
- Range Land Improvement
- Allotments Boundaries
- Rollerchop and seed
- Focus Leks
 - Active Focus Area Lek
 - Inactive Lek
 - 5 kilometer buffer area
- Roads
- Wilderness





- - - - - Fence
 - Pipeline
 - Range Land Improvement
 - Focus Leks**
 - Active Focus Area Lek
 - Inactive Lek
 - 5 kilometer buffer
 - Roads
 - Allotments Boundaries
- | | |
|--------------------------------------|---|
| Lake Valley Treatment Area | Smooth Double Chaining & Seed |
| | Spike 20 |
| Patterson Wash Treatment Area | Rollerchop and seed |
| South Spring Treatment Area | Smooth Double Chaining & Seed |
| | Rollerchop and seed |
| Hamblin Treatment Area | Spike 20 |
| | Smooth Double Chaining & Seed |
| Cave Valley Treatment Area | Rollerchop and seed |

Map 7 Range Overview



6.4.3 Appendix D – Cultural Resource Sensitivity

Past surveys have revealed one NRHP eligible site within the proposed treatment areas located in Cave Valley. Using the Cultural Resources Analysis and Probability Model (Drews & Ingbar), developed for the Ely district BLM, the majority of the proposed treatment areas fall within low and moderate sensitivity. However, the majority of Lake Valley falls within moderate and high sensitivity. **Cultural sensitivity** is a rating of the probability a cultural site would be found when surveyed.

Percent composition of cultural sensitivity by treatment areas

Treatment Areas	Cultural Sensitivity		
	% Area of Low Sensitivity	% Area of Moderate Sensitivity	% Area of High Sensitivity
Hamblin Valley	5.28%	86.48%	8.24%
Patterson Wash	28.18%	68.67%	3.15%
Cave Valley	53.91%	46.09%	0.00%
Lake Valley	4.49%	55.15%	40.37%
South Spring Valley	6.58%	89.44%	3.97%

6.4.5 Appendix E – Ecological site descriptions by treatment area

			ESD		
Treatment Area	Map Unit Symbol	Soil Association	Soil Series	Site Number	Habitat Type
Cave Valley	1350	Heist-Chuffa	Oupico	R028AY015NV	ARTRW/ACHY-HECO26
			Springbar	R028AY005NV	ARTRW-ATCA2/ACHY-HECO26
Lake Valley	1150	Zoda-Cath	Zoda	R028AY015NV	ARTRW/ACHY-HECO26
			Heist	R028AY031NV	ARTRW-KRLA2/LECI4-ACHY-ELLAL
	1138	Littleallie-Lien-Sevenmile	Handpah	R028AY015NV	ARTRW/ACHY-HECO26
Hamblin Valley	1134	Lojet-Chuckmill-Sevenmile	Sevenmile	R028AY031NV	ARTRW-KRLA2/LECI4-ACHY-ELLAL
			Lojet	R028AY017NV	ARTRW/ACHY-HECO26
			Devildog	R028AY015NV	ARTRW/ACHY-HECO26
South Spring Valley	1100	Linoyer-Heist	Heist	R028AY031NV	ARTRW-KRLA2/LECI4-ACHY-ELLAL
			Cath	R028AY015NV	ARTRW/ACHY-HECO26
	1731	Cath-Chuckridge	Heist	R028AY031NV	ARTRW-KRLA2/LECI4-ACHY-ELLAL
			Cath	R028AY015NV	ARTRW/ACHY-HECO26
	1230	Yotes-Sevenmile	Chuckridge	R028AY050NV	ARTR2/PSSPS
			Sevenmile	R028AY031NV	ARTRW-KRLA2/LECI4-ACHY-ELLAL
1042	Chuckridge-Cath-Sevenmile	Sevenmile	R028AY031NV	ARTRW-KRLA2/LECI4-ACHY-ELLAL	
Patterson Wash	Soil Associations are Currently in the Process of Being Finalized by NRCS		Roval	R029XY167NV	ARTRW/BOGR-PLJA