

**United States Department of Interior**

**Bureau of Land Management**

**Lake Valley Watershed  
Evaluation Report**

**Ely Field Office  
Ely, Nevada**

**September, 2008**

# Table of Contents

	<b>Page</b>
<b>Introduction</b>	<b>3</b>
<b>Soils</b> Evaluation, causal factors and recommendations	<b>7</b>
<b>Ecosystem Components</b> Evaluation, causal factors and recommendations	<b>16</b>
<b>Habitat and Biota</b> Evaluation, causal factors and recommendations	<b>31</b>
<b>Wild Horse and Burros</b> Evaluation, causal factors and recommendations	<b>39</b>
<b>OHV ADMINISTRATION GUIDELINES FOR NEVADA PUBLIC LANDS</b> Evaluation, causal factors and recommendations	<b>40</b>
<b>Evaluation Summary</b>	<b>43</b>
<b>List of Team Members</b>	<b>51</b>
<b>Maps</b>	<b>51</b>
<b>Appendix A</b> Livestock conformance to guidelines --data and narratives	<b>56</b>

# Lake Valley Watershed Evaluation Report

## Introduction

### General Background

Lake Valley is one of sixty-one total watershed management units on the Ely District. This watershed is located southeast of Ely, Nevada, and is flanked by the Fortification Mountains and the Wilson Creek on the East and the South Schell Creek Mountains and the Fairview Mountains on the West. It is characterized by generally north to south trending mountains, gently to steeply sloping benches and bajadas, and one valley bottom characterized by level to slightly rolling terrain. The watershed drains internally into alkali sinks in the center of the valley. Elevations in the watershed vary from about 5900 feet in the valley bottom to 10,900 feet on top of the South Schell Creek Mountain Range. Precipitation varies from a yearly average of about 6 to 12 inches on the valley bottom to 14 to 20 inches or more on top of the South Schell Creek Mountains. Precipitation occurs as winter snow or spring/fall thundershowers and rains with the driest period occurring from midsummer to mid-autumn. Average annual air temperature is from 40 to 50 degrees Fahrenheit, decreasing as elevation increases. The average frost-free season is from 100 to 120 days in the valley bottom to 50 to 90 days in upper elevations.

The watershed constitutes approximately 354,352 acres. Included in this total are 339,560 acres (96 %) of Bureau of Land Management (BLM) administered public land and 14,792 (4 %) acres private land. Allotments included within this watershed are large portions of the Geyser Ranch (#1101), Atlanta (#1201), and the Pony Seeding (#1201) Allotments and small portions of the Summer Use Area (#1201), Brown Springs Use Area (#1201), and Fairview (#1201) Allotments (Map 1). Portions of other allotments are too small to accommodate in this evaluation.

Vegetation communities within the watershed include sagebrush communities including basin big sagebrush, black sagebrush, low sagebrush, mountain big sagebrush, Wyoming big sagebrush and Wyoming big sagebrush upland communities. Additional rangeland communities within the watershed include greasewood and winterfat communities at the valley bottom and upland shrub, littleleaf mountain mahogany, and mountain mahogany communities at higher elevations. Woodland communities within the watershed include pinyon and/or juniper communities and mixed conifer and aspen at higher elevations. Riparian areas are located within the watershed.

BLM has worked in this watershed for several years to develop agreements with livestock permittees. Historical use in the Lake Valley watershed has been

predominately cattle on the Geyser Ranch, Atlanta, and Pony Seeding Allotments. Lake Valley Cattle LLC obtained the grazing permit for Geyser Ranch in 2001 and obtained the grazing permits for the Geyser Ranch and pastures within the Wilson Creek Allotment. The Geyser Ranch cattle operation is based on a four-pasture rest rotation system. The ranch consists of twelve pastures on public lands with two pastures on private land. It is a year-round operation that rests three pastures each year. The Wilson Creek portion, Atlanta and Pony Seeding Allotments, is scheduled to be grazed the same time every year with no rest cycle. Currently, by working with the livestock operators, the BLM-Caliente Field Office rests one pasture every year to facilitate recovery of desirable perennials within the burn areas. An agreement with the operators was reached to graze these areas outside of the critical growing season for five years beginning in 2003. Utilization levels are being monitored regularly during the spring critical growing period and adjustments are made accordingly. The Brown Springs Use Area, Summer Native Use Area, Pony Seeding, and Atlanta pastures have been managed according to the guidelines that have been set forth in the Schell Grazing Environmental Impact Statement that was issued in the summer of 1983. The 1979 range survey was also used to establish the initial stocking rate for the Brown Springs Use Area.

The watershed analysis guidelines and processes described in BLM Handbook, *H-4180-1 Rangeland Health Standards* are being used to analyze watersheds in the Ely district. This watershed approach allows the BLM to focus on flexible management techniques necessary to accommodate the functionality of the watershed. It allows for a shift from species and individual use-driven management to the natural systems that support s in properly functioning conditions.

### **Evaluation Process**

This evaluation was done in accordance with BLM regulations regarding Rangeland Health Standards:

- Title 43 Code of Federal Regulation (43 CFR), subpart 4180
- Bureau of Land Management (BLM) Handbook *H-4180-1 Rangeland Health Standards*
- Standards and Guidelines for Nevada's Mohave-Southern Great Basin Area.

Standards are statements of physical and biological condition or degree of function required for healthy sustainable rangelands. Achieving or making significant progress towards these functions and conditions is required of all uses of public rangelands as stated in 43 CFR 4180.1. Standards were developed for the geographic area covered by the Mohave-Southern Great Basin Area Resource Advisory Council (RAC).

This report will evaluate the status of resource condition against the Mohave-Southern Great Basin Area RAC Standards for Rangeland Health using methods outlined in *H-4180-1 Rangeland Health Standards*. The standards and guidelines for the Mohave-Southern Great Basin Area are abbreviated below:

Standard #1 Soils  
Standard #2 Ecosystem Components  
Standard #3 Habitat and Biota  
Standard #4 Wild Horses and Burro Populations  
OHV Guidelines for Nevada Public Lands

Staff resource specialists from the Ely Field Office were included on the interdisciplinary (ID) team for public lands in Lake Valley Watershed. Available monitoring data, standardized methodologies and field assessments were used by the watershed evaluation ID team to characterize the status of resource conditions. The ID team used ecological site descriptions as developed by the Natural Resources Conservation Service (NRCS) to compare existing vegetative health and cover composition to vegetation potential. Appropriate ecological site descriptions were determined using current soil survey information. Summaries of assessment data are included in this evaluation report for clarity and all assessment data is available for review at the Ely Field Office.

Line-point intercept data was collected for the basin big sagebrush, black sagebrush, low sagebrush, mountain big sagebrush, Wyoming big sagebrush, Wyoming big sagebrush upland, littleleaf mountain mahogany, greasewood, and winterfat rangeland communities, and juniper, pinyon-juniper, mountain mahogany, and mixed conifer woodland communities. Line point intercept cover data was gathered on the watershed in 2007.

Allotment specific data such as utilization, ecological condition, line intercept cover, use pattern mapping and trend was also collected at key areas and examined as part of the allotment evaluations for livestock. These data have been analyzed and evaluated as a part of these evaluations and are summarized in this document in Appendix A.

### **Sequence of Events**

The 4180-1 handbook defines four phases of watershed analysis: 1) assessment of the watershed data to estimate current conditions, 2) evaluation of the assessment data, 3) determination of standards, and 4) developing a landscape management strategy. This evaluation report is a land health evaluation based on watershed level assessment data used to estimate the current condition of 339,560 acres of public lands administered by the BLM. The report documents the evaluation process. The subsequent landscape implementation strategy would be a separate document for guiding activities in the watershed. This strategy would stem from the recommendations given in this evaluation.

In this evaluation report we compare existing conditions to RACs' rangeland health standards, by evaluating the degree of achievement of rangeland health standards. If a standard is not met, making significant progress toward achievement, or there is lack of conformance with guidelines, an analysis and interpretation of the causal factors is conducted and causal factors are identified. The determination document records the authorized officers' finding that existing grazing management practices or levels of grazing use on public lands either are or are not significant factors in failing to achieve the standards.

In addition to evaluating biological data and comparing the existing conditions to the RACs' standards, other uses such as recreation activities (indicated by roads and trails), rights-of-way grants, and mineral disturbances will be evaluated. These uses can also affect the health of a watershed and can create disturbance or are in combination with other factors a causal factor for not achieving a standard or standards.

This report also contains recommendations developed by the watershed evaluation ID team during field evaluation and analysis of existing data. Recommendations in this report focus on land use activities needed to have proper functioning conditions in the watershed. All land uses and programs are assessed and documented as part of this process. The authorized officer considers the evaluation to determine if rangeland health standards are being met, and then signs a *Determination of Standards* documenting the degree of meeting or not meeting a standard and the causal factors for not meeting.

The evaluation and recommendations in this report help to choose the most effective management to initiate progress towards meeting standards.

43 CFR 4180.2(c) states in part, "the authorized officer shall take appropriate action as soon as practicable but not later than 24 months from the date of the determination that existing grazing management practices or levels of grazing use on public lands are significant factors in failing to achieve the standards and conform with the guidelines...". The 4180-1 handbook says, "Where existing grazing management or levels of grazing use are not significant factors, then watershed restoration plans will be developed to address management actions needed to achieve the standards. Landscape management strategies for the watershed will be developed in consultation and coordination with affected permittees, the state having lands or managing resources within the area and other interested parties. As with all similar BLM decisions, affected parties will have an opportunity to protest and/or appeal decisions to implement all or portions of the strategy." Appropriate site-specific National Environmental Policy Act (NEPA) analysis would be completed prior to implementing management decisions.

## Summary of Findings by Standards

**“STANDARD 1. SOILS:** Watershed soils and stream banks should have adequate stability to resist accelerated erosion, maintain soil productivity, and sustain the hydrologic cycle.

Soil indicators:

- Ground cover (vegetation, litter, rock, bare ground);
- Surfaces (e. g. biological crusts, pavements); and
- Compaction/infiltration.

Riparian soil indicators:

- Stream bank stability.”

The analysis and interpretation of the findings by the Lake Valley Watershed evaluation ID Team indicates this standard is not being achieved. Line-point intercept cover data and road inventory data were analyzed and interpreted. Soil map units with similar characteristics and dominant vegetation were lumped together and categorized according to potential vegetation communities for this evaluation. The standards utilized in this evaluation are derived from the percent-by-weight composition values described in the ecological site descriptions for the soil map units. An in-depth description of the potential vegetation communities for the Lake Valley Watershed may be found in the following standard summary entitled “Standard 2. Ecosystem Components.”

Potential woodland communities in the Lake Valley Watershed comprise approximately 21 percent of the watershed (Map 2, Figure 2.1 in Standard 2). Current estimates of the tree canopy cover for curl-leaf mountain mahogany and pinyon-juniper woodlands in the watershed and their standards are summarized in Table 1.1. Current estimates of the understory ground cover composition for the woodlands and their standards are summarized in Table 1.2. As overstory tree canopy cover exceeds the mature woodland canopy cover limits described in the ecological site descriptions, understory vegetation in the interspaces will become sparse or absent. Current estimates of the average overstory canopy cover for curl-leaf mountain mahogany (49.8 percent) and pinyon-juniper woodlands (29.5 percent) meet the described standards.

The estimated proportion of the total ground cover described as understory for curl-leaf mountain mahogany site is 37.9 percent. The understory functional group composition for curl-leaf mountain mahogany communities does not meet the described standards as a whole with shrub cover composition higher than the standard and basal and foliar native grass ground cover composition considerably lower than the standard.

The estimated proportion of the total ground cover described as understory for pinyon-juniper woodland communities is 29.9 percent. The understory functional group composition for pinyon-juniper woodland communities does not meet the soils standards as a whole. Shrub ground cover composition is higher than the described standard

whereas the herbaceous cover composition is considerably lower than the described standard. Cheatgrass is also present in pinyon-juniper woodland communities. The cheatgrass ground cover is very low on all pinyon-juniper sites in the watershed but, relative to the prevalence of other functional groups, its proportion of the ground cover composition appears high.

Table 1.1. Comparison of the Average Percent Tree Canopy Cover and the Ecological Site Descriptions' Standard for Woodland Communities in the Lake Valley Watershed.

<b>Woodland Community Type</b>	<b>Total Sites</b>	<b>Estimated Percent Tree Canopy Cover</b>	<b><i>Standard Percent Tree Canopy Cover</i></b>
Curl-leaf Mountain Mahogany	3	49.8	<b><i>35-50</i></b>
Pinyon-Juniper Woodlands	18	29.5	<b><i>20-35</i></b>

Table 1.2. Comparison of the Average Percent Total Understory Ground Cover and Percent Understory Ground Cover Composition as Reported by Functional Group with the Ecological Site Descriptions' Standards for Woodland Communities in the Lake Valley Watershed.

<b>Woodland Community Type</b>	<b>Total Sites</b>	<b>Estimated Understory Ground Cover</b>	<b>Estimated Understory Ground Cover Composition (Percent Cover)</b>				<b><i>Standard Understory Composition (Percent-by-Weight)</i></b>		
			Shrubs	Grasses	Forbs	Cheat-grass	<b><i>Shrubs</i></b>	<b><i>Grasses</i></b>	<b><i>Forbs</i></b>
		(Percent of Total Cover)							
Curl-leaf Mountain Mahogany	3	37.9	60.9	29.1	10.0	0	<b><i>30-35</i></b>	<b><i>55</i></b>	<b><i>10-15</i></b>
Pinyon-Juniper Woodlands	18	29.9	67.6	20.1	5.4	7.0	<b><i>30-50</i></b>	<b><i>35-60</i></b>	<b><i>10-15</i></b>

In addition to canopy cover and understory ground cover composition, data was collected to estimate the soil surface composition of woodland communities in the Lake Valley Watershed (Table 1.3). No standard exists by which to compare the estimates of current conditions for soil surfaces. Heterogeneous vertical and horizontal vascular plant structure within vegetation communities optimizes growing conditions for biological soil crusts. The homogenization of functional group and species composition will decrease overall biological soil crust cover and species richness. The soil surface of both woodland communities in the Lake Valley Watershed is dominated by litter and bare soil with some rock surfaces.

Table 1.3. Current Estimates of Average Soil Surface Composition for Woodland Communities in the Lake Valley Watershed.

<b>Woodland Community Type</b>	<b>Bare Soil*</b>	<b>Biotic Crust</b>	<b>Lichen</b>	<b>Litter</b>	<b>Moss</b>	<b>Plant</b>	<b>Rock</b>
Curl-leaf Mountain Mahogany	12.2	0	0	77.5	0.5	1.3	8.5
Pinyon-Juniper Woodlands	30.7	0.2	1.2	50.7	0.3	1.4	15.5

\* 'Bare Soil' refers to the lack of any other soil surface at the point of observation and does not take into consideration whether vegetation occurred directly above (vegetation cover is referred to in this evaluation as 'ground cover').

Potential sagebrush communities comprise approximately 62 percent of the Lake Valley Watershed (Map 2, Figure 2.1 in Standard 2). Current estimates of percent ground cover for individual sagebrush communities compared to ecological site description standards are summarized in Table 1.4. The average percent ground cover for black sagebrush, low sagebrush, and mountain big sagebrush communities exceed the described standards. Ground cover that is higher than expected may be interpreted as an increase in raindrop interception, decreasing erosion potential. However, if the increase in cover is primarily comprised of overstory canopy cover, the overstory species could out-compete understory herbaceous species, reducing the herbaceous ground cover in the intercanopy spaces and increasing the effects of erosion in these intercanopy areas.

Table 1.4. Comparison of Average Percent Ground Cover with the Ecological Site Descriptions' Standard for Sagebrush Communities in the Lake Valley Watershed.

<b>Sagebrush Community Type</b>	<b>Total Sites</b>	<b>Estimated Ground Cover</b>	<b>Standard Ground Cover</b>
Basin Big Sagebrush	3	41.8	<i>20-45</i>
Black Sagebrush	28	38.0	<i>5-25</i>
Low Sagebrush	6	40.3	<i>10-25</i>
Mountain Big Sagebrush	5	52.4	<i>20-35*</i>
Wyoming Big Sagebrush	15	38.2	<i>25-40*</i>
Wyoming Big Sagebrush - Upland	5	40.5	<i>25-40</i>
<b>Seedlings</b>			
Black Sagebrush Seedlings	2	33.5	<i>5-25</i>
Wyoming Big Sagebrush Seedlings	11	28.5	<i>25-40*</i>

\* The reported standards for Mountain Big Sagebrush and Wyoming Big Sagebrush communities are an average range of the standards reported in the ecological site descriptions and do not necessarily reflect the absolute minimum or maximum cover for a given site.

The total ground cover broken down according to functional group composition for the sagebrush communities is summarized in Table 1.5. The standards as described in the ecological site descriptions are summarized in Table 1.6. An increase in tree canopy cover or shrub ground cover coinciding with a decrease in herbaceous species cover, especially fibrous-rooted perennial grasses, increases the erosion potential.

The tree canopy cover composition exceeds the described standards for all sagebrush communities except Wyoming big sagebrush communities located inside seedings. The native herbaceous ground cover composition is far below the described standards for all sagebrush communities. The one exception are Wyoming big sagebrush communities located inside seedings which meet the standard for basal and foliar native grass ground cover composition but fall below the standard for foliar forb ground cover composition.

Shrub ground cover composition varies between different sagebrush community types. The shrub ground cover composition is higher than the described standards for the black sagebrush communities inside seedings, low sagebrush, and Wyoming big sagebrush communities. The shrub ground cover composition is below the described standards for the black sagebrush communities outside of seedings and the Wyoming big sagebrush upland communities. The shrub ground cover composition for Wyoming big sagebrush communities inside seedings, basin big sagebrush, and mountain big sagebrush communities are roughly equal to the described standards.

An increase in cheatgrass ground cover at the expense of fibrous-rooted perennial grasses may also increase erosion potential as cheatgrass does not have an extensive root system and the whole plant, roots included, dies at the end of the species' growing season. Cheatgrass is present in all sagebrush community types and is especially prevalent in the Wyoming big sagebrush and Wyoming big sagebrush upland communities. Both black sagebrush communities inside seedings and Wyoming big sagebrush communities inside seedings exhibited very low cheatgrass ground cover.

Table 1.5. Average Percent Ground Cover Composition of Sagebrush Communities inside and outside Seedings in the Lake Valley Watershed as Reported by Functional Groups and Cheatgrass.

<b>Sagebrush Community Type</b>	<b>Total Sites</b>	<b>Trees</b>	<b>Shrubs</b>	<b>Grasses</b>	<b>Forbs</b>	<b>Cheatgrass</b>
Basin Big Sagebrush	3	66	18.2	4.8	1.8	9.2
Black Sagebrush	28	43.3	36.1	9.0	2.2	9.4
Low Sagebrush	6	24.8	52.6	13.5	6.3	2.8
Mountain Big Sagebrush	5	59.7	22	10.8	2.1	5.5
Wyoming Big Sagebrush	15	14.7	49.9	11.3	0.4	23.7
Wyoming Big Sagebrush Upland	5	78.4	5.0	1.8	0	14.7
<b>Seedings</b>						
Black Sagebrush Seedings	2	20.0	56.6	22.7	0.03	0.7
Wyoming Big Sagebrush Seedings	11	1.0	29.5	68.6	0.2	0.7

Table 1.6. Soils Standards: Average Percent-by-Weight Composition described in Ecological Site Descriptions for Sagebrush Communities as Reported by Functional Groups.

<b>Sagebrush Community Type</b>	<b>Trees</b>	<b>Shrubs</b>	<b>Grasses</b>	<b>Forbs</b>	<b>Cheatgrass</b>
Basin Big Sagebrush	<i>0-3</i>	<i>20-25</i>	<i>65-70</i>	<i>10</i>	<i>0</i>
Black Sagebrush	<i>0-3;</i> <i>5-15*</i>	<i>45**</i>	<i>50**</i>	<i>5</i>	<i>0</i>
Low Sagebrush	<i>0-3</i>	<i>40-45</i>	<i>40-50</i>	<i>10-15</i>	<i>0</i>
Mountain Big Sagebrush	<i>0-3</i>	<i>25-30</i>	<i>60-65</i>	<i>10</i>	<i>0</i>
Wyoming Big Sagebrush	<i>0-5</i>	<i>20-40</i>	<i>55-75</i>	<i>5-10</i>	<i>0</i>
Wyoming Big Sagebrush Upland	<i>0-3</i>	<i>35</i>	<i>55</i>	<i>10</i>	<i>0</i>

\*The ideal percent-by-weight composition for trees in the Black Sagebrush community types is 0-3 percent-by-weight except for the Juniper Savannah community types which were included as one of the Black Sagebrush community types. The ideal Juniper Savanna community tree composition is 5-15 percent-by-weight. Percent-by-weight composition for other functional groups is similar.

\*\* Starred functional group standards are averages of the reported values in the ecological site descriptions for the sagebrush communities being described.

In addition to canopy cover and understory ground cover composition, data was collected to estimate the soil surface composition of sagebrush communities in the Lake Valley Watershed (Table 1.7). No standard exists by which to compare the estimates of current

conditions for soil surfaces. The soil surface of all sagebrush communities in the Lake Valley Watershed is dominated by litter and bare soil with some rock surfaces. Very little or no biological soil crusts are present.

Table 1.7. Current Estimates of Average Soil Surface Composition for Sagebrush Communities in the Lake Valley Watershed.

<b>Sagebrush Community Type</b>	<b>Bare Soil*</b>	<b>Biotic Crust</b>	<b>Lichen</b>	<b>Litter</b>	<b>Moss</b>	<b>Plant</b>	<b>Rock</b>
Basin Big Sagebrush	28.7	0	0	61.3	0.3	1.0	8.7
Black Sagebrush	44.3	0.3	0.4	45.4	0.5	1.3	7.8
Low Sagebrush	32.8	0	0.2	47.8	0.3	2.7	16.2
Mountain Big Sagebrush**	25.2	0	0.7	64.3	1.4	1.8	6.5
Wyoming Big Sagebrush	44.3	1.2	0.5	49.7	0.5	1.1	2.7
Wyoming Big Sagebrush Upland	43.9	0	0.5	53.9	0.2	0	1.5
<b>Seedings</b>							
Black Sagebrush Seedings	53.5	1.0	0.8	39.5	0.2	0.5	4.5
Wyoming Big Sagebrush Seedings	45.0	0.1	0.1	50.0	0.1	2.5	2.2

\* 'Bare Soil' refers to the lack of any other soil surface at the point of observation and does not take into consideration whether vegetation occurred directly above (vegetation cover is referred to in this evaluation as 'ground cover').

\*\* The average soil surface calculations for Mountain Big Sagebrush communities do not equal 100 percent.

Potential non-sagebrush rangeland communities – including littleleaf mountain mahogany, greasewood, and winterfat communities – comprise approximately 17.5 percent of the Lake Valley Watershed (Map 2, Figure 2.1 in Standard 2). Current estimates of percent ground cover for these communities compared to their ecological site description standards are summarized in Table 1.8. Current estimates of total ground cover for all non-sagebrush rangeland communities described exceed the rangeland soils standards.

Table 1.8. Comparison of Average Percent Ground Cover with the Ecological Site Descriptions' Standard for Non-Sagebrush Rangeland Communities in the Lake Valley Watershed.

<b>Non-Sagebrush Rangeland Communities</b>	<b>Estimated Ground Cover</b>	<b>Standard Ground Cover</b>
Littleleaf Mountain Mahogany	38.0	<b>25-35</b>
Greasewood	31.1	<b>2-20</b>
Winterfat	28.0	<b>10-20</b>
<b>Seedings</b>		
Greasewood	18.8	<b>2-20</b>

If an increase in the estimated ground cover coincides with an increase in shrub overstory and a decrease in herbaceous ground cover, especially fibrous-rooted perennial grasses, the erosion potential of a given site increases. Current estimates of the total ground cover broken down according to functional group composition for the non-sagebrush rangeland communities are summarized in Table 1.9. The standards as described in the ecological site descriptions are summarized in Table 1.10. For the littleleaf mountain mahogany communities, the tree canopy cover far exceeds the described standard while the shrub and herbaceous ground cover compositions are all below the described standard. The littleleaf mountain mahogany community does not meet the soils standard.

For the greasewood and winterfat communities, the shrub ground cover composition far exceeds the described standard, with shrubs composing 100 percent of the total ground cover for winterfat communities. The herbaceous ground cover composition is below the described standard for greasewood communities and non-existent for winterfat communities. Cheatgrass is present in greasewood communities but not prevalent. Neither of these communities meets the soils standard. The greasewood communities inside seedings, on the other hand, do meet the soils standard for total ground cover but do not meet the ground cover composition standards with higher than desired shrub cover composition and lower than desired herbaceous ground cover composition.

Table 1.9. Average Ground Cover Composition of Non-Sagebrush Rangeland Communities inside and outside Seedings in the Lake Valley Watershed as Reported by Functional Groups and Cheatgrass.

<b>Non-Sagebrush Rangeland CommunityType</b>	<b>Total Sites</b>	<b>Trees</b>	<b>Shrubs</b>	<b>Grasses</b>	<b>Forbs</b>	<b>Cheatgrass</b>
Littleleaf Mountain Mahogany	2	26.3	60	5.5	8.1	0
Greasewood	17	0	92.9	4.0	0.4	2.7
Winterfat	1	0	100	0	0	0
<b>Seedings</b>						
Greasewood	2	0	81	17.7	1.3	0

Table 1.10. Soils Standards: Average Percent-by-Weight Composition Described in Ecological Site Descriptions for Non-Sagebrush Rangeland Communities as Reported by Functional Groups.

<b>Non-Sagebrush Rangeland CommunityType</b>	<b>Trees</b>	<b>Shrubs</b>	<b>Grasses</b>	<b>Forbs</b>	<b>Cheatgrass</b>
Littleleaf Mountain Mahogany	<i>0-2</i>	<i>75</i>	<i>15</i>	<i>10</i>	<i>0</i>
Greasewood	<i>0-3</i>	<i>60-70</i>	<i>25-35</i>	<i>5</i>	<i>0</i>
Winterfat	<i>0</i>	<i>65</i>	<i>30</i>	<i>5</i>	<i>0</i>

In addition to canopy cover and understory ground cover composition, data was collected to estimate the soil surface composition of non-sagebrush rangeland communities in the Lake Valley Watershed (Table 1.11). No standard exists by which to compare the estimates of current conditions for soil surfaces. The soil surface of all non-sagebrush rangeland communities in the Lake Valley Watershed is dominated by litter and bare soil. Soil surfaces in littleleaf mountain mahogany communities are also co-dominated by rock surfaces. Both greasewood and winterfat communities in the Lake Valley Watershed exhibited but were not dominated by biological soil crust surfaces.

Table 1.11. Current Estimates of Average Soil Surface Composition for Non-Sagebrush Rangeland Communities in the Lake Valley Watershed.

<b>Non-Sagebrush Rangeland Community Type</b>	<b>Bare Soil*</b>	<b>Biotic Crust</b>	<b>Lichen</b>	<b>Litter</b>	<b>Moss</b>	<b>Plant</b>	<b>Rock</b>
Littleleaf Mountain Mahogany	29.2	2.0	0.3	42.8	0	2.2	23.5
Greasewood**	50.6	6.7	0.03	40.6	0.1	0.9	0.1
Winterfat	34.0	11.0	0.5	51.0	0	3.5	0
<b>Seedings</b>							
Greasewood**	74.3	0	0	25.0	0.5	0	0

\* 'Bare Soil' refers to the lack of any other soil surface at the point of observation and does not take into consideration whether vegetation occurred directly above (vegetation cover is referred to in this evaluation as 'ground cover').

\*\* The average soil surface calculations for Greasewood communities do not equal 100 percent.

## Roads

The Lake Valley Watershed has been recently inventoried for roads. Map 4 shows the road inventory data as road density for the Lake Valley Watershed. There is 2.25 miles per square mile average road density. There are 1,260 miles of inventoried roads covering a total of 553 square miles within the watershed. Many of these roads are recent developments and have been pioneered as a result of increased use of public lands for

off-highway vehicle use. Many roads or trails run counter to the slope and act as berms capturing sheet flow from runoff and snowmelt and converting it into channel flow along the roads. This causes accelerated erosion where roads capture water flow in this manner.

There are approximately 5 miles of roads and trails that intersect sensitive soils within the watershed. These soils are associated with winterfat communities and have low shear strength that causes them to “powder out” and erode with increased traffic.

## **Causal Factors**

The causal factors for Lake Valley Watershed not meeting the Soil Standard are derived from many interrelated issues, many of the same factors that affect the majority of Great Basin ecological province. Based on scientific research, there is a consensus that the alteration of Great Basin ecosystems and their historical natural disturbance regimes includes the following landscape-scale causes:

- Historic livestock grazing in the wake of European settlement of the West;
- Increasingly effective fire suppression in last century;
- The introduction and spread of non-native annual grasses; and
- Climate fluctuation in recent years.

Causal factors for soil degradation are also site-specific.

- Wild horses, livestock and/or elk are contributing to the degradation of the hydrological function of soils in localized areas, near water sources.
- Roads and trails also cause accelerated soil erosion. Historically, travel routes evolved in a watershed as a result of needs for access which did not consider or reflect watershed function. This resulted in the construction of numerous, straight, steep roads that increase erosion potential and roads through sensitive (highly erosive) soils. Current road inventory indicates high road density in localized areas.

## **Recommendations**

- Implement restoration treatments with the objective of increasing herbaceous cover and decreasing the spread of annual grasses as economically and ecologically feasible.
- Manage livestock to adhere to standards and guidelines that maintain soil function.
- Continue management of wild horse herds.
- Where feasible, build protective fences around riparian areas.
- Develop a transportation plan to address improvement of road locations, closure of roads, and inhibit the creation of new roads.

**“STANDARD 2. ECOSYSTEM COMPONENTS:**

Watersheds should possess the necessary ecological components to achieve state water quality criteria, maintain ecological processes, and sustain appropriate uses.

Riparian and wetlands vegetation should have structural and species diversity characteristic of the stage of the stream channel succession in order to provide forage and cover, capture sediment, and capture, retain, and safely release water (watershed function).

Upland indicators:

- Canopy and ground cover, including litter, live vegetation, biological crust, and rock appropriate to the potential of the ecological site;
- Ecological processes are adequate for the vegetation communities.

Riparian indicators:

- Stream side riparian areas are functioning properly when adequate vegetation, large woody debris, or rock is present to dissipate stream energy associated with high water flows.
- Elements indicating proper functioning condition such as avoiding accelerating erosion, capturing sediment, and providing for groundwater recharge and release are determined by the following measurements as appropriate to the site characteristics:
  - Width/Depth ratio;
  - Channel roughness;
  - Sinuosity of stream channel;
  - Bank stability;
  - Vegetative cover (amount, spacing, life form); and
  - Other cover (large woody debris, rock).
- Natural springs, seeps, and marsh areas are functioning properly when adequate vegetation is present to facilitate water retention, filtering, and release as indicated by plant species and cover appropriate to the site characteristics.

Water quality indicators:

- Chemical, physical, and biological water constituents are not exceeding the state water quality standards.”

**Upland Standards**

The analysis and interpretation of the findings by the Lake Valley Watershed evaluation ID Team indicates this standard is not being achieved. Line-point intercept cover data and Fire Regime and Condition Class (FRCC) were analyzed and interpreted.

Figure 2.1. Potential Major Vegetation in the Lake Valley Watershed as Estimated from Soil Survey Data.

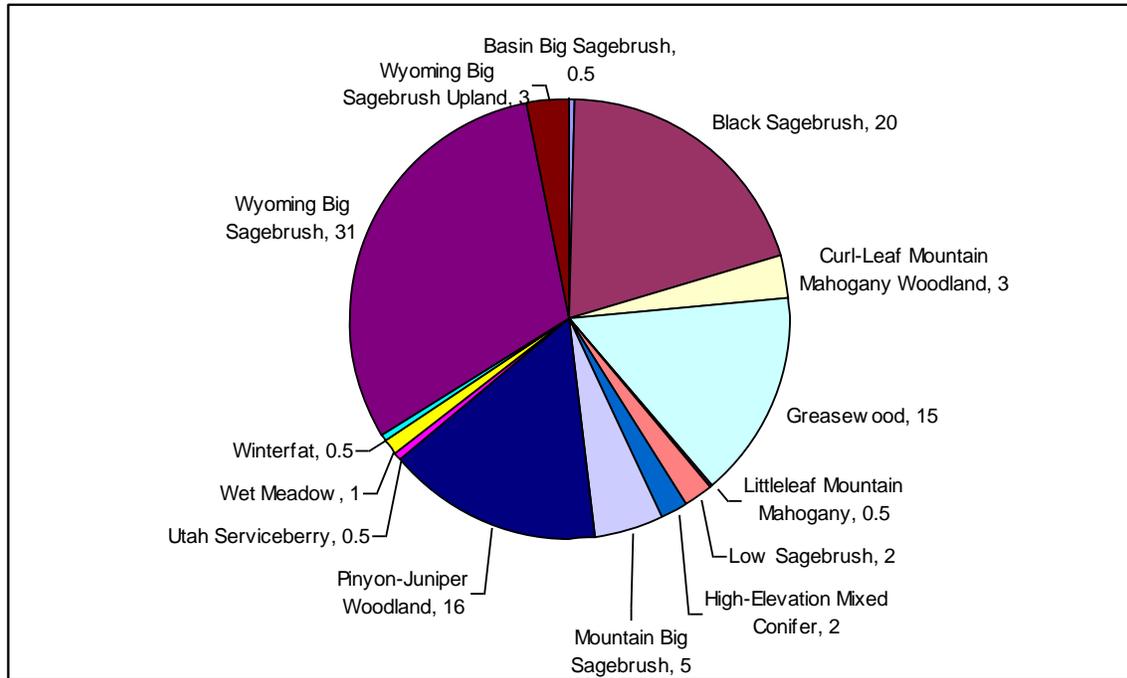


Figure 2.1 depicts the proportion of the watershed that has the potential for each major vegetation community to be present. The potential vegetation communities for the Lake Valley Watershed were estimated by assuming the dominant vegetation for a given soil map unit represented the vegetation for the entire area in the soil map unit. The potential vegetation estimated for a given area does not necessarily reflect the actual vegetation present at sites visited by field crews. The entire acreage for potential wet meadow communities (3,015 acres or 1% of the watershed) occur on private land and were inaccessible to field crews. Potential Utah serviceberry communities (1,848 acres or 0.5% of the watershed) were not encountered by field crews during the 2007 field season. Data for these communities were not collected and the communities were not characterized at this scale of analysis. The Utah serviceberry communities will be assessed at a smaller scale where they pertain to more site-specific needs associated with pre-monitoring ahead of project level implementation.

Potential high-elevation mixed conifer woodlands occupy approximately 6,974 acres (2%) of the watershed (Map 2, Figure 2.1). Due to the inaccessible location of most mixed conifer woodlands, only one site was visited during the 2007 field season. In addition to the inability to collect data, no Forestland Ecological Site Descriptions were available for the soil surveys in which the mixed conifer woodland sites occurred, so evaluators were unable to determine the standard for the Lake Valley watershed's mixed conifer woodlands. The data collected from the site has been included in the data package submitted to the Bureau of Land Management for future inquiries.

Potential pinyon-juniper woodland communities comprise approximately 55,228 acres (15%) of the watershed (Map 2, Figure 2.1). Forestland ecological site descriptions indicate the average overstory canopy cover in pinyon-juniper woodlands should be 20 to 35 percent. A total of 18 pinyon-juniper woodland sites were assessed by field crews in 2007. Current estimates from professional observations indicate that the pinyon-juniper woodlands are meeting the upland standard with an average overstory canopy cover of 29 percent.

The forestland ecological site descriptions for pinyon-juniper woodlands specify understory composition to be 30 to 50 percent shrubs, 35 to 60 percent grasses, and 10 to 15 percent forbs. Estimates of current conditions in pinyon-juniper woodlands indicate the estimated shrub component of the understory (68 percent) is higher whereas the estimated grass and forb components (20 and 5 percent, respectively) are lower than the specified upland standard. Cheatgrass is also present, comprising an estimated 7 percent of the understory. The cheatgrass ground cover is very low on all pinyon-juniper sites in the watershed but, relative to the prevalence of other functional groups, its understory composition appears high.

Potential curl-leaf mountain mahogany communities encompass approximately 10,081 acres (3%) of the watershed (Map 2, Figure 2.1). Rangeland ecological site descriptions indicate the average overstory canopy cover in curl-leaf mountain mahogany should be 35 to 50 percent with curl-leaf mountain mahogany composing nearly the entire overstory canopy. A total of 3 curl-leaf mountain mahogany sites were assessed by field crews in 2007. Current estimates from professional observations indicate that the curl-leaf mountain mahogany is meeting the standard with an average overstory canopy cover of 50%. However, only 53% of the overstory canopy is composed of curl-leaf mountain mahogany with pinyon-pine and juniper trees accounting for 46% of the overstory canopy.

For understory composition standards, the ecological site descriptions for curl-leaf mountain mahogany specify the understory vegetation should be composed of 30 to 35 percent shrubs, 55 percent grasses, and 10 to 15 percent forbs. The current condition estimates indicates that shrub composition (61 percent) is higher and native grass composition (29 percent) is lower than the specified upland standard. The estimated forb composition equals the specified upland standard. The understory standard for curl-leaf mountain mahogany communities is not being met as a whole.

Potential sagebrush communities cover approximately 220,663 acres (62%) of the Lake Valley watershed (Map 2, Figure 2.1). Tables 2.1 and 2.2 summarize the percent ground cover composition for individual sagebrush community types inside and outside seedings, respectively. Table 2.3 summarizes the standards as described in the ecological site descriptions for the sagebrush community types. For all of the sagebrush community types, the percent canopy cover composition of trees exceeds the ideal composition as described in the ecological site descriptions. Pinyon and /or juniper trees are very prevalent in all sagebrush communities except Wyoming big sagebrush communities.

This may be due to the close proximity of these communities to pinyon-juniper woodlands.

The one exception to the standard described above is the juniper savannah community type which was included as part of the black sagebrush communities in the estimation of potential vegetation communities for the watershed. While the juniper savannah type allows 5 to 15 percent trees by weight, inclusion of the actual juniper savannah community data in the black sagebrush community data changed the current condition estimates nominally, with the greatest change of 1 percent in cheatgrass ground cover composition. In addition, by examining the black sagebrush and juniper savannah data separately and comparing these communities to their own standards, the evaluators came to the same conclusions as when considered together.

The shrub ground cover compositions for both Wyoming big sagebrush and low sagebrush community types exceed the described standards. This does not meet the upland standard for these community types. In black sagebrush and Wyoming big sagebrush upland community types, the shrub ground cover compositions are less than the described standards. Inside seedings, the shrub ground cover composition for black sagebrush exceeds the standard whereas the shrub ground cover composition for Wyoming big sagebrush meets the standard.

For all but one of the sagebrush communities evaluated, basal and foliar grass ground cover and foliar forb ground cover are less than the average composition described in the ecological site descriptions. Wyoming big sagebrush community types inside seedings are an exception as the estimated average basal and foliar grass cover composition is similar to the standard. This is due to the exclusive presence of crested wheatgrass. The estimated foliar forb cover composition is still well below the standard.

Cheatgrass is present in all sagebrush community types. While the overall average cheatgrass ground cover composition appears to be moderate for most communities, cheatgrass prevalence in all of the sagebrush communities appears to be site-specific with only a few sites exhibiting high to very high cover and most sites exhibiting little or no cover. This may be due to a spatial correlation not examined during this evaluation. Cheatgrass prevalence inside seedings within both black sagebrush and Wyoming big sagebrush community types is very low.

Table 2.1. Current Condition Estimates of Sagebrush Communities inside Seedings in Lake Valley watershed from Average Ground Cover Composition as Reported by Functional Groups and Cheatgrass.

<b>Sagebrush Community Type</b>	<b>Total Sites</b>	<b>Trees</b>	<b>Shrubs</b>	<b>Grasses</b>	<b>Forbs</b>	<b>Cheatgrass</b>
Black Sagebrush	2	20.0	56.6	22.7	0.03	0.7
Wyoming Big Sagebrush	11	1.0	29.5	68.6	0.2	0.7

Table 2.2. Current Condition Estimates of Sagebrush Communities outside Seedings in Lake Valley watershed from Average Percent Ground Cover Composition as Reported by Functional Groups and Cheatgrass.

<b>Sagebrush Community Type</b>	<b>Total Sites</b>	<b>Trees</b>	<b>Shrubs</b>	<b>Grasses</b>	<b>Forbs</b>	<b>Cheatgrass</b>
Basin Big Sagebrush	3	66	18.2	4.8	1.8	9.2
Black Sagebrush	28	43.3	36.1	9.0	2.2	9.4
Low Sagebrush	6	24.8	52.6	13.5	6.3	2.8
Mountain Big Sagebrush	5	59.7	22	10.8	2.1	5.5
Wyoming Big Sagebrush	15	14.7	49.9	11.3	0.4	23.7
Wyoming Big Sagebrush Upland	5	78.4	5.0	1.8	0	14.7

Table 2.3. Upland Standards: Average Percent-by-Weight Composition described in Ecological Site Descriptions for Sagebrush communities as Reported by Functional Groups.

<b>Sagebrush Community Type</b>	<b>Trees</b>	<b>Shrubs</b>	<b>Grasses</b>	<b>Forbs</b>	<b>Cheatgrass</b>
Basin Big Sagebrush	<i>0-3</i>	<i>20-25</i>	<i>65-70</i>	<i>10</i>	<i>0</i>
Black Sagebrush	<i>0-3;</i> <i>5-15*</i>	<i>45**</i>	<i>50**</i>	<i>5</i>	<i>0</i>
Low Sagebrush	<i>0-3</i>	<i>40-45</i>	<i>40-50</i>	<i>10-15</i>	<i>0</i>
Mountain Big Sagebrush	<i>0-3</i>	<i>25-30</i>	<i>60-65</i>	<i>10</i>	<i>0</i>
Wyoming Big Sagebrush	<i>0-5</i>	<i>20-40</i>	<i>55-75</i>	<i>5-10</i>	<i>0</i>
Wyoming Big Sagebrush Upland	<i>0-3</i>	<i>35</i>	<i>55</i>	<i>10</i>	<i>0</i>

\*The ideal percent-by-weight composition for trees in the Black Sagebrush community types is 0-3 percent-by-weight except for the Juniper Savannah community types which were included as one of the Black Sagebrush community types. The ideal Juniper Savanna community tree composition is 5-15 percent-by-weight. Percent-by-weight composition for other functional groups is similar.

\*\* Double-starred functional group standards are averages of the reported values in the ecological site descriptions for the sagebrush communities being described.

Non-sagebrush rangeland communities comprise 16 percent of the watershed with potential littleleaf mountain mahogany occupying 2,346 acres (0.5%) of the watershed, potential greasewood communities occupying approximately 52,506 acres (15%) of the watershed, and potential winterfat communities occupying approximately 1,414 acres (0.5%) of the watershed (Map 2, Figure 2.1). The standards as described in the ecological site descriptions for each of these communities are summarized in Table 2.6.

The current condition estimates for littleleaf mountain mahogany communities is summarized in Table 2.5. In littleleaf mountain mahogany communities, the percent tree canopy cover composition exceeds the described standard. The shrub ground cover composition and basal and foliar grass ground cover composition are less than the described standard for littleleaf mountain mahogany communities. Neither of these attributes meets the upland standard for these community types. Alternatively, the foliar forb ground cover composition is only slightly below the composition described in the ecological site description and, given the variability of sites, may actually meet the standard.

Tables 2.4 and 2.5 summarize the percent cover composition of individual sagebrush types of non-rangeland community types inside and outside of seedings, respectively. Table 2.6 summarizes the standards as described in the ecological site descriptions for the community types. Pinyon-pine and juniper trees were not present in the greasewood and winterfat communities types, which corresponds with the location of the communities in the valley bottom rather than adjacent to pinyon-juniper woodlands. None of the other standards are met for either of these communities as the shrub ground cover composition exceeds the composition described in the ecological site descriptions and the basal and foliar grass cover and foliar forb cover are below the described standards. For the winterfat communities, only one site was visited during the 2007 field season and this site exhibited no herbaceous ground cover. Cheatgrass is present in the greasewood community types with several sites exhibiting low to moderate cheatgrass cover and the majority exhibiting no cover.

Table 2.4. Current Condition Estimates of Average Ground Cover Composition for Non-Sagebrush Rangeland Communities inside Seedings in the Lake Valley Watershed as Reported by Functional Groups and Cheatgrass.

<b>Non-Sagebrush Rangeland CommunityType</b>	<b>Total Sites</b>	<b>Trees</b>	<b>Shrubs</b>	<b>Grasses</b>	<b>Forbs</b>	<b>Cheatgrass</b>
Greasewood	2	0	81	17.7	1.3	0

Table 2.5. Current Condition Estimates of Average Ground Cover Composition for Non-Sagebrush Rangeland Communities outside Seedings in the Lake Valley Watershed as Reported by Functional Groups and Cheatgrass.

<b>Non-Sagebrush Rangeland CommunityType</b>	<b>Total Sites</b>	<b>Trees</b>	<b>Shrubs</b>	<b>Grasses</b>	<b>Forbs</b>	<b>Cheatgrass</b>
Littleleaf Mountain Mahogany	2	26.3	60	5.5	8.1	0
Greasewood	17	0	92.9	4.0	0.4	2.7
Winterfat	1	0	100	0	0	0

Table 2.6. Average Percent-by-Weight Composition Described in Ecological Site Descriptions for Non-Sagebrush Rangeland Communities as Reported by Functional Groups.

<b>Non-Sagebrush Rangeland CommunityType</b>	<b>Trees</b>	<b>Shrubs</b>	<b>Grasses</b>	<b>Forbs</b>	<b>Cheatgrass</b>
Littleleaf Mountain Mahogany	<i>0-2</i>	<i>75</i>	<i>15</i>	<i>10</i>	<i>0</i>
Greasewood	<i>0-3</i>	<i>60-70</i>	<i>25-35</i>	<i>5</i>	<i>0</i>
Winterfat	<i>0</i>	<i>65</i>	<i>30</i>	<i>5</i>	<i>0</i>

Fire History and Fire Regime and Condition Class

Fire statistics:

Over the past 27 years, there have been 281 fires recorded ranging from less than one acre spot fires to 5000 acres. The watershed averaged 10.4 fires per year. Total area burned is approximately 10,000 acres.

Fire Regime Condition Class (FRCC) Analysis:

Another method of assessing ecological condition is using the FRCC Mapping Tool (developed by the USDA Forest Service for the National Interagency Fuels Coordination Group, NIFTT). The analysis quantifies the departure of current vegetation conditions from a set of reference conditions. It is not a fire risk or fuels hazard assessment. Data used to perform the analysis is provided by LANDFIRE (Landscape Fire and Resource Management Planning Tools Project), an interagency vegetation, fire, and fuel characteristics mapping project. (See <http://www.landfire.gov>) FRCC analysis of Lake Valley is summarized below in Table 2.7.

Table 2.7. Fire Regime Condition Class Descriptions and Proportion of the Lake Valley Watershed categorized within each condition class.

Class	Class Description	Proportion of Watershed
1	Fire regimes are within the natural or historical range of variation and risk of losing key ecosystem components is low. Vegetation attributes (composition and structure) are intact and functioning.	16 %
2	Fire regimes have been moderately altered. Risk of losing key ecosystem components is moderate. Fire frequencies may have departed by one or more return intervals (either increased or decreased), potentially resulting in moderate changes in fire and vegetation attributes	49 %
3	Fire regimes have been substantially altered. Risk of losing key ecosystem components is high. Fire frequencies may have departed by multiple return intervals, potentially resulting in dramatic changes in fire, fire intensity and severity as well as landscape patterns. Vegetation attributes have been substantially altered.	32 %
None	Consists of rocks, water, bare ground, agriculture, etc.	3 %

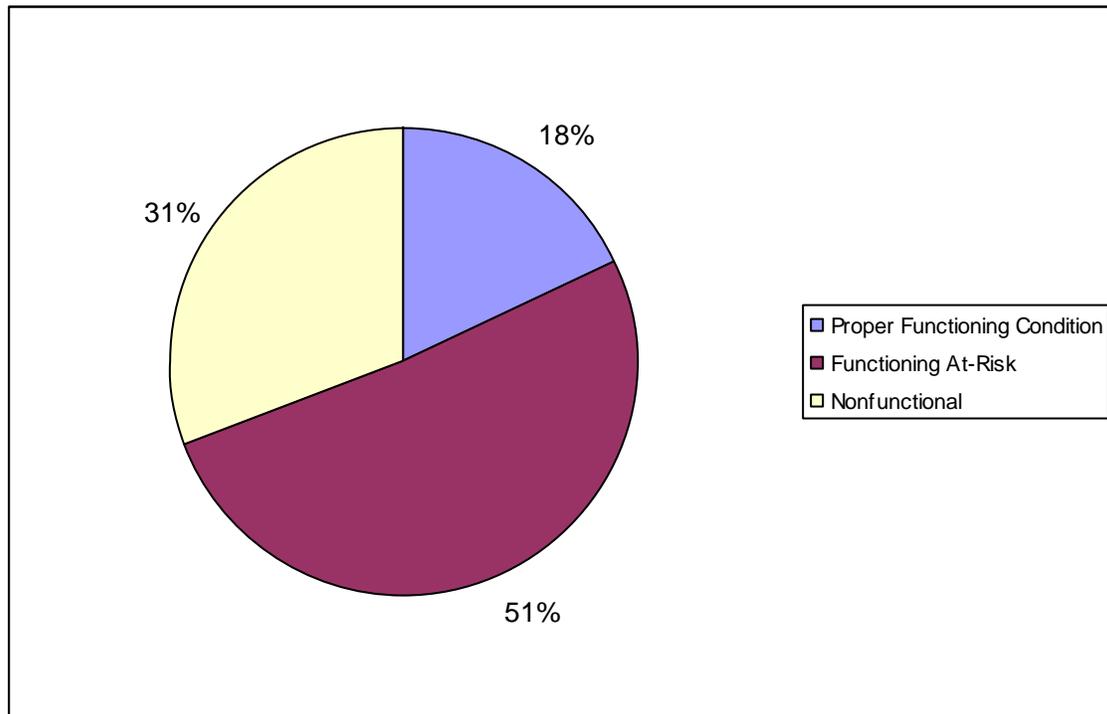
Eighty-three percent of the watershed is in Condition Class 2 or 3. This may infer that 83 percent of the watershed is not meeting the Upland Standard or Habitat Standard.

### **Riparian Standards**

The analysis and interpretation of the findings by the Lake Valley Watershed evaluation ID Team indicates this standard is not being achieved. Formal Proper Functioning Condition (PFC) assessments have been performed for 39 lentic riparian sites and two (2) lotic riparian systems in the Lake Valley Watershed during 2004 and 2007. Only a select number of lentic riparian sites were chosen for evaluation. The sites at which PFC assessments were performed were selected due to the increased potential for these sites to be impacted by livestock, wild horse and burro, and wildlife use.

Figure 2.2 depicts the condition class distribution for the lentic sites assessed for PFC in the Lake Valley Watershed. The indicator data evaluated for the lentic riparian systems show 7 of the 39 sites are functioning properly. Of the remaining sites, 20 were determined to be functioning at-risk, 16 of which were trending downwards, 1 (one) trending upwards, and 3 with no apparent trend, and 12 were determined to be non-functional.

Figure 2.2. Percentage of Lentic Riparian Systems within each Condition Class Assessed for Proper Functioning Condition in the Lake Valley Watershed.



The primary cause for decreased function or cessation of function for lentic riparian systems in the Lake Valley Watershed is the increase in cover of pinyon-juniper trees. An increase in pinyon-juniper tree cover in the uplands can lead to two problems. First, the increase overstory canopy cover can lead to a corresponding decrease in understory ground cover, increasing erosion potential and decreasing water-holding capacity of upland soils. Second, a decrease in water flow may also occur as the pinyon-juniper trees in the surrounding uplands utilize the subsurface water sources, thus “drying out” the spring.

The primary causes listed for the non-functioning lentic sites are watershed condition (3 springs) and unsustainable wild horse use (4 springs). The dominant watershed condition affecting lentic sites is the increase in cover of pinyon-juniper trees. Three of the sites with unsustainable wild horse use are also being affected by increases in pinyon-juniper trees. Two other sites are non-functioning due to complete development and diversion of water for human purposes or the unintended diversion of water by roadways that pass through the lentic riparian system. The last two non-functioning sites were completely dry with little or no evidence of riparian characteristics and may not actually be springs.

For the lentic systems determined to be functional at-risk with a downward trend, the primary cause for 9 springs was a reduced watershed condition due to an increase in pinyon-juniper tree cover. Three lentic sites in this function category are being

significantly impacted by roads that traverse the riparian habitat at or near the spring source. Two lentic sites have been developed to the point that the riparian habitat has been significantly altered. Two lentic sites are being detrimentally impacted by excessive wildlife use.

Two of the lentic sites categorized as functional at-risk with no apparent trend are also being impacted by watershed conditions, primarily the reduction of saturated soils due to the increase in pinyon-juniper trees in the surrounding uplands that utilize the water. The third lentic site functionally at-risk with no apparent trend has been negatively impacted by a road that crosses at the head of the spring, altering water flow.

The lentic site categorized as functional at-risk trending upwards is recovering naturally from disturbance. Riparian vegetation associated with North Creek Spring is increasing in vigor and species diversity following a change in the grazing system.

North Creek and Geysers Spring were the two lotic riparian systems in the Lake Valley Watershed assessed for Proper Functioning Condition. North Creek was determined to be functioning properly with an upward trend in its conditions. The primary reason listed for North Creek functioning properly is due to a change in the grazing system within the allotment in which it occurs. The shift in grazing has allowed the plant species composition and diversity within the riparian system to recover. Geysers Spring was determined to be functional at-risk trending upwards due to natural disturbance. Geysers Spring is recovering well after a natural event severely impacted the system in 2003.

### **Other Areas of Concern for Lake Valley Watershed**

#### **Weeds**

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

A total of 151 weed infestations have been mapped in the Lake Valley Watershed with 137 mapped in upland areas and 14 mapped within 25 feet of a water source or riparian area in the watershed. Of the mapped infestations, 69 have been treated between 2004 and 2007, 23 of which exhibited no weeds present at the time of treatment. Noxious weed inventories are typically performed using the Tier 1 methods delineated by the Nevada Invasive Weed Survey Protocol. Baseline weed inventories are performed along travel corridors, waterways, and man-made or natural disturbed areas as these areas are regularly disturbed where weed infestations are most likely to occur. All but four of the

weed infestations are associated with travel corridors and most occur in the U.S. Highway 93 right-of-way corridor.

Weed species are more likely to spread along road rights-of-way because there are more vectors (humans and vehicles) to transport weeds and there are more disturbed areas with less resilient native vegetation in which noxious weeds can thrive. Weed propagules are transported by humans and vehicles when the propagules are caught on vehicle tires, bumpers, undercarriages, shoes, clothing, and other equipment and are then transported to other disturbed areas.

The infestations inventoried in the watershed include bull thistle (*Cirsium vulgare*), dalmation toadflax (*Linaria dalmatica*), diffuse knapweed (*Acroptilon repens*), Russian knapweed (*Acroptilon repens*), salt cedar (*Tamarix* spp.), scotch thistle (*Onopordum acanthium*), spotted knapweed (*Centaurea stoebe* ssp. *micranthos*), and whitetop (*Cardaria draba*). Table 2.8 summarizes the total inventoried occurrences and coverage for each species and the number of infestations treated during the 2004 to 2007 treatment period. Spotted knapweed is the dominant weed in the valley comprising 76 percent of the total area infested and 78 percent of the total occurrences. Use of integrated pest management practices - including chemical, mechanical, and cultural control – can be successful in controlling weed infestations. Bull thistle is the only weed species inventoried in the watershed not classified as “noxious” by the State of Nevada.

Cheatgrass (*Bromus tectorum*) is also present in the watershed. Cheatgrass is a highly invasive non-native annual grass that out-competes native vegetation for resources by sprouting earlier. Cheatgrass is also known to change the fire regimes of entire plant communities. Due to the high prevalence and naturalization of cheatgrass throughout the State of Nevada as well as the difficulty in removing the species from plant communities once introduced, cheatgrass has not been included on the state noxious weed list and is not controlled. Infestations are typically not mapped given the widespread distribution of the species.

Table 2.8. Summary of individual weed species infestations and the number and area of inventoried occurrences treated during the 2004 to 2007 treatment period in the Lake Valley Watershed

<b>Weed Common Name</b>	<b>Nevada Status</b>	<b>Total Inventoried Occurrences</b>	<b>Total Area of Occurrences (sq ft)</b>	<b>Total Treated Occurrences</b>	<b>Total Area Treated (sq ft)</b>
Bull thistle	Invasive	11	2, 000	2*	~98, 140
Dalmation toadflax	Noxious	4	1, 310	2*	~3, 580
Diffuse knapweed	Noxious	3	3, 000	1	0
Russian knapweed	Noxious	3	600	0	0
Salt cedar	Noxious	3	210	0	0
Scotch thistle	Noxious	5	2, 003	3	1, 900
Spotted knapweed	Noxious	119	49, 800	34*	~40, 040
Whitetop	Noxious	3	6, 500	3	6, 500
<b>Watershed Total</b>		<b>151</b>	<b>65, 423</b>	<b>**</b>	

\*The total of treated occurrences includes at least one treatment polygon that may have included multiple mapped occurrences.

\*\*Total of treated occurrences does not include the 23 inventoried occurrences visited during the 2004-07 treatment period at which no weeds were present.

### **Minerals Disturbance on Public Land**

There is one mining district within the watershed, the Patterson Mining district. The Pole Project/ Patterson Pass and the Lake Valley Project/Grafton-Geyser are the two sites encompassed by this district.

The Pole Project was an exploration on the west side of the watershed near Patterson Pass with 2 acres disturbed and reclaimed. There are older mine disturbances in the same area that were not a part of that exploration including some plugged adits.

The Lake Valley Project is on the west side of Grafton and was abandoned in 1982. There is much need for reclamation, approximately 200 acres or more with old equipment and structures on site but no responsible operator. There are also possible cultural issues and Wilderness issues.

There are no oil and gas pads in this watershed. There are no inventoried gravel pits in this watershed.

## **Rights-of-Way (ROW's)**

ROW's are subject to the Terms and Conditions of the grant. Mitigation measures include but are not limited to, weed treatment/mitigation, re-vegetation of surface disturbance and following the 9100 Engineering Guide to road building standards.

Not all acres within a ROW are used in surface disturbing activities. For example, a telephone line may be 25 feet wide, but only 10 feet of the 25 feet was disturbed during construction. Also, those areas with buried lines should be successfully rehabilitated and/or re-vegetated.

## **Causal Factors**

The causal factors for the Lake Valley Watershed not meeting the Upland and Riparian Standards can also be attributed to many of the same causal factors for not meeting Soil Standards:

- The introduction and spread of non-native annual grasses.
- Historic grazing practices in the wake of European settlement of the West;
- Increasingly effective fire suppression and control in last century.
- Drought

In addition to the aforementioned causal factors, several factors not mentioned in the Soils Standards may be attributed to Upland and Riparian sites.

- Riparian proper function and condition: Livestock use and wild horses are contributing factors to decreased herbaceous cover around many of the riparian ecological zones evaluated as “functioning-at-risk” or “non-functioning”. Changes in riparian zone ecological function are also attributed to pinyon-juniper tree encroachment and expansion.
- Weed infestations
- Weeds: As human population increases, weed vectors increase and facilitate distribution of weed seeds along roadways and trails.

## **Recommendations**

- Implement treatments with the objective of increasing herbaceous cover and decreasing the spread of annual grasses as economically and ecologically feasible.
- Manage livestock management that adheres to standards and guidelines that maintain ecological sustainability.
- Continue management of wild horse herds.
- Where feasible, build protective fences around riparian areas.

- Visit all seeps, springs, wetlands and streams that have been evaluated as functioning-at-risk PFC and fully developed to plan for riparian improvements.
- Increase monitoring of weed infestations and continue treatments throughout the Lake Valley Watershed.

**“Standard 3. HABITAT AND BIOTA:** Habitats and watersheds should sustain a level of biodiversity appropriate for the area and conducive to appropriate uses. Habitats of special status species should be able to sustain viable populations of those species.

Habitat indicators:

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

Wildlife indicators:

- Escape terrain;
- Relative abundance;
- Composition;
- Distribution;
- Nutritional value; and
- Edge-patch snags.”

The analysis and interpretation of the findings by the Watershed ID Team indicates the habitat standard is not being partially achieved in uplands and partially achieved in riparian areas. This standard is similar to Standard two, but considers the assessment data in terms of the indicators as given in the Habitat standard and in terms of animal species habitat needs. The current habitat condition was compared to ecological site descriptions and to habitat composition within an ecological state, across the landscape in terms of the necessary structure of the state, and to transition models. These percentages reflect needs in animal species habitats associated with Great Basin sagebrush grassland semi-desert – basin big sagebrush, black sagebrush, and Wyoming big sagebrush – as well as greasewood and winterfat; mountain brush habitats including low sagebrush, mountain big sagebrush, Utah serviceberry, and mountain mahogany; woodland habitats including pinyon and/or juniper woodlands and mixed conifer and aspen at higher elevations; and riparian areas including wet meadows and riparian aspen or chokecherry.

The primary large wildlife species habitat managed for in the Lake Valley Watershed include pronghorn antelope (*Antilocarpa americana*), mule deer (*Odocoileus hemionus*), Rocky Mountain elk (*Cervus canadensis*), and bighorn sheep (*Ovis canadensis*).

Lake Valley Watershed includes the northern range desert bighorn sheep (*Ovis canadensis nelsonii*). Nevada Department of Wildlife (NDOW) reintroduced twelve populations of Rocky Mountain bighorn sheep in the Mount Grafton area in the late 1980s. However, that population is considered limited. Desert bighorn sheep require access to freestanding water during the summer months, and throughout the year during drought conditions. The diet of desert bighorn sheep consists primarily of grasses, shrubs, and forbs. Bighorn sheep have been identified as occupying 31,094 acres, with an additional 34,471 acres of potential habitat unoccupied.

Rocky Mountain elk occur in a wide variety of habitats within Lake Valley, from low to upper elevations. There are a total of 331,059 acres of yearlong elk habitat within the watershed. In addition, the 19,462 acres of summer range mixed conifer, aspen, and higher elevation pinyon-juniper woodlands and meadows above 6,200 feet in elevation. The 3,830 acres of winter range consists primarily of pinyon-juniper woodlands and sagebrush-grasslands between 5,000 and 9,500 feet in elevation. Pinyon-juniper, aspen, mixed-conifer forests, and mountain mahogany provide thermal and escape cover. Shrub species, including antelope bitterbrush and sagebrush, also provide important cover and forage for elk. Although elk forage largely on grass species, they also consume a wide variety of forbs and shrubs. Two big game wildlife water developments are installed and functioning in the watershed. Both were designed primarily for elk and are located on the west side of the watershed, in the Schell Creek range.

Mule deer are widespread within the planning area and typically are associated with middle to upper elevations. Habitat for mule deer within the Lake Valley includes big sagebrush, low sagebrush, shadscale, and grasslands. Deer generally are classified as browsers, foraging primarily on forbs and shrubs. However, the importance of forage type tends to vary by season and climate. Forbs and grasses are an integral part of the mule deer diet during the spring and fall growth seasons when succulence is greatest. Shrubs are utilized more heavily during dry summer and winter periods. Important forage on range for mule deer includes snowberry, sagebrush, serviceberry, antelope bitterbrush, and mountain mahogany. Mountain mahogany and pinyon-juniper woodlands are important for thermal and escape cover during winter. During summer, mule deer tend to rely on riparian and mountain sagebrush communities. Within Lake Valley, there are 36,285 acres of yearlong habitat for deer, as well as 39,452 acres of spring range, 40,454 acres of summer range and 69,012 acres of winter range.

Pronghorn prefer gently rolling to flat topography that provides good visibility of the surrounding area, primarily Great Basin sagebrush/ grassland habitat type. Pronghorn diet consists of grasses, forbs, and browse plants. Sagebrush is important for both food and cover. Other important forage species include antelope bitterbrush, saltbush, rabbitbrush, cheatgrass, Indian ricegrass, and shadscale. During the summer, pronghorn are widely distributed throughout the valleys and mountain foothills and primarily are associated with low sagebrush habitat with mixed vegetation including grasses, forbs, and shrubs. The watershed provides 175,223 acres of pronghorn habitat, of which none is identified as crucial winter range.

Although differing in their specific preferred browse, areas of seasonal use, and optimal habitat needs, to adequately sustain desired herd levels for all these species, the primary habitat management goal is a mosaic of healthy and diverse vegetative types. While the crested wheatgrass seedings historically planted in some of the valley bottom have nutritional value to wildlife, type conversion has resulted in the loss of preferred native wildlife forage plants and overall negative impacts on wildlife habitat. Lands converted to agricultural crop production may serve as a wildlife attractant, but resulted in additional the loss of native wildlife forage plants and overall negative impacts on wildlife habitat. Pinyon-juniper forests provide important thermal cover, but the

increasing establishment of woody species within ecological conditions that typically support shrub-dominated and grassland communities has decreased herbaceous understory in terms of reduced plant productivity and diversity. Although these trends benefit species that occur primarily in woodland habitats, these trends also lead to loss in forage (grass and forb) production within dense stands and a reduction of species diversity. Degraded habitat conditions due to pinyon-juniper invasion and decadent or senescent mountain brush communities across some areas of the watershed may impact the herds' full potential. In addition, cheatgrass and other invasive plants occupy many acres of Lake Valley's sagebrush steppe.

Potential sagebrush communities comprise the majority of Lake Valley, approximately 62 percent. Although several wildlife species are dependent on the presence of sagebrush for survival, information concerning many of these species, their specific habitat needs, and precise distribution within the watershed is generally poor. A notable exception is sage grouse (*Centrocercus urophasianus*), of which there is considerable knowledge of their habitat requirements in comparison with other sagebrush obligates. Given the information and since sage grouse require large areas of sagebrush to survive, they may be considered an indicator species with the assumption that their habitat needs and relative condition may be extrapolated to other sagebrush obligates. In some cases, these other sagebrush obligates will have habitat needs in addition to what is desired for sage grouse. While those additional species' specific population distributions and needs surveys and studies are needed, they have not been completed.

Lake Valley Watershed is entirely within Lincoln Valley Sage Grouse Population Management Unit (PMU) and is a key area yearlong for sage grouse. Within this watershed, there are twelve known active leks. Preferred lek habitat includes primarily shorter vegetation, with taller, more robust sagebrush within 300 to 700 feet for escape cover, and no trees or other raptor perches within five miles of the grounds. The valley holds a mosaic of different types of sagebrush that serve as nesting and wintering habitat. Key breeding areas include Patterson Wash and the bench area in south Lake Valley. Optimal sage grouse habitat is in the range of 15 to 25 percent sagebrush canopy cover and an abundant, healthy, diverse herbaceous understory. For nesting and spring habitat, the understory would be fifteen percent grass and ten percent forbs. Lake Valley includes 156,819 acres of sage grouse nesting/early brood-rearing habitat, 201,850 acres summer (late brood-rearing) habitat, 2,215 acres of winter habitat, and 206,352 acres of key yearlong habitat.

The Lake Valley sagebrush communities lack diverse vegetative composition and exceed the ecological site descriptions for ground cover (see Tables 2.1-2.5 and pages 19 to 23), thereby falling short of preferred sage grouse habitat standards. Some areas of stagnant sagebrush exist with little or no understory vegetation. Expansion of pinyon-juniper into sagebrush communities has fragmented and degraded the quality of sage grouse habitat, reducing perennial grass cover, forb composition, and diversity as well as reducing the productivity of water sources. Pinyon-juniper trees in sagebrush communities, fences, powerlines, windmills, and other structures all provide perches for raptors and corvids,

thereby increasing the potential for predation. Such structures have a greater negative impact when located near sage grouse leks.

Within the watershed, there are no known populations of any currently federally listed threatened or endangered species according to Nevada Natural Heritage Program. However, there are several recorded occurrences of Ferruginous Hawks (*Buteo regalis*) a Nevada BLM Sensitive Species. The other Nevada BLM Sensitive Species reported within the watershed and in the databases include White River wood nymph (*Cercyonis pegala pluvialis*) and two plant species, long-calyx eggvetch (*Astragalus oophorus* var. *lonchocalyx*) and parish phacelia (*Phacelia parishii*).

A number of migratory bird species have distributions which overlap with Lake Valley. Based on known habitat associations, migratory bird species composition may be somewhat anticipated. Some of the more common bird species that would be expected to occur within the watershed include a wide range of neotropical migrant species including sagebrush shrubland species such as the sage thrasher, sage sparrow, and Brewer's sparrow; shrubland species such as the black-throated sparrow and lark sparrow; shrubland-grassland species such as the loggerhead shrike; grassland species such as the vesper sparrow; dry woodland species such as the gray flycatcher; riparian species such as the orange-crowned warbler and yellowbreasted chat; and pinyon-juniper woodland species such as the pinyon jay, gray vireo, juniper titmouse, black-throated gray warbler, and ferruginous hawk. These bird species are considered integral to natural communities and commonly are viewed as environmental indicators based on their sensitivity to environmental changes caused by human activities.

Migratory bird nesting and foraging habitats may be located throughout the watershed, with certain species adapted to specific habitat types. Changes in habitat condition and abundance may result in increases in the populations of some bird species at the expense of other bird species. Thus, there is no change that will benefit or adversely affect all migratory bird species. As such, the preferred management goal is to manage for a healthy and diverse mosaic of vegetative habitat types.

The analysis and interpretation of the findings by the Watershed ID Team indicates the habitat standard is not being partially achieved in uplands and partially achieved in riparian areas. Indicators on vegetation composition and productivity are not consistent with ecological site description productivity parameters or cover composition parameters or habitat composition and structure across landscapes. ESI, cover data, and riparian PFC assessment data was discussed in the upland and riparian standards findings.

The habitat standard for woodland is being partially achieved. This is not being achieved in areas of over-mature woodlands (pinyon-juniper) as indicated by excessive canopy cover.

The habitat standard for sagebrush is not being achieved. Many sagebrush habitats exhibit minimal herbaceous understory with increasing sagebrush and pinyon-juniper

canopy cover, thereby not meeting habitat needs for sagebrush obligates species, including sage grouse.

The presence of cheatgrass does not meet the standard, since cheatgrass is an invasive species which readily displaces native vegetation and alters the fire return interval, causing loss of native vegetation and reduced food and cover availability for numerous species.

The habitat standard for riparian habitats is being partially met as areas vary from functioning to functioning-at-risk to non-functioning. Degradation of riparian areas negatively impacts all wildlife species by reducing available food, water and cover.

### Lake Valley Watershed Wildlife Data Summary\*

**Sage Grouse:**

Year Long- 206,352  
Winter- 2,215  
Summer- 201, 850  
Nesting- 156,819  
Known leks- 12

**Big Game:**

**Deer:**

Winter- 69,012  
Spring- 39,452  
Summer- 40,454  
Yearlong- 36,285

**Pronghorn:**

Yearlong- 175,223

**Elk:**

Yearlong- 331,059  
Winter- 3,830  
Summer- 19,462

**Desert Bighorn Sheep:**

Occupied- 31,094

Unoccupied- 34,471

**Raptors:**

Ferruginous Hawk (*Buteo regalis*)

**Species of Special Concern:**

**Threatened or Endangered:**

None

**Nevada BLM Sensitive Species:**

**Birds**

Ferruginous Hawk (*Buteo regalis*)

**Invertebrate**

White River wood nymph (*Cercyonis pegala pluvialis*)

**Plants**

Long-calyx Eggvetch (*Astragalus oophorus var. lonchocalyx*)

Parish phacelia (*Phacelia parishii*)

---

\* Data extracted from Nevada Department of Wildlife (NDOW) and Nevada Natural Heritage Program computer databases.

## **Other Areas of Concern**

### **Weeds**

A total of 151 weed infestations have been mapped in the Lake Valley Watershed. The infestations inventoried in the watershed include bull thistle (*Cirsium vulgare*), dalmation toadflax (*Linaria dalmatica*), diffuse knapweed (*Acroptilon repens*), Russian knapweed (*Acroptilon repens*), salt cedar (*Tamarix* spp.), scotch thistle (*Onopordum acanthium*), spotted knapweed (*Centaurea stoebe* ssp. *micranthos*), and whitetop (*Cardaria draba*). Cheatgrass (*Bromus tectorum*), an invasive non-native annual grass, is also present in the watershed but is neither inventoried nor controlled for reasons discussed in Standard 2. Ecosystem Components. Table 2.7 in the section Standard 2: Ecosystem Components summarizes the total inventoried occurrences and coverage for each species and the number of infestations treated during the 2004 to 2007 treatment period.

Within areas infested by noxious weeds, the composition, structure, distribution, productivity, and nutritional value of vegetation is altered. The degree of this alteration is dependent on the patch size, estimated cover values, and the specific infesting species.

Bull thistle is an aggressive weed that can form very dense stands along roadsides, fence lines, ditch banks, open dry areas and in pastures. While bull thistle is not listed in the State of Nevada as a noxious weed, it may impede water flow, crowd out native vegetation, and destroy wildlife habitat. Because of these impacts, bull thistle is inventoried and treated when it occurs in sensitive areas. Bull thistle is the easiest of the thistles to control. Within the watershed, no inventoried infestations of bull thistle are greater than 1,000 square feet in size or have an estimated cover value greater than 25 percent. Since 2004, 98,140 square feet of infestations (4,900 percent of total inventoried) have been treated.

Dalmation toadflax is a highly competitive noxious weed that can reduce the livestock carrying capacity of rangelands, especially when an invasion coincides with overgrazing or large soil disturbances. Livestock generally avoid grazing dalmation toadflax, preferentially grazing native species. Dalmation toadflax can spread both reproductively and vegetatively by vertical and lateral creeping roots and can form large, dense colonies. Improving the competitive advantage of native species, especially grasses, is effective in controlling populations, especially if management protocol includes the prevention of overgrazing combined with augmenting the native community by planting more competitive grass species. All inventoried infestations of musk thistle are between 10 and 1,100 square feet in size. One infestation, at 1,100 square feet in size, has an estimated cover value of greater than 25 percent. Within the watershed, 3,480 square feet of infestations (270 percent of total inventoried) have been treated.

Diffuse knapweed spreads primarily by seed and readily invades disturbed open species such as fields, roadsides, grasslands and degraded rangelands. Diffuse knapweed can form dense stands that out-compete native vegetation and exclude wildlife. Three infestations of musk thistle have been inventoried between less than 10 square feet and

2,000 square feet in size. One (1) infestation has an estimated cover value of greater than 25 percent. Of the inventoried infestations, 1 has been treated since 2004.

Russian knapweed readily establishes in a variety of disturbed sites and rarely invades resilient sites. Once established, it uses a combination of adventitious shoots and allelopathy to create monotypic stands. Although Russian knapweed is generally avoided by grazing animals, it is poisonous to horses and can cause chewing disease. Within the watershed, no inventoried infestation is greater than 500 square feet and only one has an estimated cover value of greater than 25 percent.

Salt cedar species are aggressive noxious trees that alter riparian habitats by out-competing native plant species for resources, introducing fire to less adapted wetland habitats, and altering the riparian channel morphology. Salt cedar can form dense stands and extensive root systems that, combined with the trees' high evapotranspiration rates, can reduce underground water tables and surface water. The reduction in the width of riparian channel width can also increase flooding downstream. Salt cedar can reproduce both vegetatively and reproductively and readily recovers from fire and mechanical treatments. Effective control requires both physical and chemical treatments to kill the root systems. Following initial treatment, subsequent seedling removal and native plant establishment is required to prevent re-infestation. No inventoried infestation of salt cedar within the watershed is greater than 200 square feet and all have an estimated cover value of less than two (2) percent.

Scotch thistle is an aggressive noxious weed that can form very dense stands along roadsides, fence lines, ditch banks, open dry areas, and in pastures. Scotch thistle impedes water flow, crowds out native vegetation, and destroys wildlife habitat. Within the watershed, all inventoried infestations of scotch thistle are 3 and 1,000 square feet in size. All infestations has an estimated cover value of less than two (2) percent. Of the inventoried infestations, 1,900 square feet (95 percent of total) have been treated since 2004.

Spotted knapweed is an aggressive weed that is able to compete in areas receiving less than eight inches of annual precipitation. Spotted knapweed uses a combination of an early growing season and allelopathy to compete with native plants, resulting in the displacement of native species, thus degrading the quality of wildlife habitat. Spotted knapweed establishes within disturbed areas and expands outward into stable native communities. All inventoried infestations of spotted knapweed are between less than 10 square feet and 5,000 square feet in size. Of the infestations inventoried, 65 (55 percent of total) have an estimated cover value greater than 25 percent. Within the watershed, 40,040 square feet of infestations (80 percent of total inventoried) have been treated since 2004.

Whitetop displaces native vegetation, is toxic to horses, and can taint milk production in cattle. Large, clonal colonies can develop from creeping horizontal roots in a very short period of time. Whitetop reproduces from both seeds and root fragments and readily invades disturbed open sites as well as irrigated fields and pastures, roadsides, and

ditches. Within the watershed, all inventoried infestations of whitetop are within 1,000 to 3,500 square feet in size. Two (2) infestations have an estimated cover value of greater than 25 percent. Since 2004, all 6,500 square feet of inventoried infestations have been treated.

### **Causal Factors**

- Historic grazing practices in the wake of European settlement of the West
- Increasingly effective fire suppression in last century
- The introduction and spread of non-native annual grasses
- Climate change or drought conditions in recent years
- Localized overuse especially near water sources by livestock, wild horse and/or elk
- Improperly designed roads and density of roads in some areas
- Road density that creates fragmentation of habitat
- Weeds transported along travel corridors that get established and displace viable habitat

### **Recommendations**

- Implement restoration treatments with the objective of increasing herbaceous cover and decreasing the spread of annual grasses as economically and ecologically feasible.
- Continue monitoring wildlife habitat.
- Maintain livestock management that adheres to standards and guidelines that maintain ecological sustainability.
- Continue management of wild horse herds.
- Where feasible, build protective fences around riparian areas.

**STANDARD 4. HEALTHY WILD HORSE AND BURRO POPULATIONS:**

Wild horses and burros exhibit characteristics of a healthy, productive, and diverse population. Age structure and sex ratios are appropriate to maintain the long term viability of the population as a distinct group. Herd management areas are able to provide suitable feed, water, cover and living space for wild horses and burros and maintain historic patterns of habitat use.

As indicated by:

- Healthy rangelands that provide sufficient quantities and quality of forage and water to sustain the appropriate management level on a year long basis within a herd management area.
- Wild horses and/or burros managed on a year-long basis for a condition class greater than or equal to five to allow them normal chances for survival in the winter (see glossary for equine body conditioning definitions).
- Highly adoptable wild horses and burros that are readily available from herd management areas.
- Wild horse and burro herds that exhibit appropriate age structure and sex ratio for short and long-term genetic and reproductive health.

The conditions of the wild horse populations and their habitat in the Lake Valley Watershed are currently not meeting the described standards. The Wilson Creek Herd Management Area (Wilson Creek HMA) and Dry lake HMA occur in the Lake Valley Watershed. The Wilson Creek HMA encompasses 624,500 acres and spans across portions of at least 5 different watersheds within the Ely BLM District, including the southeastern quarter of the Lake Valley Watershed. The current herd sizes within the two HMA are currently estimated above the appropriate management level. The current condition of the Wilson Creek HMA and Dry Lake HMA for forage, water, space, cover, and reproductive viability are all deemed inadequate.

**Causal Factors**

Wild horse populations is above AML, and some localized areas are severely degraded, especially near water sources.

**Recommendations**

- It has been recommended that the use of the Wilson Creek HMA and Dry Lake HMA by wild horses be continued and the herd sizes be managed within the appropriate management level range for the HMA.
- Vigilant management is necessary to keep horse populations within AML.

**OHV ADMINISTRATION GUIDELINES FOR NEVADA PUBLIC LANDS** as defined by the Nevada Northeastern Great Basin RAC and the Mojave-Southern Great Basin (RAC), as chartered by the Department of the Interior: “These guidelines are to be used to insure the protection of land health and the availability of the public lands for all multiple users” (RAC guidelines).

As defined by:

- On-the-ground management guidelines.
- Planning guidelines
- Education guidelines

The analysis and interpretation of OHV travel management by the Watershed ID Team indicates Resource Advisory Council (RAC) **On the Ground Management guidelines** **are** being conformed with as follows:

- The Ely District only permits OHV use on existing or designated roads and trails, except in closed areas, prior to land use plans being updated and road and trail inventories completed through public involvement efforts.
- The Ely District has identified all the linear transportation routes resulting from OHV use in the Lake Valley Watershed. All this in preparation for a route transportation planning process that will attempt to conserve soil functionality, vegetative cover, and watershed health by evaluating all the transportation routes within the watersheds and designating those which meet the social and biological demands, while maintaining OHV access.
- The Ely District does manage and monitor permitted OHV activities to minimize impacts to travel routes, to minimize impact on plant and animal habitats and to conserve watershed and water quality. This is done by directing use to the most resistant and resilient routes in the watershed which still meet the social needs of the public. Any travel routes used in the permitted event found to be highly impacted, require rehabilitation in accordance with the OHV special recreation permit stipulations. Routes that do not respond to rehabilitation as desired are consciously discouraged in the future.
- The Ely District is making efforts to utilize benefits based management objectives as those objectives relate to managing for recreation within the Lake Valley Watershed. The BLM is directing OHV recreation onto designated trails. Portions of the nationally designated Silverstate Off-Highway Vehicle trail are located within Lake Valley Watershed.
- Long term monitoring concerning travel on the Silverstate Trail is being done sufficiently.

- OHV use pursuant to a permitted activity shall be governed by the terms of the permit is being followed by the Ely District.
- The Ely District does Engineer, locate, and relocate important transportation roads to accommodate OHV activities while minimizing resource impacts, as budgets allow. On the ground road inventories have been completed on the Lake Valley watershed, revealing 759 miles of roads. This results in an average of 1.37 miles of road per square mile in Lake Valley. These averages are within the acceptable range when compared with another transportation planning effort (duck creek transportation plan) completed within the Ely District.
- The Ely District does encourage cooperation in law enforcement among all agencies in regards to OHV management.

The analysis and interpretation of OHV travel management by the Watershed ID Team indicates Resource Advisory Council (RAC) **On the Ground Management guidelines are not** being conformed with:

- A Travel Management plan for Lake Valley does not exist.
- Seasonal closures where applicable are not being done.
- Long term monitoring concerning non designated travel routes and route conditions are not being done sufficiently.

#### **Recommendations:**

- Work with the public, landowners and cooperating agencies to formulate a travel management plan for Lake Valley Watershed. Designate suitable roads while preserving access. Rehabilitate unsuitable routes as guided by the completed transportation plan. These roads may require stabilization, closure or re-routing to prevent the further degradation of these roads and the watersheds. Efforts should be made to design and build sustainable routes where needed.
- Implement the recreation strategic plan as it relates to OHV management and other forms of recreation in the Lake Valley Watershed.
- Work with user groups and local agencies to formulate management plans for the special recreation permit area within Lake Valley Watershed.
- Partner with ride and race vendors to design and deliver educational programs for OHV users.
- Select race routes that avoid weed infestations.
- Clean OHV's before and after authorized races.

The analysis and interpretation of OHV travel management by the Watershed ID Team indicates Resource Advisory Council (RAC) **Planning Management guidelines are** being conformed with:

- For addressing/resolving local site-specific OHV issues/concerns, The Ely

District does actively participate in and use collaborative planning groups consisting of local representative(s), affected/interested group(s) and agency(s).

- Lands being managed will be re-designated to open limited or closed to motorized travel in the next land use plan to better implement the travel management process.
- In the proposed land use plan social and economic effects of OHV use including special recreation permits is addressed.
- The Ely District is working to establish and maintain an inventory of existing routes and trails for planning purposes.
- The Ely District recreation plan does assess and plan for the current and future OHV demand.

The analysis and interpretation of OHV travel management by the Watershed ID Team indicates Resource Advisory Council (RAC) **Planning Management guidelines are not** being conformed with:

- Until a new land use plan is implemented we cannot implement our recreation plan to the extent needed to address the needs and concerns associated with OHV management in the Lake Valley Watershed.

#### **Recommendations:**

- Provide opportunities for OHV recreation in a sustainable manner. OHV recreationists and the overall health of the watersheds would benefit from a network of signed and mapped roads, trails, and unloading areas that incorporate proper sustainable road and trail engineering practices. An overall transportation plan that includes signed and mapped roads for the area that provides for recreation needs while taking into account other resources will discourage the proliferation of unwanted roads and trails in the watershed.

The analysis and interpretation of OHV travel management by the Watershed ID Team indicates Resource Advisory Council (RAC) **Education guidelines are** being conformed with:

- The Ely District does utilize high use areas (Duck Creek Basin) and special events (OHV races) to maximize the dissemination of responsible use education materials and concepts to the public.
- The Ely District does Encourage the private sector, as well as the public sector, to conduct responsible marketing of activities on public lands while avoiding the promotion of products, behaviors and services that are inconsistent with existing regulations and land use plans.
- The Ely District does actively promote/expand/disseminate materials from programs such as (but not limited to) “Tread Lightly!” and “Leave No Trace”.

- Communication and environmental education plan(s) do exist. We do assess all situations where OHV use may require public information and education, as well as develop materials and programs appropriate to each situation.

The analysis and interpretation of OHV travel management by the Watershed ID Team indicates Resource Advisory Council (RAC) **Education guidelines are not** being conformed with:

- More action needs to be done to cooperatively develop/improve public outreach programs to promote trail etiquette, environmental ethics, and responsible-use stewardship ethic.
- Implementation of the communication, environmental and education plans need to be better employed.

**Recommendations:**

- Increase education on OHV safety and responsible riding in the community.
- Increase the promotion of federally approved public education programs such as Tread Lightly and Leave no Trace.
- Increase the utilization of public communication channels such as newspaper radio, internet, booths etc.
- Increase education related to OHV use as a weed vector. Information should be readily available for the public.

## Evaluation Summary

Summary of achievement or non achievement land health standards for Lake Valley Watershed

Standard	Meeting	Not meeting	Current Livestock Management Compliant with Guidelines
Standard 1. Soils		X	Yes
<p><b>Indicators considered:</b></p> <ul style="list-style-type: none"> <li>• Vegetation ground cover</li> <li>• Surfaces (e. g. biological crusts, pavements)</li> </ul>			
<p><b>Why not meeting:</b></p> <p>Tree overstory exceeds standards in most pinyon-juniper woodlands, juniper savannah woodlands, and all sagebrush vegetation types. Shrub cover exceeds standard in all sagebrush and salt desert shrub types. Understory herbaceous vegetation cover is inversely related to overstory cover. As woody species increase, perennial bunch grasses and forbs decrease. Sparse or absent understory cover increases the potential for accelerated soil erosion and disruption of nutrient cycle.</p>			
<p><b>Causal Factors:</b></p> <ul style="list-style-type: none"> <li>• Historic grazing practices in the wake of European settlement of the West</li> <li>• Increasingly effective fire suppression and control in last century.</li> <li>• The introduction and spread of non-native annual grasses.</li> <li>• Climate change or drought conditions in recent years.</li> <li>• Localized overuse especially near water sources by livestock, wild horse and/or elk.</li> <li>• Improperly designed roads and density of roads in some areas.</li> </ul>			

### Recommendations:

- Implement restoration treatments with the objective of increasing herbaceous cover and decreasing the spread of annual grasses as economically and ecologically feasible.
- Manage livestock to adhere to standards and guidelines that maintain soil function.
- Continue management of wild horse herds.
- Where feasible, build protective fences around riparian areas.

- Develop a transportation plan to address improvement of road locations, closure of roads, and inhibit the creation of new roads.

Standard	Meeting	Not meeting	Current Livestock Management Compliant with Guidelines
<b>Standard 2 Ecosystem Components</b>		X	Yes, except for one allotment
<b>Indicators considered:</b> <ul style="list-style-type: none"> <li>• Upland line-point intercept cover data</li> <li>• Watershed-scale Fire Regime Condition Class analysis</li> <li>• Riparian Proper Function Condition assessments</li> <li>• Weed infestation inventories</li> <li>• Mining and ROW surface disturbance surveys</li> </ul>			
<b>Why not meeting:</b> <ul style="list-style-type: none"> <li>• Functional group mean cover values do not meet ecological site standards. The majority of vegetation types in the Lave Valley Watershed show excessive cover of woody species and sparse to absent cover of herbaceous species.</li> <li>• Cheatgrass is present in most vegetation types and will potentially increase in cover.</li> <li>• FRCC analysis shows 83 percent of the watershed is in Condition Class 2 or 3.</li> <li>• Riparian proper function and condition evaluation indicates majority of riparian areas are either nonfunctional or functioning at risk.</li> </ul>			
<b>Causal Factors:</b> <ul style="list-style-type: none"> <li>• Historic grazing practices in the wake of European settlement of the West.</li> <li>• Increasingly effective fire suppression in last century.</li> <li>• The introduction and spread of non-native annual grasses.</li> <li>• Climate fluctuations in recent years.</li> <li>• Riparian proper function and condition: Livestock, wild horses and elk are contributing factors to decreased herbaceous cover around many of the riparian ecological zones evaluated as “functioning-at-risk” or “non-functioning”.</li> <li>• Changes in riparian zone ecological function is also directly attributed to pinyon-juniper tree encroachment and expansion,</li> <li>• Obstructions and diversions of springs and stream flow.</li> </ul>			

**Recommendations:**

- Implement treatments with the objective of increasing herbaceous cover and decreasing the spread of annual grasses as economically and ecologically feasible.
- Manage livestock management that adheres to standards and guidelines that maintain ecological sustainability.
- Continue management of wild horse herds.
- Where feasible, build protective fences around riparian areas.
- Visit all seeps, springs, wetlands and streams that have been evaluated as functioning-at-risk PFC and fully developed to plan for riparian improvements.
- Increase monitoring of weed infestations and continue treatments throughout the Lake Valley Watershed.

Standard	Meeting	Not meeting	Current Livestock Management Compliant with Guidelines
<b>Standard 3. Habitat and Biota</b>			Yes, except for one allotment
<p><b>Indicators considered:</b></p> <p>Ecosystem component indicators from Standard 2 as well as wildlife indicators</p>			
<p><b>Why not meeting:</b></p> <ul style="list-style-type: none"> <li>• Functional group mean cover values do not meet ecological site standards. The majority of vegetation types in the Lave Valley Watershed show excessive cover of woody species and sparse to absent cover of herbaceous species.</li> <li>• Cheatgrass is present in most vegetation types and will potentially increase in cover.</li> <li>• FRCC analysis shows 83 percent of the watershed is in Condition Class 2 or 3.</li> <li>• PFC evaluation indicates majority of riparian areas are either nonfunctional or functioning at risk.</li> </ul>			
<p><b>Causal Factors:</b></p>			
<ul style="list-style-type: none"> <li>• Historic grazing practices in the wake of European settlement of the West</li> <li>• Increasingly effective fire suppression and control in last century</li> <li>• The introduction and spread of non-native annual grasses</li> <li>• Climate change or drought conditions in recent years</li> <li>• Localized overuse especially near water sources by livestock, wild horse</li> </ul>			

and/or elk

- Improperly designed roads and density of roads in some areas
- Road density that creates fragmentation of habitat
- Weeds transported along travel corridors that get established and displace viable habitat

**Recommendations:**

- Implement restoration treatments with the objective of increasing herbaceous cover and decreasing the spread of annual grasses as economically and ecologically feasible.
- Continue monitoring wildlife habitat.
- Maintain livestock management that adheres to standards and guidelines that maintain ecological sustainability.
- Continue management of wild horse herds.
- Where feasible, build protective fences around riparian areas.

<b>Standard</b>	<b>Meeting</b>	<b>Not meeting</b>	<b>Current Livestock Management Compliant with Guidelines</b>
<b>Standard 4. Wild Horse and Burros</b>		X	N/A
<b>Causal Factors:</b> Wilson Creek HMA is over AML			
<b>Recommendations:</b> It has been recommended that the use of the Wilson Creek HMA by wild horses be continued and the herd sizes be managed within the appropriate management level range for the HMA.  Vigilant management is necessary to keep horse populations within AML.			

**OHV ADMINISTRATION GUIDELINE FOR NEVADA PUBLIC LANDS**

**On-the-ground management guidelines.**

Conforming to the Guidelines:

- The Ely District does encourage OHV use on existing or designated roads and trails, except in closed areas, prior to land use plans being updated and road and trail inventories completed through public involvement efforts.
- The Ely District has identified all the linear transportation routes resulting from OHV use in the Lake Valley Watershed. All this in preparation for a route transportation planning process that will attempt to conserve soil functionality, vegetative cover, and watershed health by evaluating all the transportation routes within the watersheds and designating those which meet the social and biological demands, while maintaining OHV access.
- The Ely District does manage and monitor permitted OHV activities to minimize impacts to travel routes, to minimize impact on plant and animal habitats and to conserve watershed and water quality. This is done by directing use to the most resistant and resilient routes in the watershed which still meet the social needs of the public. Any travel routes used in the permitted event found to be highly impacted, require rehabilitation in accordance with the OHV special recreation permit stipulations. Routes that do not respond to rehabilitation as desired are consciously discouraged in the future.
- The Ely District is making efforts to utilize benefits based management objectives as those objectives relate to managing for recreation within the Lake Valley Watershed. The BLM is directing OHV recreation onto designated trails. Portions of the nationally designated Silverstate Off-Highway Vehicle trail are located within Lake Valley Watershed.
- Long term monitoring concerning travel on the Silverstate Trail are being done sufficiently.
- OHV use pursuant to a permitted activity shall be governed by the terms of the permit is being followed by the Ely District.
- The Ely District does Engineer, locate, and relocate important transportation roads to accommodate OHV activities while minimizing resource impacts, as budgets allow. On the ground road inventories have been completed on the Lake Valley watershed, revealing 759 miles of roads. This results in an average of 1.37 miles of road per square mile in Lake Valley. These averages are within the acceptable range when compared with another transportation planning effort (duck creek transportation plan) completed within the Ely District.

- The Ely District does encourage cooperation in law enforcement among all agencies in regards to OHV management.

**Not conforming to the Guidelines:**

- A Travel Management plan for Lake Valley does not exist.
- Seasonal closures where applicable are not being done.
- Long term monitoring concerning non designated travel routes and route conditions are not being done sufficiently.

**Recommendations:**

- Work with the public, landowners and cooperating agencies to formulate a travel management plan for Lake Valley Watershed. Designate suitable roads while preserving access. Rehabilitate unsuitable routes as guided by the completed transportation plan. These roads may require stabilization, closure or re-routing to prevent the further degradation of these roads and the watersheds. Efforts should be made to design and build sustainable routes where needed.
- Implement the recreation strategic plan as it relates to OHV management and other forms of recreation in the Lake Valley Watershed.
- Work with user groups and local agencies to formulate management plans for the special recreation permit area within Lake Valley Watershed.
- Partner with ride and race vendors to design and deliver educational programs for OHV users.
- Select race routes that avoid weed infestations.
- Clean OHV's before and after authorized races.

**Planning guidelines**

**Conforming to the Guidelines:**

- For addressing/resolving local site-specific OHV issues/concerns, The Ely District does actively participate in and use collaborative planning groups consisting of local representative(s), affected/interested group(s) and agency(s).
- Lands being managed will be re-designated to open limited or closed to motorized travel in the next land use plan to better implement the travel management process.
- In the proposed land use plan social and economic effects of OHV use including special recreation permits is addressed.
- The Ely District is working to establish and maintain an inventory of existing routes and trails for planning purposes.
- The Ely District recreation plan does assess and plan for the current and future OHV demand.

<p><b>Not conforming to the Guidelines:</b></p> <ul style="list-style-type: none"> <li>• Until a new land use plan is implemented we cannot implement our recreation plan to the extent needed to address the needs and concerns associated with OHV management in the Lake Valley Watershed.</li> </ul>
<p><b>Recommendations:</b></p> <ul style="list-style-type: none"> <li>• Provide opportunities for OHV recreation in a sustainable manner. OHV recreationists and the overall health of the watersheds would benefit from a network of signed and mapped roads, trails, and unloading areas that incorporate proper sustainable road and trail engineering practices. An overall transportation plan that includes signed and mapped roads for the area that provides for recreation needs while taking into account other resources will discourage the proliferation of unwanted roads and trails in the watershed.</li> </ul>

<p><b>Education guidelines</b></p>
<p><b>Conforming to the Guidelines:</b></p> <ul style="list-style-type: none"> <li>• The Ely District does utilize high use areas (Duck Creek Basin) and special events (OHV races) to maximize the dissemination of responsible use education materials and concepts to the public.</li> <li>• The Ely District does Encourage the private sector, as well as the public sector, to conduct responsible marketing of activities on public lands while avoiding the promotion of products, behaviors and services that are inconsistent with existing regulations and land use plans.</li> <li>• The Ely District does actively promote/expand/disseminate materials from programs such as (but not limited to) “Tread Lightly!” and “Leave No Trace”.</li> <li>• Communication and environmental education plan(s) do exist. We do assess all situations where OHV use may require public information and education, as well as develop materials and programs appropriate to each situation.</li> </ul>
<p><b>Not conforming to the Guidelines:</b></p>

- More action needs to be done to cooperatively develop/improve public outreach programs to promote trail etiquette, environmental ethics, and responsible-use stewardship ethic.
- Implementation of the communication, environmental and education plans need to be better employed.

**Recommendations:**

- Increase education on OHV safety and responsible riding in the community.
- Increase the promotion of federally approved public education programs such as Tread Lightly and Leave no Trace.
- Increase the utilization of public communication channels such as newspaper radio, internet, booths etc.
- Increase education related to OHV use as a weed vector. Information should be readily available for the public.

## **List of Interdisciplinary Team Members**

Nick Brunson	Fuel Management Specialist
Kalem Lenard	Recreation Specialist
Dave Jacobson	Wilderness
Chelsy Simerson	Range Management Specialist
Troy Grooms	Range Management Specialist
Gary Medlyn	Projects Manager
Deb Koziol	Wildlife Biologist
Bonnie Waggoner	Weeds Specialist
Ben Noyes	Wild Horse Specialist
Kari Harrison	Soil Specialist
Gina Jones	Ecologist
Julie Thompson	ENLC Plant Ecologist
Jennifer Brickey	ENLC Botanist
John Watt	ENLC Minerals compliance
Shane Trautner	ENLC Range Management Specialist

## **Maps**

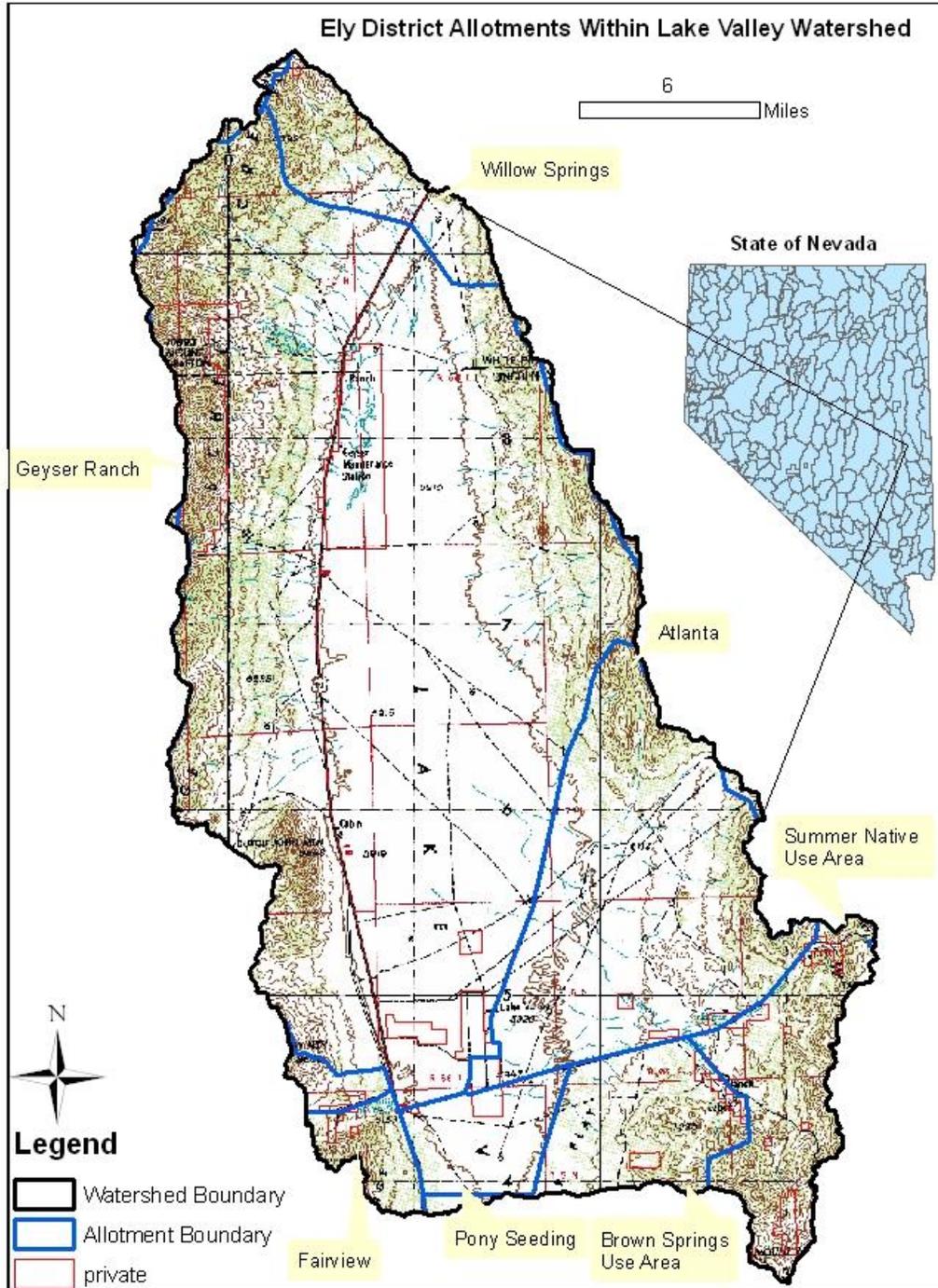
Map 1. Ely District Allotments within the Lake Valley Watershed

Map 2. Lake Valley Watershed Potential Major Vegetation Community Types as Defined by Soil Map Units

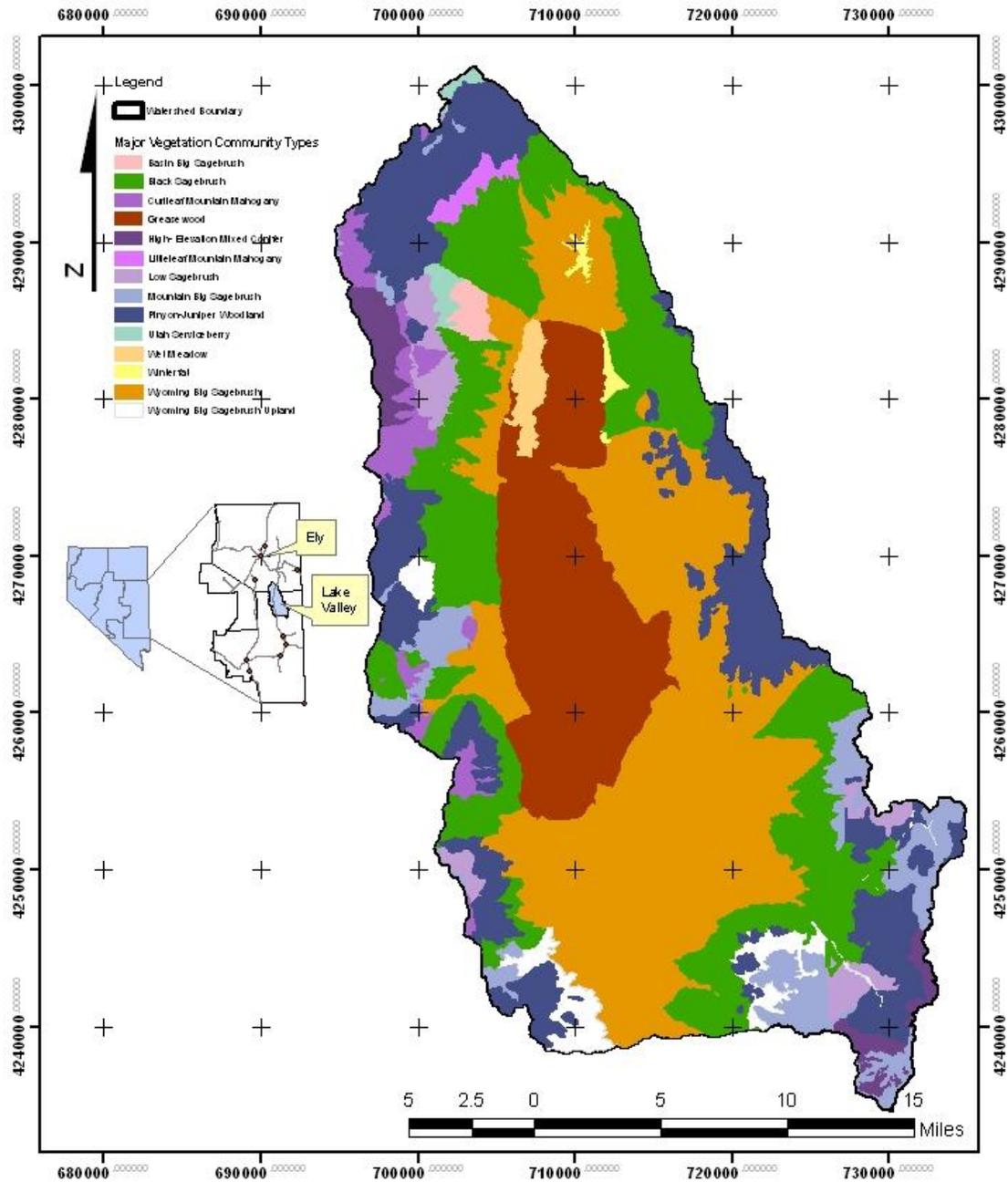
Map 3. Lake Valley Watershed Weed Inventory Map: Species and Land Management

Map 4. Road densities of Lake Valley

**Map 1. Ely District Allotments within the Lake Valley Watershed**

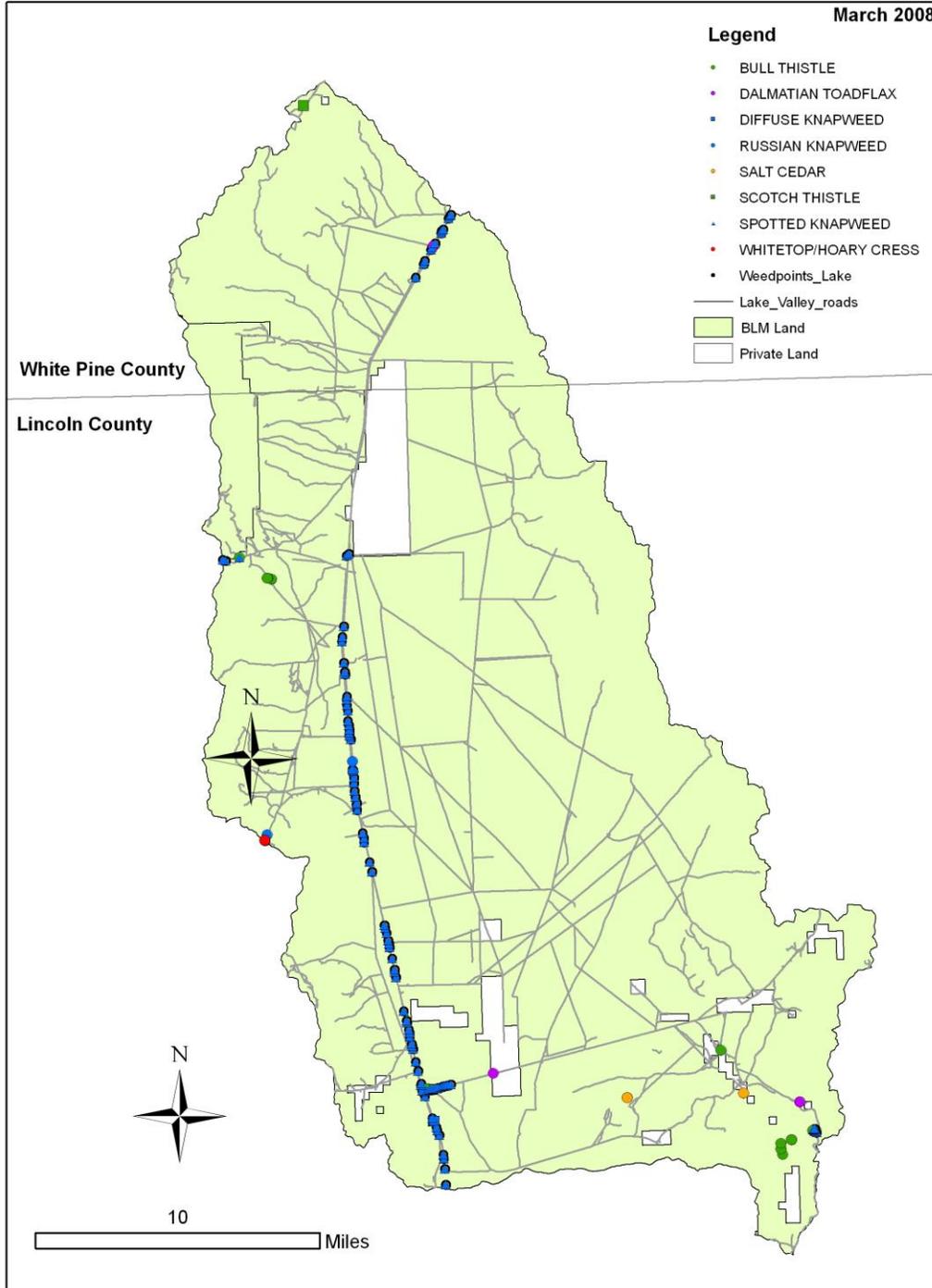


**Map 2. Lake Valley Watershed Potential Major Vegetation Community Types as Defined by Soil Survey Data**

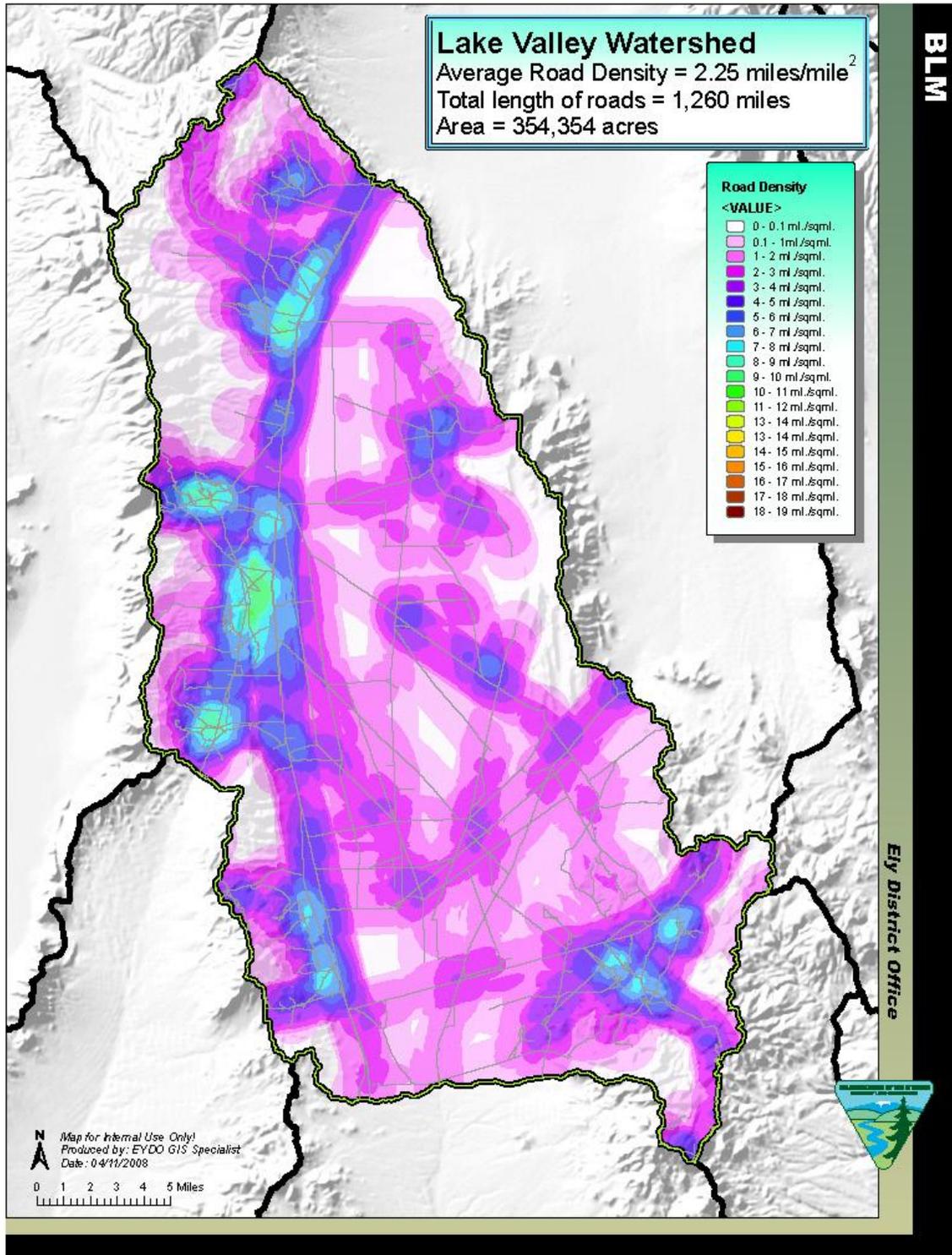


Map 3. Lake Valley Watershed Weed Inventory Map: Species and Land Management

### Lake Valley Watershed Road and Weed Inventory Map



Map 4. Road densities of Lake Valley



# Appendix A

## Livestock conformance to guidelines data and narratives for Standards.

Table A.1. Lake Valley livestock use and objectives summary

Allotment name and number	Permittee	Season of Use	Kind of Livestock	Total AUM's	Active AUM's	Suspended AUM's	Total Acres	Livestock Actual Use	Key Area	Key Area Actual Use	Utilization Objective	Grazing use levels in watershed overall
Geyser Ranch #1101	Lake Valley Cattle LLC.	3/01-2/28	Cattle	12,308	12,308	0	245,067	12,308	GSR-6 GSR-2 GSR-4 GSR-1(1) GSR-1(2) GSR-8 GSR-12 GSR-11 GSR-7 GSR-3	moderate Light Moderate Heavy Light Moderate Moderate Moderate Moderate	Moderate	Moderate
Fairview #1201	Lake Valley Cattle LLC.	4/16-10/31	Cattle	890	890	0	very little in watershed	890	No		Moderate	Moderate
Muleshoe	Lake Valley Cattle LLC.	11/01-4/15	Cattle	3711	3711	0	very little in watershed	3711	No		Moderate	Moderate
Muleshoe	Lake Valley Cattle LLC.	11/01-5/01	Sheep	1832	1832	0	very little in watershed	1832	No		Moderate	Moderate
Pony Seeding #1201	Lake Valley Cattle LLC.	4/01-6/30	Cattle	1286	1286	0	10407	1286	WCPS 1	Light	Moderate	Light
Atlanta #1201	Lake Valley Cattle LLC.	4/16-10/31	Cattle	785	785	0	57,267	785	No		Moderate	Light
Brown Springs Use Area #1201	Ken Lytle	6/01-6/30	Cattle	79	78	1	46,870	78	No		Moderate	Light to moderate
Summer Native Use Area #1201	Ken Lytle	6/01-9/30	Cattle	640	640	0	252,651	640	No		Moderate	Moderate to heavy
Brown Springs Use Area #1201	Gordon Lytle	6/01-6/30	Cattle	79	78	1	46,870	78	No		Moderate	Light to moderate
Summer Native Use Area #1201	Gordon Lytle	6/01-9/30	Cattle	272	272	0	252,651	272	No		Moderate	Moderate to heavy

Summer Native Use Area #1201	Pearson Brothers	6/01-9/30	Cattle	544	544	0	252,651	544	No		Moderate	Moderate to heavy
Brown Springs Use Area #1201	Jimmie Rosa	6/01-9/30	Cattle	30	30	0	46,870	30	No		Moderate	Light to moderate
Summer Native Use Area #1201	Jimmie Rosa	6/01-9/30	Cattle	210	210	0	252,651	210	No		Moderate	Moderate to heavy

Table A.2. Lake Valley livestock management conformance to guidelines for Mohave-Southern Great Basin RAC Standards and state-wide OHV guidelines for Lake Valley Watershed by Allotment.

Allotment name and number	Does Current Allotment Management Conform to Guidelines by Standard or Guideline?					Resource Concerns (including discernible cause of resource concern)
	Standard and Guideline No.					
	1. Soils	2. Ecosystem Components	3. Habitat & Biota	4. WH&B	5. OHV	
Geysers Ranch #1101	Yes	Yes	Yes	Yes	N/A	Most of the pastures have been seeded to crested wheatgrass. The higher elevation pastures which are still native had the right amount of native species but were being reduced in terms of coverage because of tree encroachment.
Atlanta #1201	Yes	Yes	Yes	Yes	N/A	There was an abundance of cheatgrass moving in mainly from historical overuse and disturbances from rodents such as gophers.
Summer Use Area #1201	Yes	Yes	Yes	Yes	N/A	Extremely sparse grassy vegetation because of the pinyon/juniper trees that have reduced the understory vegetation. The burn area has been revegetated by cheatgrass, rabbitbrush, and mullein.

Pony Springs Seeding Area #1201	Yes	Yes	Yes	Yes	N/A	
Brown Springs Use Area #1201	Yes	Yes	Yes	Yes	N/A	It appears that the understory vegetation is diminishing mainly from the tree encroachment, and a lot of use from horses, elk, and mule deer. There's a lot of cheatgrass in the eastern part of the allotment where there is the most horse activity.