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Bureau of Land Management

**South Spring Valley Watershed
Evaluation Report**

**Ely Field Office
Ely, Nevada**

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South Spring Valley Watershed Evaluation Report

Introduction

General Background

South Spring 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 South Snake Mountains on the East, and the South Schell creek 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 5,700 feet in the valley bottom to 13,060 feet on top Wheeler Peak in the South Snake Mountain Range in Great Basin National Park. Precipitation varies from a yearly average of about 5 to 10 inches on the valley bottom to 35 or more inches on top of the South Snake Mountains. Precipitation occurs as winter snow or spring/fall thundershowers and rains with the driest period occurring from midsummer to early 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 125 days in the valley bottom to 50 to 70 days in upper elevations.

The watershed constitutes approximately 351,793 acres. Included in this total are 332,190 acres (94 %) of Bureau of Land Management (BLM) administered public land, 11,650 (3.5 %) acres private land, and 7,953 (2.5 %) acres National Park Service (NPS) land. Allotments included within this watershed are large portions of South Spring Valley (#10130), Cottonwood (#00132), Willow Springs (#10129), Willard Creek (#10127), and Scotty Meadows (#10128) Allotments (Map 1). Small portions of Miller Use Area (#1201), Murphy Wash (#9435), Shingle Creek (#9436), and Majors (#10126) Allotments are also included within this watershed. 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 salt desert shrub and winterfat communities at the valley bottom, and littleleaf mountain mahogany and mountain mahogany at higher elevations. Woodland communities within the watershed include pinyon and/or juniper communities, pinyon-mountain mahogany 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. Cattle and sheep are currently being grazed in this allotment. A portion of the Cottonwood Allotment is within the Wilson Creek Wild Horse Herd

Management Area. Wild horses predominantly use the portion of the allotment west of the seedings on the east side of the Fortification range. It appears the horses move from the west side of the Fortifications onto the allotment for a short period of time in the spring before moving back west. Following the Management Action Selection Report for the Cottonwood Allotment, a number of management actions have been implemented to help improve production. Authorized use was reduced from 4,106 animal unit months (AUMs) to 2,248 AUMs and the period of use in June was shortened by two weeks. This allows for more livestock numbers during a shorter period of time. A three-pasture rest rotation grazing system was implemented for the crested wheatgrass seedings. The Upper and Middle Pastures were combined to form one pasture with 386 AUMs. Lower and Deer Flat Pastures comprise the other two pastures of the grazing system. Lower Pasture was assigned 320 AUMs and Deer Flat Pasture was assigned 452 AUMs for a total of 1,158 AUMS in the crested wheatgrass seedings. The implementation of a grazing system has provided year-long rest for one of the three pastures each year. The Native Pasture is grazed each winter in order to improve forage condition by avoiding grazing during the critical spring growth period. The grazing schedule for the Cottonwood Allotment that was effective starting on 11/1/97 is as follows:

YEARLY GRAZING SCHEDULE	
PASURE	PERIOD OF USE
YEAR ONE	
NATIVE	11/01-3/13
Upper and Middle	3/14-5/03
Lower	5/04-6/15
Deer Flat	REST
YEAR TWO	
NATIVE	11/01-3/13
Deer Flat	3/14-5/03
Upper and Middle	5/04-6/15
Lower	REST
YEAR THREE	
NATIVE	11/01-3/13
Lower	3/14-5/03
Deer Flat	5/04-6/15
Upper and Middle	REST
YEAR FOUR	
REPEAT CYCLE STARTING WITH YEAR 1	

Historically there was no grazing system implemented on the Cottonwood Allotment preceding the development of the seeding projects. The Deer Flat, Lower, Upper and Middle Seedings were established by the BLM in cooperation with the permittee between 1957 and 1965.

Use pattern mapping on the Scotty Meadows Allotment indicated that historically most of the allotment was under-utilized with most of the data showing slight livestock use throughout the allotment. For the South Spring Valley Allotment, the permittee and the

BLM entered into a two-year livestock use agreement in 1995. This temporary agreement modified the areas of use and primarily addressed the southeast corner of the South Spring Valley Allotment. The agreement was necessary to improve the vigor of the forage plants and reduce the spread of halogeton into the winterfat and salt desert shrub communities in the southeast portion of the allotment. Under this agreement, a two-year rest period from cattle and sheep use for the closed area was required. The season of use change shifted cattle use from a spring/summer period of use of 4/01-9/30 to a late winter/spring period of use 2/10-5/20. Subsequently, a deferred rest rotation grazing system was implemented through consultation, coordination, and cooperation with the livestock permittee. Livestock are currently being rotated between the east and west use areas. During the first year of the rotation system, cattle began grazing in the east pasture on March 1st and grazed the pasture until April 15th. The cattle were then moved to the west pasture and grazed there until May 31st. The northwestern use area of the allotment is currently being grazed for a two-week period in June.

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 Northeast 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 Northeast Great Basin Area Resource Advisory Council (RAC).

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

Standard #1 Upland Sites

Standard #2 Riparian and Wetland Sites

Standard #3 Habitat

Standard #4 Cultural Resources
Standard #5 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 South Spring 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 and Wyoming big sagebrush upland, littleleaf mountain mahogany, mountain mahogany, salt desert shrub, and winterfat rangeland communities, and juniper, pinyon-juniper, and pinyon-mountain mahogany 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 332,190 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 the start of the next grazing year upon determining 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. UPLAND SITES: Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

As indicated by:

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

The Standard is not met. Line-point intercept cover data and Fire Regime and Condition Class (FRCC) were analyzed and interpreted.

Figure 1.1. Potential Major Vegetation in the South Spring Valley Watershed as Estimated from Soil Survey Data.

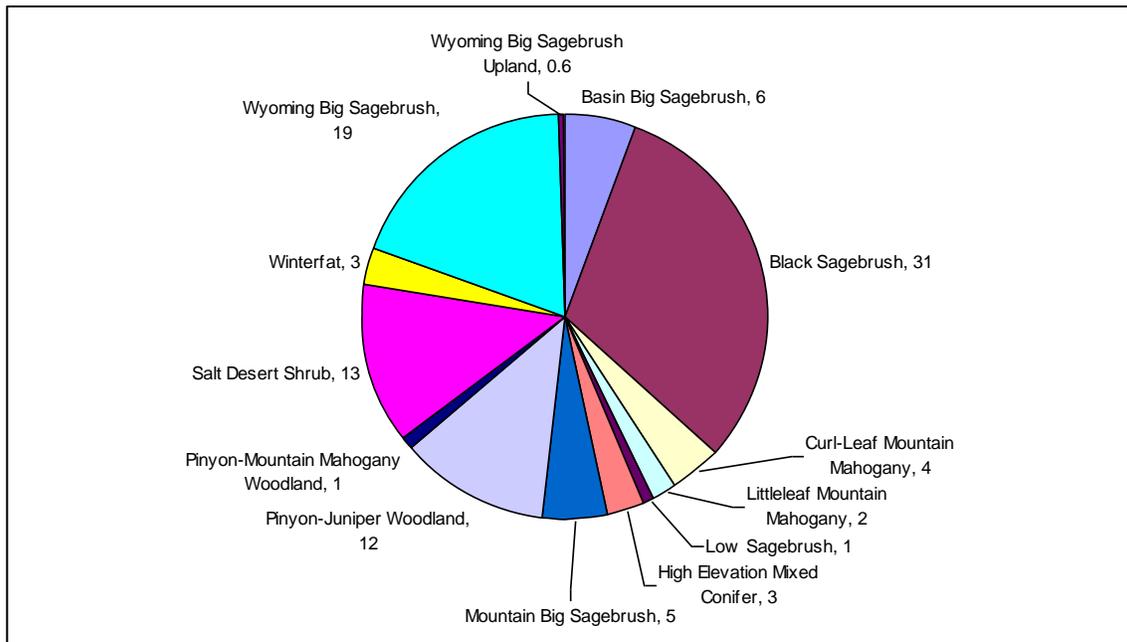


Figure 1 depicts the proportion of the watershed that has the potential for each major vegetation community to be present. The potential vegetation communities for the South Spring Valley Watershed were estimated by assuming the dominant vegetation for a given soil map unit represented the vegetation 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. Potential high-elevation mixed conifer communities (10,941 acres or 3% of the watershed) were not encountered by the 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 mixed conifer 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.

Current estimates of the tree canopy cover and understory composition for woodlands in the watershed are summarized in Table 1.1. The standards as described in the ecological site descriptions are summarized in Table 1.2. Potential pinyon-juniper woodlands comprise approximately 43,366 acres (12%) of the watershed (Map 2; Figure 1.1). Forestland ecological site descriptions indicate the average overstory canopy in pinyon-juniper woodlands should be 20 to 35 percent for pinyon-pine and juniper-dominated woodlands and less than 10 percent for black sagebrush-dominated rangelands with more sparse pinyon-pine and juniper cover.

A total of 20 pinyon-juniper woodland sites were assessed by field crews in 2007. Current estimates from professional observations indicate that, when broadly considered, the pinyon-juniper woodlands are meeting the upland standard with an average cover of 32 percent when compared to the 20 to 35 percent average canopy cover standard. Pinyon-juniper woodlands associated with forestland ecological site descriptions are meeting the upland standard with 33 percent canopy cover compared to the standard of 20 to 35 percent average canopy cover. Sparse juniper trees associated with black sagebrush rangeland ecological site descriptions are not meeting the upland standard with 30 percent canopy cover when compared to the standard of less than 10 percent tree canopy cover.

Table 1.1. Comparison of Average Current Condition Estimates of Woodland Communities in the South Spring Valley Watershed as Reported by Functional Groups and Cheatgrass Cover.

Woodland Community Type	Total Sites	Overstory Canopy Cover	Understory Ground Cover Composition			
			Shrubs	Grasses	Forbs	Cheatgrass
Curl-leaf Mountain Mahogany	2	28	49	38	13	0
Pinyon-Juniper Woodlands Combined	20	32	58.1	21.1	4	16.8
<i>Sparse Pinyon-Juniper Woodlands – Black Sagebrush Dominated</i>	8	30	84.2	10.7	1.8	3.3
<i>Pinyon-Juniper Woodlands (excluding sparse woodlands)</i>	12	33	41	28	5	26
Pinyon-Pine Curl-leaf Mountain Mahogany Woodlands	2	38	72.5	22	5.5	0

Table 1.2. Uplands Standard: Average Tree Canopy Cover and Percent of Total Understory Ground Cover Composition from Ecological Site Descriptions for Woodland Communities Reported by Functional Groups.

Woodland Community	Overstory	Understory Ground Cover Composition			
Type	Canopy Cover	Shrubs	Grasses	Forbs	Cheatgrass
Curl-leaf Mountain Mahogany	<i>35-50</i>	<i>35</i>	<i>55</i>	<i>10</i>	<i>0</i>
Sparse Pinyon-Juniper Woodlands – Black Sagebrush Dominated	<i>< 10</i>	<i>53</i>	<i>41</i>	<i>6</i>	<i>0</i>
Pinyon-Juniper Woodland	<i>20-35</i>	<i>30-50</i>	<i>35-60</i>	<i>10-15</i>	<i>0</i>
Pinyon-Pine Curl-leaf Mountain Mahogany Woodlands	<i>20-35</i>	<i>30</i>	<i>50</i>	<i>20</i>	<i>0</i>

The understory ground cover composition in pinyon-juniper woodlands does not meet the upland standard. Estimates of current conditions in pinyon-juniper woodlands indicate the average shrub component of the understory is higher whereas the average grass and forb components are lower than what the upland standard specifies. The current condition conclusions remain the same when the sparse pinyon-juniper woodlands associated with black-sagebrush-dominated rangelands are evaluated separately except for average shrub cover composition, which is within the specified upland standard for pinyon-juniper woodlands. Cheatgrass is also present, comprising an estimated 16.8 percent of the understory for all of the pinyon-juniper woodlands. Cheatgrass prevalence in pinyon-juniper communities appears to be site-specific with only a few sites exhibiting high cheatgrass ground cover and most sites exhibiting little or no cover. This may be due to a spatial correlation not examined during this evaluation.

Potential pinyon-pine curl-leaf mountain mahogany woodlands occupy approximately 3,737 acres (1%) of the watershed (Map 2; Figure 1.1). Forestland ecological site descriptions indicate the average overstory canopy in pinyon-pine curl-leaf mountain mahogany should be 20-35 percent with pinyon-pine trees composing 80-95 percent, curl-leaf mountain mahogany composing 5-15 percent, and juniper composing less than 10 percent of the overstory canopy cover. A total of 2 pinyon-pine curl-leaf mountain mahogany woodland sites were assessed by field crews in 2007. Current estimates from professional observations indicate that these woodlands are not meeting the upland standard with an average overstory canopy cover of 38 percent. The overstory canopy cover composition partly meets the standard with 68 percent composed by pinyon-pine, 7 percent composed by curl-leaf mountain mahogany, and 25 percent composed by juniper.

The understory composition in pinyon-pine curl-leaf mountain mahogany woodland communities does not meet the upland standard. Estimates of current conditions in these communities indicate the estimated shrub component of the understory (72.5 percent) is higher whereas the estimated native grass and forb components (22 and 5.5 percent, respectively) are lower than what the upland standard specifies.

Potential curl-leaf mountain mahogany comprises approximately 14,512 acres (4%) of the watershed (Map 2; Figure 1.1). Rangeland ecological site descriptions indicate the average overstory canopy 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 2 curl-leaf mountain mahogany sites were assessed by field crews in 2007. Current estimates from professional observations indicate that the curl-leaf mountain mahogany communities are not meeting the standard with an average canopy cover of 28 percent, below the upland standard. The overstory canopy cover composition also does not meet the upland standard with curl-leaf mountain mahogany composing 63 percent of the overstory canopy and white fir composing 31 percent of the overstory canopy.

For understory composition standards, the current condition estimates indicate that shrub composition (49 percent) is higher and native grass composition (38 percent) is lower than the specified upland standard. The estimated forb composition (13 percent) is only slightly higher than the specified upland standard. The understory upland standard for curl-leaf mountain mahogany communities is not being met as a whole.

Potential sagebrush communities cover approximately 223,005 acres (62%) of the South Spring Valley watershed (Map 2; Figure 1.1). Table 1.3 summarizes the percent cover composition for the individual sagebrush communities. Table 1.4 summarizes the standards described in the ecological site descriptions for the sagebrush communities. For all of the sagebrush community types except Wyoming big sagebrush communities, 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 of the sagebrush community types except Wyoming big sagebrush communities. The presence of pinyon-juniper in the majority of sagebrush community types 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 2 percent ground cover composition in cheatgrass cover. Tree canopy cover and percent tree canopy cover composition both changed by less than 1 percent. 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 when these communities are considered together.

The shrub ground cover composition exceeds the composition described in the ecological site descriptions for basin big sagebrush, mountain big sagebrush, and Wyoming big sagebrush with shrub ground cover composition nearly two times the described standard. In the Wyoming big sagebrush upland community type, the shrub ground cover is less than that described in the ecological site descriptions. This does not meet the upland standards for these community types.

The herbaceous ground cover composition for all sagebrush communities does not meet the upland standard as a whole. For all sagebrush communities evaluated, basal and foliar grass cover composition was less than the average composition described in the ecological site descriptions. Foliar forb cover composition was less than the average composition described in the ecological site descriptions for basin big sagebrush, low sagebrush, Wyoming big sagebrush, and Wyoming big sagebrush upland community types. Half of the forb cover in Wyoming big sagebrush communities was composed of halogeton (*Halogeton glomeratus*).

Cheatgrass is present in all sagebrush community types but is especially prominent in Wyoming big sagebrush upland communities within which it comprises 48 percent of the total ground cover composition. While the overall average cheatgrass ground cover composition appears to be low to 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 composition and most sites exhibiting little or no cheatgrass cover. This may be due to a spatial correlation not examined during this evaluation.

Table 1.3. Comparison of Current Condition Estimates of Sagebrush Communities in South Spring Valley Watershed from Average Percent Ground Cover Composition as Reported by Functional Groups with Cheatgrass Cover.

Sagebrush Community Type	Total Sites	Trees	Shrubs	Grasses	Forbs	Cheatgrass
Basin Big Sagebrush	8	30.0	44.1	20.6	2.1	3.2
Black Sagebrush	24	30.5	49.4	8.2	4.9	6.9
Low Sagebrush	5	26.2	29.9	34.8	3.6	5.5
Mountain Big Sagebrush	9	34.4	35.0	25.5	4.6	0.5
Wyoming Big Sagebrush	33	0.0	81.8	9.0	1.4	7.8
Wyoming Big Sagebrush Upland	2	21.3	30.2	0.6	0.0	47.9

Table 1.4. Upland Standard: Average Percent-by-Weight Composition described in Ecological Site Descriptions for Sagebrush Communities as Reported by Functional Groups.

Sagebrush Community Type	Trees	Shrubs	Grasses	Forbs	Cheatgrass
Basin Big Sagebrush	<i>0-3</i>	<i>15-25</i>	<i>65-80</i>	<i>5-10</i>	<i>0</i>
Black Sagebrush	<i>0-3[#]; 5-15*</i>	<i>45**</i>	<i>50**</i>	<i>5</i>	<i>0</i>
Low Sagebrush	<i>0-3</i>	<i>25-40</i>	<i>50-65</i>	<i>5-10</i>	<i>0</i>
Mountain Big Sagebrush	<i>0-3</i>	<i>25**</i>	<i>65**</i>	<i>5-10</i>	<i>0</i>
Wyoming Big Sagebrush	<i>0</i>	<i>45**</i>	<i>50**</i>	<i>5</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 to 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 Savannah community tree composition is 5 to 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 18 percent of the watershed with potential littleleaf mountain mahogany communities occupying 6,039 acres (2%) of the watershed, potential salt desert shrub communities occupying 45,822 acres (13%) of the watershed, and potential winterfat communities occupying 12,022 acres (3%) of the watershed (Map 2; Figure 1.1). Table 1.5 summarizes the current condition estimates for these communities. Table 1.6 summarizes the standards described in the ecological site descriptions for the non-sagebrush rangeland communities. Only one site was visited in littleleaf mountain mahogany communities. The average percent tree canopy cover composition (20 percent) exceeds the described standard. Shrub ground cover composition was far below the described standard while the basal and foliar grass and foliar forb ground cover compositions exceeded the described standard. The attributes observed at this single site do not meet the upland standard for the littleleaf mountain mahogany community type.

Neither pinyon-pine nor juniper trees were present in the salt desert shrub or the winterfat community types, which corresponds with the location of the communities in the valley bottom rather than adjacent to pinyon-juniper woodlands. None of the other upland standards are met for either of these communities as the shrub ground cover composition greatly exceeds the described standards and the basal and foliar grass cover and foliar forb cover composition are far below the described standard. Half of the forb cover in winterfat communities was composed of halogeton (*Halogeton glomeratus*). Cheatgrass is present in the winterfat community type with one site exhibiting low to moderate cheatgrass cover.

Table 1.5. Comparison of Current Condition Estimates of Non-sagebrush Rangeland Communities in South Spring Valley Watershed from Average Percent Ground Cover Composition as Reported by Functional Groups and Cheatgrass.

Non-Sagebrush Rangeland Community Type	Total Sites	Trees	Shrubs	Grasses	Forbs	Cheatgrass
Littleleaf Mountain Mahogany	1	20	36.3	21.8	21.9	0
Salt Desert Shrub	21	0	72.6	25.5	1.9	0
Winterfat	2	0	91.2	0	0	8.8

Table 1.6. Upland Standard: Average Percent-by-Weight Composition Described in Ecological Site Descriptions for Non-sagebrush Rangeland Communities as Reported by Functional Groups.

Non-Sagebrush Rangeland Community Type	Trees	Shrubs	Grasses	Forbs	Cheatgrass
Littleleaf Mountain Mahogany	<i>0-3</i>	<i>75</i>	<i>15</i>	<i>10</i>	<i>0</i>
Salt Desert Shrub	<i>0-5</i>	<i>45*</i>	<i>50*</i>	<i>5-15</i>	<i>0</i>
Winterfat	<i>0</i>	<i>35</i>	<i>60</i>	<i>5</i>	<i>0</i>

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

Fire History and Fire Regime and Condition Class

Fire statistics:

Over the past 27 years, there have been 146 fires recorded ranging from less than one acre spot fires to 2,000 acres. The watershed averaged 5.4 fires per year. Total area burned is approximately 2,300 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 South Spring Valley is summarized in Table 1.7.

Table 1.7. Fire Regime Condition Class Descriptions and Proportion of the South Spring Valley 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.	9 %
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	39 %
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.	48 %
None	Consists of rocks, water, bare ground, agriculture, etc.	4 %

Eight-seven percent of the watershed is in Condition Class 2 or 3. This may infer that 87% percent of the watershed is not meeting the Upland Standard or Habitat Standard.

Other Areas of Concern for South Spring Valley Watershed

Weeds

A total of 103 weed infestations have been mapped on public lands in the upland sites of the South Spring Valley Watershed. Noxious weed inventories in upland sites are typically performed along travel corridors as these areas are easily accessed and weed infestations are most likely to occur in these areas. A more thorough discussion of weed infestations in the watershed may be found in Standard 3. Habitat.

Minerals Disturbance on Public Land

There are two mining districts within the watershed, the Atlanta District and Silver Park. Both have portions of disturbance on public land but the majority of each site is on patented/private land. The Silver Park site has less than an acre on public land, mostly old roads. The Atlanta site public land disturbed is a pond, approximately 35 acres in size. The portion on public land is unclear at the moment as patented land boundaries are currently being determined.

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.

Roads

A recent road inventory shows that road densities are high in various portions of the watershed (map 4). Many of these roads are recent and have been pioneered as a result of increased use of public lands from off highway vehicle use or minerals exploration associated with mining districts. The average road density for the watershed is 1.48 miles per square mile. Areas where density of roads is high shows that there is a need to control the proliferation of roads and trails. There are about 120 miles of roads and trails that intersect sensitive soils. These soils are associated with winterfat communities and have low shear strength that causes them to “powder out” and erode with increased traffic. Road densities are a contributing causal factor for not meeting the upland standard.

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.

Causal Factors

The causal factors for the South Spring Valley Watershed not meeting the Upland Sites Standard, can be attributed to:

- Historic livestock grazing management in the wake of European settlement of the West.
- Increasingly effective fire suppression in last century.
- Introduction of non-native weed species;
- Increase in weed vectors (animals and vehicles) and distribution of weed seeds along roadways and trails. Vectors increase distribution and establishment of weed seeds, including cheatgrass; and
- Climate fluctuations in recent years.

Recommendations

- Apply restoration treatments with the objective of increasing herbaceous cover and decreasing the spread of annual grasses as economically and ecologically feasible. Treatments used should include a variety of mechanical, chemical and prescribed-burn pinyon-juniper and brush removal methods as well as native grass seedings and/or transitional non-native seedings to increase herbaceous ground cover.
- Manage livestock to achieve standards and conform to guidelines.
- Continue management of wild horse herds.
- Aggressively treat weed infestations.

“STANDARD 2. RIPARIAN AND WETLAND SITES:

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

As indicated by:

- Stream side riparian areas are functioning properly when adequate vegetation, large woody debris, or rock is present to dissipate stream energy associated with high water flows. Elements indicating proper functioning condition such as avoiding accelerating erosion, capturing sediment, and providing for groundwater recharge and release are determined by the following measurements as appropriate to the site characteristics:
 - Width/Depth ratio;
 - Channel roughness;
 - Sinuosity of stream channel;
 - Bank stability;
 - Vegetative cover (amount, spacing, life form); 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.
- Chemical, physical and biological water constituents are not exceeding the State water quality standards.”

Standard for Riparian and Wetland Sites in South Spring Valley is met with some exceptions. Proper Functioning Condition Data and U. S. D. A. Forest Service Level 1 Springs Survey data were analyzed and interpreted for Standard 2. Formal Proper Functioning Condition (PFC) assessments have been performed for 4 lotic and 9 lentic sites in the South Spring Valley Watershed. The PFC assessments for three of the lentic and one of the lotic sites were performed in 1995 and 1998 but are deemed reflective of

current conditions. The remainder was assessed in 2006 and 2007. Only a select number of lotic and lentic riparian sites within the watershed 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 wildlife use.

The indicator data evaluated for the lentic riparian systems show 7 of the 9 lentic sites are functioning properly. Of the remaining sites, one (1) was determined to be functioning at-risk with a downward trend and one (1) was determined to be non-functional. One lentic site's status was not determined at the time of the assessment. Several of the lentic sites determined to be functioning properly did exhibit problems that may undermine the proper functioning condition. Two of the lentic sites, Spring Creek Meadows and Shoshone Ponds, were experiencing excessive livestock use that was resulting in degradation of the systems. The Spring Creek Complex and Cottonwood Spring are experiencing pinyon-juniper encroachment into the riparian habitat. Blind Spring was ranked as Functioning At-Risk with a downward trend due livestock use. At the time of assessment, fencing installed to protect the water source at Blind Spring was partly removed, signs of past dredging were still present, the banks were sloughing due to livestock trampling, and salt blocks were located in close proximity to the source along with evidence of hunting activity. Murphy Wash Spring is deemed fully developed as the entire water source has been diverted into a pipe and the natural spring habitat is diminished or no longer in existence.

The lotic systems evaluated for PFC in 2006 were the Spring Creek lotic system, Pine and Ridge Creeks lotic system, and Shingle Creek lotic system. The Swallow Creek lotic system was evaluated in 1998 but its determined condition is deemed reflective of current conditions. The three lotic systems evaluated in 2006 were all assessed as Proper Functioning Condition. The Swallow Creek lotic system was assessed as functioning properly for the first 0.25 miles, after which it was downgraded to Functioning At-Risk with a downward trend. The reduced function for Swallow Creek is believed to be due to an old drainage ditch further downstream that alters the riparian channel and direction of water flow.

In 2006, the U.S.D.A. Forest Service (USFS) and Eastern Nevada Landscape Coalition (ENLC) conducted Level 1 Spring Surveys on lands surrounding the Great Basin National Park that were managed by the USFS until 2006. These lands are currently managed by the BLM. For Level 1 Spring Surveys, crews searched for known and unknown springs in drainages believed to contain water resources and collected baseline data on all springs encountered. Data collected at each spring visited included the location and physical description of the spring, the discharge rate, water chemistry, biological attributes including plant, macroinvertebrate, and wildlife species present, current water usage and development, and overall condition of the habitat.

During 2006, the ENLC field crews surveyed for springs in five lotic system drainages within the South Spring Valley Watershed. The five lotic system drainages all occur on the west side of the South Snake Range on the eastern boundary of the watershed. These systems are: Pine Creek, Ridge Creek, Shingle Creek, Spring Creek and its associated

Hub Mine Basin, and Williams Canyon. Raised Spring, a known spring that does not occur in any of the lotic systems, was also visited. A total of 2 previously known springs and 43 previously unknown springs were encountered in these systems during the 2006 surveys.

Each individual lentic site was assigned a site condition ranking and the type(s) of disturbance was noted. The site condition rankings are “undisturbed,” “slight,” “moderate,” and “high.” According to the USFS Level 1 Spring Survey Protocol, these rankings are defined as follows:

“Undisturbed springs have been unaffected by recent or historical factors or activities. All evidence of trampling by domestic livestock, diversion, fire, or drying is absent. Since most springs have been altered by humans, drought, fire, or flood, these types of springs are rare and most undisturbed springs are naturalizing from past disturbances.

“Slightly Disturbed springs exhibit little evidence that vegetation or soil have been disturbed. Vegetation shows slight signs of browsing and foraging, and animal footprints and scat are present but not prominent. Recreation may be evident, but its impact on riparian or aquatic environments is minimal. Evidence of fire or flooding in the distant past may be visible but these events occur infrequently; riparian vegetation is vigorous.

“Moderately Disturbed springs exhibit evidence of recent, comparatively high disturbance. Use by native and non-native ungulates, and recreation has reduced vegetation height and coverage from natural conditions. Vegetation covers, hoof prints, footprints, and scat are common. Where there has been diversion, spring box may be present but at least 50% of natural discharge remains within the natural spring brook. Neither the spring nor spring brook has been impounded. Where flooding or fire is apparent, >50% of the spring brook banks are covered by vegetation; flood and fire are infrequent and the spring is naturalizing.

“Highly Disturbed springs have little similarity to undisturbed springs. <50% of their banks are covered by vegetation, their spring brooks contain <50% of natural discharge, they are impounded or dredged, or spring boxes collect water. All impounded springs are highly disturbed because flow has been interrupted and functional characteristics of the aquatic system highly altered. Hoof prints and scat are abundant where ungulate use is heavy, and campsites are large, trashy, and vehicle use evident. These activities have decreased vegetative cover of spring brook banks to <50%. Riparian vegetation is sparse at springs recently affected by fire or flooding, there is recent evidence of elevated discharge, and spring brooks are usually incised.”

The results relevant to the watershed evaluation process are summarized in Table 2.1. Overall, the majority of springs encountered in the lotic systems during the USFS Springs Survey were deemed to be undisturbed or slightly disturbed with 21 lentic sites (springs) categorized as undisturbed and 20 lentic sites categorized as slightly disturbed. The primary cause for the majority of springs experiencing slight disturbance was identified as livestock use. Three springs were evaluated as experiencing moderate disturbance and

one spring was evaluated as experiencing high disturbance. For two of the moderately disturbed springs and the one highly disturbed spring, the primary cause was due to historic mining practices within the Hub Mine Basin which is located in the Spring Creek drainage. These springs had either been completely diverted or heavily altered in the past but are experiencing no current disturbance. The spring brook for the remaining spring ranked moderately disturbed has been significantly altered by a road which passes through the spring brook, causing all of the water to be diverted into the road's ruts.

Table 2.1. Summary of Known and Unknown Lentic Sites (Springs) Encountered and the Condition Rankings Assigned to the Lentic Sites during the 2006 U.S.F.S. Level 1 Spring Surveys Performed on Former U.S.F.S. Land in the South Spring Valley Watershed Currently Managed by the BLM.

Lotic System	Previously Known Springs Encountered	Previously Unknown Springs Encountered	Spring (Lentic Site) Condition Rankings	Summary of Disturbances
Pine Creek	0	5	Undisturbed - 4 Slight - 1	Slight – some evident livestock use
Raised Spring	1	1	Slight- 2	Slight – one affected by livestock grazing; one affected by source being dug out (altered) and the close proximity of a primitive campsite
Ridge Creek	0	3	Undisturbed - 1 Slight - 2	Slight – one affected by presence of garbage in spring brook; one affected by two-track road going through the outer edge of the marsh
Shingle Creek	0	12	Undisturbed - 2 Slight - 10	Slight – 9 springs affected by evident livestock use (not heavy) and close proximity of primitive campsites; one affected by dredging at source.
Spring Creek	1	12	Undisturbed - 6 Slight - 4	All but one of the springs with slight to

			Moderate - 2 High - 1	high condition rankings occur in the Hub Mine Basin and have been altered and/or disturbed for historic mining activities. None of these springs are currently being disturbed. The one slightly disturbed spring outside of the Hub Mine Basin has experienced very slight disturbance.
Williams Canyon	0	10	Undisturbed - 8 Slight - 1 Moderate - 1	Slight – tire tracks intersect spring brook near source, diverted water along tire track Moderate – old roadway diverts water near source, most of water diverted into aqueduct
Total	2	43	Undisturbed - 21 Slight - 20 Moderate - 3 High - 1	

Water discharge rates and water quality parameters were also estimated as part of the USFS 2006 Level 1 Spring surveys. The water quality standards for Class A and Class B waters as defined in the Nevada Administrative Code (NAC), Chapter 445A.118-445A.225, are summarized in Table 2.2. The water quality and discharge parameter estimates for the lentic sites visited are also summarized according to condition class in Table 2.2. The amount of water discharged was estimated and reported as milliliters per second (mL/s). The values are reported in Table 2.2 as mL/s and are also converted into gallons per minute (GPM). Water quality parameters measured included water temperature and pH, dissolved oxygen, and electrical conductivity. The pH, temperature, and dissolved oxygen estimated averages for all lentic sites within the watershed fall within the acceptable ranges defined by the State water quality standards. Electrical conductivity standards are not defined in the state water quality standards.

Table 2.2. Current Condition Estimates of Water Quality Parameters and Water Discharge Rates Summarized According to Condition Ranking for Lentic Sites Encountered during the 2006 U.S.F.S. Level 1 Spring Surveys in the South Spring Valley Watershed on Lands Currently Managed by the BLM..

	State Water Quality Standards [@]	Undisturbed	Slight	Moderate	High
Total Lentic Sites		21	20	3	1
Temperature (°C)	Class A Waters: max ≤ 20 °C Class B Waters: With Trout: max ≤ 20 °C Without Trout: max ≤ 24 °C	Range: 6 - 17.7 Average: 11.9 (19 sites)*	Range: 9 - 16.9 Average: 13.5 (20 sites)	Range: 11.5 – 13.5 Average: 12.7 (3 sites)	9.7
Dissolved Oxygen (mg/L)	≥ 6.0 mg/L	Range: 2.3-12.5 Average: 7.7 (19 sites)	Range: 0.4-10.9 Average: 7.2 (20 sites)	Range: 4.9 – 8.8 Average: 6.2 (3 sites)	10.6
Electrical Conductivity (µS/cm)	NA	Range: 38-690 Average: 158 (17 sites)	Range: 34-170 Average: 106 [#] (20 sites)	Range: 43 - 86 Average: 66 (3 sites)	35
pH	6.5 – 9.0	Range: 5.5 - 6.8 Average: 6.1 (6 sites)	Range: 5.4 – 7.5 Average: 6.5 (14 sites)	-	-
Discharge Rate (mL/s)	NA	Range: 10-8,000 Average: 720 (16 sites)**	Range: 10-34,000 Average: 2,499 (15 sites)	Range: 31-357 Average: 194 (2 sites)	600
Discharge Rate Conversions (mL/s to GPM)	NA	Range: 0.2 - 127 Average: 11.4	Range: 0.2 – 540 Average: 39.6	Range: 0.5 – 5.7 Average: 3.1	9.5

[@] The summarized water quality standards for Class A and Class B waters are defined in the Nevada Administrative Code (NAC), Chapter 445A.118-445A.225.

[#]One site was excluded from the average calculation as the electrical conductivity was recorded as 1 000 times higher than any other site within the watershed and may have been due to instrument error.

*The number of sites listed in parentheses for each parameter is the total number of lentic sites at which the parameter was measured. The number reflects the total used to calculate the average.

**The number of sites listed in parentheses for discharge rate is the number of lentic sites at which water flow was discernible.

Weeds

A total of 3 weed infestations have been mapped on public land within 25 feet of riparian and wetland sites in the South Spring Valley Watershed. Noxious weed inventories are typically performed along waterways as these areas are easily accessed and weed infestations are most likely to occur in these areas. A more thorough discussion of weed infestations within the South Spring Valley Watershed may be found in Standard 3. Habitat.

Causal Factors for exceptions

- Livestock, and/or elk are contributing factors to decreased herbaceous cover around the riparian ecological zones evaluated as “functioning-at-risk”
- Reduced riparian zone ecological function is also directly attributed to pinyon-juniper tree encroachment and expansion, drought, as well as obstructions and diversions of springs and stream flow.
- White Top at Shoshone ponds riparian area.
- Roads were diverting water from the riparian areas such as at the “Troughs” which was observed in the field evaluation.

Recommendations

- Where feasible, build fences around riparian areas noted above.
- Visit all seeps, springs, wetlands and streams that have been evaluated as functioning-at-risk PFC to plan for water source improvement.
- Apply weed control near water sources.
- Relocate roads from riparian areas and promote road closure where necessary through transportation plan development.
- Develop a comprehensive approach to planning for the Shoshone Ponds area.

“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 achieved in uplands and mostly 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 South Spring Valley watershed include pronghorn antelope (*Antilocarpa americana*), mule deer (*Odocoileus hemionus*), Rocky Mountain elk (*Cervus canadensis*), and bighorn sheep (*Ovis canadensis*).

Rocky Mountain bighorn sheep (*Ovis canadensis*) have been identified as occupying 22,850 acres of range within South Spring Valley watershed with an additional 15,079 acres of potential habitat unoccupied. Although Desert Bighorn Sheep (*Ovis canadensis nelsoni*) do not occupy any acres within the watershed, 39,830 acres are considered unoccupied potential habitat. Primary bighorn sheep forage includes grasses, grass-like plants, forbs, and shrubs.

Rocky Mountain elk occur in a wide variety of habitats within South Spring Valley, from low to upper elevations. There are a total of 287,074 acres of yearlong elk habitat within

the watershed. This habitat includes vegetation types from mixed conifer, aspen, and higher elevation pinyon-juniper woodlands and meadows to primarily of pinyon-juniper woodlands and sagebrush-grasslands. 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. In the southernmost portion of the watershed, 1,419 acres are considered crucial summer range. A wildlife water development was designed for elk and installed in the Dale Chaining, on the east slope of 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 South Spring 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 South Spring Valley, there are 47,125 acres of yearlong habitat for deer. The watershed also includes 31,771 acres of crucial winter range and 48,690 acres of crucial summer 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 210,011 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 the additional loss of native wildlife forage plants and overall negative impacts on wildlife habitat. Pinyon-juniper forests provide important thermal cover, but this 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, cheat grass and other invasive plants occupy many acres of South Spring Valley's sagebrush steppe.

Potential sagebrush communities comprise the majority of South Spring 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.

South Spring Valley Watershed includes portions of the Lincoln Valley and Spring Valley Sage Grouse Population Management Units (PMU). Within this watershed, there are nine 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. 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. South Spring Valley includes 118,278 acres of sage grouse nesting/early brood-rearing habitat, 217,404 acres summer (late brood-rearing) habitat, 184,458 acres of winter habitat, and 191,788 acres of yearlong habitat.

The South Spring Valley sagebrush communities diverse lack vegetative composition and exceed the ecological site descriptions for ground cover (see Tables 1.3-1.6 and associated pages), 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.

Pahrump Poolfish (*Empertrichthys latos*) is the only currently federally listed threatened or endangered species within the watershed. This endangered fish and Relict Dace

(*Relictus solitarius*), a BLM designated Sensitive Species, only occur in Shoshone Ponds Natural Area. The Natural Area includes Shoshone Ponds Native Fish Refugium, three small spring-fed ponds and a larger earthen pond, which were established and planted with the specie in order to assist in the conservation and recovery of these fish. The specie may also be found in waters flowing from the ponds. Bonytailed Chub (*Gila elegans*) and Moapa Dace (*Moapa coriacea*), the two other endangered species which had been introduced into the ponds, have been extirpated from the ponds since 1979. Another BLM Sensitive Species is Bonneville Cutthroat Trout (*Oncorhynchus clarkii utah*), which are found in Pine and Ridge Creeks, in the far northeast portion of the watershed. Other recorded occurrences of Nevada BLM Sensitive Species within the watershed include Pygmy Rabbit (*Brachylagus idahoensis*), Pallid Bat (*Antrozous pallidus*), Townsend's Big-eared Bat (*Corynorhinus townsendii*), Brazilian Free-tailed Bat (*Tadarida brasiliensis*), Hoary Bat (*Lasiurus cinereus*), Silver-haired Bat (*Lasionycertis noctivagans*), Western Small-footed Myotis (*Myotis cilliolabrum*), Fringed Myotis (*Myotis thysanodes*), Ferruginous Hawk (*Buteo regalis*), and Baking Powder Flat Blue (*Euphilotes bernadino minuta*). Sensitive species plants include Long-calyx Eggvetch (*Astragalus oophorus* var. *lonchocalyx*), Waxflower (*Jamesia tetrapetala*), Parish Phacelia (*Phacelia parishii*), Tunnel Springs Beardtongue (*Penstemon concinnus*), and Nachlinger Catchfly (*Silene nachlingerae*).

The NDOW database identified six species of raptors as occurring and/or nesting within the watershed including Cooper's Hawk (*Accipiter cooperii*), Ferruginous Hawk (*Buteo regalis*), Prairie Falcon (*Falco peregrinus*), American Kestrel (*Falco sparverius*), Short-eared Owl (*Asio flammeus*), and Burrowing Owl (*Athene cunicularia*).

A number of migratory bird species have distributions which overlap with South Spring 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 mostly 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 in winterfat communities 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 mostly met as most areas rank as undisturbed or slight disturbance for state water quality standards and functioning properly. Of the lotic systems, the majority ranked as properly functioning. Some areas were ranked as functioning at risk. Degradation of riparian areas negatively impacts all wildlife species by reducing available food, water and cover.

South Spring Valley Watershed Wildlife Data Summary*

Sage Grouse:

Year Long- 191,788 acres
Winter- 184,458 acres
Late Summer- 217,404 acres
Nesting- 118,278 acres
Known leks- 9

Big Game:

Deer:

Crucial winter- 31,771 acres
Crucial Summer- 48,690 acres
Yearlong (winter)- 47,125 acres

Pronghorn:

Crucial Winter- 0 acres
Yearlong- 210,011 acres

Elk:

Yearlong- 287,074 acres
Crucial Summer- 1,419 acres

Desert Bighorn Sheep:

Occupied- 0 acres
Unoccupied- 39,830 acres

Rocky Mountain Bighorn Sheep:

Occupied- 22,850 acres
Unoccupied- 15,079 acres

Raptors:

Cooper's Hawk (*Accipiter cooperii*)
Ferruginous Hawk (*Buteo regalis*)
Prairie Falcon (*Falco peregrinus*)
American Kestrel (*Falco sparverius*)
Short-eared Owl (*Asio flammeus*)
Burrowing Owl (*Athene cunicularia*)

Species of Special Concern:

Threatened or Endangered:

Pahrump Poolfish (*Empertrichthys latos
latos*)

Bonytailed Chub (*Gila elegans*)
Moapa Dace (*Moapa coriacea*)

Nevada BLM Sensitive Species:

Mammals

Pygmy Rabbit (*Brachylagus idahoensis*)
Pallid Bat (*Antrozous pallidus*)
Townsend's Big-eared Bat
(*Corynorhinus townsendii*)

Brazilian Free-tailed Bat (*Tadarida
brasiliensis*)

Hoary Bat (*Lasiurus cinereus*)

Silver-haired Bat (*Lasionycertis
noctivagans*)

Western Small-footed Myotis (*Myotis
cilliolabrum*)

Fringed Myotis (*Myotis thysanodes*)

Birds

Ferruginous Hawk (*Buteo regalis*)

Fish

Bonneville Cutthroat Trout

(*Oncorhynchus clarkii utah*)

Relict Dace (*Relictus solitarius*)

Butterflies

Baking Powder Flat Blue (*Euphilotes
bernadino minuta*)

Plants

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

Waxflower (*Jamesia tetrapetala*)

Parish Phacelia (*Phacelia parishii*)

Tunnel Springs Beardtongue (*Penstemon
concinnus*)

Nachlinger Catchfly (*Silene
nachlingerae*)

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

Other Areas of Concern

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 136 weed infestations have been mapped in the South Spring Valley Watershed with 103 mapped in upland areas, 3 mapped within 25 feet of a water source in the watershed, and 30 mapped in areas that are seasonally wet. The Spring Valley Cooperative Weed Management Area, which includes the South Spring Valley Watershed, was recently formed in order to aide private and public land owners in the management and control of noxious weeds. Noxious weed inventories are typically performed along travel corridors and waterways as these areas are easily accessed and weed infestations are most likely to occur in these areas. Of the mapped infestations, 47 have been treated between 2006 and 2007, 11 of which exhibited no weeds present at the time of treatment.

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. Wildlife and livestock may also transport weeds between travel corridors and riparian areas. In riparian areas, propagules may be transported further downstream by water and upstream by wildlife and livestock.

The infestations inventoried in the watershed include bull thistle (*Cirsium vulgare*), Canada thistle (*Cirsium arvense*), musk thistle (*Carduus nutans*), salt cedar (*Tamarix* spp.), Scotch thistle (*Onopordum acanthium*), spotted knapweed (*Centaurea stoebe* ssp. *micranthos*), and whitetop (*Cardaria draba*) (Map 3). Table 3.1 summarizes the total inventoried occurrences and coverage for each species and the number of infestations treated during the 2004 to 2007 treatment period. The use of integrated pest management practices - including chemical, mechanical, and cultural control – can be successful in controlling weed infestations. Spotted knapweed is the dominant weed in the valley comprising 58 percent of the total area infested and 38 percent of the total occurrences. Bull thistle is the only weed species listed above 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 3.1. Summary of individual weed species infestations and the number and area of inventoried occurrences treated during the 2006 to 2007 treatment period in the South Spring Valley Watershed

Weed Common Name	Nevada Status	Total Inventoried Occurrences	Total Area of Occurrences (sq ft)	Total Treated Occurrences	Total Area Treated (sq ft)
Bull thistle	Invasive	11	19,300	0	0
Canada thistle	Noxious	3	43,840	0	0
Musk thistle	Noxious	14	20,100	0	0
Salt cedar	Noxious	47	27,800	25*	~82,950
Scotch thistle	Noxious	6	3,400	3	3,100
Spotted knapweed	Noxious	52	166,975	5	9,300
Whitetop	Noxious	3	6,200	3*	~17,070
Watershed Total		136	287,615 (6.6 acres)	36**	112,420 (2.6 acres)

*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 11 inventoried occurrences visited during the 2004-07 treatment period at which no weeds were present.

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. The inventoried infestations of bull thistle within the watershed range in size from 100 square feet to 3,100 square feet. No infestations have an estimated cover value greater than 25 percent.

Canada thistle is a clump-forming noxious weed that infests open disturbed sites, including roadsides, pastures, hillsides, rangeland, and forest openings. Canada thistle spreads both reproductively and vegetatively via numerous creeping and deep vertical roots. It is a threat in that it crowds out native vegetation and destroys wildlife habitat.

Within the watershed, three inventoried infestations of Canada thistle range in size between 400 square feet and 42,340 square feet. One (1) infestation has an estimated cover value greater than 25 percent.

Musk thistle invades overgrazed pasture and forestlands, ditch banks, waste areas, and stream banks. Musk thistle is a threat in disturbed areas and in agricultural fields but seldom a threat to established natural communities. Low-intensity fires that do not damage root crowns have been shown to favor musk thistle production. Within the watershed, all inventoried infestations of musk thistle range between less than 10 square feet and 5,000 square feet. Two (2) infestations have an estimated cover value 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. Within the watersheds, 11 inventoried infestations of scotch thistle (23 percent of total inventoried) are larger than 1,000 square feet. Twelve (12) infestations have an estimated cover value greater than 25 percent, of which 11 are estimated at greater than 50 percent. Since 2004, approximately 82,950 square feet (300 percent of total inventoried) have been treated.

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, no inventoried infestations of scotch thistle are larger than 2,000 square feet. Only one (1) infestation has an estimated cover value greater than 25 percent. Since 2004, 3,100 square feet of scotch thistle infestations (91 percent of total inventoried) have been treated.

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. Within the watershed, the inventoried infestations of spotted knapweed range in size between less than 10 square feet to 42,340 square feet with 44 percent larger than 1,000 square feet. No infestation has an estimated cover value of greater than 25 percent. Of the inventoried infestations of spotted knapweed, 9,300 square feet (5 percent of total) 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 invade disturbed open sites as well as irrigated fields and pastures, roadsides, and ditches. Within the watersheds, all inventoried infestations of whitetop are between 1,100 and 3,100 square feet. Two (2) infestations have an estimated cover value greater than 25 percent, of which one (1) is estimated as greater than 50 percent. Since 2004, approximately 17, 070 square feet of whitetop infestations (275 percent of total inventoried) have been treated.

Causal Factors

Upland habitat.

- Historic livestock grazing management in the wake of European settlement of the West.
- Increasingly effective fire suppression in last century.
- Introduction of non-native weed species;
- Increase in weed vectors (animals and vehicles) and distribution of weed seeds along roadways and trails. Vectors increase distribution and establishment of weed seeds, including cheatgrass; and
- Climate fluctuations in recent years.

Riparian habitat for exception

- Livestock, and/or elk are contributing factors to decreased herbaceous cover around the riparian ecological zones evaluated as “functioning-at-risk”.
- Changes in riparian zone ecological function is also directly attributed to pinyon-juniper tree encroachment and expansion, drought, as well as obstructions and diversions of springs and stream flow.
- Weed vectors on riparian areas increases distribution and establishment of weed.

Recommendations

- Restore sagebrush habitat where pinyon and /or juniper trees are increasing.
- Maintain the habitat that is meeting the standard through approved methods outlined in current Resource management plan.
- Manage sage grouse habitat in conformance with the Greater Sage-Grouse Conservation Plan for Nevada and Eastern California, 1st edition. White Pine County Portion (Lincoln/White Pine planning area) Sage Grouse Conservation Plan.
- Develop a transportation plan to address roads that now may need modification to improve road location, density, and/or designation that would support habitat continuity. Review specific lengths in various known habitats (both upland and riparian) to determine restoration needs to meet standards and conformance to guidelines.

- In riparian habitat use fencing or apply management actions where these habitats are functioning at risk or are non functional..
- Focus fuels reduction and restoration as indicated by FRCC modeling to achieve proper vegetation composition, structure, distribution, productivity and nutritional value.
- Seek to minimize the spread of noxious weeds and invasive species into habitat through close scrutiny of management actions and treatments (see weed-specific recommendations below)
- Work with the county to have a weed display installed at key rest stops or locations, information kiosk to raise public awareness.

Weeds specific recommendations

- Identified small infestations of Musk thistle treatments should include physical removal and chemical application. Research indicates that cutting should occur as the plants are blooming and that if plants are cut before they have bolted, regrowth occurs. Tilling is not a recommended mechanical control method since cut roots may resprout. Herbicides should be applied while the plant is in the rosette stage. Hand-cutting and chemical application should occur annually. Larger infestations should be seeded to provide desirable species competition. Do not perform prescribed burns in areas with large musk thistle infestations.
- Whitetop treatments of the identified small infestations should include physical removal and chemical application. If larger infestations are identified, cultural techniques and chemical applications should be considered. Treatments should be repeated annually for several years.
- In drought conditions, mechanical means are more effective in controlling Canada thistle. Chemical control is more effective in wetter conditions. When treating Canada thistle, keep in mind that a combination of treatments may be necessary to control infestations. Different treatment strategies may be needed at different infested sites.
- Tall whitetop treatments should include the use of suitable chemical treatments. Chemical selection should consider labeling requirements (aquatic versus non-aquatic) and soil characteristics. Treated infestations should be monitored for resprouts and treatments should be repeated as needed. Removal of the litter layer and soil remediation should be considered before reseeding with desired perennials.
- The single spotted knapweed infestation should be mechanically removed and treated with herbicide; mechanical removal should occur after the plant has flowered so it does not resprout and produce late season seeds.

Standard	Meeting	Not meeting	Current Livestock Management Compliant with Guidelines
Standard 4. Cultural	X		Yes

Recommendations:

Less than 5% of the South Spring Valley Watershed has been inventoried for cultural resources as of July 2008. The known cultural resources in the watershed include two Native American massacre sites and 14 historic mining districts. Spring Valley at one time contained a large lake and later several small lakes. Native Americans would have utilized/exploited the resources in Spring Valley which indicates a high potential for prehistoric cultural resource sites throughout the valley.

Any ground disturbing restoration activities will require a Cultural Resources Needs Assessment be submitted to the BLM Schell Field Office Archaeologist. The archaeologist will then determine what is required to meet the requirements of Section 106 of the National Historic Preservation Act of 1966 (as amended). Those requirements will be met and all National Register of Historic Places eligible sites will be avoided or mitigated prior to the implementation of the restoration activities.

Standard 5. 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 South Spring Valley Watershed are currently not meeting the described standards. The Wilson Creek Wild Horse and Burro Herd Management Area (Wilson Creek HMA) is the only HMA to occur in the South Spring 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 southernmost section of the South Spring Valley Watershed. The current herd size within the HMA is currently estimated as above the appropriate management level of 180-210 wild horses. The current population is estimated to be 508 horses. Habitat conditions are not adequate to sustain healthy herds at a genetically viable level.

Recommendations

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.

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

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 South Spring 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 South Spring Valley Watershed. The BLM is directing OHV recreation onto designated trails.

- 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 South Spring Valley watershed, revealing 809 miles of roads. This results in an average of 1.48 miles of road per square mile in South Spring 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 South Spring 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 South Spring 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 South Spring Valley Watershed.
- Work with user groups and local agencies to formulate management plans for the special recreation permit area within South Spring 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

<p>consisting of local representative(s), affected/interested group(s) and agency(s).</p> <ul style="list-style-type: none"> • 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>Not conforming to the Guidelines:</p> <ul style="list-style-type: none"> • 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 South Spring Valley Watershed.
<p>Recommendations:</p> <ul style="list-style-type: none"> • 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.

<p>Education guidelines</p>
<p>Conforming to the Guidelines:</p> <ul style="list-style-type: none"> • 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

<p>programs such as (but not limited to) “Tread Lightly!” and “Leave No Trace”.</p> <ul style="list-style-type: none"> • 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.
<p>Not conforming to the Guidelines:</p>
<ul style="list-style-type: none"> • 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.
<p>Recommendations:</p>
<ul style="list-style-type: none"> • 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 South Spring Valley Watershed

Standard	Meeting	Not meeting	Current Livestock Management Compliant with Guidelines
Standard 1. Upland Sites		x	Yes
Indicators considered: FRCC, ground cover percent composition, road inventory.			
Why not meeting: Pinyon and/or Juniper trees are increasing in all sagebrush types. Ecological site guides for these sagebrush types allows only 1 to 3 percent trees by weight and, of this amount, trees should be no taller than 4.5 feet in height. In addition shrub ground cover exceeds that described in the ecological site descriptions. This condition is wide spread as indicated by FRCC of 2 or 3 occupying 87% of the watershed.			

Causal Factors:

- Historic livestock grazing management in the wake of European settlement of the West.
- Increasingly effective fire suppression in last century.
- Introduction of non-native weed species;
- Increase in weed vectors (animals and vehicles) and distribution of weed seeds along roadways and trails. Vectors increase distribution and establishment of weed seeds, including cheatgrass; and
- Climate fluctuations in recent years.

Recommendations:

- Restore sagebrush communities where pinyon and /or juniper trees are increasing
- Maintain the remaining acres of vegetation through approved methods outlined in land use plans, using general approved treatments.
- Develop a transportation plan to address roads that now may need modification to improve road location, density, and/or designation.
- ROW's that are issued in this watershed will carry forward in the Terms and Conditions of the grant.
- Limit land disposals so that they do not impact the health of the watershed.
- Focus fuels reduction and restoration as indicated by FRCC modeling to achieve standards.
- Seek to minimize the spread of noxious weeds and invasive species through close scrutiny of management actions and treatments.

Standard	Meeting	Not meeting	Current Livestock Management Compliant with Guidelines
Standard 2 Riparian and wetland sites	x		Yes exceptions noted below
Indicators considered: Proper Functioning and Condition ratings, weed inventory, road inventory.			

Noted Exceptions:

- Livestock, wild horses and/or elk are contributing factors to decreased herbaceous cover around many of the riparian ecological zones evaluated as “functioning-at-risk” or nonfunctional.
- Changes in riparian zone ecological function is also directly attributed to pinyon-juniper tree encroachment and expansion, drought, as well as obstructions and diversions of springs and stream flow.
- Weed vectors on riparian areas increases distribution and establishment of weed.
- Roads in riparian areas.

Recommendations:

- Where feasible, build fences around riparian areas.
- Visit all seeps, springs, wetlands and streams that have been evaluated as functioning-at-risk or nonfunctional PFC to plan for water source improvement.
- Apply weed control near water sources.
- Relocate roads from riparian areas and promote road closure where necessary through transportation plan development.
- Consolidate the issuance of land use permits in areas already disturbed, and do not allow ROW’s in Riparian areas, or areas with sensitive soils that are not easily rehabilitated.
- Target public education efforts to all users of public lands.
- Remove upland species: Pinyon and Juniper from riparian zones and recharge areas.

Standard	Meeting	Not meeting	Current Livestock Management Compliant with Guidelines
Standard 3. Habitat		x	Yes, exception noted in causal factors

Indicators considered: FRCC, Ground cover percent composition, Proper Functioning and Condition ratings, weed inventories, road inventory

Why not meeting: Pinyon and/or Juniper trees are increasing in all sagebrush types. Ecological site guides for these sagebrush types allows only 1 to 3 percent trees by weight and, of this amount, trees should be no taller than 4.5 feet in height. In addition shrub ground cover exceeds that described in the ecological site descriptions. This condition is wide spread as indicated by FRCC of 2 or 3 occupying 87% of the watershed.

Causal Factors:

Upland habitat.

- Historic livestock grazing management in the wake of European settlement of the West.
- Increasingly effective fire suppression in last century.
- Introduction of non-native weed species;
- Increase in weed vectors (humans and vehicles) and distribution of weed seeds along roadways and trails. Livestock increase distribution and establishment of weed seeds, including cheatgrass; and
- Climate fluctuations in recent years.

Riparian habitat

- Livestock, wild horses and/or elk are contributing factors to decreased herbaceous cover around many of the riparian ecological zones evaluated as “functioning-at-risk” or nonfunctional.
- Changes in riparian zone ecological function is also directly attributed to pinyon-juniper tree encroachment and expansion, drought, as well as obstructions and diversions of springs and stream flow.
- Weed vectors on riparian areas increases distribution and establishment of weed.
- Roads in riparian areas such as at the “Troughs” observed in the field evaluation.

Recommendations:

- Restore sagebrush communities with pinyon and /or juniper trees increasing.
- Maintain the habitat that is meeting the standard through approved methods outlined in land use planning documents.
- Manage sage grouse habitat in conformance with the Greater Sage-Grouse Conservation Plan for Nevada and Eastern California, 1st edition. White Pine County Portion (Lincoln/White Pine planning area) Sage Grouse Conservation Plan.
- Develop a transportation plan to address roads that now may need modification to improve road location, density, and/or designation that would support habitat continuity. Review specific lengths in various known habitats (both upland and

- riparian) to determine restoration needs to meet standards and conform to guidelines.
- In riparian areas change the season of use for livestock, or apply herding techniques or fence riparian areas that are nonfunctional or functioning at risk (not meeting the standard).
 - Focus fuels reduction and restoration as indicated by FRCC modeling to achieve proper vegetation composition, structure, distribution, productivity and nutritional value.
 - Seek to minimize the spread of noxious weeds and invasive species into habitat through close scrutiny of management actions and treatments (see weed-specific recommendations below)
 - Work with the county to have a weed display installed at key rest stops or locations, information kiosk to raise public awareness.
 - Remove pinyon and juniper species as needed to increase infiltration and retention in the recharge zone and in the riparian areas to restore riparian habitat.
 - Examine ways to manage current livestock to improve upland and riparian habitat.

Weeds specific recommendations

- Identified small infestations of Musk thistle treatments should include physical removal and chemical application. Research indicates that cutting should occur as the plants are blooming and that if plants are cut before they have bolted, regrowth occurs. Tilling is not a recommended mechanical control method since cut roots may resprout. Herbicides should be applied while the plant is in the rosette stage. Hand-cutting and chemical application should occur annually. Larger infestations should be seeded to provide desirable species competition. Do not perform prescribed burns in areas with large musk thistle infestations.
- Whitetop treatments of the identified small infestations should include physical removal and chemical application. If larger infestations are identified, cultural techniques and chemical applications should be considered. Treatments should be repeated annually for several years.
- In drought conditions, mechanical means are more effective in controlling Canada thistle. Chemical control is more effective in wetter conditions. When treating Canada thistle, keep in mind that a combination of treatments may be necessary to control infestations. Different treatment strategies may be needed at different infested sites.
- Tall whitetop treatments should include the use of suitable chemical treatments. Chemical selection should consider labeling requirements (aquatic versus non-aquatic) and soil characteristics. Treated infestations should be monitored for resprouts and treatments should be repeated as needed. Removal of the litter layer and soil remediation should be considered before reseeding with desired perennials.
- The single spotted knapweed infestation should be mechanically removed and treated with herbicide; mechanical removal should occur after the plant has flowered so it does not resprout and produce late season seeds.

Standard	Meeting	Not meeting	Current Livestock Management Compliant with Guidelines
Standard 4. Cultural	x		N/A

Recommendations:

Less than 5% of the South Spring Valley Watershed has been inventoried for cultural resources as of July 2008. South Spring Valley at one time contained a large lake and later several small lakes. Native Americans would have utilized/exploited the resources in the Valley which indicates a high potential for prehistoric cultural resource sites throughout the valley.

Any ground disturbing restoration activities will require a Cultural Resources Needs Assessment be submitted to the BLM Schell Field Office Archaeologist. The archaeologist will then determine what is required to meet the requirements of Section 106 of the National Historic Preservation Act of 1966 (as amended). Those requirements will be met and all National Register of Historic Places eligible sites will be avoided or mitigated prior to the implementation of the restoration activities.

Standard	Meeting	Not meeting	Current Livestock Management Compliant with Guidelines
Standard 5. Wild horse and Burro		X	N/A

The conditions of the wild horse populations and their habitat in the South Spring Valley Watershed are currently meeting the described standards. The Wilson Creek Wild Horse and Burro Herd Management Area (Wilson Creek HMA) is the only HMA to occur in the South Spring 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 southernmost section of the South Spring Valley Watershed. The current herd size within the HMA is currently estimated as above the appropriate management level of 180-210 wild horses. The current population is estimated to be 508 horses. Habitat conditions are not adequate to sustain healthy herds at a genetically viable level.

Recommendations: 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.

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 South Spring 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 South Spring Valley Watershed. The BLM is directing OHV recreation onto designated trails.
- 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 South Spring Valley watershed, revealing 809 miles of roads. This results in an average of 1.48 miles of road per square mile in South Spring 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 South Spring 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 South Spring 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 South Spring Valley Watershed.
- Work with user groups and local agencies to formulate management plans for the special recreation permit area within South Spring 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).

<ul style="list-style-type: none"> • 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>Not conforming to the Guidelines:</p> <ul style="list-style-type: none"> • 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 South Spring Valley Watershed.
<p>Recommendations:</p> <ul style="list-style-type: none"> • 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.

<p>Education guidelines</p>
<p>Conforming to the Guidelines:</p> <ul style="list-style-type: none"> • 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”.

<ul style="list-style-type: none"> • 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.
Not conforming to the Guidelines:
<ul style="list-style-type: none"> • 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:
<ul style="list-style-type: none"> • 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
Mark Lowrie	Range Management Specialist
Brett Covlin	Range Management Specialist
Gary Medlyn	Projects Manager
Deb Koziol	Wildlife Biologist
Bonnie Waggoner	Weeds Specialist
Ben Noyes	Wild Horse Specialist
Kari Harrison	Soil Specialist
Shawn Gibson	Archeologist
Jennifer Brickey	ENLC Ecologist
John Watt	ENLC Minerals compliance
Shane Trautner	ENLC Range Management Specialist
Gina Jones	Ecologist

Maps

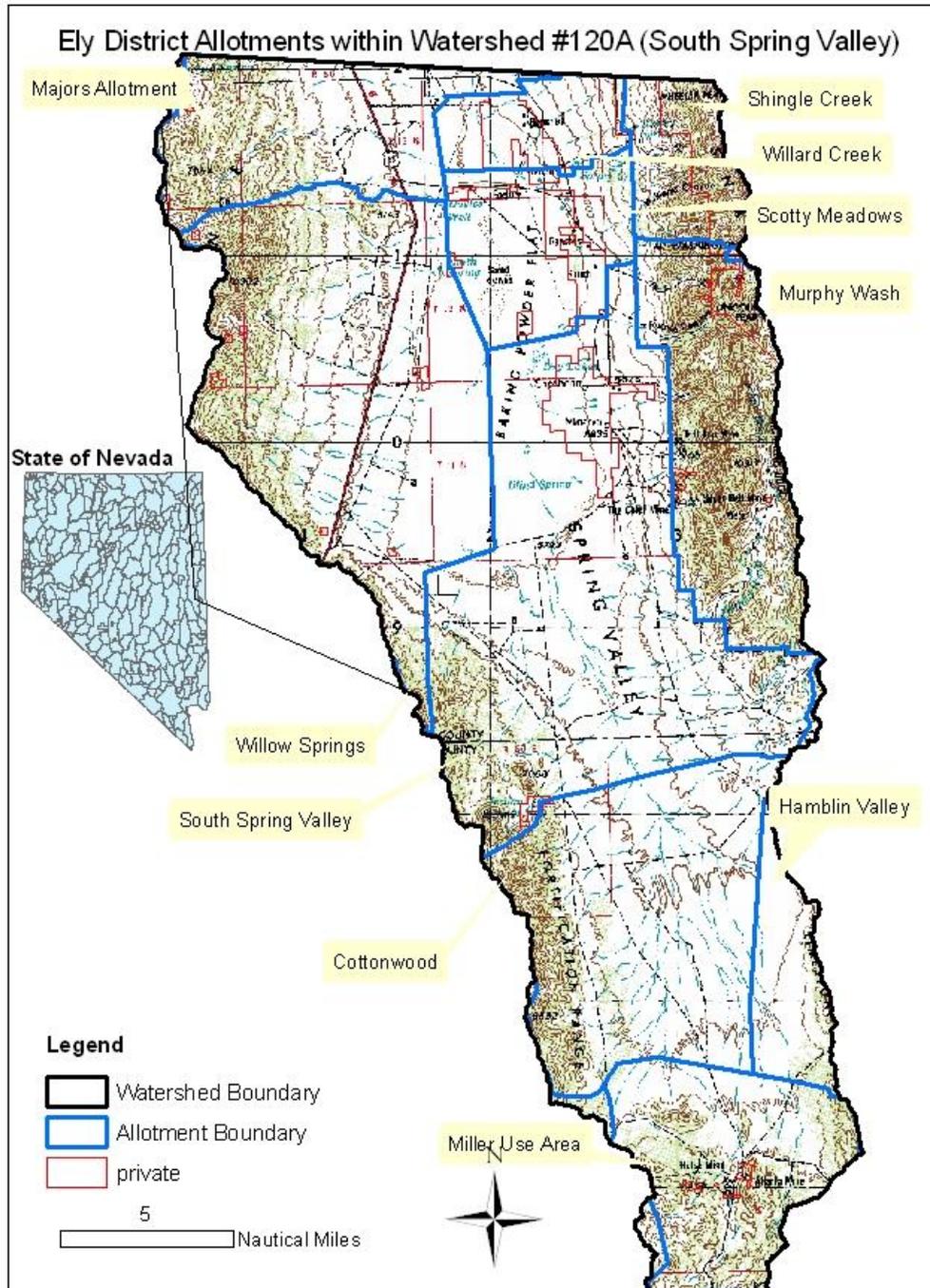
Map 1. Ely District Allotments within the South Spring Valley Watershed

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

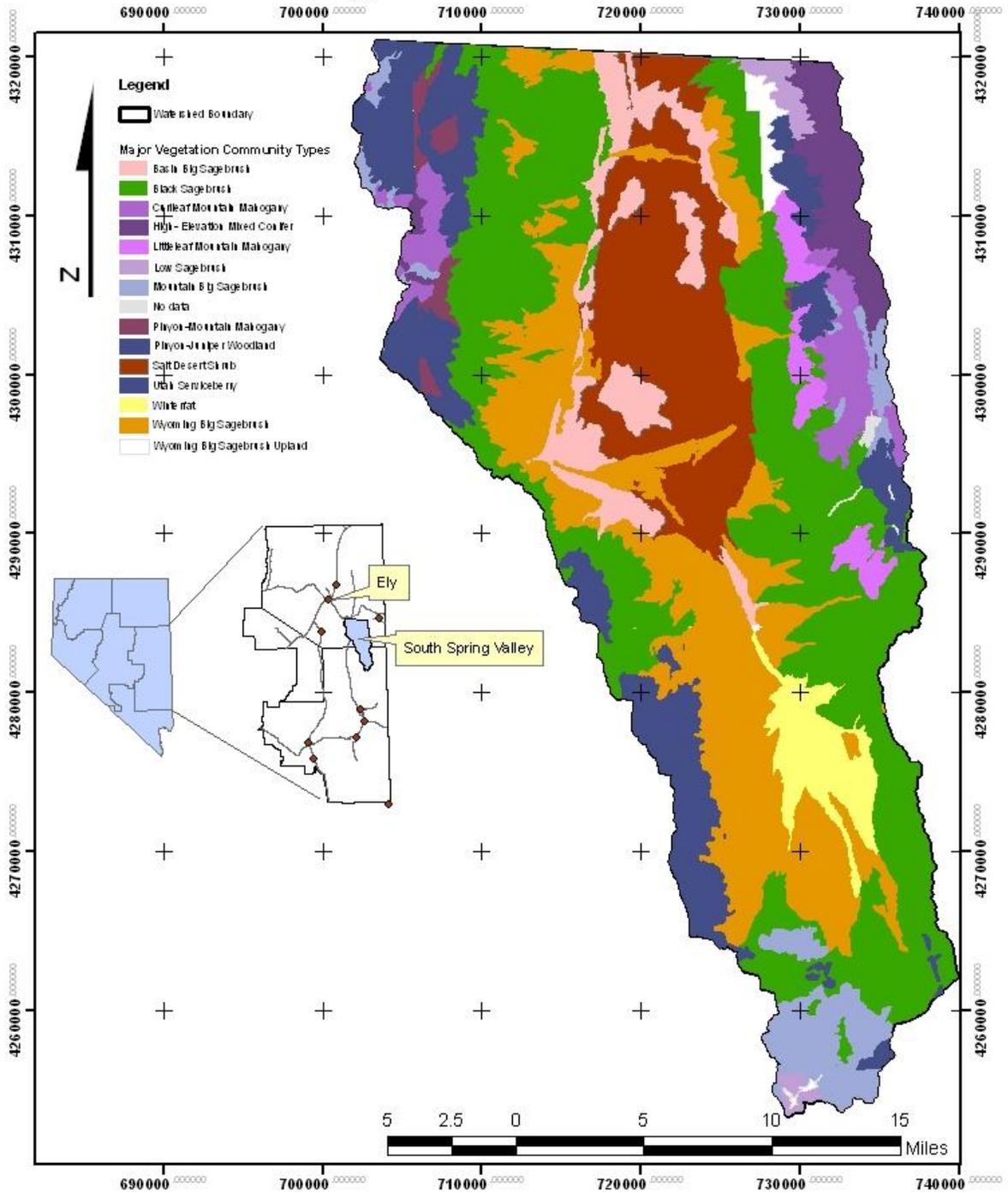
Map 3. South Spring Valley Watershed Weed Inventory Map: Species and Land Management

Map 4. Road density of South Spring Valley

Map 1. Ely District Allotments within the South Spring Valley Watershed

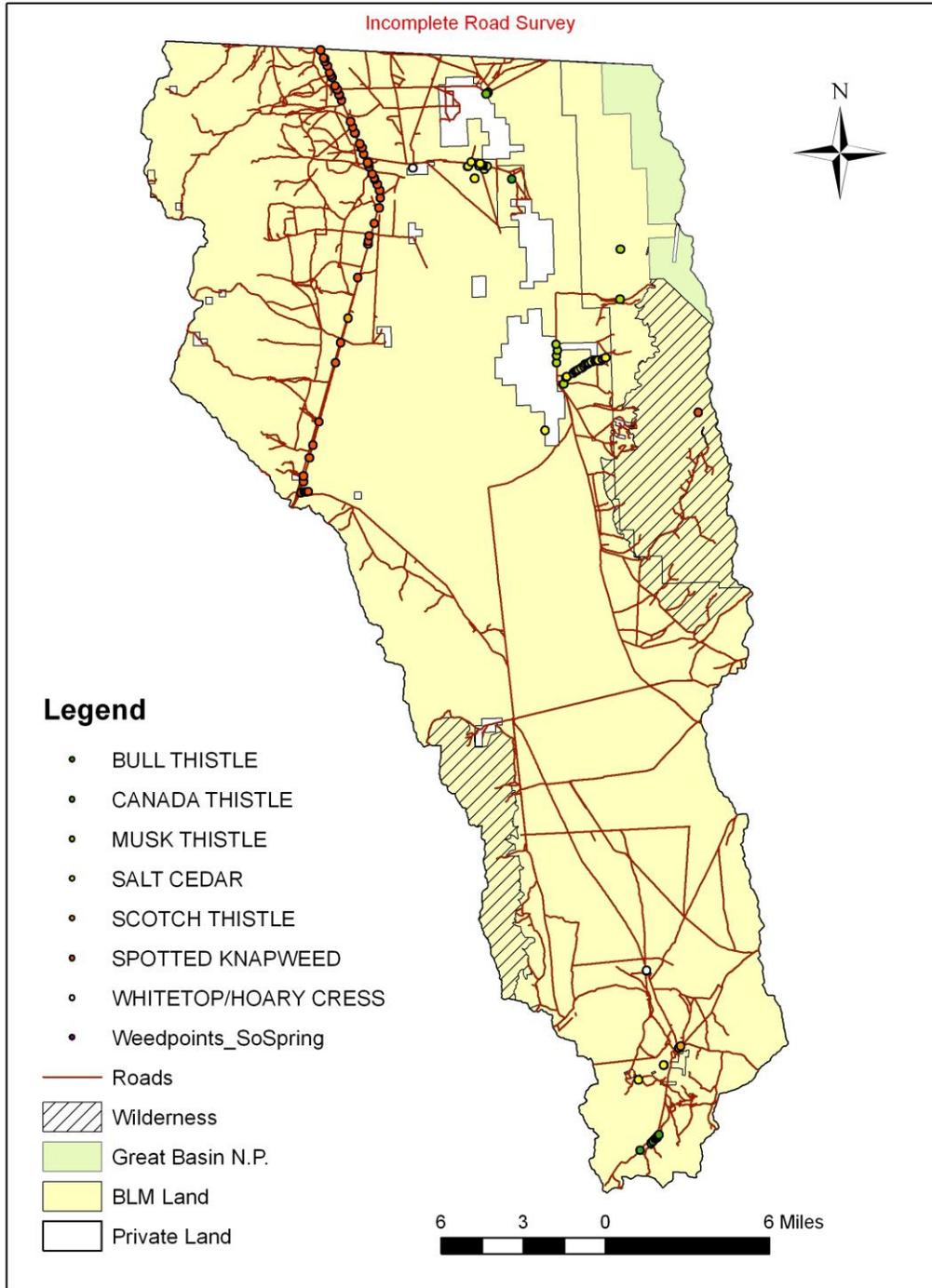


Map 2. South Spring Valley Watershed Potential Major Vegetation Community Types as Defined by Soil Survey Data

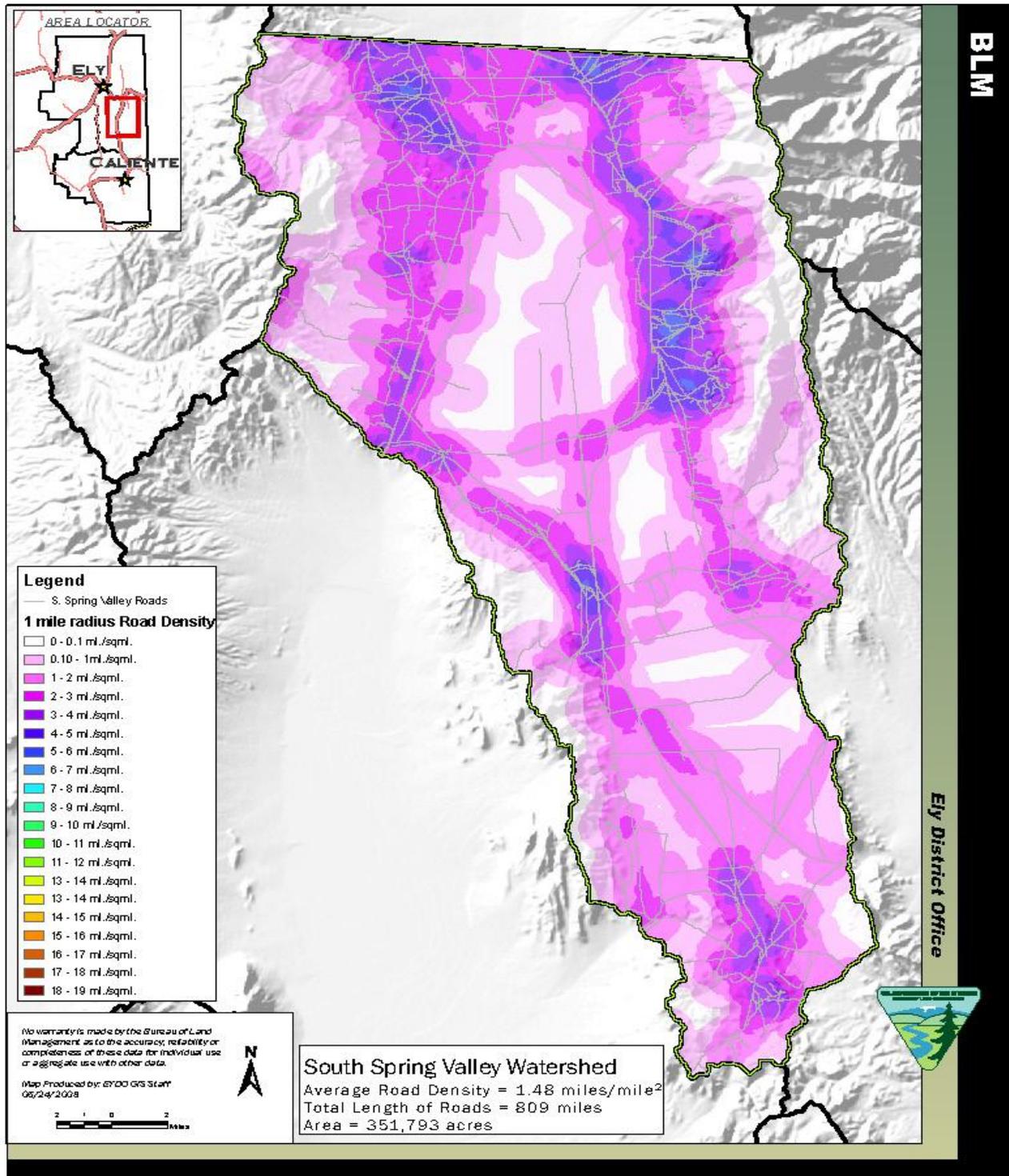


Map 3. South Spring Valley Watershed Weed Inventory Map: Species and Land Management

South Spring Valley
Road and Weed Inventory Map
2008



Map 4. Road density of South Spring Valley



Appendix A

Livestock conformance to guidelines data and narratives for Standards.

Table A.1. South Spring 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	Live-stock Actual Use	Key Area	Key Area Actual Use	Utilization Objective	Grazing use levels in watershed overall
Majors #10126	El Tejon Cattle Company	5/01-6/30 9/01-9/30 5/01-10/30 3/01-5/31 3/01-5/31 3/01-5/31 3/01-5/31 3/01-5/31 3/01-5/31 3/01-5/31 4/15-4/16-5/31 3/01-5/31	Sheep Sheep Sheep Cattle Cattle Cattle Cattle Cattle Cattle Cattle	335 165 9326 502 272 302 635 302 302 393	Total = 12,535	0	103,385	12,535	SSMR-06 MR-03 MR-02	Heavy - Severe Slight Lt.-Moderate	Moderate	Moderate
Willard Creek #10127	Wahoo Ranch	4/15-11/30	Cattle	803	311	492	13,582	311	WC-01 WC-04	Mod.-Heavy Slight	Moderate	Light
Willard Creek #10127	John M. Baal	4/15-11/30	Cattle	329	127	202	13,582	127			Moderate	Light
Scotty Meadows #10128	Huntsman Ranch LLC.	6/01-9/30	Cattle	1,227	1,227	0	20,230	1,227	SM-04 SM-05 SM-06 SM-02 SM-03	None-Slight Slight Slight Lt.-Moderate	Moderate	Slight
Willow Springs #10129	CL Cattle Company LLC	3/01-2/28	Cattle	6600	6,600	0	85,696	6,600	Cage D Cage E Cage J	Moderate heavy Slight	Moderate	Light

South Spring Valley #10130	El Tejon Cattle Company	5/01-6/15 9/01-9/30 5/01-6/15 3/01-5/31 6/01-6/15	Sheep Sheep Sheep Cattle Cattle	242 158 4226 1168 138	Total = 6,329	0	84,619	6,329	SSV-01 SS-Rabbit Cage Windmill Cage SSV-06 SSV-04 SSV-03 SSV-02	Moderate Heavy Moderate Moderate Lt.-Moderate Light Light	Moderate	Light-Moderate
Murphy Wash #03503	El Tejon Cattle Company	6/05-9/10	Sheep	728	728	0	62,195	728			Moderate	Moderate
Shingle Creek #03502	El Tejon Cattle Company	6/20-9/10	Sheep	575	575	0	17,121	575			Moderate	Light
Cottonwood #00132	Huntsman Ranch LLC.	3/01-6/15 11/01-2/28	Cattle Cattle	879 986	2,248	0	49,965	2,248	C-7 C-6 C-1 C-2 C-3 C-4 C-5	Light Slight- Light Heavy Heavy No Use Mod.- Heavy Moderate	Moderate	Moderate
Miller Use Area #01201	Lytle, Ken and Donna	7/02-10/05	Cattle	242			85,657				Moderate	Moderate
Hamblin Valley #00133	Ray Okelberry	11/01 to 05/31	Cattle and Sheep	8268	8177	91	106,372	S-2,055 C-2,848	HV-01	Moderate	Moderate	Moderate

Table A.2. South Spring Valley livestock management conformance to guidelines for NE RAC Standards and state-wide OHV guidelines 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)
	1. Upland	2. Riparian	3. Habitat	4. Cultural	5. WH & B	6. OHV	
Majors #10126	Yes	Yes	Yes	N/A	N/A	N/A	HAGL is noted at utilization cages number MR-02 & 06. There is also russian thistle at cage 06, and tumbleweed at cage MR-02. The vegetation also exhibited low vigor and production at study sites MR-02 & 06.
Willard Creek #10127	Yes	Yes	Yes	N/A	N/A	N/A	Rye Grass has dead crown centers with little vigor at WC-01
Scotty Meadows #10128	Yes	Yes	Yes	N/A	N/A	N/A	A Pinyon/Juniper treatment will be needed east of SM-03 because of encroachment. The riparian meadows around Spring Creek have shrunk by about 25% in recent years because of drought conditions.
Willow Springs #10129	Yes	Yes	Yes	N/A	N/A	N/A	Utilization was light to moderate in the Northern portion of this section, However, there is little understory present within the sagebrush.

South Spring Valley #10130	Yes	Yes	Yes	N/A	N/A	N/A	There was a high amount of BRTE and HAGL noted, sometimes excessively, throughout the allotment, along with some Russian Thistle at SSMR-06. At SSMR-06 there was also severe utilization on the KRLA and POSE. KRLA is also severely utilized at the Rabbit Cage study site. AT SSV-04 all the grasses are stunted from what looks like historical overgrazing, and the grasses are not abundant. No grasses were found at SSV-03 and the biocrust is starting to deteriorate. AT SSV-02 it is noted that the biotic crust is deteriorating at this site as well, along with CHVI encroachment.
Murphy Wash #03503	Yes	Yes	yes	N/A	N/A	N/A	
Shingle Creek #03502	Yes	Yes	Yes	N/A	N/A	N/A	
Cottonwood #00132	Yes	Yes	Yes	N/A	Yes	N/A	There are some areas of the allotment where the grasses and shrubs show low production and vigor. This is most common south of the track. Some of the new growth of AGCR in the seedlings that han't been grazed also lack production and vigor. Invasive species like BRTE and HAGL were also noted at random areas throughout the allotment.
Miller Use Area #01201	Yes	Yes	Yes	N/A	Yes	N/A	
Hamblin Valley #00133	Yes	Yes	Yes	N/A	Yes	N/A	The winterfat had light to moderate use, but there was also some minimal coverage on the poa species. The poa in these areas were heavily grazed