Amended Rangeland Health Assessment

2013 Supplement to the South Mountain Area Rangeland Health Standards and Guidelines Assessment

Evaluation Report and Determination

For the
South Mountain Area (0561) Allotment

US Department of the Interior
Bureau of Land Management
Boise District
Owyhee Field Office

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Rangeland Health Standards and Guidelines Assessment

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Evaluation Reports and Determinations

For the
South Mountain Area (0561) Allotment

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The Rangeland Health Standards and Guidelines Assessment and Determination for the South Mountain Area allotment was completed in 2003 as a portion of the grazing permit renewal process. To date, the permit authorizing grazing use in this allotment has not been fully processed for renewal. The current document consists of the 2003 RHA, in full, including a Determination signed in 2003, which is superseded by the 2013 Determination found at the end of this document. This 2013 supplement incorporates new information compiled since the 2003 assessment was completed, as well as a review of conclusions reached using earlier data. Portions of this 2013 document that supplement the 2006 document are presented in this two-field table format with the header above, while those portions carried forward unchanged from the 2003 document are outside the two-field tables. The 2013 supplement to the assessment includes data compiled between 2003 and 2013, as well as the completion of the 2013 evaluation report and determination consistent with the Livestock Grazing Permit Renewal Desk Guide for Idaho Bureau of Land Management, May 2009.

Standards for Rangeland Health and Guidelines for Livestock Grazing Management

I. Background

In 1997 the BLM in Idaho adopted rangeland health standards (Appendix A), which were developed in coordination with the Resource Advisory Councils. There are eight standards that are evaluated, however not all of them apply to every parcel of land. Standards of rangeland health are expressions of the level of physical and biological condition or degree of function required for healthy, sustainable rangelands. Rangelands should be meeting or making significant progress toward meeting the Standards. If the Standards are met, there should be proper nutrient and hydrologic cycling, and energy flow.

Indicators are typical physical and biological factors and processes that can be measured or observed (Appendix B). This assessment examines the indicators for each standard and uses quantitative and qualitative information including inventory data, monitoring data, health assessment information or other observations to evaluate the current status of each indicator for each standard. Observations of each indicator for each standard, and trends in measured indicators, are discussed below for all of the standards that are applicable to the allotment.

Current livestock grazing management is evaluated in this Assessment to determine if it maintains standards or promotes significant progress toward meeting the Standards. Conclusions as to whether or not the South Mountain Area allotment is meeting or making significant progress toward meeting the Standards will be provided in a separate determination document, based on information in this document. New information will be considered in developing the final determination, if received in a timely manner.

II. Overview of the South Mountain Area Allotment

The South Mountain Area allotment is located in Owyhee County, Idaho, approximately 14 miles southeast of Jordan Valley, Oregon (Map 1). The allotment contains headwaters for the following creeks: Lone Tree Creek, located in the northern quarter of the allotment and flows to the northwest; Juniper Creek, located in the middle of the allotment and flows to the south; Cabin Creek, located in the southern half of the allotment and flows to the south; and Corral Creek, located in the southern quarter of the allotment and flows to the south. This allotment is in the South Mountain Core Area.

Elevations in the allotment range from 5,000 feet, on stream terraces and bottomlands, to 8,000 feet on foothills, ridges, and mountains. The terrain is undulating to very steep. Landforms consist of ridges, foothills, mountains, rimrock escarpments, and perennial and ephemeral drainages. Most landform features are rhyolitic in origin. The allotment is contained within the D-25 Major Land Resource Area and associated soil classifications are described in the Owyhee County Soil Survey (Soil Survey Area Code 675).

The majority of the soils in the area are shallow to moderately deep and well drained. Soils are clayey to loamy and vary in surface and subsurface rock fragments. These soils formed in residuum and alluvium that was derived dominantly from welded rhyolitic tuff. The associated ecological sites, and/or monitoring sites, consist primarily of the following: “Shallow Claypan 12-16”, “Very Shallow Stony Loam 10-14”, “Loamy 13-16”, and “Loamy 16+”. Table 1 displays the ecological sites mapped on the allotment, and the proportion of each found on the BLM administered public lands.

Table 1. Ecological Sites Within the South Mountain Area Allotment

Ecological Site	Acres	% of Allotment	Field Assessment #	Expected Cover Type
Shallow Claypan 12-16	1359	22%	RH1E; RH1F	ARAR8/AGSP-FEID
Loamy 13-16	2058	34%	RH1B; RH1C	ARTRV/AGSP-FEID
Loamy 16+	833	14%		ARTRV/FEID
Mountain Brush	374	6%		ARTRV-SYOR2/BRCAC
Mahogany Savanna	6	Trace		CELE3-SYOR2/FEID
Very Shallow Stony 10-14	298	5%	RH1A; RH1D	ARAR8/POA-AGSP
Mountain Ridge	32	Trace		ARAR8/FEID
Aspen Thicket	541	9%		POTR5
Douglas fir Woodland	35	Trace		PSMEG/SYOR2
Semi-Wet Meadow	9	Trace	RH1G	CAREX-POA
Ceanothus Thicket	16	Trace		CEVE
Rock Outcrop	529	9%		Not Applicable

One federal candidate species for listing as threatened or endangered may occur and a number of other species, classified as BLM “sensitive species” and/or State of Idaho “species of special concern” are also known or likely to occur within the South Mountain Area allotment. See Appendix C for a list of these species, and their key habitat associations.

Table 2 displays the land ownership distribution for the South Mountain Area allotment.

Table 2. Land Ownership within the South Mountain Area Allotment (acres).

Allotment Name and Number	Public	State	Private	Total
South Mountain Area (0561)	6,092 (35%)	8,005 (46%)	3,321 (19%)	17,418 (100%)

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Table ALLOT-1: Updated estimated land acreages

Allotment Name and Number	Public	State	Private	Total
South Mountain Area (0561)	5,940 (34%)	7,957 (46%)	3,325 (19%)	17,223 (100%)

The estimated land acreages are based on corrected fence locations and GIS mapping information.

Permitted Livestock Grazing Use

Historically, sheep and cattle grazed the South Mountain Area allotment generally from late May to October each year, with some variation due to forage conditions. In 1935, when grazing districts were created in response to the Taylor Grazing Act, allotment boundaries in the South Mountain Area were delineated differently than what exists today. Therefore, it is difficult to accurately assess the use levels that occurred in the area prior to the 1980's. BLM records show that sheep use remained generally constant in the area until about the 1970's, then ceased in 1973. Cattle use, on the other hand, increased until about the 1970's, and then remained generally constant, resembling the use that occurs today. The increase in cattle numbers was due to minor fluctuations in sheep numbers, resulting in a total conversion of sheep animal unit months (AUMs), to cattle AUMs, in 1973.

The grazing schedule for this allotment has generally been consistent over the past 30 years (1973 to 2003), with licensed use occurring from 6/1 to 9/30 each year. It is evident however, that some annual modifications were made, as needed, to accommodate for annual rangeland variations (such as drought or fire).

Three operators are permitted to graze cattle on the South Mountain Area allotment as noted in Table 3.

Table 3. Permitted cattle use (AUMs).

Allotment	Permittee	Current BLM Permit (AUMS)			Exchange of Use (AUMs)	% Public Land AUMs
		Total Permitted Use	Suspended Use	Total Active Use		
South Mountain Area (0561)	Lequerica Brothers, Inc.	392	0	392	1214	24
	LU Ranching Company	166	0	166	319	34
	William Panzeri Estate	187	0	187	285	40
Total		**745**	**0**	**745**	**1818**	

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Four operators are permitted to graze cattle on the South Mountain Area allotment (Table LVST-1).

Within the allotment, there are four pastures that do not have a specific season of use or rotation of livestock under the current permit. Exchange of Use (AUMs) noted in Table LVST-1 are not carried forward because these AUMs are accounted for in the percent public land AUM calculation in the permittee's grazing permit. The grazing schedule for this allotment has generally been consistent over the past 40 years (1973 to 2013), with licensed use occurring from 6/1 to 9/30 each year.

Table LVST-1: Permitted cattle use (AUMs) on the South Mountain Area allotment

Permittee	Current BLM Permit (AUMs)				% Public Land AUMs
	Season of Use	Total Permitted Use	Suspended Use	Total Active Use	
Lequerica Brothers, Inc.	6/1-9/30	95	0	95	24
Corral Creek Grazing Association	6/1-9/30	300	0	300	24
LU Ranching Company	6/1-9/30	166	0	166	34
Craig and Rhonda Brasher	6/1-9/30	184	0	184	40
		745	**0**	**745**	

In 2010, Lequerica and Sons, Inc. transferred 300 AUMs to the Corral Creek Grazing Association under a 10-year lease agreement expiring in 2019. If the 10-year lease is not renewed, livestock grazing would be authorized as follows.

Permittee	Current BLM Permit (AUMs)				% Public Land AUMs
	Season of Use	Total Permitted Use	Suspended Use	Total Active Use	
Lequerica Brothers, Inc.	6/1-9/30	395	0	395	24
LU Ranching Company	6/1-9/30	166	0	166	34
Craig and Rhonda Brasher	6/1-9/30	184	0	184	40
		745	**0**	**745**	

In 2009, the permittees in partnership with the Idaho Department of Lands within the South Mountain Area allotment constructed a fence on Idaho state land to split the allotment into two geographical areas (southern and northern areas). Splitting the allotment allowed the permittees to separate themselves into these geographical areas, even though the permit did not require them to do so. After the transfer of AUMs and construction of the pasture fence, LU Ranch and Corral Creek Grazing Association graze the southern area, while Brasher and Lequerica and Sons and a few cattle from the LU ranch graze the northern area. This separation has been done because of private land and state lease controlled by the permittees.

Before 2008, cattle use had been similar to use since 2008; however, without the fence, cattle could drift or move throughout the allotment. Generally, before 2008, Lequerica cattle grazed Cabin, Corral and Lone Tree creek drainages, while Brasher grazed the Juniper Creek and Buck Creek drainages, and the

LU Ranch grazed the Buck Creek, Juniper Creek, and Cabin Creek drainages. See allotment map for clarification of fence locations.

III. Methods Used to Evaluate Rangeland Health

This section describes methods used to collect data for this assessment. Resources of interest, as identified by the Idaho Rangeland Health Standards and Guidelines, are assessed to determine whether they are meeting, or making significant progress toward meeting the *Standards*. The information collected includes data that enables an Interdisciplinary Team (ID Team) to analyze the condition of upland and riparian areas, as well as habitat for wildlife species and areas of concern for special status plants.

A. Uplands

Rangeland Health Evaluations

Rangeland Health Evaluation Summary Worksheets (RHE), outlined in BLM technical reference 1734-6 Interpreting Indicators of Rangeland Health, and other available qualitative and quantitative data are used to determine if rangelands are meeting or making significant progress toward meeting the Standards for Rangeland Health. The rangeland health evaluation summary worksheet consists of 17 indicators, each rated on the degree of departure from the appropriate ecological site description or ecological reference area. Areas without a nearby reference site are evaluated using familiarity of the area and incorporating the best professional judgment of the evaluators. The 17 indicators, from the summary worksheet, are compiled into three related attribute categories representing soil/site stability, hydrologic function, and biotic integrity (Appendix B). The preponderance of evidence of each attribute helps determine the condition of the site.

Trend and Photo Plots

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Vegetation and ground cover data are collected at permanently located monitoring sites, known as trend sites. The study sites are designed to be permanent and repeatable. Data recorded at each plot include plant species frequencies, ground cover, shrub densities, and photo plots. Frequency data illustrate changes in relative abundance of plant species at each site. Cover data describe the percent of ground occupied by plant material, biological soil crusts, gravel, rock, bare ground, and litter. Density data sample individual shrubs per unit area. Data from each study location are available from 2008 and 2011.

Plant species frequency data are collected along a set of five transects. Each transect was located randomly along a baseline in 2008 and permanently marked. The same transects were sampled again in 2011. Sampling frequency entails placement of a quadrat (0.5 square meters) at 5-foot intervals along each 100-foot transect. Ground cover is recorded as a point intercept for 80 points along each of the five transects, resulting in 400 hits per site. Each transect is a sampling unit (n=5). Paired, two-tailed Student's T-tests were calculated on the mean percentages of each belt. Figures VEG-1 and VEG-2 display the ground cover data. Changes in ground cover were statistically significant when calculated p-values <0.1.

Density samples entail a stem count within a known area (0.01 acre). Two density samples are obtained at each trend site each year and the samples are averaged. There are no statistical analyses of density data beyond the average due to the lack of samples.

Two trend sites are established in the allotment. Site 08S05W06 is located in pasture 1 on a Loamy 16+" ARTRV/FEID ecological site. Site 09S04W06 is located in pasture 2 on a Claypan 12-16" ARAR8/FEID ecological site. Long-term trend sites are not established in all pastures or ecological sites of the allotment.

Long-term trend sites do not span all pastures or all ecological sites within the pastures. Exercise caution if attempting to apply data from these sites to elsewhere in the allotment because the topography and soil types are not uniform with results in different livestock impacts spread across the allotment.

Utilization

Upland utilization monitoring has not occurred on the South Mountain Area allotment since 1979. Because of this, it will not be reviewed in this assessment since this data is more than 20 years old and is not considered pertinent information. Stubble height and riparian shrub utilization however have been measured in Corral Creek since 1995 after livestock use in the fall, and are reviewed in Standard 2.

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Upland utilization monitoring occurred in 2009, 2011, and 2012. The utilization has varied from a low of 4 percent to a high of 52 percent. The following table summarizes the monitoring information. In addition stubble height measurements were collected in 2011.

Table VEG-1: Monitoring information on the South Mountain Area allotment

Year	Idaho fescue	Bluebunch wheatgrass	Bulbous bluegrass	Sandberg bluegrass	Pasture where utilization occurred
2012		5.1%			Pasture 1
		52%			Pasture 2
2011	23%				Pasture 1
		46%			Pasture 1
	4%	4%			Pasture 2
			30%		Pasture 2
		3%			Pasture 2
		31%			Pasture 2
Adjusted utilization due to distance from water and topography	**23%**	**38.5%**	**30%**		
2009		49%		11.5%	Pasture 1

Table VEG-2: Average stubble height by pasture

Year	Idaho fescue	Bluebunch wheatgrass	Bulbous bluegrass	Sandberg bluegrass	Pasture where stubble height

					occurred	
2011	17	13	11		Pasture 1	
	14	18			Pasture 2	

B. Riparian/Wetland

A standard checklist, outlined in the 1998 BLM Technical Reference 1737-15, and other available qualitative and quantitative data are used to determine if riparian areas are meeting Rangeland Health Standards. The standard checklist consists of 17 indicators that are used to assess the functioning condition of riparian areas. The indicators are compiled into three related attribute categories representing erosion/deposition, hydrologic function, and vegetative status. Status of noxious weeds is also considered when evaluating riparian health. Spring wetland areas were assessed for proper functioning condition as outlined in Technical Reference 1737-11 (USDI 1994). Lentic areas are defined as wetland-riparian areas adjacent to standing water habitats such as lakes, ponds, seeps, and meadows.

C. Special Status Animals

Riparian Habitat

Riparian special status species habitats were assessed primarily using information obtained from the riparian/wetland methods described in the riparian/ wetland section. While there is no direct correlation between stream functioning condition and special status species habitat, many of the indicators of riparian functionality are also crucial components of habitat for many of the special status and other wildlife species dependent on this habitat type, especially redband trout and neotropical migratory birds and amphibians. The indicators that assess structure, composition, and vigor of riparian vegetation are especially important because they also assess the quality and quantity of shade, nesting/breeding habitat, forage, and escape cover.

Upland Habitat

Upland dependent special status animal species' habitats were assessed primarily using information obtained from the Rangeland Health Evaluation Summary Worksheets (RHE) as outlined in BLM technical reference 1734-6. These worksheets were developed to help assess Idaho Land Health Standards one and four and are described above in Section A Uplands. In general, habitat with less departure from the appropriate ecological site description provides suitable upland wildlife habitat. However, different upland species, particularly avian species, respond differently to varied habitat components such as percent shrub and forb cover (Sauder 2002). *"A Framework to Assist in Making Sensitive Species Habitat Assessments for BLM-Administered Public Lands in Idaho"* (as revised in May, 2001), was not used in South Mountain Area allotment because most of the area is currently designated as unsuitable for sage grouse due to heavy juniper cover.

Population Surveys and Other Monitoring

Inventory and monitoring data are limited or absent for many of these species, therefore little is known about their distribution, population status or trend within the allotment. Their occurrence within the allotment has been verified through field observation or assumed likely because the allotment falls within the species known range and contains habitat types potentially capable of supporting viable populations of the species. The following is a brief description of surveys and/or monitoring efforts that have been conducted for special status animal species within this allotment.

Sage Grouse - Sage grouse lek (breeding ground) surveys/counts have been conducted periodically by BLM and Idaho Department of Fish and Game biologists since the late 1970s. These included recent aerial surveys in 1994 and 2001 that encompassed the west end of the South Mountain Area allotment. These surveys and monitoring efforts have confirmed the presence of one small active lek and one historic lek within one mile of the South Mountain Area allotment.

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As of 2012, four leks have been identified within 2.5 miles of South Mountain Area allotment. The two leks are now classified as unknown status, and a third lek, 2 miles west of the allotment, also is classified as unknown status, meaning no surveys have been conducted in more than 5 years. A fourth lek occurs just across the Idaho border in Oregon and is occupied, with a static trend since 2001. In 2012, 25 males were counted on this lek, which is located 2.5 miles west of the allotment. Less than half of Federal land in the allotment is designated as sage-grouse habitat. The majority of sage-grouse habitat in the allotment is located in pasture 1. A narrow strip of sagebrush Preliminary Priority Habitat (PPH) is designated in the very northwest portion of pasture 1, while other portions of the pasture are designated Preliminary General Habitat (PGH) or PPH that has converted to juniper. None of pastures 2, 3, or 4 are designated as PPH, approximately 973 acres are designated PGH in pasture 2, and no sage-grouse habitat is designated in pastures 3 or 4.

Columbia Spotted Frog - Status and Habitat Associations of the Spotted Frog (*Rana pretiosa*) in Southwestern Idaho (Munger et al. 1996). This survey was conducted in 1994 by Boise State University and Idaho State University under a Challenge Cost Share (CCS) with the BLM and included a portion of Corral Creek just south of the South Mountain Area allotment. No Columbia spotted frogs were discovered during this survey.

D. Special Status Plants

There is very little information about the presence or absence of BLM sensitive plants in this area. Incidental work for site-specific projects on this allotment has yielded no occurrences, though this type of work has been limited. In 1995 and 1996, inventories were conducted for least phacelia in a portion of Buck Creek (Atwood 1996). There have been no other plant inventories conducted in this allotment.

IV. Idaho Rangeland Health Standards Evaluation

Table 4 identifies the site locations where rangeland health evaluation worksheets were completed for the South Mountain Area allotment. A list of ratings for each *indicator* assessed, by the Rangeland Health Evaluation Summary Worksheets (RHE), is available in Appendix D, and locations of the sites are on Map 1.

Table 4. Summary of rangeland health evaluation data collected in the South Mountain Area Allotment.

Data Type[1]	Site Number	Pasture Number	Legal Location	Ecological Site
RHE	RH1A	4	sec. 14, T. 09 S., R. 05 W.	Very Shallow Stony Loam 10-14 ”
RHE	RH1B	2	sec. 03, T. 09 S., R. 05 W.	Loamy 13-16”
RHE	RH1C	1	sec. 06, T. 08 S., R. 05 W.	Loamy 13-16”
RHE	RHID	2	sec. 07, T. 09 S., R. 04 W.	Very Shallow Stony Loam 10-14”
RHE	RH1E	2	sec. 06, T. 09 S., R. 04 W.	Shallow Claypan 12-16”

RHE	RH1F	2	sec. 05, T. 09 S., R. 04 W.	Shallow Breaks 14-18”
RHE	RH1G	2	sec. 07, T. 09 S., R. 04 W.	Semi Wet Meadow
RHE	RH1H[2]	2	sec. 06, T. 09 S., R. 04 W.	Loamy 16+

[1] RHE – Rangeland Health Evaluation Summary Worksheets
[2] field assessment completed in 2008

Resource conditions on the South Mountain Area allotment were evaluated according to how they relate to the Idaho Standards for Rangeland Health. The following subsections discuss resource conditions, as they relate to each standard.

Standard 1: Watersheds

Rangeland Health Evaluation Summary Worksheets

Six Rangeland Health Evaluation Worksheets were completed for the South Mountain Area allotment in August 2001, and one in June 2003 (as identified in Table 4; see Appendix D for detailed data and Map 2 for locations).

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In pasture 2, an additional rangeland health evaluation was completed in 2008.

The majority of indicators that apply to, and are most important in determining proper watershed function, rated slight-moderate in degree of departure from reference conditions and/or ecological site guide descriptions. Rock and gravel stabilize the soil surface to varying degrees throughout the area; however, accelerated erosion is occurring in isolated portions of the allotment. Although erosional features (pedestals, terracettes, and water flow patterns) are present throughout the area, many appear to be related to historic activities and are currently stabilized by gravel and other stabilizing agents (litter, vegetation cover).

Based on the indicators relating to Standard 1, the watershed appears to be providing for proper infiltration, retention, and release of water, to ensure proper nutrient cycling, hydrologic cycling, and energy flow throughout areas where juniper expansion has not occurred. Where invasion is heavy, juniper are highly competitive in terms of available moisture, nutrients, and understory photosynthetic needs, resulting in species composition and growth form changes (displacement of shrubs and grasses), and impacts to the hydrologic function of the landscape.

Hydrologic Function/Soil Site-Stability: Hydrologic function and soil-site stability show a none-slight degree of departure at sites RH1A, RH1E, and RH1F; and a slight-moderate degree of departure for all other sites. Gravel and rock stabilize the soil to varying degrees at each site.

The amount of surface water flow patterns and associated pedestalled plants (plants that appear elevated as a result of soil loss by wind or water erosion, but does not include plant elevation as a result of non-erosional processes such as frost heaving), indicate a slight-moderate degree of departure from reference conditions. Water flow patterns are short and rarely connected at sites RH1A, RH1B, RH1C, and RH1E. Water flow patterns are more numerous and longer than expected, with cut areas common, at site RH1D. Pedestalled plants are present at all sites in varying degrees. Pedestals are infrequent and appear historic in origin at sites RH1A, RH1B and RH1F. Active pedestals are more common than expected at site RH1C. Pedestals, although not very tall or pronounced, are frequent, especially on exposed slopes and in flow paths at site

RH1D. At site RH1E, pedestals are common (on grasses and some shrubs) and terracettes ("benches" of soil deposition behind obstacles caused by water, not wind, erosion) are present on exposed slopes.

At most evaluation sites, the percent of bare ground was within the normal range listed for that site, mainly due to abundant surface gravels. However, at sites RH1B and RH1C, the percent bare ground was greater than the normal range and rated moderate in degree of departure from reference condition and/or ecological site guide descriptions. Bare areas at these sites are larger than expected and are often connected.

Changes in plant community composition and distribution of species can influence the ability of a site to capture and store precipitation. At all sites, this indicator rated none-slight in degree of departure from reference conditions and/or ecological site guide descriptions. However, most of these sites are experiencing an influx of western juniper, and the encroachment of western juniper into certain areas may have a negative influence on the hydrologic, nutrient, and energy cycles of these systems. The encroachment of western juniper has resulted in species compositional and growth form changes in this allotment, possibly species mortality in places, and impacts to the hydrologic function of the landscape.

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Hydrologic function and soil site stability indicators at site RH1H were generally consistent with those described at RH1A through RH1G. The overall attribute rating for soils and hydrologic function was none to slight departure from reference conditions. Evidence of erosion was only slight despite apparent juniper invasion and the relative lack of perennial bunchgrasses. A sample of soil site stability using the Slake Test yielded an average stability rating of 3.3 on a scale of 1 to 6 (6 being most stable). The average value is slightly below the preferred 4 to 6 range, but indicates that soils are still relatively stable at the test site.

Biotic Integrity: Plant community integrity and native species diversity, as they relate to Standard 1, show a none-slight degree of departure at sites RH1A, RH1E, and RH1F; a slight-moderate degree of departure at sites RH1B, RH1C, and RH1D; and a moderate-extreme degree of departure at site RH1G.

Sites with abundant surface gravels and rock (RH1A, RH1E, and RH1F) and very little bare ground are highly resistant to erosion and most closely resemble reference conditions. Soil surface resistance to erosion at sites RH1B and RH1C show a moderate degree of departure from reference condition because of the reduction in stabilizing agents (biological soil crusts, organic matter content) and the amount of bare ground present. Site RH1D does have some soil loss occurring within the flow patterns.

Soil loss and degradation at all sites, except RH1F and RH1G, show a slight-moderate degree of departure from reference condition and/or ecological site guide descriptions. Soil loss is evident at all sites indicated by the presence of pedestals and water flow patterns; however, the soil loss appears to be more related to historical activities. Active soil loss is occurring at site RH1D, especially in flow paths.

Litter accumulation at most sites shows a none-slight degree of departure from reference conditions; however, the amount of litter at site RH1D is lower than expected. Biological soil crusts are found mainly in protected areas (under shrubs and in rocky sites), and represent only a minor component in interspaces at sites RH1B and RH1C.

Overall, the indicators relating to Standard 1 range from none-slight to moderate in degree of departure from reference conditions and/or ecological site guide descriptions at all evaluation locations. Accelerated erosion is occurring in isolated areas throughout the allotment; however, the presence of gravels and stones are stabilizing the soil surface and aiding in soil/site stability overall. Problematic areas, where soils appear

to be experiencing accelerated erosion tend to be associated with "Loamy 13-16" ecological sites and areas that are experiencing the influx of western juniper.

Trend and Photo Plots

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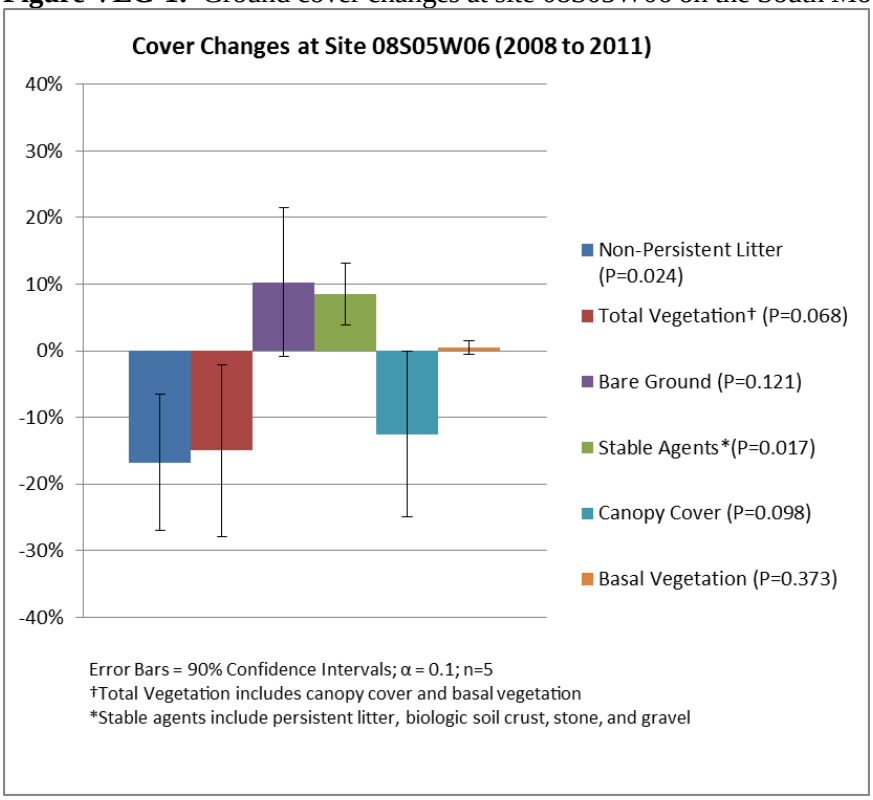
Figure VEG-1: Ground cover changes at site 08S05W06 on the South Mountain Area allotment



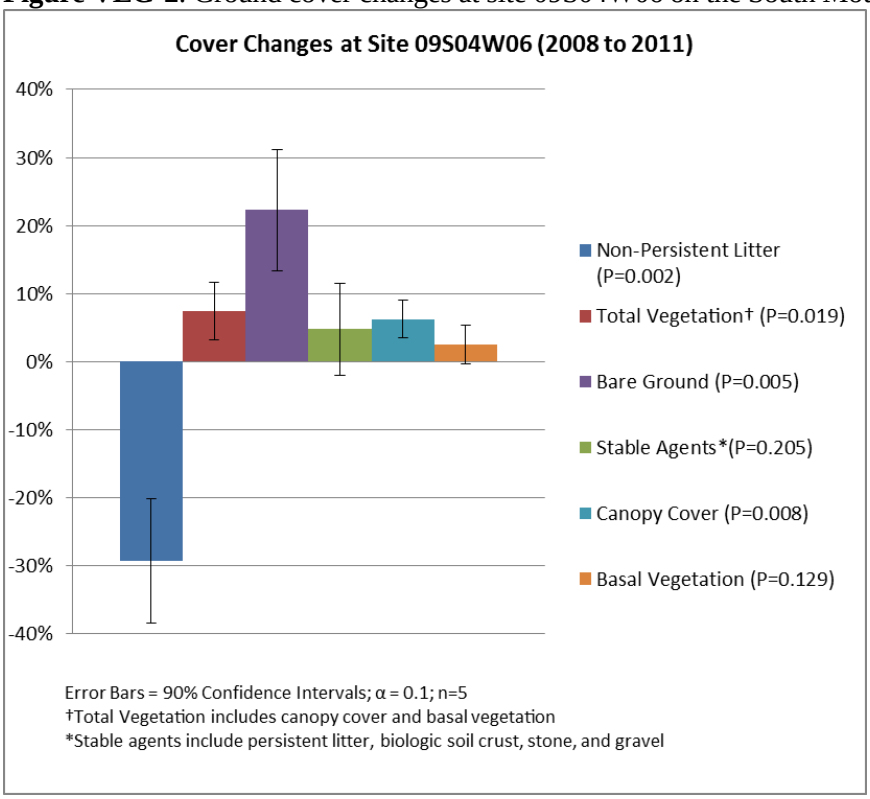
At the trend site located in pasture 1 (08S05W06), bare ground averaged 38 percent in 2008 and 46 percent in 2011. Non-persistent litter decreased substantially from 35 percent in 2008 to 21 percent in 2011. Canopy cover also decreased from 26 percent to 16 percent. Basal vegetation was static. The only positive reading of ground cover data in terms of watershed condition came from increased levels of stable ground cover agents (i.e., persistent litter, biological soil crust, rock, and gravel, combined). Stable agents increased from 7 percent in 2008 to 15 percent in 2011.

Frequency data at the site suggest that the decrease in canopy cover may have been the result of a loss of sagebrush, which declined strongly from 2008 to 2011. However, photographs do not clearly depict a loss of sagebrush at the site, so this suggestion may not be accurate. Photographs do support the measured reduction in non-persistent litter cover. No deep-rooted perennial bunchgrasses were recorded at the site in either year, although that structural/functional group has been recorded elsewhere in the allotment.

Overall interpretations of trend and photo plot data indicate that watershed conditions at the trend site deteriorated from 2008 to 2011. Bare ground at the trend site is too high for such a productive ecological site (Loamy 16+"). Increased bare ground and decreased non-persistent litter cannot be explained by fluctuations in annual precipitation in this case because both 2010 and 2011 were relatively wet years. The

conspicuous absence of any deep-rooted perennial bunchgrass species supports qualitative observations made elsewhere in the allotment, namely that deep-rooted perennial bunchgrass species as a group, are underrepresented.

Figure VEG-2: Ground cover changes at site 09S04W06 on the South Mountain Area allotment



At the trend site located in pasture 2 (09S04W06), bare ground increased significantly from 10 percent in 2008 to 32 percent in 2011. During this time, non-persistent litter decreased significantly from 73 percent to 43 percent. Increased bare ground and decreased litter measurements are supported by photo plot data. Stable agents and basal vegetation were static. Canopy cover and total vegetation each increased by less than 10 percent during the study period.

Frequency data indicate a relatively static shrub and tree component on the site, suggesting that the overall number of shrubs at this site did not change from 2008 to 2011. Static shrub frequencies combined with a decrease in shrub canopy cover suggest that the shrub community produced less biomass in 2011 than it did in 2008, perhaps due to some environmental stressor other than precipitation, possibly parasitism by the Aroga moth. Both 2010 and 2011 were above-average years in terms of precipitation. Photo plot data do not clearly depict any changes in the condition of shrubs during the study period. Sagebrush density increased from 6,200 plants per acre in 2008 to 7,850 plants per acre in 2011. Juniper density was static. Deep-rooted perennial grasses were detected at this location nearly 20 percent more frequently in 2011 than in 2008.

Overall, watershed conditions at this site were mixed. The combination of increased bare ground and decreased non-persistent litter indicate a possible deterioration in watershed conditions. However, increases in canopy and total vegetation suggest that the site can recover from fluctuations in bare ground and litter. Photo plot data document a well-vegetated site. The potential for negative hydrologic functions in the

watershed at this site is high due to juniper invasion.

Standard 2: Riparian Areas and Wetlands

Streams

Overview

To assess current stream health, methods developed by BLM (TR-1737-9; TR-1737-12, 1998) were used which define the biological (Standard 2) and hydrological (Standard 3) functioning condition of streams into five general categories: proper functioning condition (PFC), functioning at risk with an upward trend, functioning at risk with static trend, functioning at risk with downward trend, and non-functioning condition. Data sources used for inventory and assessment of streams, palustrine meadows, and springs may include one or more of the following sources: low level (1:5000) digital color infrared aerial photos (1998), standard (1:24,000) color air photos (1992), National Wetlands Inventory maps (1996) water rights verification photos (1996-1997), and independent on-site inspections by contactors (Riparian Resources) and BLM personnel. In addition, historic photographs and monitoring data (on file) were also analyzed and used in determining functioning condition and general trend.

Perennial flow regime segments of Corral Creek, Cabin Creek, tributaries to Corral and Cabin Creeks, and Lone Tree Creek flow through the allotment and were assessed within the allotment boundaries. Short reaches of Juniper Creek, Toppin Creek, and Cherry Creek also flow through the allotment, however, monitoring information is unavailable, and therefore these streams are not assessed. The following Table (5) summarizes functioning condition rating for each stream segment surveyed for this assessment:

Table 5. Functioning Condition Rating by Stream Segment.

Riparian/Wetland Indicators:	BLM Stream Segment										
	Corral 003	Corral 004	Corral 005	Corral 006	Corral Trib 001	Corral Trib 003	Corral Trib 004	Cabin 007	Cabin Trib 001	Cabin Trib 002	Lone Tree 003
Overall functioning condition*	FAR	FAR	FAR	FAR	FAR	FAR	FAR	FAR	FAR	FAR	FAR
Pasture	1	1	1	1	1	1	1	1	1	1	1
Stream miles	0.8	0.7	0.8	1.1	1.1	0.7	1.1	0.9	0.7	1.1	0.7
Riparian acres	3.0	3.6	4.0	3.9	3.2	1.2	1.4	2.1	1.7	4.7	15

* PFC- proper functioning condition, FAR- functioning at risk, NF- nonfunctioning (overall rating determined from examination of both riparian and channel/floodplain indicators)

The following table represents all of the riparian-related data currently in the BLM database (also see Map RNGE-1).

Table RIPN-1: South Mountain Area allotment riparian information

	Allotment & Pasture Name					
Stream Name	**South Mnt Area 01**	**South Mnt Area 02**	**South Mnt Area 03**	**South Mnt Area 04**	**Assessment Issues/ Impacts Identified**	**Total Miles Assessed**
Lone Tree Creek	0.8 (FARS-2000)				Unstable banks, lack of woody recruitment, poor plant vigor	0.8
Cabin Creek		0.9 (FARS-1997/ FAR-2007)			Unstable banks, lack of woody recruitment, poor plant vigor	0.9
Cabin Creek Tribs		1.8 (PFC-1997)	0.7 (PFC-1997)		Headcuts present (vertical instability), unstable banks, lack of deep-rooted species, lack of woody species recruitment	2.5
Corral Creek Tribs		3.7 (FARS-1997)			Poor recruitment of willows, heavy browse, unstable banks	3.7
Corral Creek		2.5 FARS-1997) 0.8 (PFC-1997)			Lack of willow recruitment, lack of deep-rooted stabilizing species, unstable banks	3.3

MIM Site Metrics

Stream Name/Pasture/ year	***Median SH (inches)***	***Bank Alteration (%)***	***Woody Use (%)***	***Bank Stability (%)***	***Covered Bank (%)***	***% Mature***	***% Seedlings & young***	***Ecological Status***	***Greenline Stability Rating***	***Site Wetland Rating***
Lone Tree Creek/ 1/ 2009	-	23	12.7	53	97	29	65	34- early	5.6- moderate	23- poor
Cabin Creek/1/ 2009	3.0	26	14	32	99	14	1	4.9- moderate	30- early	33- poor
Corral Creek/ 1/ 2009	3.5	18	5	56	100	33	30	6.8- high	68- late	48- fair

Springs Assessed, Condition, & Issues Identified

Spring Name	**Pasture/ Assessment Year**	**PFC Condition**	**Assessment Issues/ Impacts Identified**
Unnamed Spring 561	1/ 2009	FAR	Surface flows altered by trampling & OHV use, very few riparian species,
Unnamed Spring (poly) 561T	2/2003	NF	Invasive plants present, lack of shrub regeneration, high % of area altered by trampling, heavy use of forage (SH < 2")/ susceptible to erosion
Unnamed Spring 561A	2/2003	NF	Invasive plants present, heavy browse & lack of regeneration, high use of herbaceous veg, upland species invading
Unnamed Spring 561B	2/2003	FAR	Invasive species present, heavy use of herbaceous, alteration caused by trampling

Table RIPN-2: Capability Groups associated with the MIM Metrics

Greenline Ecological Status Rating

Summary Value	**Condition Rating**
0-15	Very Early
16-40	Early
41-60	Mid
61-85	Late
85+	PNC

Vegetation-Erosion Resistance Status Rating (Greenline Stability rating)

Summary Value	**Condition Rating**
0-2	Very Low
3-4	Low
5-6	Moderate
7-8	High
9-10	Very High

Site Wetland Status Rating

Summary Value	**Condition Rating**
0-15	Very Poor
16-40	Poor
41-60	Fair
61-85	Good
85+	Very Good

Table 6 summarizes additional data used in this analysis to determine overall trends in vegetation utilization in Corral Creek.

Table 6. Stubble Height and Willow Utilization Monitoring Results.

Date	Stream	Median Stubble Height (inches)	% Shrub Utilization
08/09/95	Corral	3.0	36%
10/16/96	Corral	3.0	71%
10/07/97	Corral	2.5	47%
10/06/99	Corral	2.0	42%
11/01/00	Corral	1.5	Not Reported
07/30/01	Corral	2.0	Est.90%
10/22/01	Corral	1.5	Heavy
10/17/02	Corral	3.0	29%

Corral Creek: There are 3.4 miles of Corral Creek in the South Mountain Area allotment on lands administered by BLM. Portions of this stream located in wider valley types were fully accessible to livestock grazing (Corral-004 and Corral tributaries), and thus were subject to heavier grazing use of both willows and graminoids, and mechanical impacts from trampling and trailing. Trend in some short segments of Corral-005 which were not heavily accessed by livestock may be up, but overall, trend appears static, due to nominal recruitment of new willows to the plant community.

The dominant riparian vegetation type is the Lemmon's willow (*Salix lemmonii*) CT (community type) with an understory dominated by Kentucky bluegrass (*Poa pratensis*) and other mesic grasses. These species reflect a shift from the more deep rooted, stabilizing hydric species, such as sedges and rushes, to those species more suited to a dryer site and less capable of maintaining soil moisture and stabilizing banks. Disturbance induced community types, apart from the Lemmon's willow CT, are common. Whiplash willow (*S. lasiandra*) is also present, but only makes up a small portion of the overall cover.

Willow regeneration and recruitment are poor throughout the stream and most of the willow cover is made up of mature individuals, many of which are heavily clubbed or umbrella shaped due to heavy utilization. Heavy utilization of willows reduces plant vigor and requires more time for the willows to recover. A low percentage of banks have vegetation capable of stabilizing the stream, while a high percentage of banks are unstable.

Corral Creek Tributaries: The upper portion of Corral Creek has numerous tributaries, which total 2.9 miles of stream that are functioning at risk. It is similar to Corral Creek in condition; with the Lemmon's willow CT and a dominance of Kentucky bluegrass. Disturbance induced community types, such as Kentucky bluegrass CT, are common. Willow regeneration and recruitment are poor throughout every tributary and most of the willow cover is made up of mature individuals. Willows are commonly clubbed or umbrella shaped due to heavy utilization. A low percentage of banks, 35-64 percent, have vegetation capable of stabilizing the stream and there is a high percentage, commonly 50 percent, of unstable banks.

Cabin Creek: There is approximately 0.9 miles of Cabin Creek, functioning at risk, in this allotment on lands administered by BLM. The dominant riparian vegetation is the Lemmon's willow CT with an understory dominated by Kentucky bluegrass and other mesic grasses. Willow regeneration and recruitment are

poor throughout the reach, resulting in willow stands that are predominately mature. Willows are clubbed or umbrella shaped due to heavy utilization. A low percentage of banks, 35-64 percent, have vegetation capable of stabilizing the stream and approximately 50 percent of the banks are unstable.

***Cabin Creek Tributary*:** One tributary of Cabin Creek was analyzed near the top of the drainage. The stream is functioning at risk, however head cuts are present, indicating that the stream is actively down cutting and is not stable. Approximately 70 percent of the banks are unstable. Dominant riparian vegetation includes the whiplash willow CT, Lemmon's willow CT, and the Kentucky bluegrass CT. These species reflect a shift from the deeper rooted, stabilizing hydric species, such as sedges and rushes, to those species more suited to a dryer site and which are less capable of maintaining soil moisture and stabilizing banks. Willow regeneration and recruitment are poor throughout the stream and the majority of the willow cover consists of mature or decadent individuals, many of which are heavily clubbed or umbrella shaped due to heavy utilization. Heavy utilization of willows reduces plant vigor, requiring more time for their recovery.

***Lone Tree Creek*:** Lone Tree Creek and is characterized by yellow willow (*S. lutea*) CT, and an under story dominated by bluegrass. Willow regeneration and recruitment are poor throughout the stream and most of the willow cover is made up of mature or decadent individuals. Plant vigor is poor, including forb and graminoid communities. A low percentage of stream banks have vegetation capable of stabilizing the stream, and approximately 60 percent of the stream banks are unstable.

Springs

Overview

To assess current spring health, methods and protocols developed by BLM (TR-1737-11, 1994) were used which define the biological and hydrological functioning condition of springs into five general categories: proper functioning condition, functioning at risk with an upward trend, functioning at risk with static trend, functioning at risk with downward trend, and non-functioning condition.

Table 7. Functioning condition ratings of four springs and associated lentic riparian areas in South Mountain Area Allotment.

Spring Name	Location*	Functioning Condition Rating**
5611-U	9S4W07NWNW	FAR w/trend downward
5611-T	9S4W6SESW	FAR w/trend downward
5611-A	9S4W6NWNE	FAR w/trend downward
5611-B	9S4W6NWSW	FAR w/trend downward

* Spring locations displayed on Map 1
** PFC- proper functioning condition, FAR- functioning at risk, NF- nonfunctioning

All four springs surveyed were in poor condition. Commonly, springs were heavily trampled, displayed large percentages of bare ground, had invasion by upland species, and were dominated by dandelions, red top, iris, and other disturbance induced plant communities. Noxious weeds (scotch thistle) were reported at all springs. Heavy utilization of vegetation was noted at all springs inventoried. Down-cutting was reported at two of four springs.

Standard 3: Stream Channel/Floodplain

The following Table (8) displays functioning condition rating for each stream segment surveyed for this assessment:

Table 8. Stream Channel/Floodplain Functioning Condition Rating by Segment.

Riparian/Wetland Indicators:	BLM Stream Segment										
	Corral 003	Corral 004	Corral 005	Corral 006	Corral Trib 001	Corral Trib 003	Corral Trib 004	Cabin 007	Cabin Trib 001	Cabin Trib 002	Lone Tree 003
Overall functioning condition*	FAR	FAR	FAR	FAR	FAR	FAR	FAR	FAR	FAR	FAR	FAR
Pasture	1	1	1	1	1	1	1	1	1	1	1
Stream miles	0.8	0.7	0.8	1.1	1.1	0.7	1.1	0.9	0.7	1.1	0.7
Riparian acres	3.0	3.6	4.0	3.9	3.2	1.2	1.4	2.1	1.7	4.7	15

(Y=yes, N=no, Y/N=both) ( ) - item # on Function/Health Assessment

* PFC- proper functioning condition, FAR- functioning at risk, NF- nonfunctioning (overall rating determined from examination of both riparian and channel/floodplain indicators)

Corral Creek: Corral Creek is predominantly Rosgen B4 and C4 channel types. B channel types in proper functioning condition are generally stable, moderately entrenched streams with a moderate width/depth ratio (Rosgen 1996). C channel types are slightly entrenched, meandering, gravel-dominated, riffle/pool channels (Rosgen 1996). Banks of C4 types are generally composed of unconsolidated, non-cohesive materials which are finer than streambed substrates. Consequently, the stream is susceptible to accelerated bank erosion and shifts in both lateral and vertical stability caused by direct channel disturbance, and loss of vegetation necessary for stability in this stream type; rates of lateral adjustment are influenced by the presence, density, and condition of riparian vegetation. There are multiple channels within the incised stream. Vegetation is critical for the achievement of equilibrium and stable plan form in streams which have down-cut and are currently meandering within the incisement like the F4 types found on portions of Corral Creek. Floodplain inundation and water storage capabilities have been reduced due to over-widened stream channel, and width/depth ratio that is out of balance with the landscape setting. A low percentage of the stream's banks have plants with deep, binding root masses capable of stabilizing the stream. There is a high percentage of non-hydric grasses present, which reduce the stream's abilities to withstand high flows and increases the risk of further stream bank degradation.

***Corral Creek Tributaries*:** The tributaries of Corral Creek are similar in condition to the main Corral Creek segment. Channel types are predominantly B4. Stream bank material is dominated by silt and clay, and channels are susceptible to accelerated erosion and down cutting, or incising, in many reaches. Floodplain inundation and water storage capabilities have been reduced due to degraded stream channels, and width/depth ratios are out of balance with the landscape setting. A low percentage of the stream banks have plants with deep, binding root masses capable of stabilizing the stream, resulting in approximately 40-60 percent of the stream banks being unstable. There are a high percentage of non-hydric grasses present, which reduce the stream's abilities to withstand high flows and increases the risk of further degradation to the stream banks.

***Cabin Creek*:** Cabin Creek is predominantly Rosgen B4 and C4 channel types. Stream bank material is dominated by fine gravel and smaller substrate. Floodplain inundation and water storage capabilities have been reduced due to the over-widened stream channel and width/depth ratio that is out of balance with the landscape setting. A low percentage, 35-64 percent, of the stream banks has plants with deep, binding root

masses capable of stabilizing the stream. Approximately 50 percent of the stream banks are unstable. There are a high percentage of non-hydric grasses present, which reduce the stream's abilities to withstand high flows and increases the risk of further degradation to the stream banks.

***Cabin Creek Tributary*:** This 1.8 mile tributary to Cabin Creek is predominantly Rosgen B4 channel type. Stream bank material is dominated by silt and clay, while streambed material is dominated by gravel. The stream channel is at risk for continued degradation due to the number and depth of head-cuts on the stream. The stream has active lateral cutting and down cutting. A low percentage, 35-64 percent, of the stream banks has plants with deep, binding root masses capable of stabilizing the stream, resulting in approximately 50-70 percent of the stream banks being unstable. There are a high percentage of non-hydric grasses present, which reduce the stream's abilities to withstand high flows and increases the risk of further degradation to the streambanks.

***Lone Tree Creek*:** This creek is predominantly Rosgen F4 and B4 channel types. F channel types are deeply entrenched, have depositional features that may aid in new floodplain formation inside the entrenchment, and are susceptible to shifts in both lateral and vertical stability caused by disturbance (Rosgen 1996). Streambank material is dominated by gravel and smaller substrate. The stream is incised with terraces commonly 6' above the active channel, which reduce floodplain inundation and water storage capabilities. A low percentage, 35-64 percent, of the banks has plants with deep, binding root masses capable of stabilizing the stream, resulting in approximately 60 percent of the stream banks being unstable. There are a high percentage of non-hydric grasses present, which reduce the stream's abilities to withstand high flows and increases the risk of further degradation to the streambanks.

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See Tables RIPN-1 and RIPN-2 above for a comprehensive summary of the riparian information associated with Standard 3 (also see Map RNGE-1).

Standard 4: Native Plant Communities

Rangeland Health Evaluation Summary Worksheets

Six Rangeland Health Evaluation Worksheets were completed in the South Mountain Area allotment in August of 2001, and one in June 2003, (as identified in Table 4; see Appendix D for detailed data and Map 2 for locations). A list of the dominant ecological types found on the public lands within the allotment, and their approximate proportions may be referenced in Table 1, page 4.

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In pasture 2 an additional rangeland health evaluation was completed in 2008.

The majority of indicators that apply to, and are important in determining the biotic integrity of the allotment, rated slight-moderate in degree of departure from reference conditions and/or ecological site guide descriptions. In areas throughout the allotment, the native plant community is not providing for proper nutrient cycling, hydrologic cycling, and energy flow. This is largely based on the invasion of western juniper, which has resulted in varied decreases in shrub and grass occurrences throughout the allotment, and drainage bottoms where livestock concentrate throughout most of the summer.

Closed juniper canopies have resulted in the decline, and in some cases, loss of sagebrush and grasses. In areas where historic heavy grazing has eliminated the competition from perennial grasses, sagebrush densities are higher than expected.

Hydrologic Function/Soil Site Stability: Hydrologic function and soil/site stability, as they relate to Standard 4, show a slight-moderate degree of departure from reference condition and/or ecological site guide descriptions at sites RH1B, RH1C, and RH1D. There is a none-slight degree of departure at sites RH1A, RH1E and RH1F. There is moderate-extreme degree of departure from reference condition at site RH1G. Surface gravel and rock help to stabilize the soil throughout this allotment.

Three of the six sites (RH1A, RH1E, and RH1F) are equipped with abundant surface gravels and rock, aiding in soil-site stability, and reducing the amount of bare soil exposed to the effects of raindrop impact. All of these sites show a none-slight degree of departure regarding soil surface resistance to erosion. Other sites (RH1B, RH1C, and RH1D) show a moderate degree of departure based on the amount of bare ground, pedestalled plants in flow patterns, and the weakened soil structure in these bare areas. In addition, the biological soil crust component at these sites is weakened.

Soil loss and degradation at all sites, except RH1F, show a slight-moderate degree of departure from reference condition and/or ecological site guide descriptions. Soil loss is apparent at all sites because of the presence of pedestals and water flow patterns; however, the soil loss appears more related to historical activities. Active soil loss is occurring at sites RH1D and RH1G, mainly in flow paths. Surface gravels and rock serve as a protective barrier from further erosion by wind and water on the majority of these sites.

For most sites evaluated, the amount of litter is adequate to provide for proper soil/site stability and hydrologic function. However, at site RH1D, the amount of litter is slightly to moderately less than expected, and at site RH1G moderate-extremely less than expected. This site is in the upland area adjacent to Corral Creek, and is a site of livestock concentration.

Biotic Integrity: Plant community integrity and native species diversity show a slight-moderate degree of departure from reference conditions for sites RH1A, RH1B, RH1C, RH1D, and RH1E. There is a none-slight degree of departure at site RH1F. Species diversity is generally similar to reference conditions at most sites; however, dominant species differ from reference conditions. At site RH1G the plant community is much changed from the reference site, with few species which are expected on the site.

In general, grass cover is less than expected when compared to reference sites. Sites RH1E and RH1F most closely resemble reference conditions as far as species composition and distribution is concerned. Decreaser grasses are below potential at sites RH1B and RH1C. At site RH1B, and RH1G, increaser grasses, including bulbous bluegrass and invasive forbs dominate the understory. The shrub component at most evaluation locations are at or near potential; however, at site RH1C, mountain big sagebrush occurrence exceeds the range listed in site guide descriptions.

Scotch thistle, a state listed noxious weed, occurs in this allotment at the four springs previously discussed (see page 12 of this assessment). Invasive species are also present in varying degrees throughout the allotment. Western juniper occurrence is common to dominant at all evaluation locations. Although juniper

is expected to occur at site RH1F, it should represent only a minor component at all other sites, based on ecological site guide descriptions. However, juniper dominates site RH1C, and its' occurrence is common at sites RH1A, RH1B, RH1D, and RH1E. Where invasion is heavy, juniper successfully out competes other species for available moisture, nutrients, and understory photosynthetic needs. The encroachment of western juniper has resulted in species composition and growth form changes in this allotment, possibly species mortality in places, and impacts to the hydrologic function of the landscape.

Other invasive species include bulbous bluegrass (*Poa bulbosa*) and cheatgrass (*Bromus tectorum*), both of which are common at site RH1B. At site RH1C, cheatgrass occurrence exceeds the amount allotted in the ecological site guide description for this site.

Annual production at all evaluation locations except RH1G exceeds 80 percent of potential production; therefore, the rating for this indicator is none-slight in degree of departure for all sites except RH1G. The source of production tends to reflect the dominant species present on site (i.e., grasses, shrubs, or trees). Overall, plant mortality and decadence are as expected for the sites; although, some crown die-out is occurring at sites RH1A and RH1E on interspatial bunchgrasses. Vigor, of perennial bunchgrasses, appears to be fair to good at the time of the evaluations. Seed stalk production for perennial grasses is adequate and recruitment is noted at sites RH1A, RH1B, RH1C, and RH1E.

Forb diversity and abundance varied from site to site. Forb diversity is low at site RH1B and fair at all other sites. Forb abundance is low at site RH1A, good at sites RH1B and RH1F, and fair at all other sites.

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Biotic integrity indicators at site RH1H were generally consistent with those described at RH1A through RH1G. The overall attribute rating for biotic integrity was a moderate departure from reference condition, with the present state of the functional/structural groups and invasive plants as the driving indicators. Juniper and bulbous bluegrass invasions have contributed to the shift in vegetation away from potential. This was noted through the relative lack of perennial bunchgrasses and juniper as a sub-dominant on site in addition to heavy juniper documented throughout adjacent areas. In addition to the general forb information noted in 2006 for all RH sites, the higher-than-normal representation of ragwort (*Senecio* spp.) and Rocky Mountain iris (*Iris missiouriensis*) at RH1G was also noted. This is indicative of a shift in species composition.

Trend Data

Permanent trend study sites have not been established for this allotment; therefore, nested plot frequency data, photo plot and photo point data, and ground cover data are not available.

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Pasture 1

Figure VEG-3: Frequency of native and non-native grass species at the trend transect (T 08S, R 05W, Sec 06) in pasture 1 of the South Mountain Area allotment

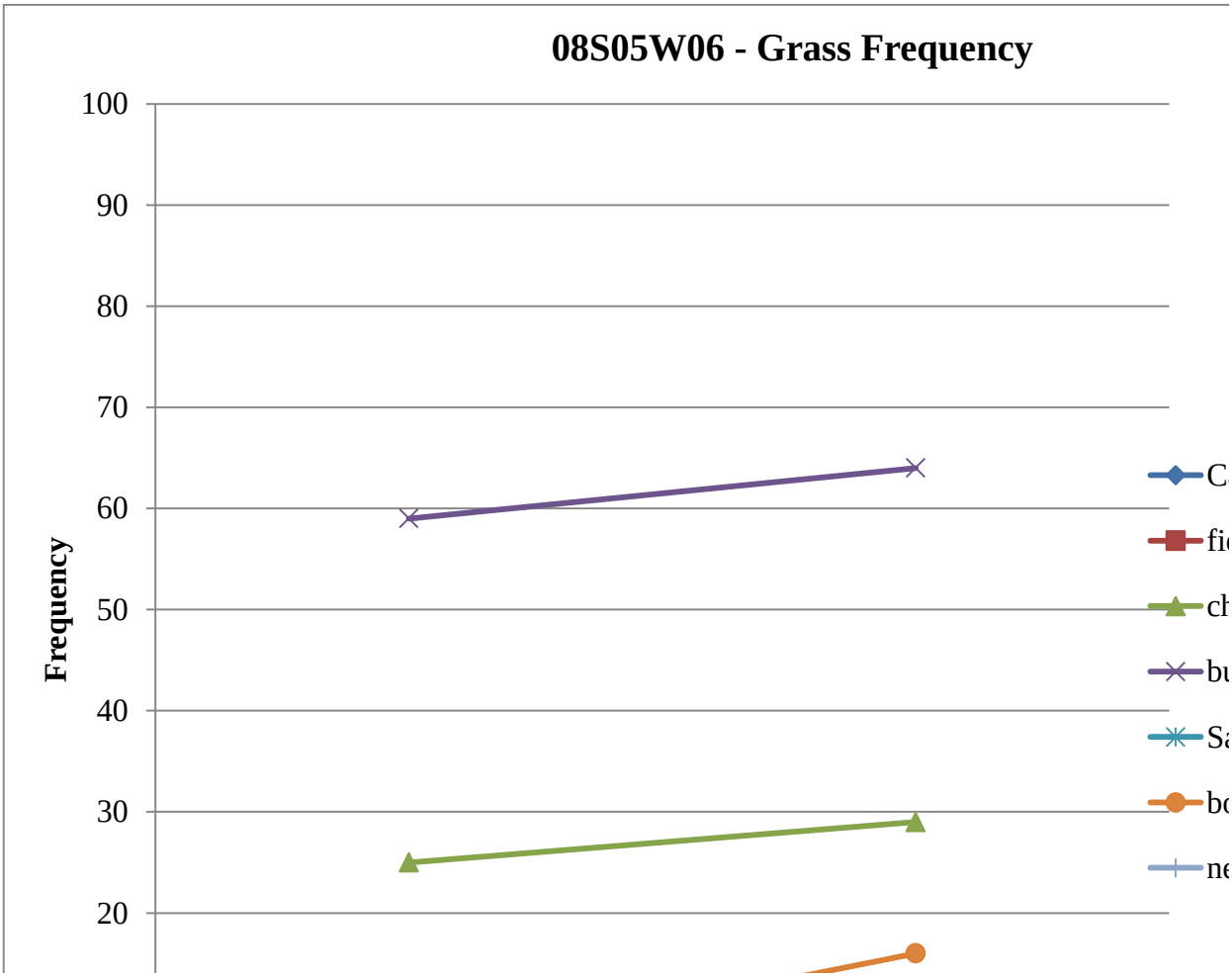
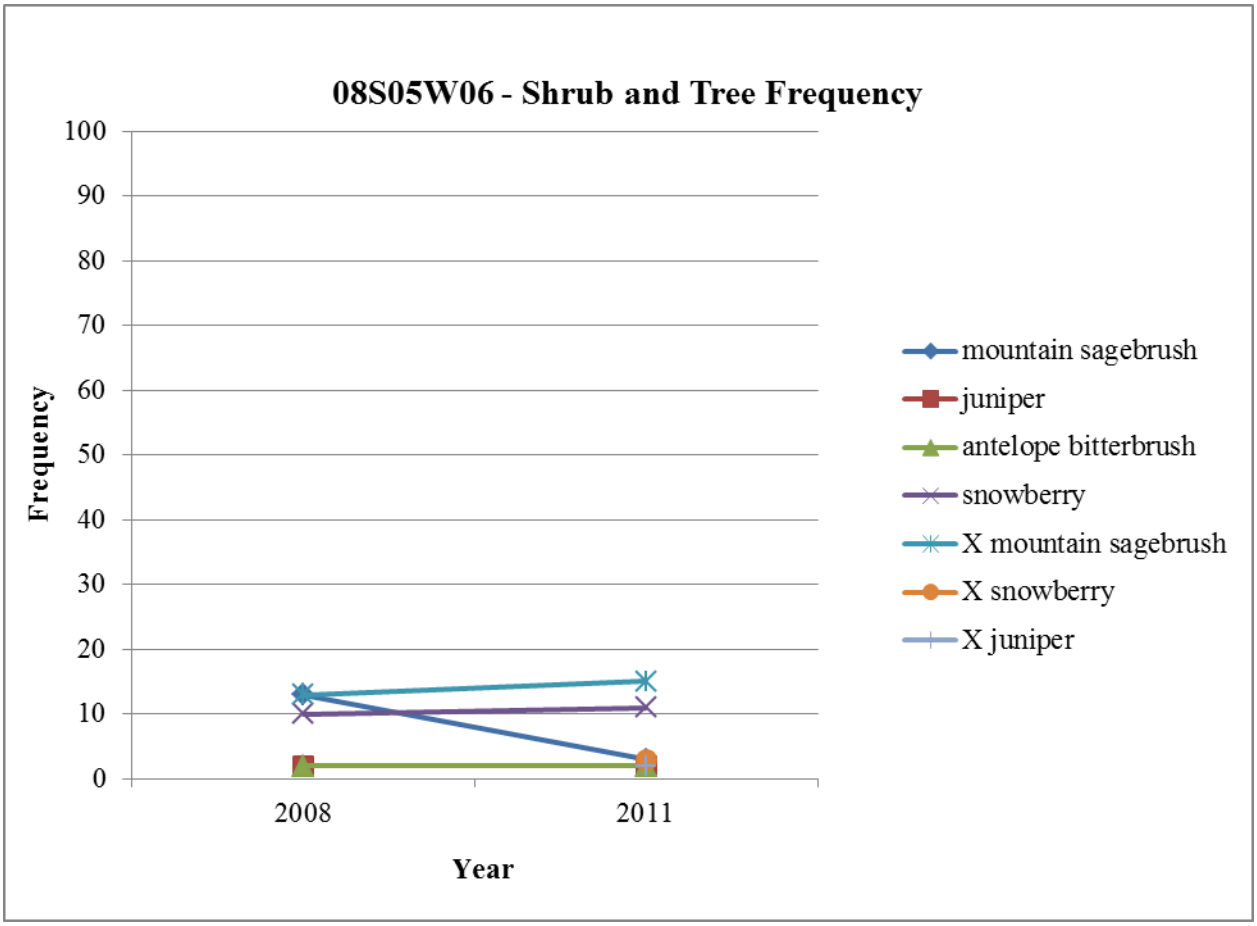


Figure VEG-4: Frequency of shrubs and tree species at the trend transect (T 08S, R 05W, Sec 06) in pasture 1 of the South Mountain Area allotment



Trend data were collected in 2008 and 2011 (Appendix E) in pasture 1 (T 08S, R 05W, Sec 06). Frequency data for all grasses indicate a relatively static trend with a slight increase in bulbous bluegrass, cheatgrass, and bottlebrush squirreltail. Bottlebrush squirreltail is the only grass with a statistically significant increase (Student's T-test; p-value <0.1). The 2011 frequency of Sandberg bluegrass was less than in 2008, although the difference was not statistically significant. Field brome, California brome, and needlegrass were first reported on site in 2011. In general, grass frequency has remained fairly static, with needlegrass being the only perennial bunchgrass present at the trend site and only in 2011.

Shrub and tree frequency were static from 2008 to 2011, except for mountain big sagebrush showing a statistically significant (Student's T-test; p-value <0.1) decrease in frequency. Snowberry and juniper seedlings were noted on site for the first time in 2011.

Overall trend and photo plot data suggest that native plant communities are deteriorating, with a loss of mountain big sagebrush and the underrepresentation of deep-rooted perennial grasses. The decrease of mountain big sagebrush is likely contributing to the statistically significant 10 percent drop in canopy cover (see Standard 1: Watershed, Figure VEG-1). The likelihood of increasing juniper is supported by qualitative observations noting juniper seedlings on site but not within the shrub plot. Despite bare ground remaining relatively static from 2008 to 2011, observations were made of high bare ground in the surrounding area and a low presence of grass species in general. Qualitative and quantitative data identify a diverse age-class of juniper and, therefore, a strong potential for increase, which likely identifies juniper as a change agent in the

vegetation community leading to a decrease in cover (mountain sagebrush) and increased bare ground (see Standard 1: Watershed, Figure VEG-1).

Pasture 2

Figure VEG-5: Frequency of native and non-native grass species at the trend transect (T 09S, R 04W, Sec 06) in pasture 2 of the South Mountain Area allotment

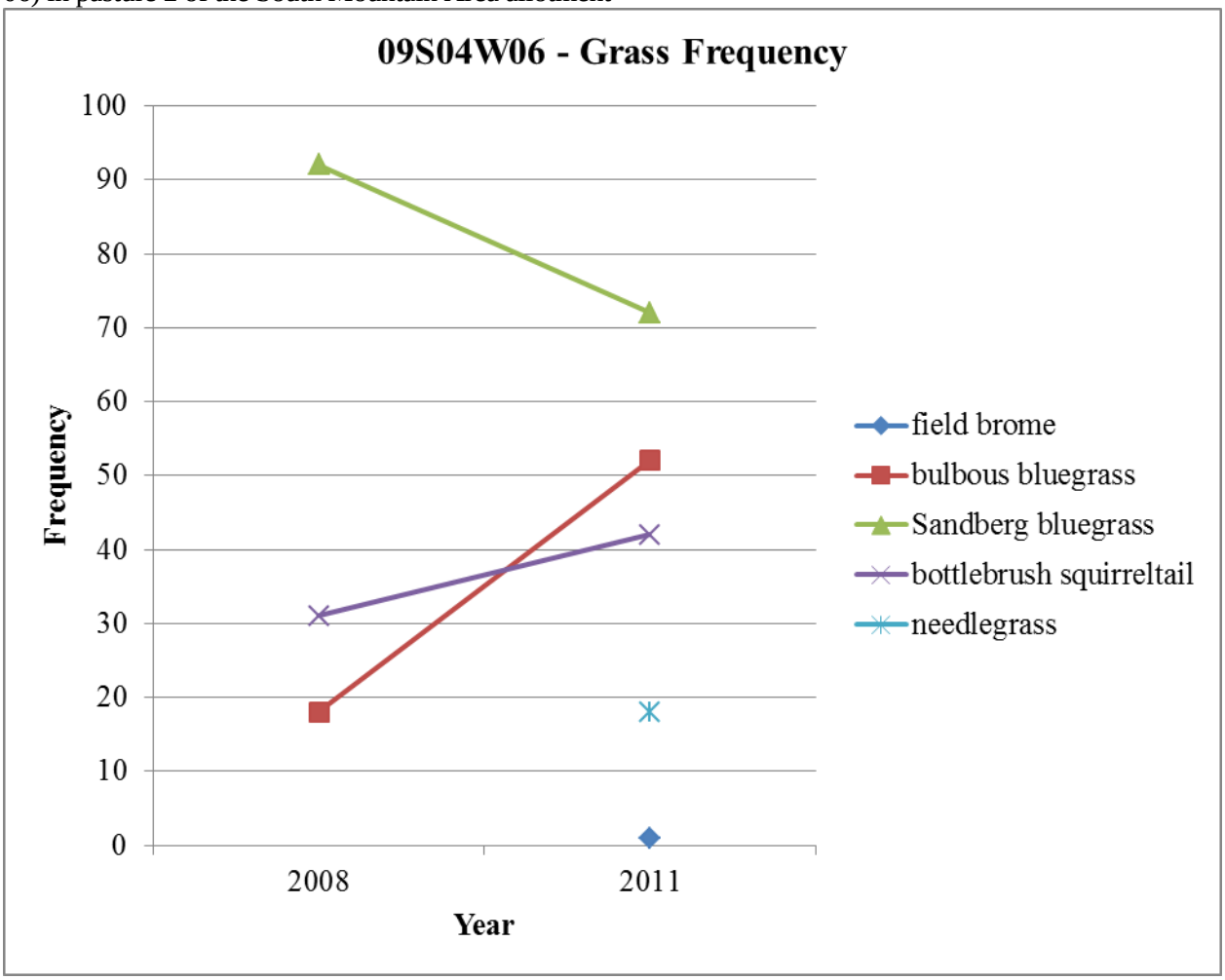
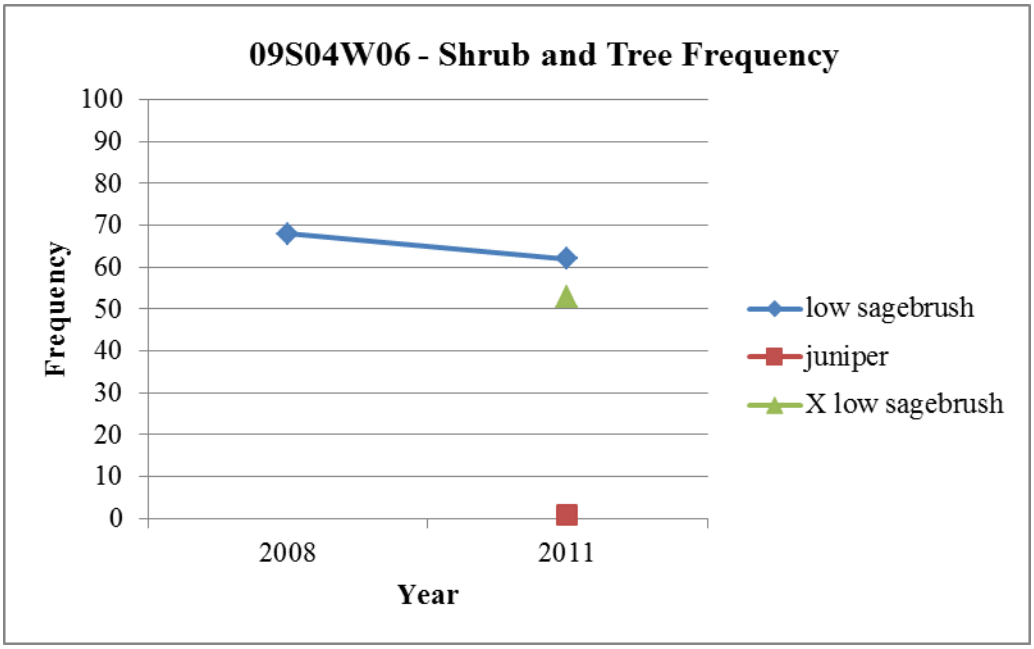


Figure VEG-6: Frequency of shrubs and tree species at the trend transect (T 09S, R 06W, Sec 06) in pasture 2 of the South Mountain Area allotment



Trend data were collected in 2008 and 2011 (Appendix E) in pasture 1 (T 09S, R 04W, Sec 06). Sandberg bluegrass decreased non-significantly from 2008 to 2011, while bottlebrush squirreltail and field brome both increased significantly (Student's T-test; p-value <0.1) in frequency. Needlegrass and field brome were not on site in 2008 but were detected in 2011. In general, the decrease of Sandberg bluegrass appears to have allowed opportunity for bottlebrush squirreltail and bulbous bluegrass expansion, while deep-rooted perennial grasses continue to be lacking. Trend data and photos identify a much higher than expected presence of mule-ears.

Low sagebrush frequency was generally static from 2008 to 2011. Juniper and low sagebrush seedlings were noted on site for the first time in 2011. Photo documentation at the trend site depicts a diverse age-class of juniper at the trend site, along with a concentration of mule's ear.

Overall trend and photo plot data suggest recent detection of juniper seedlings and an underrepresentation of deep-rooted perennial grasses. The diverse age-class of juniper as documented in photo plots, coupled with increased density, indicate a continuation of juniper invasion. Increased juniper density also correlates with the simultaneous statistically significant 22 percent increase in bare ground (see Standard 1: Watershed, Figure VEG-2).

Actual Use

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Actual use from 1997 to 2012 was generally submitted by the permittees. Actual use only submitted at the allotment level until 2008 due to a lack of defined grazing area. After the fence was built in 2008, northern and southern areas were determined from actual use submitted from permittees. For this reason, Table LVST-2 shows actual at the allotment level from 1997 to 2008, while actual use was divided into northern and southern areas as best as possible from 2008 to 2012.

In accordance with the grazing permit terms and conditions, the grazing permittee is required to submit actual use reports at the conclusion of each grazing season annually. Table LVST-2 summarizes the total AUMs and Table LVST-3 summarizes the period of use as reported on the actual use reports.

Table LVST-2: Actual use on the South Mountain Area allotment 1997-2012

Year	1997	1998*	1999	2000	2001	2002	2003	2004*	2005	2006	2007*
	No pasture fence	No pasture fence	No pasture fence	No pasture fence	No pasture fence	No pasture fence	No pasture fence	No pasture fence	No pasture fence	No pasture fence	No pasture fence
AUMs	734	745	644	736	No Data	No Data	676	175	688	695	507

Year	2008	2009		2010		2011		2012	
	No pasture fence	Northern Pasture 1	Southern Pastures 2,3,4	North Pasture 1	Southern Pastures 2,3,4	Northern Pasture 1	Southern Pasture 2,3,4	Northern Pasture 1	Southern Pasture 2,3,4
AUMs	638	469 Actual use not accurate enough to separate by pasture		182	285	67	343	194	355

Table LVST-3: Maximum season of use on the South Mountain Area allotment 1997-2008

Year	1997	1998*	1999	2000*	2003	2004*	2005	2006	2007*	2008
	No pasture fence	No pasture fence	No pasture fence	No pasture fence	No pasture fence	No pasture fence	No pasture fence	No pasture fence	No pasture fence	No pasture fence
Max Season of use	6/8-10/14	6/5-10/31	6/6-10/20	6/4-11/1	6/3-12/5	6/7-9/28	6/5-11/1	6/6-11/6	6/5-10/1	6/5-11/1

Year	2009		2010		2011		2012	
	North Pasture 1	Southern Pastures 2,3,4	North Pasture 1	Southern Pastures 2,3,4	Northern Pasture 1	Southern Pasture 2,3,4	Northern Pasture 1	Southern Pasture 2,3,4
Max Season of use	6/6-10/13 Actual use not accurate enough to separate by pasture		6/15-11/1	6/10-11/17	6/14-10/14	6/17-10/18	6/1-9/30	6/12-9/30

*= Not all permittees reported actual use that year.

Livestock use, in this allotment, generally occurs from the beginning of June to the end of September every year, during the critical growth period for most perennial grass species.

Utilization data has not been collected for this allotment since the late 1970s. The following table (Table 9) summarizes the amount of livestock use and season of use for the South Mountain Area allotment since 1986. This information is based on actual use reports submitted by the permittees at the end of reach grazing season.

Table 9: Actual Use

Year	BLM AUMs	# LVST	Use Period
1986	761	823 C	6-/3-10/28
1987	N/A	N/A	N/A
1988	729	775 C	6/5-10/7
1989	728	831 C	6/3-10/15
1990	626	674 C	6/2-10/12
1991	628	670 C	6/1-10/4
1992	646	624 C	5/31-11/15
1993	624	672 C	6/2-11/10
1994	661	737 C	6/5-10/20
1995	560	640 C	6/12-10/18
1996	736	825 C	6/7-10/15
1997	736	779 C	6/8-11/10
1998	742	756 C	6/3-10/31
1999	644	706 C	6/6-11/20
2000	737	753 C	6/3-11/20
14 year average	**683**	**733 C**	

Standard 5: Rangeland Seedings

This standard does not apply to the South Mountain Area allotment #0561.

Standard 6: Exotic Plant Communities

Exotic plant communities are not widespread in this area; therefore this standard does not apply to the South Mountain Area allotment #0561.

Standard 7: Surface and Ground Water Quality

Monitoring of water temperatures in two streams, in the South Mountain Area allotment, indicated these streams did not support cold-water biota. According to IDEQ criteria for cold-water biota beneficial use, Corral Creek and Lone Tree Creek did not meet criteria for cold-water biota during the year they were monitored. Beneficial uses on Corral Creek and Lone Tree Creek include: cold-water biota, salmonid spawning, secondary contact recreation, agricultural water supply, wildlife habitat, and aesthetics. Corral Creek and Lone Tree Creek are located in the Middle Owyhee watershed (Hydrologic Unit Code #17050107). No bacteria samples were collected from the streams within the South Mountain Area allotment.

***Temperature Monitoring*:** During 2001, BLM monitored water temperatures in Corral Creek and Lone Tree Creek to assess whether these streams supported the cold-water beneficial use indicator (water temperatures of 22°C or less, with a maximum daily average of less than 19°C. See Table 10 for monitoring data). Water temperatures were monitored using automatic data-recording thermographs.

Table 10: Stream Temperatures and Evaluation of Water Quality for the Support of Cold Water Biota Beneficial Use (water temperatures of 22°C or less with a maximum daily average of less than 19°C). See Map 3 for Monitoring Sites

Stream (allotment)	Max. Temp °C	Avg. Max. Temp °C	No. Days Sampled	Dates Sampled	Support Status
Corral Cr (561)	27.0	22.0	41	7/4-8/13/01	Not Supported
Lone Tree Cr (561)	25.2	22.1	47	6/28-8/13/01	Not Supported

***Bacteria Monitoring*:** No data was collected for fecal coliform and *E. coli* bacteria concentrations to determine whether streams supported primary and secondary contact recreation beneficial uses.

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Current IDEQ information identifies that the four pastures within the South Mountain Area allotment contain approximately 11.4 miles of stream that are not supporting the watershed's beneficial uses, and 0.6 that have not been assessed. The allotment contains portions of five assessment units (AUs) with associated beneficial uses and pollutants (Table RIPN-3). Four of the AUs are currently not supporting the beneficial uses and one has not been assessed. The streams that occur within the four AUs that are not supporting and were on the 303(d) list of impaired waters for temperature have approved TMDLs with actions identified to de-list streams, removing them from the list in the 2010 Integrated Report. However, the streams that occur within ID17050108SW002_02 AU are not meeting the beneficial uses based on combined biota/habitat bio-assessments and E. coli. A TMDL has not been developed for these pollutants; thus, the streams that occur within this AU are currently 303(d) listed.

Table RIPN-3: IDEQ water quality report for the South Mountain Area allotment

AU #	AU Name	Pasture (s) the AU occur within	Beneficial Use Not Meeting	Pollutant/ Pollution	TMDL
ID17050107SW013_02	Cherry Creek - 1st and 2nd order	1	CWAL[1]	temperature	Yes- all streams
ID17050107SW012_02	Juniper Creek & tributaries - 1st & 2nd order	1, 2	CWAL SS[2]	temperature temperature	Yes- all streams Yes- all streams
ID17050108SW002_02	Lone Tree Creek and tributaries - 1st and 2nd order	1	CWAL SS SCR[3]	combined biota/habitat bioassessments E. coli	No
ID17050107SW014_02	Soldier, Stove and Sheep Creeks - 1st and 2nd order	1	not assessed	NA	
ID17050107SW011_02	Cabin & Corral Creeks	2, 3, 4	CWAL SS	temperature temperature	Yes- all streams

	& tributaries - 1st & 2nd order				Yes- all streams

[1]CWAL = cold water aquatic life
[2]SS = salmonid spawning
[3]SCR = secondary contact recreation

Standard 8: Threatened and Endangered, Special Status, and Sensitive Species

Botany

Special status plants, BLM sensitive and federally listed species, are not known to occur on federal land in the South Mountain Area allotment (0561) (CDC 2002). The U.S. Fish and Wildlife Service considers all of Idaho to be within the potential range of Ute ladies-tresses (*Spiranthes diluvialis*), a federally threatened orchid, even though the nearest known population is more than 200 miles from the allotment (USFWS 1998). This plant occurs in spring, seep, and stream habitats, but it has not been found during surveys of riparian and wetland sites in southwest Idaho, nor has it been found on this allotment. Much of the riparian and wetland areas in the South Mountain Area allotment meet the definition of "disqualified habitat", due to past disturbance, improper hydrologic regime, and/or improper associated species (USFWS 1998).

It is possible that least phacelia (*Phacelia minutissima)*, a Type 2 BLM sensitive species, may occur on federal lands within this allotment. It is known to occur on South Mountain and northward, however no plants have been found on lands administered by BLM in this area. There is insufficient information at this time to determine the presence or absence of this species or any other BLM sensitive plants, and therefore any impacts to these species within this allotment.

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Overview – Special Status Animals

No Federally listed threatened or endangered animals are known to occur in South Mountain Area allotment. Two candidate species occur or have habitat in the allotment: the greater sage-grouse has Preliminary and General Priority Habitat, while the Columbia spotted frog has been documented in the allotment. As many as 11 mammal, 17 bird, two amphibian, four reptile, and one fish species with BLM special status (including Watch List Species) potentially may occur within the allotment. Special status species within the allotment that have been documented in the Idaho Fish and Wildlife Information System (IFWIS; (IDFG, 2011)) are limited to the Columbia spotted frog. (May, Writer, & Albeke, 2012), in their Redband Trout Status Update and Summary, designated Juniper, Cabin, and Corral creeks as current range for redband trout. The only other species recorded in IFWIS within 2 miles of this remote area is the western toad.

Redband Trout

Redband trout have been observed in all streams in the allotment; however, information regarding trout abundance is limited on BLM stream segments. Some fisheries and PFC data are available from Idaho Department of Lands which were collected upstream of BLM lands. Field observations by Joe DuPont, fisheries biologist for Idaho Department of Lands, were conducted in August of 1999 on State portions of Corral, Lone Tree, Cabin, and Juniper creeks. In a memorandum dated August 26, 1999 to Tim Duffner, Lands Resource Supervisor, Range Southwest Area, and DuPont observed, "My overall impression was that

these streams supported a healthy population of redband rainbow trout." It should be noted that although PFC ratings on State streams were similar to BLM streams, water temperatures on State streams may be cooler than on downstream BLM segments since they are closer to the water source (springs).

All BLM stream segments were rated as functioning at risk, and as a result, may not provide optimum habitat for maintenance of trout populations. Riparian vegetation is important for physical cover, insect production, bank stability, solar and thermal protection, and filtering of sediment. It also adds complexity to the stream channel and supplies a food source for aquatic insects while acting as a buffer from upland sources of nutrients and sediment. Fisheries habitat conditions are poor because riparian plant communities on these streams lack late-seral plant species (willows, sedges, and rushes) necessary to maintain stable streambanks, and channels. Width and depth ratios are not in balance with surrounding landscapes, and floodplain and channel characteristics are inadequate for dissipating energy of high flows. Unstable streambanks and channels reduced the living space for redband trout. The large width/depth ratios and lack of streamside vegetation increases solar heating of the streams such that temperatures exceeded state criteria for cold water biota in Corral Creek and Lone Tree Creek. These streams generally have a high percentage of unstable banks, which increases the amount of fine sediment suspended in the water column and deposited in the substrate. A number of stream and aquatic inventories over several years of BLM monitoring recorded high sediment levels in Corral Creek.

Wildlife

General Riparian Habitat Assessment: All 9.7 miles of stream riparian habitat which were surveyed in this allotment were found to be functioning-at-risk. Structural diversity, composition and vigor of hydric vegetation are at least partially lacking in most of these stream reaches, resulting in habitat that is not adequately providing for the needs of dependant special status animals. Most stream reaches also lack adequate hydric vegetation to protect streambanks and dissipate energy, which leaves them at high risk of losing habitat to erosion. Willows are noticeably hedged and umbrella shaped, resulting in dramatically reduced cover, structure and forage.

It is indicative that livestock use levels are not conducive to improving riparian habitat conditions and are likely resulting in significant physical disturbance to habitats and populations. This disturbance can include: trampling of nests; more frequent flushing of nesting birds, which exposes eggs and nestlings to increased predation and parasitism; and trampling of amphibian breeding habitat, leading to possible destruction of eggs and/or pools.

Information is available on four known springs on public land in this allotment. It was noted that moderate to high impacts, in the form of trampling/pugging, occurred at two springs, and low to moderate impacts occurred at the other two springs. As with stream riparian habitats, heavy grazing and trampling results in significant reductions in forage, cover and structure, and habitat that is generally not providing for the needs of most dependant wildlife special status species.

General Upland Habitat Assessment: As described in Standard 4, most evaluation sites revealed a reduction in decreaser bunchgrasses, with increaser grasses being dominant at two of the six sites. Forb diversity ranges from low to fair, while forb abundance is low to fair at three of the six evaluation sites, and good at the remaining three sites. Shrub occurrence approximates site potential at all the evaluation sites but one, where it was higher than expected. While shrubs are providing good woody cover, structure, and forage for a diversity of songbirds, sage grouse, pygmy rabbit and others, the reduced occurrence of desirable bunchgrasses and reduced abundance and diversity of forbs are limiting herbaceous cover and forage for many of these same species and other ground nesting and foraging species. This includes a diversity of insects, rodents, birds and others that are critical prey for most raptors and other predators.

Western juniper is scattered to dominant throughout the allotment, and while mature stands provide high quality habitat for a large diversity of birds, dense stands of young juniper support reduced diversity and abundance of birds (Sauder 2002). Habitat also becomes less suitable for sage grouse, pygmy rabbit and other sagebrush obligates as juniper density increases.

***Sage Grouse Habitat Evaluations*:** Two sage grouse late brood-rearing habitat evaluations were conducted at the eastern edge of the allotment, but were disregarded due to the limited potential of these sites and their inability to support sage grouse. No Breeding habitat evaluations were conducted in the allotment.

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Again in 2012, sage-grouse habitat assessments were attempted in the allotment. Areas in PPH were investigated within pasture 1, with limited success. One area was deemed too rocky with a lack of sagebrush, and in a second area, a summer upland (late brood-rearing) habitat assessment was conducted. This assessment was rated as suitable due having adequate shrub cover for chick concealment and the presence of green forbs late into the summer. There was an adequate diversity of forb richness; however, forb canopy cover was marginal. Although the assessment was not conducted during the appropriate season for breeding habitat assessments, structure and composition appears to show a small area that could provide suitable nesting habitat in the South Mountain Area allotment.

Table WDLF-1: Sage-grouse Late Brood-Rearing Habitat Assessment

Habitat Indicator	**Suitable Habitat**	**Marginal Habitat**	**Unsuitable Habitat**
Average Sagebrush Canopy Cover		X	
Average Sagebrush Height	X		
Sagebrush Growth Form	X		
Average Grass and Forb Height	X		
Average Perennial Grass Canopy Cover	X		
Average Forb Canopy Cover		X	
Preferred Forb Abundance and Diversity	X		
Overall Site Evaluation	**X**		

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VII. Appendices

Appendix A – Idaho Standards for Rangeland Health

Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management

Standard 1: Watersheds provide for the proper infiltration, retention, and release of water appropriate to soil type, vegetation, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Indicators may include, but are not limited to, the following:
1. The amount and distribution of ground cover, including litter, for identified ecological site or soil-plant associations are appropriate for site stability.
2. Evidence of accelerated erosion in the form of rills and/or gullies, erosional pedestals, flow patterns, physical soil crusts/ surface sealing, and compaction layers below the soil surface is minimal for soil type and landform.

Standard 2: Riparian-wetland areas are in proper functioning condition appropriate to soil type, climate, geology, and landform to provide for proper nutrient cycling, hydrologic cycling and energy flow.

Indicators may include, but are not limited to, the following:
1. The riparian/wetland vegetation is controlling erosion, stabilizing streambanks, shading water areas to reduce water temperature, stabilizing shorelines, filtering sediment, aiding in floodplain development, dissipating energy, delaying floodwater, and increasing recharge of groundwater appropriate to site potential.
2. Riparian/wetland vegetation with deep strong binding roots is sufficient to stabilize streambanks and shorelines. Invader and shallow rooted species are a minor component of the floodplain.
3. Age class and structural diversity of riparian/wetland vegetation is appropriate for the site.
4. Noxious weeds are not increasing.

Standard 3: Stream channels and floodplains are properly functioning relative to the geomorphology (e.g., gradient, size, shape, roughness, confinement, and sinuosity) and climate to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Indicators may include, but are not limited to, the following:
1. Stream channels and floodplains dissipate energy of high water flows and transport sediment. Soils support appropriate riparian-wetland species, allowing water movement, sediment filtration, and water storage. Stream channels are not entrenching.
2. Stream width/depth ratio, gradient, sinuosity, and pool, riffle and run frequency are appropriate for the valley bottom type, geology, hydrology, and soils.
3. Streams have access to their floodplains and sediment deposition is evident.
4. There is little evidence of excessive soil compaction on the floodplain due to human activities.
5. Streambanks are within an appropriate range of stability according to site potential.
6. Noxious weeds are not increasing.

Standard 4: Healthy, productive, and diverse native animal habitat and populations of native plants are maintained or promoted as appropriate to soil type, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Indicators may include, but are not limited to, the following:
1. Native plant communities (flora and microbiotic crusts) are maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species.
2. The diversity of native species is maintained.
3. Plant vigor (total plant production, seed and seedstalk production, cover, etc.) is adequate to enable reproduction and recruitment of plants when favorable climatic events occur.
4. Noxious weeds are not increasing.
5. Adequate plant litter and standing dead plant material are present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Standard 5: Rangelands seeded with mixtures, including predominately non-native plants, are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow and the hydrologic cycle.

Indicators may include, but are not limited to, the following:
1. In established seedings, the diversity of perennial species is not diminishing over time.
2. Plant production, seed production, and cover are adequate to enable recruitment when favorable climatic events occur.
3. Noxious weeds are not increasing.
4. Adequate litter and standing dead plant material are present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Standard 6: Exotic plant communities, other than seedings, will meet minimum requirements of soil stability and maintenance of existing native and seeded plants. These communities will be rehabilitated to perennial communities when feasible cost effective methods are developed.

Indicators may include, but are not limited to, the following:
1. Noxious weeds are not increasing.
2. Perennial species numbers are being maintained.
3. Native and introduced perennial species are vigorous enough to reproduce when climatic and other environmental conditions are favorable.
4. Litter and standing dead plant material is adequate to replenish soil nutrients relative to site potential.

Standard 7: Surface and groundwater on public lands comply with the Idaho Water Quality Standards.

Indicators may include, but are not limited to, the following:
1. Physical, chemical, and biologic parameters described in the Idaho Water Quality Standards.

Standard 8: Habitats are suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species.

Indicators may include, but are not limited to, the following:
1. Parameters described in the Idaho Water Quality Standards.
2. Riparian/wetland vegetation with deep, strong, binding roots is sufficient to stabilize streambanks and shorelines. Invader and shallow rooted species are a minor component of the floodplain.
3. Age class structure diversity or riparian/wetland vegetation is appropriate for the site.
4. Native plant communities (flora and microbiotic crusts) are maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species.
5. The diversity of native species is maintained.

6. The amount and distribution of ground cover, including litter, for identified ecological site(s) or soil-plant associations are appropriate for site stability.
7. Noxious weeds are not increasing.

Guidelines:

1. Use grazing management practices and/or facilities to maintain or promote significant progress toward adequate amounts of ground cover to support infiltration, maintain soil moisture storage and stabilize soils.
2. Locate livestock management facilities away from riparian areas wherever they conflict with achieving or maintaining riparian-wetland functions.
3. Use grazing management practices and/or facilities to maintain or promote soil conditions that support water infiltration, plant vigor, and permeability rates and minimize soil compaction appropriate to site potential.
4. Implement grazing management practices that provide periodic rest or deferment during critical growth stages to allow sufficient regrowth to achieve and maintain healthy, properly functioning conditions, including good plant vigor and adequate vegetative cover appropriate to site potential.
5. Maintain or promote grazing management practices that provide sufficient residual vegetation to improve, restore, or maintain healthy riparian-wetland functions and structure for energy dissipation, sediment capture, ground water recharge, streambank stability, and wildlife habitat appropriate to site potential.
6. The development of springs, seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions, wildlife habitat, and significant cultural and historical/ archaeological/ paleontological values associated with the water source.
7. Apply grazing management practices to maintain, promote, or progress toward appropriate stream channel and streambank morphology and functions. Adverse impacts due to livestock grazing will be addressed.
8. Apply grazing management practices that maintain or promote the interaction of the hydrologic cycle, nutrient cycle, and energy flow that will support the appropriate types and amounts of soil organisms, plants and animals appropriate to soil type, climate and landform.
9. Apply grazing management practices to maintain adequate plant vigor for seed production, seed dispersal, and seedling survival of desired species relative to soil type, climate and landform.
10. Implement grazing management practices and/or facilities that provide for complying with the Idaho Water Quality Standards.
11. Use grazing management practices developed in recovery plans, conservation agreements, and Endangered Species Act, Section 7 consultations to maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals.
12. Apply grazing management practices and/or facilities that maintain or promote the physical and biological conditions necessary to sustain native plant populations and wildlife habitats in native plant communities.

13. On areas seeded predominantly with non-native plants, use grazing management practices to maintain or promote the physical and biological conditions to achieve healthy rangelands.
14. Where native communities exist, the conversion to exotic communities after disturbance will be minimized.
15. Use non-native plant species for rehabilitation only in those situations where:
    a. native species are not readily available in sufficient quantities;
    b. native plant species cannot maintain or achieve the standards; or
    c. non-native plant species provide for management and protection of native rangelands

    Include a diversity of appropriate grasses, forbs, and shrubs in rehabilitation efforts.
16. On burned areas, allow natural regeneration when it is determined that populations of native perennial shrubs, grasses, and forbs are sufficient to revegetated the site. Rest burned or rehabilitated areas to allow recovery or establishment of perennial plant species.
17. Carefully consider the effects of new management facilities (e.g., water developments, fences) on healthy and properly functioning rangelands prior to implementation.
18. Use grazing management practices, where feasible, for wildfire control and to reduce the spread of targeted undesirable plants (e.g., cheatgrass, medusahead wildrye, and noxious weeds while enhancing vigor and abundance of desirable native or seeded species.
19. Employ grazing management practices that promote natural forest regeneration and protect reforestation projects until the Idaho Forest Practices Act requirements for timber stand replacement are met.
20. Design management fences to minimize adverse impacts, such as habitat fragmentation, to maintain habitat integrity and connectivity for native plants and animals.

Appendix B – Rangeland Health Evaluation Indicators and Attributes

This table demonstrates the relationships of the Rangeland Health Evaluation Indicators and Attributes and how they relate to the Idaho Standard for Rangeland Health. The evaluation indicators are for use on upland sites.

Attribute			Indicators of Rangeland Health	Standard 1 Watershed	Standard 4 Native Plants	Standard 5 Seedings	Standard 6 Exotics
S	H		1-Rills	X			
S	H		2-Water Flow Pattern	X			
S	H		3-Pedestals / Terracettes	X			
S	H		4-Bare Ground	X			
S	H		5-Gullies	X			
S			6-Wind-scoured, blowouts/deposition	X			
	H		7-Litter Movement	X			
S	H	B	8-Soil Surface Resistance to Erosion	X	X	X	X
S	H	B	9-Soil Surface Loss or Degradation	X	X	X	X
	H		10-Plant Community Composition / Distribution Relative to infiltration and runoff	X			
S	H	B	11-Compaction Layer	X	X	X	X
		B	12-Functional / Structural Groups		X	X[1]	X
		B	13-Plant Mortality / Decadence		X	X	X
	H	B	14-Litter Amount	X	X	X	X
		B	15-Annual Production		X	X	X
		B	16-Invasive Plants		X	X	X
		B	17-Reproductive Capability of Perennial Plants		X	X	X

---[1]Functional/Structural groups are compared to seeding mixture and age of seeding in making this evaluation, not to the site potential of the native plant community that previously occupied the area before treatment.

---**S**= Soil/Site Stability; **H**= Hydrologic Function; **B**= Biotic Integrity

Appendix C – Special Status Animals and Key Habitat Associations

Special Status Animals and Key Habitat Associations

Species	Status	Key Habitat Associations Within South Mountain Area Allotment
American Bald Eagle (*Haliaeetus eucocephalus*)	T	Riparian and adjacent upland habitats
Prairie Falcon (*Falco mexicanus*)	S	Cliff/canyon, big sagebrush, low sagebrush
Ferruginous Hawk (*Buteo regalis*)	S	Cliff, rock outcrop, open juniper, big sagebrush, low sagebrush
Northern Harrier (*Circus cyaneus*)	S	Big sagebrush, low sagebrush, meadow
Sage Grouse (*Centrocercus urophasianus)*	S	Big sagebrush, low sagebrush, meadow, riparian
Burrowing Owl (*Athene cunicularia)*	S	Various open or disturbed habitats
Yellow-billed Cuckoo (*Coccyzus erythropthalmus*)	C	Woody Riparian (not confirmed)
Calliope Hummingbird (*Stellula calliope)*	S	Woody riparian, big sagebrush, mountain shrub
Rufous Hummingbird (*Selasphorus rufus*)	S	Juniper, big sagebrush, mountain shrub, meadow
Dusky Flycatcher (*Empidonax oberholseri)*	S	Juniper, big sagebrush, mountain shrub, woody riparian
Gray flycatcher (*Empidonax wrightii)*	S	Juniper, big sagebrush, mountain shrub, woody riparian
Willow Flycatcher (*Empidonax trailii)*	S	Woody riparian, mountain shrub, juniper, big sagebrush
Loggerhead Shrike (*Lanius ludovicianus)*	S, SSC	Big sagebrush, open juniper
Swainson's Thrush (*Catharus ustulatus)*	S	Woody riparian
Yellow Warbler (*Dendroica petechia)*	S	Woody riparian, mountain shrub
Black-throated Gray Warbler (*Dendroica nigrescens*)	S	Juniper, big sagebrush
MacGillivray's Warbler (*Oporornis tolmiei*)	S	Woody riparian, mountain shrub, big sagebrush
Wilson's Warbler (*Wilsonia pusilla)*	S	Riparian
Yellow-headed Blackbird (*Xanthocephalus xanthocephalus)*	S	Wetlands, riparian
Grasshopper sparrow (*Ammodramus savannarum)*	S	Open grassland
Brewer's Sparrow (*Spizella breweri)*	S	Big sagebrush
Sage Sparrow (*Amphispiza belli*)	S	Big sagebrush
Green-tailed Towhee (*Pipilo chlorurus*)	S	Big sagebrush, mountain shrub, riparian
Preble's Shrew (*Sorex preblei*)	SSC	Riparian
Spotted Bat (*Euderma maculatum)*	S, SSC	Roosting/hibernation: Cliffs, canyons, rock outcrops Foraging: Juniper, sagebrush

Species	Status	Key Habitat Associations Within South Mountain Area Allotment
Small-footed Myotis (*Myotis ciliolabrum)*	S	Roosting/hibernation: Caves, rock crevices, trees Foraging: Cliffs, rocky slopes
Long-eared Myotis (*Myotis evotis)*	S	Roosting/hibernation: Trees, caves Foraging: Wetland/riparian, juniper, sagebrush
Fringed Myotis (*Myotis thysanodes)*	S	Roosting/hibernation: Caves, rock outcrops Foraging: Juniper, sagebrush, meadow
Long-legged Myotis (*Myotis volans)*	S	Roosting/hibernation: Rock outcrops, trees Foraging: juniper, wetland/ riparian
Yuma Myotis (*Myotis yumanensis)*	S	Roosting/hibernation: Caves, rock outcrops Foraging: Wetland/riparian, sagebrush, juniper
Townsend's Big-eared Bat (*Plecotus townsendii)*	S, SSC	Roosting/hibernation: Caves, trees. Foraging: Juniper, sagebrush, canyon.
Western Pipestrelle (*Pipistrellus hesperus)*	SSC	Roosting/hibernation: Caves, rock outcrops, burrows near water Foraging: Juniper, sagebrush, canyon
Pygmy Rabbit (*Brachylagus idahoensis)*	S, SSC	Big sagebrush.
Western Toad (*Bufo boreas*)	S, SSC	Wetland/riparian, all upland habitats
Redband Trout (*Oncorhynchus mykiss gibbsi)*	S, SSC	Aquatic

SSC = State of Idaho Species of Special Concern, S = BLM Sensitive Species, C = Federal Candidate Species for Listing as Threatened or Endangered

Appendix D – Rangeland Health Evaluation Summary Worksheets for South Mountain Area

Site Number		RH1A	RH1B	RH1C	RH1D	RH1E	RH1F	RH1G	RH1H
Legal Location (T., R.,		09S.05W.14	09S.05W.03	08S.05W.06	08S.04W.07	08S.04W.06	08S.04W.05	09S.04W.07	09S.04W.06
Ecological Site[1]		VSSL	L 13-16	L13-16	VSSL	SCI2-16	SB	SWM	L16+
Attributes[2]	Indicators[3]								
S-H	Rills	1	1	1	1	1	1	1	1
S-H	Water Flow Patterns	1	2	2	3	1	1	4	1
S-H	Pedestals & Terracettes	2	2	3	2	2	I	3	2
S-H	Bare Ground	l	3	3	1	I	1	4	1
S-H	Gullies	1	1	1	1	1	1	1	1

S	Wind Scoured, Blowouts and/or Depositions	1	1	1	1	1	1	1	1
H	Litter Movement	1	1	1	1	2	1	1	1
S-H-B	Soil Surface Resistance to Erosion	1	3	3	1	1	1	4	2
S-H-B	Soil Surface Loss or Degradation	2	2	2	2	2	1	3	2
H	Plant Community Composition & Distribution relative to infiltration & runoff	1	1	1	1	1	1	4	2
S-H-B	Compaction Layer	1	1	1	1	1	1	3	1
B	Functional Structural Groups	1	1	1	2	1	1	4	3
B	Plant Mortality_/ Decadence	2	1	1	1	1	1	1	1
H-B	Litter Amount	1	1	1	2	1	1	4	1
B	Annual Production	1	1	1	1	1	1	3	1
B	Invasive Plants	3	3	3	3	3	1	4	4
B	Reproductive Capability of Perennial Plants	1	1	2	1	1	1	1	1

[1] Ecological Sites are VSSL=Very Shallow Stony Loam 10-14", L13-16= Loamy 13-16", SCI2-16= Shallow Claypan 12-16", SB= Shallow Breaks 14-18", L16+=Loamy 16+.
[2] Indicators for Rangeland Health include -S= Soil Site Stability; H= Hydrologic Function; B= Biotic Integrity.
[3] Indicators for Rangeland Health are rated based on their departure from reference areas and/or ecological site guide descriptions; l= none-slight departure, 2=
slight-moderate departure, 3= moderate departure, 4= moderate-extreme departure, 5= extreme departure.

Appendix E – 2013 Amended Trend Data

Table E-1: South Mountain Area grass trend data for site 08S05W06, pasture 1

Grasses	**Percentage**	
Species	**2008**	**2011**

BRCA5	California brome		8
BRJA	field brome		1
BRTE	cheatgrass	25	29
POBU	bulbous bluegrass	59	64
POSE	Sandberg bluegrass	4	1
SIHY	bottlebrush squirreltail	6	16
STIPA	stipa		4

Table E-2: South Mountain Area shrub and tree trend data for site 08S05W06, pasture 1

Shrubs and Trees		**Percentage**	
Species		**2008**	**2011**
ARTRW	Wyoming big sagebrush	13	3
JUOC	juniper	2	2
PUTR	antelope bitterbrush	2	2
SYMPH	snowberry	10	11
XARTRW	X Wyoming big sagebrush	13	15
XSYMPH	X snowberry		3
XJUOC	X juniper		2

* blank cell infers no data

Table E-3: South Mountain grass trend data for site 09S04W06, pasture 2

Grasses		**Percentage**	
Species		**2008**	**2011**
BRJA	field brome		1
POBU	bulbous bluegrass	18	52
POSE	Sandberg bluegrass	92	72
SIHY	bottlebrush squirreltail	31	42
STIPA	stipa		18

Table E-4: South Mountain shrub and tree trend data for site 09S04W06, pasture 2

Shrubs and Trees		**Percentage**	
Species		**2008**	**2011**
ARAR8	low sagebrush	68	62
JUOC	juniper		1
XARAR8	X low sagebrush		53

* blank cell infers no data

Appendix F – 2013 Determinations

2013 Supplement to the South Mountain Area Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

Standard 1 (Watersheds)
Watersheds provide for the proper infiltration, retention, and release of water appropriate to soil type, vegetation, climate, and landform to provide for proper nutrient cycling, hydrologic cycling and energy flow.

Standard
□ Standard does not apply
□ Meeting the Standard
■ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward
□ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _4_

Rationale for Evaluation Finding and Determination

Accelerated erosion is occurring in upland areas of the allotment where western juniper is encroaching and along stream terraces where soil has been compacted. In both cases, the deep-rooted perennial bunchgrasses necessary for watershed function are under-represented. Extensive flow patterns are evident along stream terraces, with high levels of bare ground, pedestalled plants, insufficient ground cover, and altered plant communities which negatively impact infiltration and runoff.

Juniper trees are reducing effective precipitation in the watershed directly by intercepting precipitation and indirectly by shading out those plant assemblages that would otherwise provide for water entry pathways. As a result, less water is available in the soil profile for photosynthesis and the potential for energy flow is reduced. Encroachment of juniper into shallow soil sites appears to be progressing more slowly, therefore the impacts to the hydrologic cycle are less pronounced there. Ground cover and plant species frequency samples from the loamy site in pasture 1 indicate more deleterious soil and watershed conditions than those from the shallow claypan trend site in pasture 2. The differences result from a combination of factors including site potentials, resilience to disturbances, and utilization pattern histories.

The allotment fails to meet the watershed standard due to a combination of current livestock grazing and juniper invasion. The Corral Creek stream terrace been grazed season-long by concentrations of livestock deleterious to watershed conditions. The repeated spring and summer grazing use pattern does not favor the persistent population of deep-rooted perennial bunchgrasses necessary for proper

watershed function in this allotment. Stream terraces are affected more by current grazing than juniper. Season-long grazing can contribute to juniper encroachment indirectly by reducing the herb layer necessary to carry the fires that would otherwise reduce juniper (Burkhardt & Tisdale, 1976) (Miller & Rose, 1999).

Standard 2 (Riparian Areas and Wetlands)
Riparian-wetland areas are in properly functioning condition appropriate to soil type, climate, geology, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Standard
□ Standard does not apply
□ Meeting the Standard
■ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward
□ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _4,5_

Rationale for Evaluation Finding and Determination

Standard 2 is not being met in pastures 1 and 2 of the South Mountain Area allotment, is being met in pasture 3, and is not applicable in pasture 4. Approximately 0.8 mile of Lone Tree Creek were assessed FAR in pasture one because the banks were unstable, the plant vigor was low, and the woody species did not appear to be recruiting. Three MIM sites were established on Lone Tree, Cabin, and Corral Creeks within pasture 1. Both Lone Tree and Cabin Creek had a poor wetland site rating, and Corral Creek had a fair rating. Additionally, within pasture 1, one unnamed spring was rated FAR because the surface flow patterns had been altered by trampling and there were very few riparian plant species present.

Within pasture 2, 0.9 mile of Cabin Creek were most recently rated FAR, 1.8 miles of Cabin Creek were PFC, 3.7 miles of Corral Creek tributaries were rated FAR, 2.5 miles of Corral Creek were FAR, and 0.8 were PFC. Where streams were FAR, the issues included the presence of headcuts that threaten vertical stability, a lack of deep-rooted, band stabilizing species, a lack of willow recruitment, and unstable banks. Additionally, three springs have been assessed in pasture 2; one was FAR, and two were NF. The unnamed spring (561B) that was FAR had invasive species present, the herbaceous vegetation had been utilized heavily, and the riparian soils had been altered by trampling. Unnamed spring 561T was NF because there was a lack of shrub regeneration, the stubble height was less than 2 inches, and the area was susceptible to erosion. Unnamed spring 561A was NF because both the herbaceous and woody species were heavily utilized, there was a lack of regeneration and upland species were encroaching.

Functioning-at-risk stream segments of stream on this allotment are dominated by early seral,

shallow-rooted species, such as Kentucky bluegrass and red top. These species reflect a shift from the deep-rooted, stabilizing hydric species, such as sedges and rushes, to those species more suited to a drier site and which are less capable of maintaining soil moisture and stabilizing stream banks. Disturbance induced community types are common. For these reasons, grazing is a significant factor in these vegetative shifts and is limiting the riparian areas ability to recover and rejuvenate. Age class and structure of the hydric vegetation are poor, with low percentages of young willows and other riparian shrubs. Typically, there is inadequate riparian-wetland vegetation present to protect streambanks and dissipate energy during high flows. Riparian areas are not widening and vigor of plants is poor.

Current livestock grazing management practices are significant causal factors for not meeting Standard 2. Residual vegetation has not been sufficient to maintain or improve riparian-wetland function, the recent grazing schedule has not allowed for rest or deferment years, and the spring developments were not designed to protect the ecological function of the riparian-wetland areas. Therefore, current livestock grazing management practices do not conform with the Idaho Guidelines for Livestock Grazing Management applicable to Standard 2.

Evaluation Findings and Determination

Standard 3 (Stream Channel/Floodplain)
Stream channels and floodplains are properly functioning relative to the geomorphology (e.g., gradient, size shape, roughness, confinement, and sinuosity) and climate to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Standard
□ Standard does not apply
□ Meeting the Standard
■ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward
□ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). 7

Rationale for Evaluation Finding and Determination

Standard 2 is not being met in pastures 1 and 2 of the South Mountain Area allotment, is being met in pasture 3, and is not applicable to pasture 4. Approximately 0.8 mile of Lone Tree Creek was assessed FAR in pasture 1 because the banks were unstable, the plant vigor was low, and the woody species did not appear to be recruiting. Three MIM sites were established on Lone Tree, Cabin, and Corral Creeks within pasture one. Both Lone Tree and Cabin Creek had a poor wetland site rating, and Corral Creek had a fair rating. Additionally, within pasture 1, one unnamed spring was rated FAR because the surface flow patterns had been altered by trampling and there were very few riparian plant species present.

Within pasture 2, 0.9 mile of Cabin Creek were most recently rated FAR, 1.8 miles of Cabin Creek were PFC, 3.7 miles of Corral Creek Tributaries were rated FAR, 2.5 miles of Corral Creek were FAR, and 0.8 were PFC. Where streams were FAR, the issues included the presence of headcuts that threaten vertical stability, a lack of deep-rooted, band stabilizing species, a lack of willow recruitment, and unstable banks. Additionally, three springs have been assessed in pasture 2; one was FAR, and two were NF. The unnamed spring (561B) that was FAR had invasive species present, the herbaceous vegetation had been utilized heavily, and the riparian soils had been altered by trampling. Unnamed spring 561T was NF because there was a lack of shrub regeneration, the stubble height was less than 2 inches, and the area was susceptible to erosion. Unnamed spring 561A was NF because both the herbaceous and woody species were heavily utilized, there was a lack of regeneration and upland species were encroaching.

Functioning-at-risk stream segments of stream on this allotment are dominated by early seral, shallow rooted species, such as Kentucky bluegrass and red top. These species reflect a shift from the deep rooted, stabilizing hydric species, such as sedges and rushes to those species more suited to a dryer site and which are less capable of maintaining soil moisture and stabilizing stream banks. Disturbance induced community types are common. For these reasons, grazing is a significant factor in these vegetative shifts and is limiting the riparian areas ability to recover and rejuvenate. Age class and structure of the hydric vegetation are poor, with low percentages of young willows and other riparian shrubs. Typically, there is inadequate riparian-wetland vegetation present to protect streambanks and dissipate energy during high flows. Riparian areas are not widening and vigor of plants is poor. Rosgen (1996) F4 channel types, and other channel types indicative of alteration, are common and are susceptible to shifts in both lateral and vertical stability caused by disturbance.

Current livestock grazing management practices are significant causal factors for not meeting Standard 3. Residual vegetation has not been sufficient to maintain or improve riparian-wetland function, the recent grazing schedule has not allowed for rest or deferment years, and the stream channel and bank function have been compromised. Therefore, current livestock grazing management practices do not conform with the Idaho Guidelines for Livestock Grazing Management applicable to Standard 3.

Evaluation Findings and Determination

Standard 4 (Native Plant Communities)
Healthy, productive, and diverse native animal habitat and populations of native plants are maintained or promoted as appropriate to soil type, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Standard
□ Standard does not apply
□ Meeting the Standard
■ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward

□ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines

□ Conforms with Guidelines for Livestock Grazing Management

■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). 4, 5, 8, 9

Rationale for Evaluation Finding

The 2006 Rangeland Health Assessments, more recent rangeland health field evaluations, trend data, 2011 aerial imagery, utilization and actual use were used to evaluate the Native Plant Communities Standard. The 2006 assessments consisted of seven field evaluations; six conducted in 2001 and one conducted in 2003. An additional field evaluation was performed in 2008 for a total of 9 field evaluations for the allotment. No trend monitoring, rangeland health assessments, or photo monitoring have been performed in pasture 3 of this allotment.

Standard 4 is not being met in pastures 1, 2, and 4. Rangeland health assessments (pastures 1, 2, and 4) and trend data (pasture 1 and 2) identify a general shift in species composition including poor representation of deep-rooted perennial bunchgrasses and a strong increase of shallow-rooted perennial bunchgrasses and invasive species. During the assessments western juniper was documented as an invasive species in portions of pastures 1, 2, and 4 of the South Mountain Area allotment with a moderate or greater departure from reference site conditions. These areas of juniper invasion were confirmed and expanded into pasture 3 using aerial imagery (NAIP 2011).

Pastures 1 and 2 trend data show some variation from early and mid seral ecological status relative to the 1999 estimate for the South Mountain Area allotment as reported in the Proposed Owyhee Resource Management Plan and Final Environmental Impact Statement (Table VEG-2). The data of inventoried vegetation condition reported 20 percent early seral, 70 percent mid-seral, 10 percent late-seral, and no potential natural condition in 1999. Trend data report a general absence of reference condition grasses (Idaho fescue, bluebunch wheatgrass, mountain brome, and needlegrass), and higher amounts than would be expected of annual grasses and juniper indicating a potential drift from mid-seral to early seral conditions relative to 1999 vegetation conditions. Pasture 2 trend data and photos identify a strong presence of mule-ears. This species tends to monopolize early season soil moisture where it then dominates a site to the point of replacing desirable grasses and forbs (Mueggler & Blaisdell, 1951). A dominance of mule-ears is likely an indicator of severe grazing pressure (Mueggler, 1988).

Recent trend data are consistent with the rangeland health assessments, and associated photos, both which document a change in species composition away from reference condition. Throughout pasture 1 and 2 large bunchgrasses are below potential (either underrepresented or lacking), juniper is present or a dominant in the allotment, and annual invasive species are scattered throughout. Due to the hydrology of the semi-wet meadow site it displays a slightly different shift in species. There is a dominant presence of invasive species (Kentucky bluegrass, ragwort, Rocky Mountain iris) at this site which identifies a degradation of the biotic integrity. Higher than normal presence of these species is often associated with overgrazing or a change in hydrology (Rocchio & Crawford, 2009).

Utilization monitoring was collected in 2009, 2011 and 2012 at the end of the grazing seasons. Utilization varied from 5 percent to 52 percent for key upland grasses with much the low percent utilizations occurring in areas that are hard for cattle to access or farther from water. The average of the three years was 24 percent for Idaho Fescue and Bluebunch Wheatgrass. Utilization monitoring beyond 50 percent identifies a strain on the vegetative community, therefore, making current livestock management a concern. Currently season-long grazing (6/1-9/30) occurs in all pastures and is also a stressor which can negatively impact maintenance or improvement of the vegetative community in normal years and especially in years of drought or fire or in communities stressed by juniper invasion (See Table A3, Section II).

Determination

The current livestock grazing system is a contributing factor in not meeting Standard 4. However, the cause for not meeting Standard 4 throughout a majority of the allotment is an altered fire regime and subsequent juniper expansion. Pasture 2 of the South Mountain Area allotment is not meeting Standard 4 due to current livestock management and juniper invasion. Pastures 1, 3, and 4 are not meeting due to juniper invasion. In general plant diversity has decreased, and there is an imbalance of desirable deep-rooted to shallow-rooted grasses, which is being exacerbated by juniper invasion and current livestock management.

In all pastures with areas of steep terrain, shallow soils, and juniper dominance current livestock grazing management does not appear to be a significant factor. Sites located in gentle terrain or adjacent to riparian areas are receiving season-long livestock use; therefore, livestock grazing management is a significant factor. In such areas the native plant communities are compromised and not being maintained in a way that provides proper nutrient cycling, hydrologic cycling, and energy flow requirements.

Pasture 2 was not meeting in the semi-wet meadow ecological site. The rangeland health assessment was taken adjacent to Corral Creek and displayed compacted soils, poor diversity of species and a lack of structure, insufficient litter and production to maintain proper nutrient cycling, and an altered plant community which is composed of mostly invasive species. Although the acreage of these sites is small the condition impacts adjacent uplands and riparian communities. Although no other field assessments or monitoring were performed in a semi-wet meadow ecological site within the allotment it is likely other areas of similar ecology throughout the allotment are also being negatively impacted from livestock management given the season of use from 6/1 to 9/30. With this type of management drainage bottoms receive concentrated livestock use throughout the summer and fall season and can result in repeated utilization of key species.

The influx of western juniper into the allotment is altering species diversity and distribution, thereby, changing ecological functions, and productivity and diversity of native plant species. Closed juniper canopies have resulted in the decline, and in some cases loss, of sagebrush and grasses. Western juniper dominance has a negative influence on the hydrologic, nutrient, and energy cycles of these systems. In addition, where invasion is heavy, juniper provides unde competition against other plants for resources (moisture, nutrients, sun). The encroachment of

western juniper has resulted in species composition and growth form changes (displacement of grasses and shrubs), localized species mortality, and impacts to the hydrologic function of the landscape.

The current management of continued season-long grazing (6/1-9/30) is of concern and does not conform with Guidelines for Livestock Grazing Management to provide periodic rest or deferment during critical growth stages to allow sufficient regrowth for maintenance and proper functioning of plant communities. In addition, this management is not in conformance with ORMP vegetation management actions and allocations which identify the requirement of grazing practices to improve or maintain native rangeland species to attain composition, density, foliar cover and vigor appropriate to site potential. Pasture 2 was not in conformance with Guidelines for Livestock Grazing Management in the semi-wet meadow areas due to the lack of residual vegetation to improve and promote the interaction of the hydrologic cycle, nutrient cycle, and energy flow that will support the native plant community as appropriate for the site. In addition, under the current permit the allotment is stocked at 7.9 acres/AUM. Based on the reduced health of the native bunchgrass vegetation, season long grazing and the vegetation community already compromised by juniper invasion the potential for further reduction in upland vegetation health is a concern at this stocking rate.

In conclusion pasture 2 is not meeting standards in the semi-wet meadows due to historic and current season long livestock use. Pasture 2 is also is lacking large bunchgrasses in the uplands. This suggests that season long grazing at the current stocking rate is out of balance with the forage production within the allotment. In addition trend and photo plot data suggest recent detection of juniper seedlings. Pastures 1, 2, 3 and 4 are not meeting the standard due to historic livestock grazing and altered fire regime leading to subsequent western juniper invasion. Juniper is highly competitive in terms of available moisture, nutrients, and understory photosynthetic needs, resulting in species composition and growth form changes (displacement of shrubs and grasses), and impacts to the vegetation of the landscape.

Standard 5 (Seedings)

Rangelands seeded with mixtures, including predominately non-native plants, are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow, and the hydrologic cycle.

Standard 5 does not apply to this allotment.

Standard 6 (Exotic Plant Communities, Other than Seedings)

Exotic plant communities, other than seedings, will meet minimum requirements of soil stability and maintenance of existing native and seeded plants. These communities will be rehabilitated to perennial communities when feasible cost effective methods are developed.

Standard 6 does not apply to this allotment.

Evaluation Findings and Determination

Standard 7 (Water Quality)
Surface and ground water on public lands comply with the Idaho Water Quality Standards.

Standard
□ Standard does not apply
□ Meeting the Standard
■ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward
□ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _10_

Rationale for Evaluation Finding and Determination

Idaho Department of Environmental Quality (IDEQ) designates basins, sub-basins, and assessment units in order to manage the States waterways. The 2010 Integrated Report (303(d)/305(b)) uses assessment units (AUs) within the sub-basin. Assessment units are groups of similar streams within a sub-basin that have similar land use practices, ownership, or land management. Assessment units are assessed for pollutants and assigned beneficial uses with associated Water Quality Standards. The Beneficial Use Reconnaissance Program (BURP) is a field assessment of stream segments (all IDEQ data and standards mentioned here are available on the IDEQ web site http://www.deq.idaho.gov).

Current IDEQ information identifies that the four pastures within the South Mountain Area allotment contain approximately 11.6 miles of stream that are not supporting the watershed's beneficial uses, and 0.6 that have not been assessed. The allotment contains portions of five AUs with associated beneficial uses and pollutants (Table RIPN -3 above). Four of the AUs are currently not supporting the beneficial uses and one has not been assessed. The streams that occur within the four AUs that are not supporting and were on the 303(d) list of impaired waters for temperature have approved TMDLs with actions identified to de-list streams, removing them from the list in the 2010 Integrated Report. However, the streams that occur within ID17050108SW002_02 AU are not meeting the beneficial uses based on combined biota/habitat bioassessments and E. coli. A TMDL has not been developed for these pollutants; thus, the streams that occur within this AU are currently 303(d) listed.

Potential Natural Vegetation (PNV) TMDLs were developed for temperature for the AUs that occur within the allotment. Idaho water quality standards include a provision (IDAPA 58.01.02.200.09), which establishes that if natural conditions exceed numeric water quality criteria, exceedance of the criteria is not considered to be a violation of water quality standards. In these situations, natural conditions essentially become the water quality standard, and the natural level of shade and channel width become the target of the TMDL. The in-stream temperature that results from attainment of these conditions is consistent with the water quality standards, even though it may exceed numeric

temperature criteria (Jordan Creek TMDL, 2009).

Based on the streams removal from the 303(d) list of impaired waters for temperature, Standard 7 is being met in pastures 2 through 4 of the South Mountain Area allotment. However, it is important to note that implementation plans associated with the TMDLs are in development, and actions on the ground will not take place immediately. Standard 7 is not currently being met in pasture 1 since there are streams on the 303(d) list due to habitat bio-assessments (E.coli), and is therefore not in conformance with Livestock Grazing Management Guideline # 10.

Evaluation Findings and Determination

Standard 8 (Threatened and Endangered Plants and Animals)
Habitats are suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species.

Standard
□ Standard does not apply
□ Meeting the Standard
■ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward
□ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). 4, 5, 8, & 9

Rationale for Evaluation Finding and Determination

Botany
One special status plant is known to occur within the allotment on private and state land; no special status plants are known to occur on BLM-administered lands. There is insufficient information on which to make a determination about the effects of livestock grazing on any special status plants that may occur on BLM-administered lands within this allotment.

Animals
Upland habitats have been converted to juniper woodlands with an associated reduction in sagebrush and desirable grasses and forbs for special status species. Mature juniper woodlands, however, do benefit a number of special status species such as passerine birds, many raptors, and several bat species. The conversion to juniper is detrimental to sage-grouse and a general lack of suitable breeding habitat is apparent. While many special status animal species do inhabit mature juniper woodlands, most species suffer with a conversion from sage-steppe habitat to early and mid-seral juniper stands. Although the conversion is not tied to current grazing management, the situation is exacerbated by season-long grazing that concentrates livestock into limited upland acreage and wetland habitats. A general shift in species composition away from deep-rooted

perennial grasses toward shallow-rooted perennial grasses and invasive species has been documented and reduce habitat quality for many special status animal species.

Current season-long grazing practices (6/1 to 9/30) are detrimental to riparian areas, springs, and semi-wet meadows because wetland vegetation is not allowed to regrow and establish sufficient height to protect areas from spring runoff events. Additionally, desirable wetland herbaceous plants are lost in favor of less desirable short-rooted grasses and weedy species. Wetland habitats are disproportionately important to special status species because of their limited existence in this arid landscape. Columbia spotted frogs, redband trout, and late brood-rearing sage-grouse are all affected by deteriorating wetland conditions.

Upland habitats have shifted away from sagebrush communities toward juniper woodlands, reducing available forage for livestock and wildlife. What is remaining is being affected by current livestock grazing practices, as witnessed by a shift from desirable grasses to less-desirable short-rooted grasses and invasive plant species such as cheatgrass, bulbous bluegrass, and Wyethia.

All creeks in the allotment are redband trout-bearing streams and were rated as functioning-at-risk. Grazing occurs late in the season, not allowing for regrowth of hydric vegetation. Current livestock grazing management practices are significant factors contributing to this determination. If grazing occurred earlier in the season and livestock were removed, regrowth of riparian-dependent vegetation could occur, allowing for bank-stabilizing vegetation to improve. Additionally, late-season grazing has affected willows and other riparian shrubs by reducing recruitment and producing a club-shaped growth form that reduces habitat structure for nesting birds and redband trout. Likewise, the one recorded Columbia spotted frog site in the allotment, in pasture 2, is being impacted by season-long grazing occurring into fall.

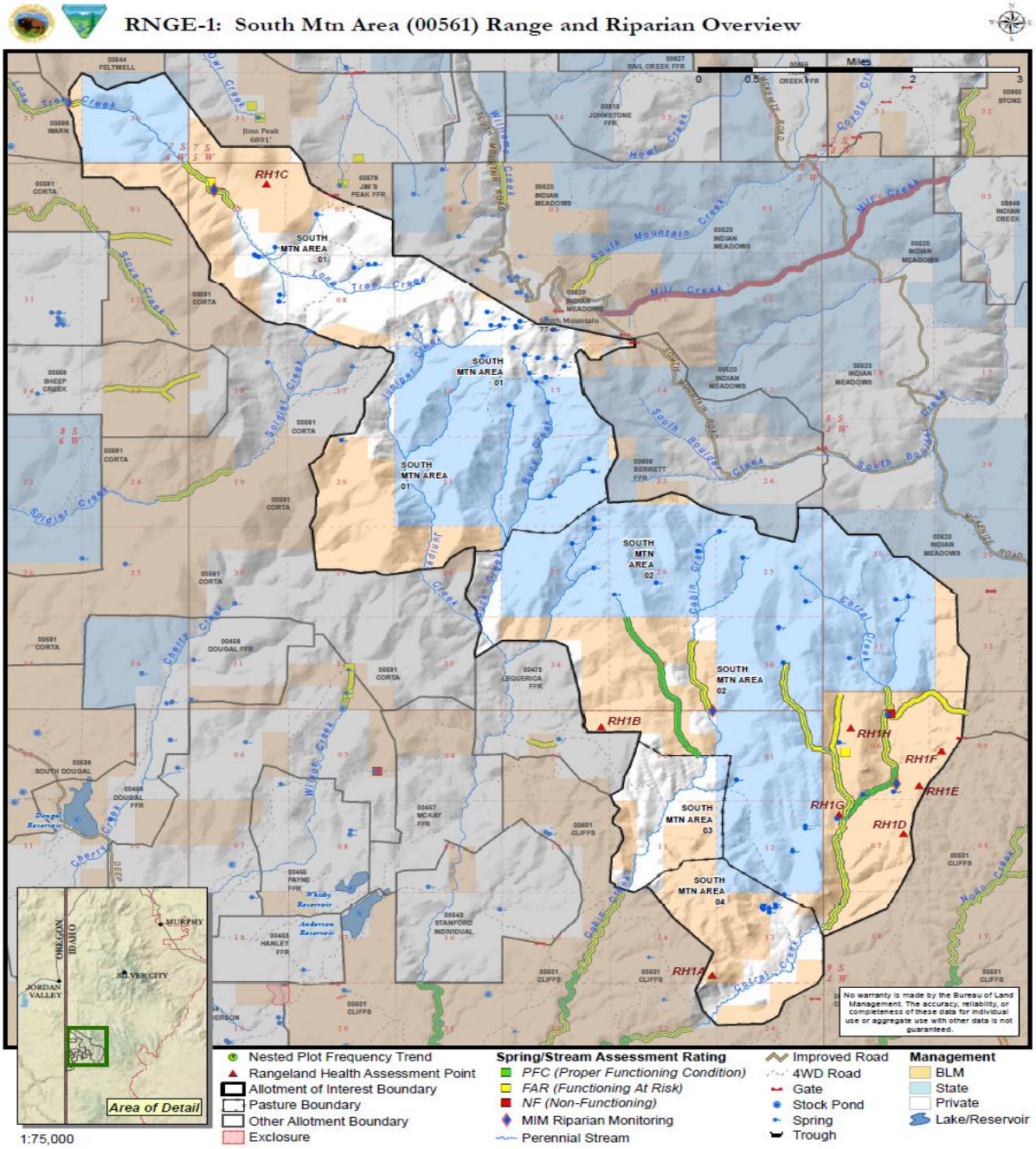
Determination

I have determined that Standards 1, 2, 3, 4, 7 and 8 of the applicable Standards for Rangeland Health are not being met in the South Mountain Area allotment. Standards 5 and 6 are not applicable to this allotment. Current livestock grazing management practices are significant factors in not meeting Standards 1, 2, 3, 4, 7, and 8. Livestock management practices do not conform with the applicable Livestock Grazing Management Guidelines 4, 5, 7, 8, 9 and 10 for several Standards.

Joseph V Chaney — 8/29/13

Field Manager — **Date**

Owyhee Field Office

VIII. Maps

2013 Supplement to the South Mountain Area allotment Rangeland Health Standards and Guidelines Assessment
Updated South Mountain Area Allotment Map