

BUREAU OF LAND MANAGEMENT

Rangeland Health Assessment and Evaluation Report

**Achieving the Idaho Standards for Rangeland Health
Owyhee Field Office Group 1 Allotments**

January 2012

Idaho BLM NEPA Permit Renewal Team

Rangeland Health Assessment and Evaluation Report

Achieving the Idaho Standards for Rangeland Health

Field Office: Owyhee

**Allotment Name/Number: Swisher Springs – 0450
Swisher FFR - 0637**

Name of Permittee(s): 06 Livestock Co / 1102196

Standards for Rangeland Health

In 1997, the Idaho BLM adopted rangeland health standards (Appendix A - *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management*), which were developed in coordination with the agency's three Resource Advisory Councils during the previous two years. The Idaho Standards for Rangeland Health (ISRH) outline the Bureau of Land Management's rangeland management goals for the betterment of the environment and sustained productivity of the range. They were developed with the specific intent of providing for the multiple uses of public lands managed by the BLM within Idaho. Application of the standards should involve collaboration between the authorized officer, interested publics, and resource users.

The eight standards for rangeland health are expressions of the level of physical and biological condition or degree of function required for healthy, sustainable rangelands, based on a number of indicators of rangeland health. Rangelands should be meeting or making significant progress toward meeting the standards through proper nutrient and hydrologic cycling and energy flow.

Appropriate to soil type, climate, and landform, indicators are a list of typical physical and biological factors and processes that can be measured and/or observed (e.g., photographic monitoring). They are used in combination to provide information necessary to determine the health and condition of the rangelands. Usually, no single indicator provides sufficient information to determine rangeland health, and only those indicators appropriate to a particular site are to be used. The indicators listed below each standard are not intended to be all-inclusive, and the issue of scale must be considered when evaluating each indicator. In some cases, individual isolated sites within a landscape may not be meeting the standards, but broader areas must be in proper functioning condition. Furthermore, fragmentation of habitat that reduces the effective size of large areas must also be evaluated for its consequences.

Rangeland Health Assessment and Evaluation Report

The Rangeland Health Assessment (RHA) is a compilation and analysis of all data and information available for an allotment or group of allotments that describes the current rangeland health conditions and identifies changes or trends in rangeland health over time. Permittees, interested publics, tribes, and state agencies were given an opportunity to provide information and data to be considered in the RHA. Rangeland Health Assessments are used in association with other quantitative monitoring and inventory information as a qualitative evaluation tool to provide early warnings of resource problems in rangeland uplands. The RHA procedure used for assessing the ISRH 1, 4, 5, and 6 compares 17 indicators to a reference state or Ecological Site Descriptions (USDA NRCS 2006 and 2010) and expresses a degree of departure from what is expected.

The Evaluation Report draws on monitoring reports on representative sites to determine rangeland health, condition and trend based on a number of indicators of rangeland health. It answers two major questions:

1. Is the allotment meeting the ISRH?
2. If the allotment is not meeting the ISRH, is it making significant progress toward meeting the ISRH?

The analysis in the RHA is the basis for completing the Evaluation Report (ER). Some of the factors that might influence the current conditions include livestock grazing management, off-highway vehicles (OHV), wildlife concentration, roads, and trails. Current livestock grazing management and other uses are evaluated to conclude causes of any unsatisfactory conditions. Conclusions reached in the evaluation should describe all the factors and indicators and the scientific basis for each conclusion. The evaluation rationale should contain descriptions of each attribute or indicator that contributes to allotment(s) meeting or not meeting the standards.

Rangeland Health Field Assessments (RHFA) were completed for Swisher Springs and Swisher FFR allotments in mid-July, 2001. Protocols used were in accordance with techniques identified in BLM technical reference 1734-6 Interpreting Indicators of Rangeland Health (USDI BLM 2000). Subsequent to completion of the field assessments and the initiation of this Rangeland Health Assessment and Evaluation Report, Version 3 of the technical reference was updated by Version 4 (USDI BLM 2005). The techniques for qualitatively assessing rangeland health remained similar with indicators unchanged from Version 3. Even though the evaluation process had already begun for these two allotments, use of refined description of the process is provided in Version 4 was used to complete this report.

Allotment and Livestock Grazing Management

Swisher Springs Allotment

The Swisher Springs allotment includes 3,694 acres of public land and no state land or private land in three pastures (Table ALLOT-1). The allotment is located in Owyhee County, Idaho, approximately 50 miles south of Murphy, Idaho (Map G1). Elevations on the allotment range from approximately 4,990 to 5,700 feet within the USDA Major Land Resource Area (MLRA) D-25-Owyhee High Plateau (USDA NRCS, 2006). Ecological sites described within the allotment are primarily Shallow Claypan sites dominated by low sagebrush (*Artemisia arbuscula*) and bunchgrasses or Loamy sites dominated by mountain big (*Artemisia tridentata* ssp. *vaseyana*) or Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) and perennial bunchgrasses (Owyhee County Area Soil Survey, 2003). See Appendix G for a list of common and scientific names used within the document. The land forms in the allotment are mountains, foothills, and fan terraces, with slopes ranging from 2 to 30 percent.

Table ALLOT-1: Acreages (2011) by pasture within the Swisher Springs Allotment

Pasture 1	1,391 acres
Pasture 2	1,309 acres
Pasture 3	994 acres
Total	3,694 acres

The current total permitted use for livestock grazing in the Swisher Springs Allotment is 537 AUMs, of which 345 AUMs are active and 192 AUMs are suspended.

The 1999 Owyhee Resource Management Plan (ORMP), the land use plan for Owyhee Field Office, categorized Swisher Springs allotment as an improved (I) allotment with a low priority for management. Categorization of allotments in the land use plan prioritized development and implementation of grazing systems to meet multiple use resource objectives and/or rangeland health standards based on resource conditions, resource potentials, resource concerns, economics, present management, and other criteria (USDI BLM 1999).

The current grazing schedule was implemented with a final decision in 1989. That decision implemented a 2-year rest-rotation grazing system for pastures 1 and 3. One of these two pastures is used between April 15 and July 15 in one year and is rested, no scheduled livestock grazing, in the second year. The other of these two pastures is rested in year one and used between April 15 and July 15 in the second year. Grazing use of pasture 2 is annually deferred until after the active growing season, which ends approximately July 15, and is authorized through October 31. The grazing schedule is summarized in Table ALLOT-2.

Table ALLOT-2: Swisher Springs allotment grazing schedule

	Year 1	Year 2
Pasture 1	April 15 to July 15	Rest
Pasture 2	July 15 to October 31	July 15 to October 31
Pasture 3	Rest	April 15 to July 15

Reported actual use and utilization levels recorded within pastures of the Swisher Springs allotment are summarized in Appendix G. These data identify that in recent years the grazing schedule has been implemented and that utilization levels have been less than the maximum allowable level of 50 percent set in livestock grazing management actions of the ORMP.

Swisher FFR Allotment

The Swisher Fenced Federal Range (FFR) allotment includes 153 acres of public land, 628 acres of private land, and no state land in one pasture (Map 1). The allotment is located in Owyhee County, Idaho, approximately 50 miles south of Murphy, Idaho. Elevations on the allotment range from approximately 4,920 to 5,200 feet within the USDA Major Land Resource Area (MLRA) D-25-Owyhee High Plateau (USDA NRCS, 2006). Ecological sites described for uplands within the allotment are primarily Shallow Claypan sites dominated by low sagebrush and perennial bunchgrasses (USDA NRCS 2003). See Appendix F for a list of common and scientific names used within the document. The land forms in the allotment include foothills and fan terraces adjacent to Castle Creek.

The current total permitted use for livestock grazing in the Swisher FFR allotment is 15 AUMs from public lands, of which all AUMs are active.

The 1999 ORMP, the land use plan for the Owyhee Field Office, categorized the Swisher FFR allotment as a custodial (C) allotment. Allotment categorization was based upon resource conditions, resource potentials, resource concerns, economics, present management and other criteria (USDI BLM 1999). Custodial category allotments receive the lowest priority for management attention.

Reported actual use and utilization levels recorded within pastures of the Swisher FFR allotment are summarized in Appendix F.

Information Sources

USDA Natural Resources Conservation Service. 2003. Soil Survey of Owyhee County Area, Idaho. Available at <http://soildatamart.nrcs.usda.gov/Manuscripts/ID675/0/Owyhee%20Text.pdf>

USDA Natural Resources Conservation Service. 2006. Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296.

USDA Natural Resources Conservation Service. 2006 and 2010. Ecological Site Descriptions. Available from the Idaho State Office of BLM, Boise ID or the Idaho State Office of NRCS, Boise ID.

USDI Bureau of Land Management. 1999. Owyhee Resource Management Plan. Available at the Owyhee Field Office, Marsing, Idaho.

USDI Bureau of Land Management. 2000. Interpreting Indicators of Rangeland Health-Version 3. Technical Reference 1734-6. Denver CO. 118 p.

USDI Bureau of Land Management. 2005. Interpreting Indicators of Rangeland Health-Version 4. Technical Reference 1734-6. Denver CO. 122 p.

Standards

Standard 1 – Watersheds

___ Standard Doesn't Apply

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:

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.

Rangeland Health Assessment

Swisher Springs

Twelve of the 17 indicators utilized in the RHFA are related to Standard 1 - Watershed Health. The analysis of watershed condition considers both soil stability and hydrologic indicators and displays a natural range of physical and vegetative characteristics (USDA NRCS 2006 and 2010). Table SOIL-1 summarizes all indicator ratings from Swisher Springs RHFA's (Map 5) and their corresponding percentages related to Standard 1 by pasture. For example, one site was evaluated in pasture 1 for a total of 12 indicator ratings related to watersheds. Of these, four sites were rated as having a slight-to-moderate degree of departure from reference conditions. The summary of the indicators for the Swisher Springs allotment is displayed in Appendix D.

Table SOIL-1: Summary of watershed-related indicator ratings by pasture from 2001 RHFA (Appendix D)

Standard 1 Watersheds	Degree of Departure									
	None to Slight		Slight to Moderate		Moderate		Moderate to Extreme		Extreme	
	#	%	#	%	#	%	#	%	#	%
Pasture 1 Road Field ¹	8	67	4	33	0	0	0	0	0	0
Pasture 2 Mountain Field ²	11	92	1	8	0	0	0	0	0	0
Pasture 3 Lower Allotment ³	8	67	1	8	3	25	0	0	0	0
Swisher FFR Upper & Lower ⁴	9	75	3	25	0	0	0	0	0	0

¹ Summarizes: Shallow-Claypan 11"-13"

² Summarizes: Loamy 13"-16"

³ Summarizes: Shallow-Claypan 12"-16"

⁴ Summarizes Loamy 11"-13"

A “preponderance of evidence” approach was used to select the appropriate departure category for each attribute (Table SOIL-2). The decision was not always based on where the majority of indicators for each attribute fell, but also weighed a rating depending on whether an indicator was particularly important for the site (Pellant et al. 2005). Such an approach therefore excluded the use of a numerical indicator tally and heavily relied on a summary of all available information.

Table SOIL-2: Summary of 2001 related RHFA attribute ratings for the Swisher Springs allotment (Appendix D)

Pasture Name	Sites Total & Overall Rating	Soil/Site Stability										Hydrologic Function										
		n-s		s-m		m		m-e		e		n-s		s-m		m		m-e		e		
		#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	
Pasture 1 Road Field	1 s-m	0	0	1	100	0	0	0	0	0	0	0	0	0	1	100	0	0	0	0	0	0
Pasture 2 Mountain Field	1 n-s	1	100	0	0	0	0	0	0	0	0	1	100	0	0	0	0	0	0	0	0	0
Pasture 3 Lower Allotment	1 s-m	0	0	1	100	0	0	0	0	0	0	0	0	0	0	1	100	0	0	0	0	0
Swisher FFR Upper & Lower	1 s-m	0	0	1	100	0	0	0	0	0	0	0	0	1	100	0	0	0	0	0	0	0

*Final ratings are not exclusively based on the displayed watershed-related indicators and relied on a summary of all available information.

Ground cover data collected from three nested frequency trend plots (trend sites) from 1988 to 2009 were evaluated in the Swisher Springs allotment and represent one site per pasture (Map 5). None are available for the Swisher FFR Upper and Lower pastures. This information provides quantitative data that reflect long-term and short-term changes for ground cover, which consists of basal and total vegetation, rock, gravel, biologic crust, persistent and non-persistent litter, and canopy cover.

For this assessment, *long-term* represents the full length of time between the first and last reading (e.g. comparing 1988 to 2009) and *short-term* reflects a comparison between the 2009 and its immediately previous reading. Data may or may not show statistical significance or reflect a direction change in conditions.

Fire History

Two recent fires have burned portions of the Swisher Springs allotment but did not reach Swisher FFR. In 2000, the Meadow fire burned approximately 1,800 acres within the allotment. In 2007, the Crutcher fire affected approximately 1,060 acres and re-burned areas along the western boundary, extending slightly past the previous perimeter of the 2000 Meadow fire (Map 3). The allotment experienced a drought in 2000 and 2001 and was also rested in 2001 and 2002 after the Meadow fire. No rest occurred after the 2007 Crutcher fire.

Pasture 1 – Road Field

One RHFA was completed in Pasture 1 in a Shallow Claypan 11"-13" ecological site (Appendix D; Map 4). Sixty-seven percent of the indicators were in the none-to-slight range of departure from reference conditions and 33 percent were in the slight-to-moderate range of departure from reference conditions (Table SOIL-1). As a whole, pasture 1 has a slight-to-moderate degree of departure from reference conditions for soil/site stability and hydrologic function (Table SOIL-2).

Fire affected pasture 1 by burning approximately 390 acres (28 percent) during the 2000 Meadow fire and partially re-burned approximately 290 acres (21 percent) during the 2007 Crutcher fire (Map 3).

Water flow paths, soil loss, and pedestals are mostly historic in nature and are now stabilized with gravel, litter, good soil structure, and organic matter. The plant community shows a slight increase in Sandberg bluegrass (*Poa secunda*) and some decrease in bluebunch wheatgrass (*Pseudoroegneria spicata*), but only none-to-slight departure from the reference area, while litter amount is slightly reduced.

Ground cover trend data were collected from 1988 to 2009 (Appendix C). Bare ground and non-persistent litter show a non-significant increase, while basal vegetation displays a statistically significant decrease both long- and short-term. Rock, gravel, biological crust, and persistent litter (after this referred to as biological crust only) are significantly decreasing long-term but not short-term, while a reverse is displayed for canopy cover, which is significantly increasing short-term but not long-term. Total vegetation is relatively static.

Pasture 2 – Mountain Field

One RHFA was completed in pasture 2 in a Loamy 13"-16" ecological site (Appendix D; Map 4). Ninety-two percent of the indicators were in the none-to-slight range of departure from reference conditions and 8 percent were in the slight-to-moderate range of departure from reference conditions (Table SOIL-1). As a whole, pasture 2 has a none-to-slight degree of departure from reference conditions for soil/site stability and hydrologic function (Table SOIL-2).

Fire affected pasture 2 by burning approximately 1,070 acres (82 percent) during the 2000 Meadow fire and re-burned approximately 180 acres (14 percent) along the southern boundary during the 2007 Crutcher fire (Map 3).

Almost all of pasture 2 burned in 2000 and was not grazed in 2001 and 2002 to allow recovery from the burn. The 2001 RHFA described the effects of the fire on the plant community and watershed by noting that mortality in the woody plant species is high and frequency is slightly reduced in herbaceous species.

Ground cover trend data was collected from 1988 to 2009 (Appendix C). The site was affected by the 2000 Meadow fire. Basal and total vegetation show a statistically significant decline both long- and short-term, while bare ground displays a non-statistical increase long-term and a significant decrease short-term. The greatest differences can be seen with biological crusts that significantly decreased right after the fire and in the long-term, while non-persistent litter shows a large significant short-term and long-term increase, especially as it relates to the 2000 fire. Canopy cover is in significant decline long-term but is increasing short-term.

Pasture 3 – Lower Allotment

One RHFA was completed in pasture 3 in a Shallow Claypan 12"-16" ecological site (Appendix D; Map 4). Sixty-seven percent of the indicators were in the none-to-slight range of departure from reference conditions, 8 percent were in the slight-to-moderate range, and 25 percent were in the moderate range of departure from reference conditions (Table SOIL-1). As a whole, pasture 3 has a slight-to-moderate degree of departure from reference conditions for soil/site stability and hydrologic function (Table SOIL-2).

Fire affected pasture 3 on approximately 340 acres (34 percent) during the 2000 Meadow fire that were then re-burned by the 2007 Crutcher fire, resulting in a total of approximately 590 acres (59 percent). The evaluation sites were not affected by the 2000 and 2007 fires because they burned the northern portion of the pasture (Map 3).

The observed departures from reference conditions are associated with historic and active water flow patterns and pedestals, but monitoring notes also record soil protection from gravel armor and litter. The slope at the site is 2 to 5 percent, which is not particularly susceptible to accelerated soil erosion unless initiated by some disturbance, such as road construction or fire. The recordings and photographs support a fairly stable watershed with perennial plant vigor being less than expected, but they

note good seed heads and some recruitment of new plants, which is rather unusual in drought conditions.

Ground cover trend data was collected from 1988 to 2009 (Appendix C). Basal vegetation shows a statistically significant decrease while non-persistent litter displays a significant increase both long- and short-term. Total vegetation is significantly increasing short-term but not long-term while bare ground displays a significant increase long-term and a decrease short-term. Canopy cover is increasing but significantly only over the long-term, not short-term. Biological crusts show a significant decline long-term but appear static over the short-term.

Swisher FFR – Upper & Lower Pastures

One RHFA was completed in the Swisher FFR in a Loamy 11-13” ecological site (Appendix D; Map 4). Seventy-five percent of the indicators were in the none-to-slight range of departure from reference conditions and 25 percent were in the slight-to-moderate range of departure from reference conditions (Table SOIL-1). As a whole, Swisher FFR has a slight-to-moderate degree of departure from reference conditions for soil/site stability and hydrologic function (Table SOIL-2).

Water flow paths, soil loss, and pedestals are mostly historic in nature and are now stabilized with gravel, and litter. Poor structure and lack of biological crusts contribute to ongoing soil erosion and degradation. The plant community shows an increase of western juniper (*Juniperus occidentalis*), annuals, and Sandberg bluegrass and some decrease in bluebunch wheatgrass. The area is not affected by any recent fires.

Evaluation of Standard 1

Desired Conditions:

1999 Owyhee Resource Management Plan:

Livestock Grazing Management

- LVST 1: Provide for sustained level of livestock use compatible with meeting other resource objectives.
- MGMT ACTIONS: The livestock allocation is the current active permitted use for livestock in the Owyhee Resource Area. In order to meet resource objectives, the forage allocation will be adjusted based upon monitoring and assessment. Evaluation of monitoring data will determine future stocking levels.
- Limit upland forage use to 50% unless higher or lower level of use is appropriate to meet standards for healthy rangelands.

Soil Resources

- SOIL 1: Improve unsatisfactory and maintain satisfactory watershed health/condition on all areas.
- SOIL 2: Achieve stabilization of current, and prevent the potential for future, localized accelerated soil erosion problems (particularly on stream banks, roads,

and trails).

- **MGMT ACTIONS:** Implement grazing practices that during and at the end of the grazing season provide adequate amounts of ground cover (determined on an ecological site basis) to support proper infiltration, maintain soil moisture, stabilize soils, and maintain site productivity.

Swisher Springs

Evaluation Finding – Allotment/watershed is:

Meeting the Standard

Not meeting the Standard, but making significant progress towards meeting

Not meeting the Standard

Rationale for Evaluation Finding

The preponderance of evidence determined that the slight-to-moderate category best reflects the overall condition of the watershed on the Swisher Springs allotment and concludes that Standard 1- Watershed is being met. However, over the longer term, juniper encroachment and cheatgrass (*Bromus tectorum*) are identified as the primary concern for watershed health.

Overall watershed condition is closely tied to the health of the biotic community and soil surface stability. Vegetation (upland and riparian) is the primary factor that influences the spatial and temporal variability of soil processes (USDA NRCS 2003) and as vegetation condition changes, so does runoff, erosion, and infiltration.

Static conditions or slight improvement in upland vegetation cover are apparent and are likely related to rest treatments from grazing in 2000 and 2001. However, the allotment was not rested after the 2007 Crutcher fire, although fences within the pastures apparently provided some exclusion around the burn perimeter within the center of the allotment.

The plant community shows an increase in Sandberg bluegrass and some decrease in bluebunch wheatgrass that, from a cover perspective for soils, show satisfactory recovery after the fire. Bare ground, however, has only decreased over the short-term and otherwise shows an increase in all pastures over the long-term. Though this increase in bare ground over two decades is non-significant at two out of three sites, it is not desirable, especially in areas where juniper is present.

The western portion of pasture 2 is most vulnerable to juniper encroachment as it contains areas not affected by the recent fires. The long-term effects of soils loss from continued juniper encroachment would be a reduction in vegetation community productivity (Miller et al. 2005) and a high unlikelyhood of restoring the communities in the future (Bunting et al. 2002).

Swisher FFR Allotment

Evaluation Finding –Allotment/watershed is:

Meeting the Standard

Not meeting the Standard, but making significant progress towards meeting

Not meeting the Standard

Rationale for Evaluation Finding

Assessment of rangeland health information for Swisher FFR allotment is similar to that for the Swisher Springs allotment. Departure of watershed conditions at the assessment site identified soil/site stability and hydrologic function as slight-to-moderate in the allotment.

Review of all information in 2011 concludes that Standard 1- Watershed is being met. Over the longer term, juniper encroachment and cheatgrass are the primary concern for watershed health.

Information Sources

Bunting, S. C., J. L. Kingery, M. A. Hemstrom, M. A. Schroeder, R. A. Gravenmier, and W. J. Hann. 2002. Altered rangeland ecosystems in the interior Columbia Basin. USDA Forest Service General Technical Report PNW-GTR-553. 82 p.

Miller, R.F., J.D. Bates, T.J. Svejcar, F.B. Pierson, and L.E. Eddleman. 2005. Biology, ecology, and management of western juniper. OR State Tech. Bull. 152, Agr. Exp. Stat. 82 p.

Pellant, M., P. Shaver, D.A. Pyke, and J.E. Herrick. 2005. Interpreting indicators of rangeland health, version 4. Tech. Ref. 1734-6. U.S. Dept. of Interior, Bureau of Land Management, Natl. Sci. and Tech. Center, Denver, CO. 122 p.

Trend – sampling vegetation attributes. www.blm.gov/nstc/library/techref.htm

USDA Natural Resources Conservation Service. 2006 and 2010. Ecological Site Descriptions. Available from the Idaho State Office of BLM, Boise ID or the Idaho State Office of NRCS, Boise ID.

USDA Natural Resources Conservation Service. 2003. Chapter 7 – Rangeland and pastureland hydrology and erosion. In *National Range and Pasture Handbook*. 31 p.

USDI Bureau of Land Management. 1999. Owyhee Resource Management Plan. Available at the Owyhee Field Office, Marsing, ID.

Standard 2 – Riparian Areas and Wetlands ___ Standard Doesn't Apply

[Note: Standard applies to Swisher Swings only]

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:

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.

Rangeland Health Assessment

Swisher Springs

Overview

The 1999 Owyhee Resource Management Plan (ORMP) identifies perennial and fish-bearing streams that occur on public lands along and includes an assessment of the mileage present and the condition at the time. The ORMP does not identify any of the riparian water resources within the allotment.

Based on the National Hydrologic Dataset (NHD), riparian and water resources within the allotment include approximately 22 miles of intermittent and ephemeral¹ streams (about 5.5 miles support riparian vegetation; NAIP 2009) and one known spring (Table RIPN 1). The major drainages include Swisher, Long Meadow, and Moonshine Creeks. There is one named spring called Swisher Spring.

¹

Intermittent: Contains water for only part of the year, but more than just after rainstorms and at snowmelt.

Ephemeral: A stream or stretch of stream that flows in normal water years only in direct response to precipitation and whose channel is above the water table at all times.

Table RIPN-1: Total Miles of Perennial and Intermittent Stream and Number of Springs within each Pasture

Pasture	Perennial Miles	Intermittent/Ephemeral Miles	# Reservoirs	# Springs
1	0	6.2	0	0
2	0	9.7	0	1
3	0	6.7	0	0

Previous Assessment Summary

The Swisher Springs Grazing Allotment Rangeland Health Assessment dated December 2006 primarily discusses the three streams that support riparian vegetation and the lack of available information regarding the condition of the streams and the one spring.

Pasture 1

According to the NHD, pasture 1 of the allotment contains approximately 6.2 miles of intermittent stream. The NHD does not differentiate between intermittent and ephemeral streams. An ephemeral stream is defined as one that flows in normal water years only in direct response to precipitation (BLM TR 1737-15). Not all ephemeral streams support riparian plant communities. The streams in pasture 1 are ephemeral and do not support riparian-wetland vegetation.

Pasture 2

According to the NHD, pasture 2 of the allotment contains approximately 9.7 miles of intermittent streams and one spring. Many of the streams in pasture 2 are ephemeral and do not support riparian-wetland areas. However, both Swisher and Moonshine Creeks support intermittent flows and riparian-wetland areas. Both streams were assessed with the BLM Proper Functioning Condition (PFC)² protocol and are functional-at-risk (FAR)³ (Map 5). The lack of riparian vegetation, shrinking riparian areas, livestock trailing, and hoof shearing of riparian soils were noted. Swisher Spring was also assessed with the BLM PFC protocol and rated FAR for the same reasons. The spring is developed but is not exclosed from livestock.

Pasture 3

According to the NHD, pasture 3 of the allotment contains approximately 6.7 miles of intermittent streams. Most of the streams in pasture 3 are ephemeral and do not support riparian-wetland areas. The unnamed tributary to Deep Creek was assessed with the BLM PFC protocol and was rated in proper functioning condition (PFC)⁴. The

² PFC Assessments are based on Interagency Technical Reference 1737-15, *A User Guide to Assessing Proper Functioning Condition and Supporting Science for Lotic Areas* and 1737-16, *A User Guide to Assessing Proper Functioning Condition and Supporting Science for Lentic Areas*

³ FAR indicates that the riparian-wetland area does not have sufficient vegetation, landform, or large woody debris to dissipate stream energy, filter sediment, aid ground water recharge, aid in floodplain development, stabilize streambanks, and/or maintain channel characteristics.

⁴ PFC indicates a riparian-wetland area has adequate vegetation, landform, or large woody debris present to dissipate stream energy, filter sediment, aid ground water recharge, aid in floodplain development, stabilize streambanks, and/or maintain channel characteristics.

stream was assessed primarily based on its Idaho Department of Environmental Quality (IDEQ) impairment listing (see Standard 7 below).

Swisher FFR

There are negligible (less than 0.01 miles) riparian and water resources on BLM land within the allotment; thus, this standard will not be discussed further.

Evaluation of Standard 2

Swisher Springs

Evaluation Finding – Allotment/riparian areas & watershed is:

Meeting the Standard

Not meeting the Standard, but making significant progress towards meeting

Not meeting the Standard

RMP Objectives/ Desired Conditions:

Maintain or improve riparian-wetland areas to attain proper functioning and satisfactory conditions. Riparian-wetland areas include streams, springs, seeps, and wetlands.

Rationale for Evaluation Finding

The 1999 Owyhee Resource Management Plan does not identify or discuss any of the water resources within the allotment. However, two of the intermittent streams and the spring that support small areas of riparian-wetland vegetation within the allotment were assessed with the BLM PFC protocol and were rated as FAR.

Additionally, IDEQ has assessed the watershed (Integrated report 2002) and assigned beneficial uses. Information collected by the state during the reconnaissance found issues with sedimentation and siltation of the water bodies within the watershed.

The intermittent riparian areas associated with the streams that were rated FAR are lacking hydric riparian vegetation, have shrinking riparian areas, and have unstable streambanks. The spring is not fenced to exclude livestock and has a high percentage of bare soil, heavy utilization of riparian-wetland vegetation, and shearing of wetland soils.

Swisher FFR

Evaluation Finding – Allotment/riparian areas & watershed is: **NA**

Meeting the Standard

Not meeting the Standard, but making significant progress towards meeting

Not meeting the Standard

Rationale for Evaluation Finding

There are negligible (less than 0.01 mile) riparian and water resources on BLM land within the allotment; thus, this standard will not be discussed further for the Swisher FFR.

Information Sources

Idaho Department of Environmental Quality Lower Owyhee Watershed Integrated Report, 2002: http://www.deq.idaho.gov/media/458038-integrated_report_2002_final_entire.pdf

USDA Farm Services Agency. 2009. NAIP Aerial Imagery. <http://www.fsa.usda.gov/FSA/apfoapp?area=home&subject=prog&topic=nai>

USDI Bureau of Land Management. 1999. Owyhee Resource Management Plan. Available at the Owyhee Field Office, Marsing, Idaho.

USDI U.S. Geological Survey. National Hydrologic Dataset (NHD), Earth Science Information Center. <http://nhd.usgs.gov/data.html>

Standard 3 – Stream Channel/Floodplain ___ Standard Doesn't Apply
[Note: Standard applies to Swisher Swings only]

Stream channels and flood plains 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:

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.

Rangeland Health Assessment

Swisher Springs

See discussion under Standard 2 above.

Swisher FFR

There are negligible (less than 0.01 mile) riparian and water resources on BLM land within the allotment; thus, this standard will not be discussed further for the Swisher FFR.

Evaluation of Standard 3

Swisher Springs

Evaluation Finding – Allotment/stream channel & floodplain is:

Meeting the Standard

Not meeting the Standard, but making significant progress towards meeting

Not meeting the Standard

RMP Objectives/ Desired Conditions:

See discussion under Standard 2 above.

Rationale for Evaluation Finding

See discussion under Standard 2 above.

Information Sources

See information under Standard 2 above.

Swisher FFR

Evaluation Finding – Allotment/stream channel & floodplain is: **NA**

Meeting the Standard

Not meeting the Standard, but making significant progress towards meeting

Not meeting the Standard

Rationale for Evaluation Finding

There are negligible (less than 0.01 mile) riparian and water resources on BLM land within the allotment; thus, this standard does not apply.

Standard 4 – Native Plant Communities

Standard Doesn't Apply

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:

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.

Rangeland Health Assessment

Three RHFAs were completed within representative sites in the Swisher Springs allotment during 2001, one within each of the three pastures. One RHFA was completed within a representative site in the Swisher FFR allotment during 2001. The field assessments were conducted in accordance with the procedure described in BLM-Technical Reference 1734-6, Interpreting Indicators of Rangeland Health - Version 3 (USDI BLM 2000). Subsequent to completion of the field assessments and the initiation of this rangeland health assessment and evaluation report, Version 3 of the technical reference was updated by Version 4 (USDI BLM 2005) as noted above. This procedure is a comparison of 17 indicators of rangeland health observed for a field assessment site to an Ecological Site Description or a reference site that displays a natural range of the expected physical and vegetative characteristics. The analysis of the biotic integrity attribute considers the following nine indicators: soil surface resistance to erosion, soil surface loss or degradation, compaction layer, functional/structural groups, plant mortality/decadence, litter amount, annual production, invasive plants, and reproductive capacity of perennial plants.

The ratings for these nine indicators are expressed as degree of departure from what is expected for the assessment site and are summarized to arrive at the biotic integrity attribute for the site. The compilation of recorded departure of these indicators for the Swisher Springs Allotment is displayed in Appendix D: Rangeland Health Indicators & Attribute Ratings.

Two recent fires have burned portions of the Swisher Springs allotment (Map 3). The Meadow fire in 2000 burned a large portion of all three pastures, while the 2007 Crutcher fire had one finger which burned from the west into the southern portions of pastures 1 and 2 and the northern portion of pasture 3. The RHFA site in pasture 2 was within the boundary of the fire in 2000. No other field assessment sites were within the boundary of either fire.

Swisher Springs Allotment

Pasture 1 – Road Field

The RHFA in pasture 1 was completed in a Shallow Claypan 11-13” Ecological Site⁵ (USDA-NRCS 2010) (Maps 4 and 5). Little departure of the indicators from the ecological site description for this site was recorded, with six of the nine indicators showing a departure of none-to-slight. The remaining three indicators (soil surface resistance to erosion, soil surface loss or degradation, and functional structural groups) showed a departure of slight-to-moderate.

Comments recorded within the RHFA included an observation that Sandberg bluegrass was more prevalent at the site than potential, with an associated reduction in bluebunch wheatgrass. A trace of annual grasses was noted, as was the presence of juniper.

This site received an overall biotic integrity rating of slight-to-moderate departure from the ecological site description, based on a weighting of the departure of functional/structural groups as noted in comments above. The plant community resembled reference conditions for this ecological site, with the presence of dominant shrub and grass species identified in the ecological site description.

Pasture 2– Mountain Field

The RHFA for pasture 2 was conducted in a Loamy 13-16” ecological site (USDA-NRCS 2010) (Maps 4 and 5). A 2000 wildfire burned within the pasture, including the site chosen for the 2001 assessment. As with pasture 1, there was little departure of the indicators from the ecological site description, with eight of the nine indicators showing a departure of none-to-slight. The remaining one indicator (soil surface resistance to erosion) showed a departure of slight-to-moderate. While comments associated with the one slight-to-moderate departure identified susceptibility to erosion, based on reduced cover associated with fire impacts to the plant community, comments overall identified a plant community recovering well from fire impacts one year post-fire. Mountain big sagebrush seedlings, the potential dominant shrub for the site, were present, while green rabbitbrush (*Ericameria teretifolia*) and juniper, both a departure from site potential, were reported as the dominant shrub and tree species. A presence of annual grasses was noted in the RHFA. The site responded to the fire disturbance as expected.

This site received an overall biotic integrity rating of none-to-slight departure from the ecological site description. The plant community resembled reference conditions for this ecological site, with the presence of dominant grass and shrub species identified in the ecological site description and indications of recovery from the 2000 fire.

⁵ Although the site description for the rangeland health field assessment in Pasture 1 identified data collection from a Shallow-Claypan 11-13” site, the mapping of sites in Swisher Springs Allotment only identifies a Swallow-Claypan 12-16” site, consistent with the site identified for the Pasture 3 rangeland health assessment.

Pasture 3– Lower Field

The RHFA for pasture 3 was conducted in a Shallow Claypan 12-16” ecological site (USDA-NRCS 2010) (Maps 4 and 5). Although remaining minor, greater departures of the indicators from the ecological site description for this site were recorded than for the two other pastures of the Swisher Springs allotment. Five of the nine indicators showed a none-to-slight departure. Three of the remaining indicators had recorded slight-to-moderate departure (functional structural groups, plant mortality/decadence, and invasive species) and one indicator was recorded with a moderate departure (soil surface resistance to erosion) from the ecological site description for this site. Comments recorded within the RHFA included loss of bunchgrasses, low vigor of perennial plants, die-off of Sandberg bluegrass, die-off of low sagebrush, and presence of cheatgrass and juniper as invasive species. These comments were recorded with at most a slight-to-moderate departure from the ecological site description, with the exception of soil surface resistance to erosion.

This site received an overall biotic integrity rating of slight-to-moderate departure from the ecological site description, based on weighting of the diversity of reference plant community species recorded on the RHFA cover worksheet for this site. As with the documentation for the other two pastures, the plant community in pasture 3 resembled reference conditions for this ecological site, with presence of dominant grass and shrub species identified in the ecological site description.

Swisher FFR

The RHFA for the Swisher FFR allotment was conducted in a Loamy 11-13” ecological site⁶ (USDA-NRCS 2010) (Maps 4 and 5). Four of the nine indicators showed a none-to-slight departure from the ecological site description. Three of the remaining indicators had a slight-to-moderate departure of (soils surface resistance to erosion, soil surface loss or degradation, functional structural groups) and one indicator (invasive species) was a moderate departure from the ecological site description for this site. Sandberg bluegrass presence was higher than site potential, and both cheatgrass and juniper were present. Cheatgrass and juniper were both identified as minor components of the vegetation community, placed in an estimated cover class of 2 to 5 percent. Limited occurrence of microbotic crust, as compared to site potential, was also noted in the RHFA.

This site received an overall biotic integrity rating of slight-to-moderate departure from the ecological site description, based on the prevalence of Sandberg bluegrass that was higher than site potential and presence of juniper and cheatgrass within a site, where neither is a component of the potential ecological site. The plant community resembled

⁶ Although the site description for the rangeland health assessment in Swisher FFR identified data collection from a Loamy 11-13” ecological site, the BLM GIS mapping of sites in Swisher Springs Allotment only identifies a Swallow-Claypan 12-16” ecological site.

reference conditions for this ecological site, with presence of dominant grass and shrub species identified in the ecological site description.

Vegetation Trend Monitoring

Two recent fires have burned portions of the Swisher Springs allotment as identified in the rangeland health assessment section of this document (Map 3). The trend site in pasture 2 was within the boundary of the fire in 2000. No other trend sites were within the boundary of either fire. The Crutcher Fire Emergency Stabilization Report completed in 2010 identified that no post fire monitoring was completed within the Swisher Springs allotment.

Trend monitoring was completed within the Swisher Spring allotment to identify change in herbaceous and shrub vegetation in response to environmental conditions and management actions (USDI BLM 1999). Summarized short and long-term trend data with the identification of short-term changes, which are statistically significant ($p < 0.1$), are presented in Appendix C: Trend.

Swisher Springs

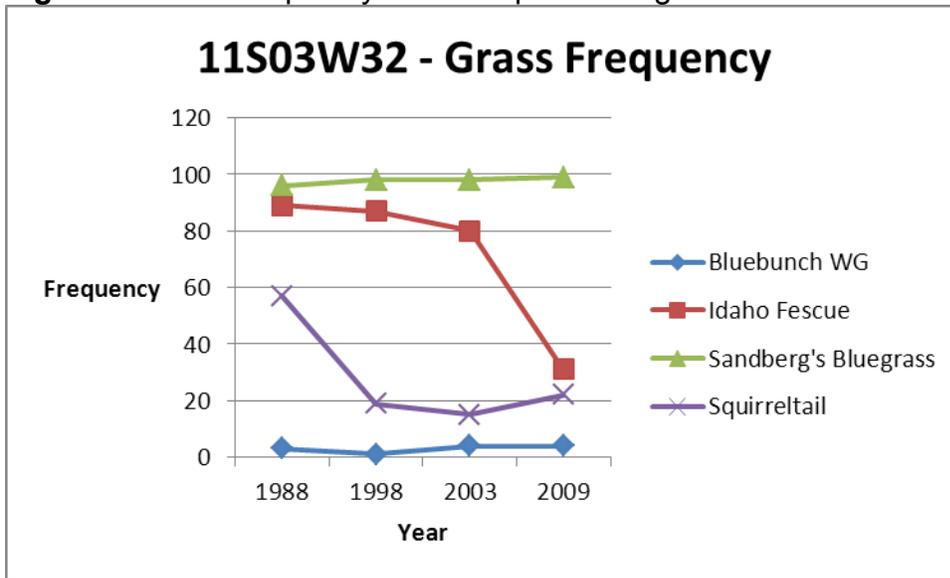
Pasture 1 Road Field

One nested plot frequency transect study site was established in 1988 within pasture 1. The trend site, like the site where the RHFA was completed, is located within a Shallow Claypan ecological site. In addition to data recorded in 1988, additional data were recorded in 1998, 2003, and 2009. Data for frequency of bluebunch wheatgrass, Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass, and squirreltail (*Elymus elymoides*) are summarized and presented in figure VEG-1.

These data indicate a long-term (all data) and short-term (two most recent recordings) static trend, with minimal occurrence for bluebunch wheatgrass. At the same time, the long-term trend in frequency of Idaho fescue has declined, with the most dramatic decline in the short term. Similarly, the frequency of squirreltail has declined long-term and remained static or increased slightly in the short-term. Frequency of Sandberg bluegrass has remained static long-term and short-term, with a recorded greater frequency at all dates than the other three species. The one statistically significant change in frequency of these grass species ($p < 0.1$) has been the short-term decrease in Idaho fescue.

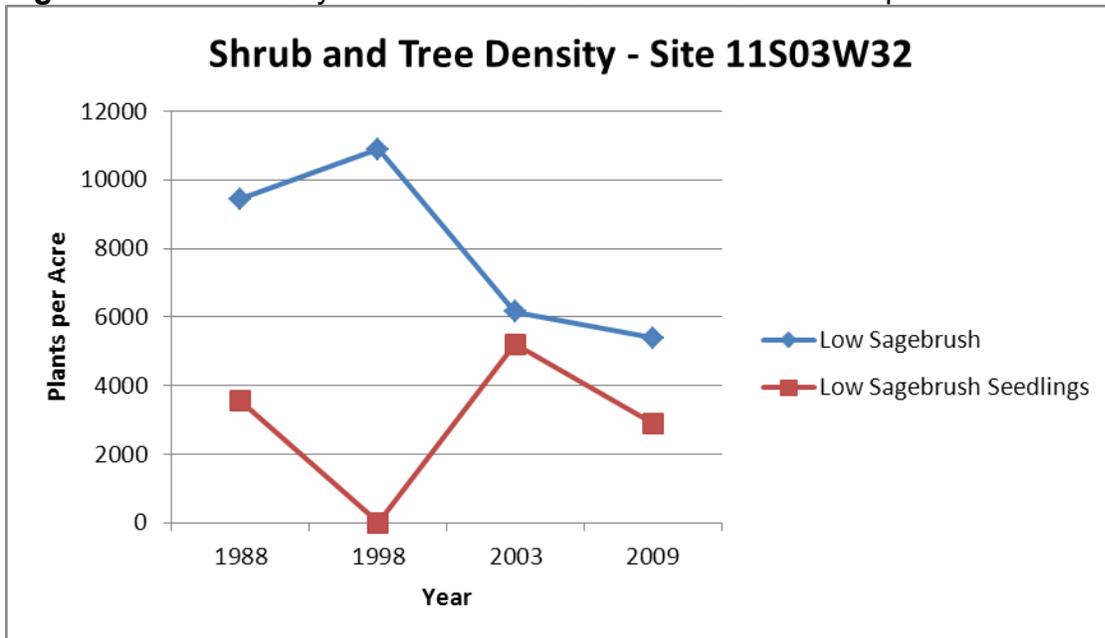
The site potential for the Shallow Claypan 11-13" ecological site identifies a significant dominance of bluebunch wheatgrass and Idaho fescue, while Sandberg bluegrass is a minor component.

Figure VEG-1: Frequency of native perennial grasses at the trend site in pasture 1



In addition to frequency data recorded at the trend site in pasture 1, shrub and tree densities were also recorded. Data are summarized in figure VEG-2. No tree density was recorded at this site, but the densities of mature and seedling low sagebrush were recorded. These data indicate periodic high density of low sagebrush seedlings but a long-term and short-term decrease in density of mature low sagebrush.

Figure VEG-2: Density of shrubs and trees at the trend site in pasture 1



Pasture 2 Mountain Field

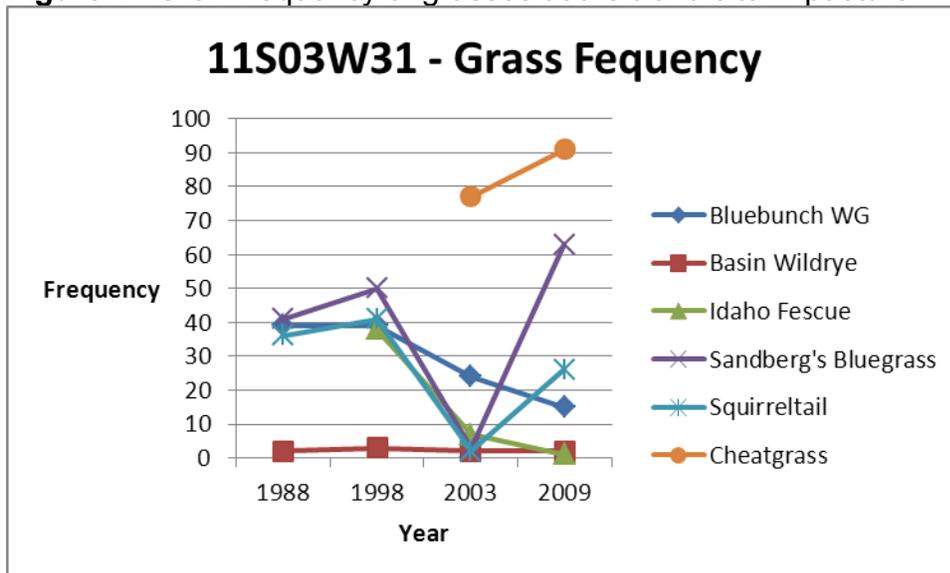
One nested plot frequency transect study site was established in 1988 within pasture 2. The trend site, like the site where the rangeland health assessment was completed, is located within a Loamy 13-16" ecological site. This trend site is located within the boundary of the fire in 2000. In addition to data recorded in 1988, additional data were recorded in 1998, 2003, and 2009. Data for frequency of bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, and squirreltail are summarized and presented in figure VEG-3.

These data indicate a long-term and short-term downward trend for bluebunch wheatgrass and a similar long and short-term downward trend for Idaho fescue. Whereas Sandberg bluegrass and squirreltail data show a short term increase in frequency, data for both show a significant downward trend between 1998 and 2003. Statistical significance ($p < 0.1$) of the short-term trends summarized are limited to the short-term increase in frequency of Sandberg bluegrass and squirreltail.

Frequency of cheatgrass was not recorded at trend sites prior to 2003. Variability of data for an annual species such as cheatgrass has limited application to identifying trend beyond a relative presence. Frequency of cheatgrass was 77 percent in 2003 and 91 percent in 2009.

The site potential for the Loamy 13-16" ecological site identifies a significant dominance of bluebunch wheatgrass and Idaho fescue, while Sandberg bluegrass and squirreltail are minor components.

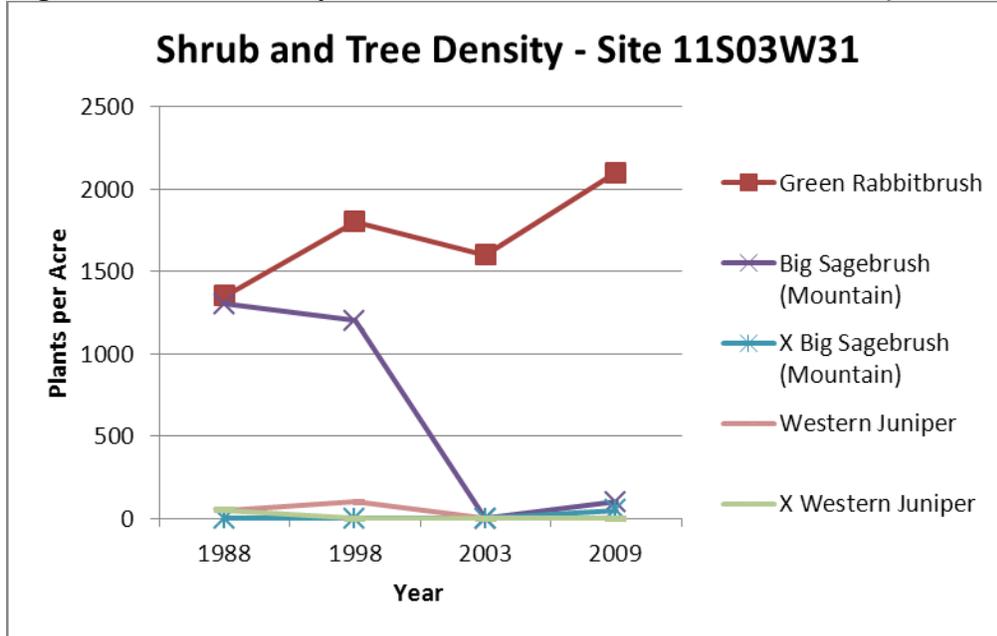
Figure VEG-3: Frequency of grasses at the trend site in pasture 2



In addition to frequency data recorded at the trend site in pasture 2, shrub and tree densities were also recorded. Data are summarized in figure VEG-4. Juniper density recorded in 1988 and 1998 decreased to complete absence in the plot by 2003 and

remained absent through 2009. The density of mountain big sagebrush and mountain sagebrush seedlings decreased to complete absence in the plot between 1998 and 2003. Return of mountain big sagebrush to the site was recorded in 2009, with limited density recorded. Data for density of green rabbitbrush identify a similar downward trend recorded between 1998 and 2003, although unlike the absence of mountain big sagebrush recorded in 2003, the density of green rabbitbrush recorded in the 2003 data do not decrease to complete absence. Density of green rabbitbrush recorded for all dates was greater than for the other species recorded.

Figure VEG-4: Density of shrubs and trees at the trend site in pasture 1



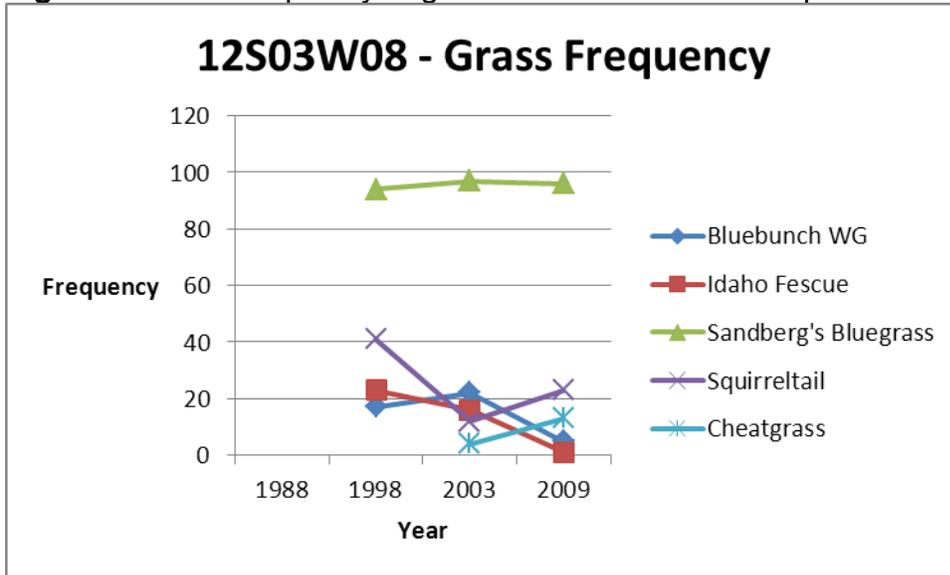
Pasture 3 Lower Field

One nested plot frequency transect study site was established in 1988 within pasture 3. The trend site, like the site where the rangeland health assessment was completed, is located within a Shallow Claypan ecological site. In addition to data recorded in 1988, additional data were recorded in 1998, 2003, and 2009. Data for frequency of bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, and squirreltail are summarized and presented in figure VEG-5.

These data indicate a long-term and short-term downward trend for bluebunch wheatgrass and a similar long-term and short-term downward trend for Idaho fescue. Whereas squirreltail data show a long-term downward trend in frequency, an upward short-term trend is indicated. Similar to the frequency of Sandberg bluegrass recorded in pasture 1, data indicate a static long-term and short-term trend with a recorded frequency greater at all dates than the other three species. Statistical significance ($p < 0.1$) of the short-term trends summarized are limited to the decrease in frequency of bluebunch wheatgrass and increase in frequency of squirreltail.

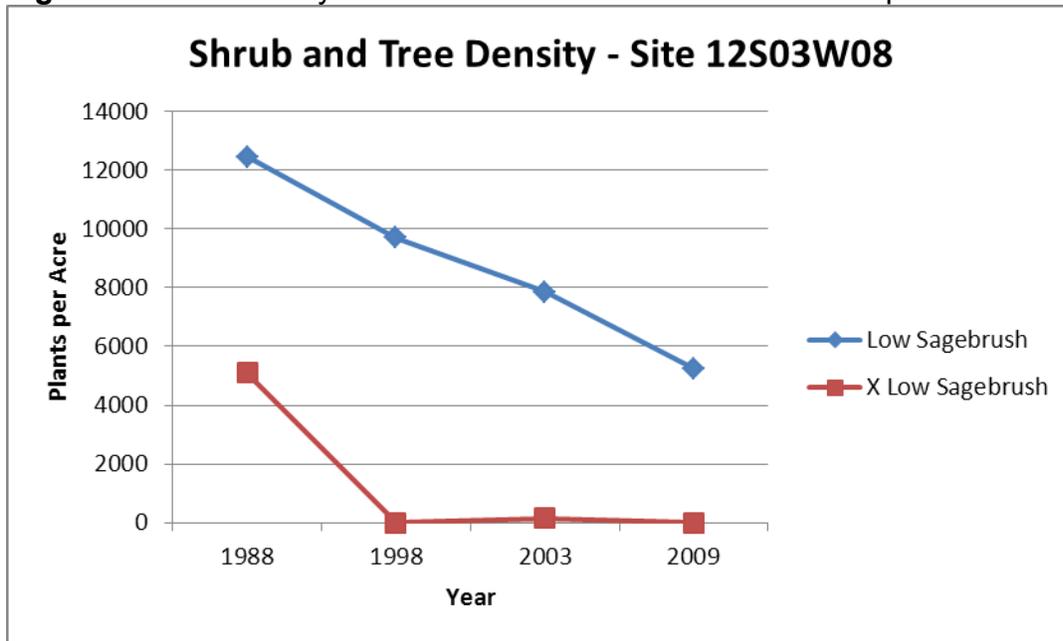
Frequency of cheatgrass was not recorded at trend sites prior to 2003. Variability of data for annual species such as cheatgrass has limited application to identifying trend beyond identifying a relative presence at the time of data collection. Frequency of cheatgrass occurrence was 4 percent in 2003 and 13 percent in 2009.

Figure VEG-5: Frequency of grasses at the trend site in pasture 3



In addition to frequency data recorded at the trend site in pasture 3, shrub and tree densities were also recorded. Data are summarized in figure VEG-6. No tree density was recorded at this site, but the densities of mature and seedling low sagebrush were recorded. The data indicate a long-term and short-term decrease in density of low sagebrush, with limited recruitment of seedlings into the plant community.

Figure VEG-6: Density of shrubs and trees at the trend site in pasture 3



Swisher FFR

No trend plot has been established in Swisher FFR allotment.

Precipitation

The USDA Natural Resource Conservation Service has recorded precipitation data from a SNOTEL site at Mud Flat, Idaho, from 1979 to 2011 (USDA-NRCS 2011). The site is approximately 15 miles northeast of the Swisher Springs allotment at 5,730 feet elevation. Figure VEG-7 provides annual precipitation data from the Mud Flat site and includes a line for average precipitation for the same period. Figure VEG-8 provides crop year precipitation data from the Mud Flat site and includes a line for average crop year precipitation for the same period. Crop year precipitation is the sum of monthly precipitation between September and June and is used as a predictor of forage production during the growing season during the crop year (Sneva and Hyder 1962).

Figure VEG-7: Annual precipitation recorded between 1982 and 2010 at the USDA-NRCS SNOTEL site at Mud Flat, Idaho

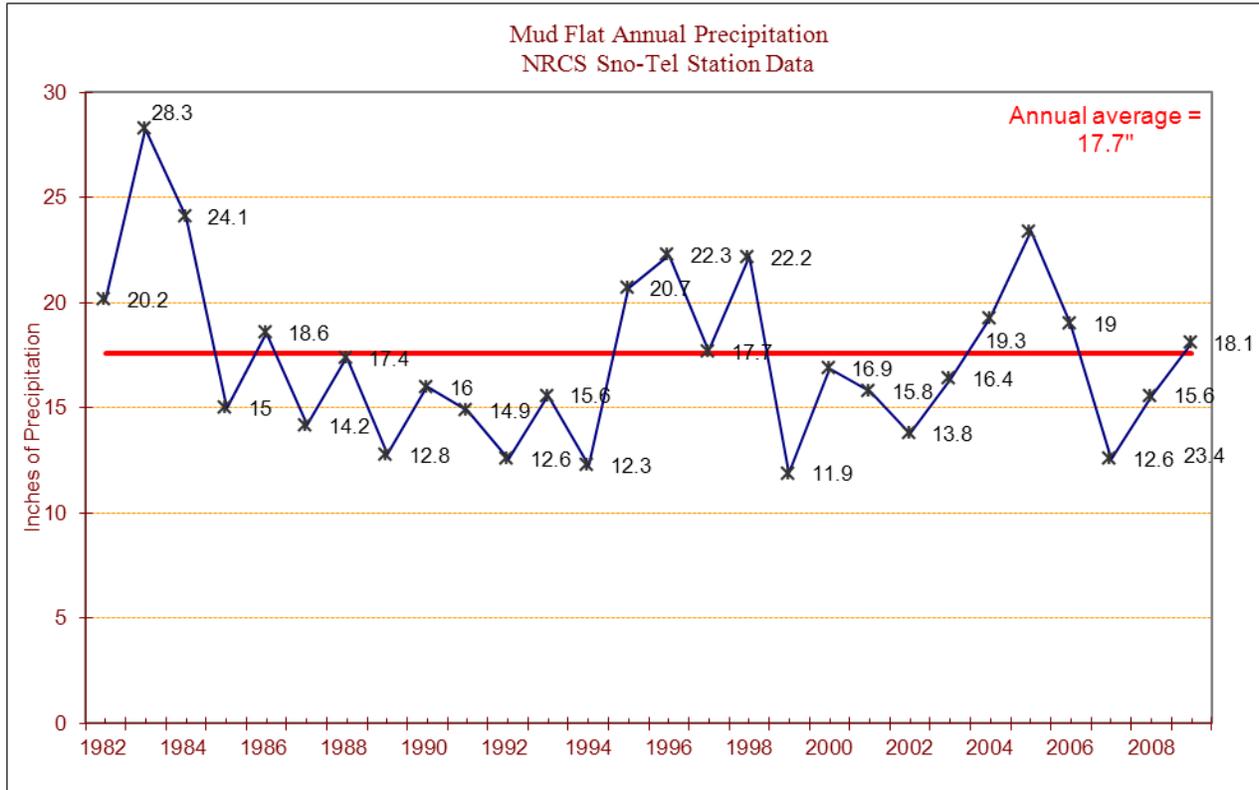
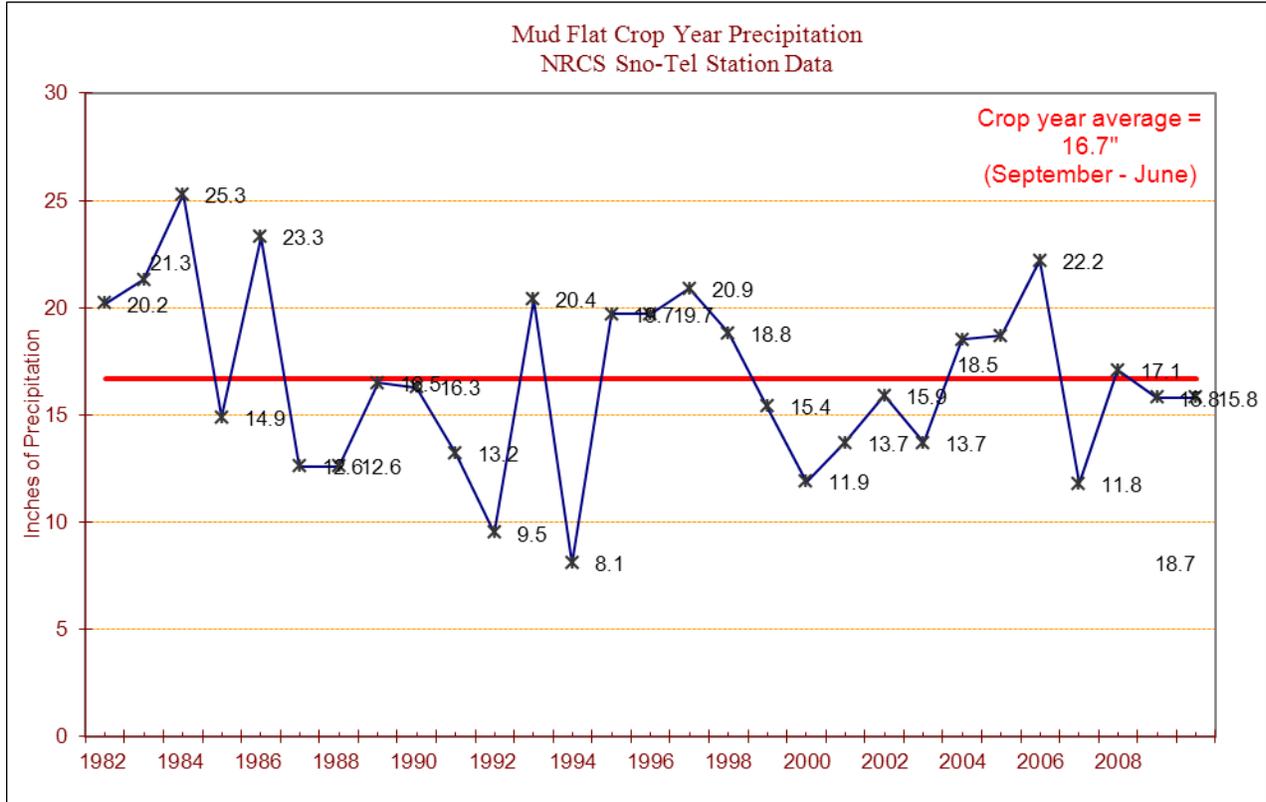


Figure VEG-8: Crop year precipitation recorded between 1982 and 2010 at the USDA-NRCS SNOTEL site at Mud Flat, Idaho



These data identify three periods of drier than average climatic conditions available for production of vegetation since 1982; the late 1980s through early 1990s, the late 1990s through 2003, and 2007 to date.

Desired Conditions

1999 Owyhee Resource Management Plan

The one vegetation management objective within the ORMP (1999), the land use plan for Owyhee Resource Area, is to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas. Livestock management actions identified in the land use plan to meet this objective related to rangeland health Standard 4 include:

Management action 1: Implement grazing practices that during and at the end of the grazing season provide adequate amounts of ground cover (determined on an ecological site basis) to support proper infiltration, maintain soil moisture, stabilize soils, and maintain site productivity.

Management action 2: Implement grazing practices that improve or maintain native rangeland species to attain composition, density, foliar cover and vigor appropriate to site potential.

Management action 7: Implement grazing practices designed to meet Idaho Standards for Rangeland Health and conform to the Guidelines for Livestock Grazing Management.

Idaho Standards and Guidelines

Guidelines applicable to Standard 4 include:

1. Use grazing management practices and/or facilities to maintain or promote significant progress toward adequate amounts of ground cover (determined on an ecological site basis) to support infiltration, maintain soil moisture storage, and stabilize soils;
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 cover appropriate to site potential;
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;
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.

Evaluation of Standard 4

Two recent fires have burned portions of the Swisher Springs allotment, as noted earlier. Analysis of data from 2001 RHFAs and trend plots are interpreted for each of the allotments, with consideration of the consequences from wild fire, recent livestock grazing, and precipitation.

Swisher Springs Evaluation Finding

Evaluation Finding –Allotment/native plant communities is:

Meeting the Standard

Not meeting the Standard, but making significant progress towards meeting

Not meeting the Standard

Rationale for Evaluation Finding

Assessments of rangeland health for the three pastures of the Swisher Springs allotment reveal similar departure of biotic integrity indicators from site potential,

departures of none-to-slight or slight-to-moderate. Dominant bunchgrasses and shrubs that are expected at site potential occur at a reduced incidence. Additionally, minor occurrence of juniper and cheatgrass was observed within the vegetation communities in all three pastures. Presence of juniper and cheatgrass are vegetation components which are not present at site potential. Even with these concerns, the limited departure of the biotic integrity indicators at assessment locations when compared to ecological site descriptions for Shallow Claypan and Loamy site leads to a finding that biotic attributes within the allotment are somewhat similar to those present at ecological site potential. Although vegetation communities with a full complement of dominant grass and shrubs consistent with site potential are not present within the allotment and a minor component of invasive species is recorded, healthy, productive, and diverse populations of native plants are maintained to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Trend data include indications of recent decline in frequency of bluebunch wheatgrass and Idaho fescue (bunchgrass species that dominate the herbaceous component at site potential) and the increase in dominance in frequency of Sandberg bluegrass and squirreltail (bunchgrass species that are a minor component of the herbaceous component at site potential). These are trends suggest concern for meeting the ORMP vegetation objective, the long-term improvement of unsatisfactory and maintenance of satisfactory vegetation health and condition. The minor departure of biotic integrity indicators concluded above (no greater than slight-to-moderate) also indicates some concern for meeting the ORMP vegetation management objective.

Precipitation data from the SNOTEL site at Mud Flat provide some insight to climatic conditions that may manifest in vegetation conditions assessed in 2001 and trends in frequency of grass species recorded between 1988 and 2009. Recent downward trend in frequency of bluebunch wheatgrass and Idaho fescue may be partially attributed to limited soil moisture in a number of consecutive years prior to 2009, when the most recent data were recorded.

Reported livestock grazing actual use has been consistent with terms and conditions of the grazing permit. Similarly, recorded utilization has not exceeded maximum allowable limits established in the ORMP.

The ORMP identifies a number of management actions and the Idaho Standards and Guidelines provide guidelines that can assist in making progress toward meeting the land use plan vegetation objective. In addition, livestock management practices can be implemented in drier-than-average years to avoid the combined consequence from vegetation response to dry conditions and defoliation from grazing. Although trend data may indicate concern with the long-term ability to meet land use plan objectives for upland vegetation in that those data do not indicate trend toward improvement to ensure the proper functioning of ecological processes, those data do identify the continued presence of all vegetation components that can provide for meeting the native plant communities rangeland health standard.

Historic and recent fires within portions of this allotment, combined with influences from historic livestock grazing management practices, point toward a need to implement future management actions that ensure that biotic conditions can recover toward vegetation communities that more closely resemble the potential identified in ecological site descriptions. Implementation of appropriate actions will better ensure that land use plan vegetation objectives are met and the Idaho Standards and Guidelines will continue to be met. The 1997 Idaho Guidelines for Livestock Grazing Management (Appendix A) provide guidelines for appropriate livestock management practices that facilitate maintenance or restoration of the potential native vegetation components within the ecological sites represented within the three pastures of the Swisher Springs allotment. These guidelines are identified above (Standards 1, 3, 4, 8, 9, and 12).

Recorded trends in density of tree and shrub species at the trend site in pasture 2 are consistent with recent fire occurrence. Loss of the sagebrush and juniper was recorded between 1998 and 2003, within the timing of the 2000 Meadow fire (USDA USFS 2011). These are woody species lost as a result of fire and were subsequently re-established by 2009. Although the density of green rabbitbrush also declined in response to this fire, this more fire-tolerant species is able to re-sprout following fire. Dominance of green rabbitbrush at this trend site is likely the result of an earlier fire, although BLM data do not include records of fire prior to 2000 at this site or within the Swisher Springs allotment. No trend sites, other than the trend site for pasture 2, are located within boundaries of recent fires.

Overall, the Swisher Springs allotment is meeting Standard 4, with concern for the minor occurrence of juniper and cheatgrass, and concern for the reduction in dominance of bluebunch wheatgrass and Idaho fescue in the herbaceous understory of vegetation communities. It is not likely that land use plan objectives to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas will be met in the long-term if dominance of bluebunch wheatgrass and Idaho fescue continue to decline as indicated by short and long-term trend data gathered in all three pastures.

Swisher FFR Evaluation Finding

Evaluation Finding –Allotment/native plant communities is:

Meeting the Standard

Not meeting the Standard, but making significant progress towards meeting

Not meeting the Standard

Rationale for Evaluation Finding

Assessment of rangeland health information for the Swisher FFR allotment resembles that for the Swisher Springs allotment. Slight-to-moderate departure of biotic conditions at the assessment site identified biotic attributes resembling potential in the allotment.

The Swisher FFR allotment is meeting Standard 4, with concern for the occurrence of cheatgrass and juniper and the dominance of Sandberg bluegrass in the herbaceous

understory. Although vegetation communities with a full complement of dominant grass and shrubs consistent with site potential are not present within the allotment and a minor component of invasive species is recorded, healthy, productive, and diverse populations of native plants are maintained to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

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Standard 5 – Seedings

 X Standard Doesn't Apply

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:

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.

Rangeland Health Assessment

The presence of seeded plant communities has not been identified within the Swisher Springs and Swisher FFR allotments within a review of rangeland health standards assessments, monitoring data or project files.

Evaluation of Standard 5

Evaluation Finding – Allotment/seedings is:

- Meeting the Standard
- Not meeting the Standard, but making significant progress towards meeting
- Not meeting the Standard

Standard 6 – Exotic Plant Communities, Other Than Seedings

Standard Doesn't Apply

Exotic plant communities, other than seedings, will meet minimum requirements of soil stability and maintenance of existing native anti 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:

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.

Rangeland Health Assessment

Although the presence of exotic plant communities has been identified within the Swisher Springs and Swisher FFR allotments, the occurrence of cheatgrass and other invasive species and their potential for expansion to dominate vegetation communities is limited and has been incorporated into discussions under Standard 4 – Native Plant Communities.

Evaluation of Standard 6

Evaluation Finding – Allotment/exotic plant communities, other than seedings is:

- Meeting the Standard
- Not meeting the Standard, but making significant progress towards meeting
- Not meeting the Standard

Standard 7 – Water Quality

___ Standard Doesn't Apply

[Note: Standard applies to Swisher Swings only]

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

Indicators may include but are not limited to:

1. Physical, chemical, and biologic parameters described in the Idaho Water Quality Standards.

Rangeland Health Assessment

Swisher Springs

The Idaho Department of Environmental Quality (IDEQ) is the state agency tasked with complying with and implementing the federal Clean Water Act. IDEQ sets the state's standards through their integrated report and beneficial use process. On stream segments listed as water quality-limited in the current IDEQ 303(d) list, Idaho BLM is expected to implement grazing practices that make progress toward achieving proper functioning condition and satisfactory riparian condition.

The Swisher Springs allotment is within the Upper Owyhee River watershed that was assessed by IDEQ in 2002 (integrated report) and reviewed in 2009 (5-year review). The watershed was assigned beneficial uses that include cold water aquatic life and primary and secondary recreation contact. Streams that are identified by IDEQ as not supporting the beneficial use include Castle and Beaver Creeks and their tributaries. Swisher, Long Meadow, and Moonshine Creeks are all tributaries to Castle Creek. Additionally, Beaver Creek has been placed on the 303(d) list. The streams that traverse pasture 3 are tributaries to Beaver Creek and are thus also on the 303(d) list.

Previous Assessment Summary

The Swisher Springs Grazing Allotment Rangeland Health Assessment dated December of 2006 discussed the Upper Owyhee Watershed Assessment (IDEQ 2003), and the information available that lists Castle Creek as a water quality-impaired stream. The RHA further discusses that both Swisher and Long Meadow Creeks are tributaries to Castle Creek and are thus considered impaired. The RHA also states that the watershed is impaired, based on high stream temperature and excessive sediment.

Current Assessment

Pasture 1

The tributaries to Castle Creek that traverse pasture 1 are not supporting the beneficial uses assigned to the watershed; however, IDEQ does not have sufficient information to

place them on the 303(d) list. BLM does not have any water quality monitoring sites in this pasture.

Pasture 2

See discussion under pasture 1 above.

Pasture 3

The tributaries to Beaver Creek that cross pasture 3 are on the 303(d) list of impaired waters (Map 5). The streams are not meeting the beneficial uses assigned to the watershed, and IDEQ identifies stream temperature and sediment as causes. BLM does not have any water quality monitoring sites in this pasture.

Swisher FFR

The Swisher Springs FFR includes negligible (less than 0.01 mile) water resources on public lands and the allotment does not contain any streams on the IDEQ 303(d) list.

Evaluation of Standard 7

Swisher Springs

Evaluation Finding – Allotment/water quality is:

Meeting the Standard

Not meeting the Standard, but making significant progress towards meeting

Not meeting the Standard

RMP Objectives/ Desired Conditions

Meet or exceed State of Idaho water quality standards on all Federally administered waters within the Owyhee Resource Area. Follow current State water rights processes and procedures to acquire water rights for beneficial uses and support establishment of in-stream flows which are in the public interest.

Rationale for Evaluation Finding

The tributaries to Beaver Creek that flow through pasture 3 are 303(d) listed streams (IDEQ 2008) based on stream temperature and excessive sedimentation and siltation. The assigned beneficial uses include cold water aquatic life, and primary and secondary recreation contact. If there are any Section 303(d) listed streams located in the allotment, the allotment is not meeting the Idaho DEQ standards and thus is not meeting Standard 7.

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Swisher FFR

Evaluation Finding – Allotment/water quality is: **NA**

Meeting the Standard

Not meeting the Standard, but making significant progress towards meeting

Not meeting the Standard

Rationale for Evaluation Finding

There are negligible (less than 0.01 mile) riparian and water resources on BLM land within the allotment; thus, this standard does not apply.

Standard 8 – Threatened And Endangered Plants and Animals

Standard Doesn't Apply

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:

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 microbotic 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.

Rangeland Health Assessment

Plants

There are no known special status plants within the Swisher Springs or Swisher FFR allotments. There have been no recent inventories or incidental work done within either area. However, one site of thinleaf goldenhead (*Pyrocomma linearis*) exists on private land immediately adjacent to the Swisher FFR and within the Nickel Creek FFR. It is recommended that botanical surveys are performed for any future projects.

Wildlife

Overview

A number of animal species with special status occur or potentially occur within the Swisher Springs and Swisher FFR allotments. Special status species discussed in this document are included on the Idaho BLM State Sensitive Species List (USDI-BLM 2003) for the Owyhee Field Office. The Idaho BLM State Sensitive Species List includes species currently listed or under consideration for listing under the Endangered Species Act (ESA) (USDI-FWS 2011). In addition, many species on the list are recognized as Species of Greatest Conservation Need (IDFG 2005a), High Priority Breeding Birds (IPIF 2000), and Birds of Conservation Concern (USDI-FWS 2008). Common and scientific names of special status wildlife species, their status, key habitat associations, and information regarding occurrence and potential habitat within the allotment are summarized in Appendix E.

Although most special status species populations are poorly studied, many species that are likely to occur in the allotment(s) display relatively broad ecological tolerance and are distributed throughout the Great Basin region. Therefore, only a few focal special status species will be discussed individually. These species include the greater sage-grouse and Columbia spotted frog. The U.S. Fish and Wildlife Service (USFWS) has determined that these species warrant listing under Endangered Species Act (ESA) but have been precluded due to higher priorities (i.e., candidate species). These species will be discussed in greater detail because both occur within the allotment, and both have been the subject of targeted surveys and periodic species-specific monitoring studies.

The greater sage-grouse is a sagebrush-obligate species that requires large areas of relatively undisturbed sagebrush steppe habitat. Within this requisite sagebrush landscape, important seasonal habitats (e.g., wet meadows, higher elevation mesic shrublands) are also necessary. On March 5, 2010, the USFWS submitted a new finding to the Federal Register which found that listing the greater sage-grouse was warranted but precluded by the need to take action on other species facing more immediate and severe extinction threats. The finding has changed the status of sage-grouse from a Type 2 BLM sensitive species to a candidate species under the ESA.

Columbia spotted frogs are awaiting review and additional information for potential listing as threatened or endangered. The species is highly aquatic, seldom being found far from water. The largest populations occur in structurally complex wetlands with diverse pool and meadow components. Suitable sites contain shallow breeding pools and deeper water overwintering sites. Wet meadows, riparian wetlands, and stream courses are important as dispersal corridors among perennially occupied sites. Wetland and riparian habitat loss and degradation are the most serious threat to the maintenance of viable populations of spotted frogs (IDFG 2005).

Swisher Springs

Upland Habitat Assessment

Most upland habitats in the allotment are near reference conditions, and departures were in the none-to-slight and slight-to-moderate categories (see Standard 4 discussion above). The functional and structural groups are generally close to what is expected for the site and are capable of providing adequate habitat for the needs of most dependent special status wildlife species. Cheatgrass, fire, and juniper encroachment are factors contributing to the departure from reference conditions. The localized lack of large bunchgrasses, reduced shrub cover, and increase of juniper woodlands may be limiting nesting and foraging structure and cover, and food availability for some shrub-obligate species in those areas, but overall, upland habitats are providing adequate habitat conditions allotment-wide. Forest-associated species are likely not yet experiencing the benefits of mature juniper woodlands, as most stands within the allotment are currently in an early seral phase.

Riparian Habitat Assessment

Riparian/wet meadow habitat is limited to approximately 5.5 of the 22 miles (25 percent) of intermittent and ephemeral streams within the allotment. Swisher, Moonshine, and Long Meadow Creeks have intermittent flows and support small, scattered areas of riparian vegetation. In addition, there is one spring (Swisher Spring) that supports a relatively small amount of riparian vegetation. The condition of these riparian areas has not been assessed (see Standard 2 discussion above), although these areas are generally not in proper functional condition based on riparian/wetland conditions under similar grazing management adjacent to the allotment.

Focal Special Status Species

Greater sage-grouse

The allotment is located within the Northern Great Basin sage-grouse management zone IV (MZ IV) (Stiver et al. 2006). Sage-grouse in the area belong to the north-central Nevada/southeast Oregon/southwest Idaho breeding subpopulation (Connelly et al. 2004). In addition, the allotment is located on the western margin of the largest sage-grouse priority area identified by recent Idaho BLM modeling efforts within MZ IV (Makela and Major 2011) (Map 2).

Based on the Idaho Sage-grouse Habitat Planning Map (Map 6) (2011 updates), potential sage-grouse habitat occurs throughout the Swisher Spring allotment. Potential sage-grouse habitat within the allotment is classified as key habitat, perennial grasslands, and conifer encroachment (Table WDLF-1). Much of the allotment is identified as sagebrush-limited (i.e., perennial grassland) due to several fires that occurred in 2000 and 2007 (Map 3). Areas of juniper encroachment occur throughout the allotment and include patches within the burn perimeters that remained after the fires (Maps 6). Areas of key habitat occur at lower elevations in pastures 1 and 3. Much of the key habitat within the allotment is adjacent to or surrounded by areas of juniper encroachment. Key habitat within the allotment is located on the periphery of large contiguous areas of key habitat to the east (Map 6).

Table WDLF-1: Potential sage-grouse habitat acreages, Swisher Spring Allotment, 2011

Swisher Springs	Key (K)	Perennial Grassland (R1)	Conifer Encroachment (R3)	Total Potential Habitat
Pasture 1	444	431	516	1391
Pasture 2	0	785	524	1309
Pasture 3	143	633	218	994
Allotment Total	587 (16%)	1849 (50%)	1258 (34%)	3694

No occupied leks are known to occur within the allotment. However, the allotment is located within the 75 percent breeding bird density (BBD) buffer (4 miles) of lek 2O310. The 75 percent BBD buffer is highly correlated to breeding habitat surrounding the lek and corresponds to the high-abundance (or population) component of the priority area (Makela and Major 2011). This lek is located approximately 1.3 miles to the northwest of the allotment (Map 2). Nesting efforts within the allotment would likely result from sage-grouse attending lek 2O310. In addition, lek 2O310 is the largest lek (i.e., maximum number of sage-grouse attending lek) within the subpopulation based on lek counts conducted over the last 5 years (Table WDLF-2).

Table WDLF-2: Lek attendance at lek 2O310, 2007-2011

Lek	2011	2010	2009	2008	2007
2O310	76	80	--	--	23

Breeding habitat assessments were conducted in pasture 3 in 2001 and 2009. Overall, habitat indicators were similar for both assessments and conditions apparently have changed little over time (Table WDLF-3 and WDLF-4). Although sagebrush cover was suitable, average shrub height was slightly taller than preferred by sage-grouse. In addition, sagebrush growth form was not ideal, as columnar shrubs were relatively common. Heights and canopy cover for grasses and forbs met the criteria for suitable habitat. Preferred forbs were common and included a diversity of species; trend frequency plots indicated the presence of numerous additional preferred species. In 2001, the overall rating was marginal primarily due to the small size of the breeding

habitat patch (approx. 10 to 15 acres), which is located in a landscape dominated by low sage with scattered junipers. In 2009, the overall rating was suitable; however, no additional rationale for the rating was given by the surveyors. Although breeding habitat within the allotment may be somewhat limited by patch size, the suitable rating appears to be justified due to the proximity of large areas of suitable key habitat in adjacent allotments and the fact that the majority of indicators corresponded with suitable habitat.

Table WDLF-3: Sage-grouse breeding habitat assessment (12S03W08a), Swisher Spring Allotment, Pasture 3, 2001

Habitat Indicator	Suitable	Marginal	Unsuitable
Average Sagebrush Canopy Cover	24%		
Average Sagebrush Height		35"	
Sagebrush Growth Form		Mix spreading/columnar	
Average Grass and Forb Height	12"		
Average Perennial Grass Canopy Cover	18%		
Average Forb Canopy Cover	8%		
Preferred Forb Abundance and Diversity	Common/preferred spp. (n≥6)		
Overall Site Evaluation		MARGINAL	

Table WDLF-4: Sage-grouse breeding habitat assessment (12S03W08b), Swisher Spring Allotment, Pasture 3, 2009

Habitat Indicator	Suitable	Marginal	Unsuitable
Average Sagebrush Canopy Cover	24%		
Average Sagebrush Height		35"	
Sagebrush Growth Form		Mix spreading/columnar	
Average Grass and Forb Height	10"		
Average Perennial Grass Canopy Cover	28%		
Average Forb Canopy Cover	14%		
Preferred Forb Abundance and Diversity	Common/preferred spp. (n≥8)		
Overall Site Evaluation	SUITABLE		

One late brood-rearing habitat assessment was conducted in pasture 1 at a wet meadow site along Long Meadow Creek. Although the surveyors noted few forbs in the upland sagebrush community adjacent to the assessment site due to the late season in which the survey was conducted, all riparian/wet meadow site indicators supported an overall rating of suitable habitat. It should be noted that the assessment reflected wet meadow conditions after two consecutive seasons of rest after the 2000 Meadow fire.

Table WDLF-5: Sage-grouse late brood-rearing habitat assessment (12S03W05a), Swisher Springs Allotment, Pasture 1, 2001

Habitat Indicator	Suitable	Marginal	Unsuitable
Riparian and wet meadow plant community	Mesic or wetland plant species dominate wet meadow or riparian area		
Riparian and wet meadow stability	No erosion evident; some bare ground may be evident but vegetative cover dominates the site		
Forb availability	Succulent, green forbs are readily available in terms of distribution and plant structure		
Proximity of sagebrush cover	Sagebrush cover is adjacent to brood-rearing area (<100 yards)		
Riparian/Wet Meadow Site Evaluation	SUITABLE		

In summary, suitable sage-grouse breeding and late-brood rearing habitat is available within pastures 1 and 3, although their distribution is limited to relatively small patches in a landscape dominated by low sage and perennial grasslands interspersed with junipers. Cheatgrass establishment, burn areas with early seral grassland communities, and juniper encroachment are the major issues affecting sage-grouse habitat within the allotment.

Columbia spotted frog

Although the allotment has been surveyed for spotted frogs, no occupied habitat was found.

Swisher FFR

Plants

There are no known special status plants within the Swisher FFR.

Wildlife

Upland Habitat Assessment

Upland habitats within the allotment include a mix of big and low sagebrush communities with a bunchgrass understory dominated by Sandberg bluegrass. One Rangeland Health Field Assessment was conducted in 2001. In general, biotic integrity indicators showed a none-to-slight departure from reference condition and the native plant community was supporting proper functioning of ecological processes. Abundance and diversity of grasses, forbs and shrubs are generally as expected for the site and are likely providing habitat that is adequate for the needs of most dependent special status wildlife species. Nevertheless, the invasive plants indicator was rated in the moderate category and the amount of juniper, cheatgrass, and Sandberg bluegrass was too high for this site. Current plant community composition is providing cover, structure and forage for numerous migratory birds and small mammals including a diversity of species that are critical prey for most raptors including golden eagles, prairie falcons, and ferruginous hawks.

Riparian Habitat Assessment

Riparian habitat on BLM lands within the allotment are negligible (see Standard 2 discussion above).

Focal Special Status Species

Greater sage-grouse

The Swisher FFR is located in the same sage-grouse management zone, subpopulation, and priority area as the Swisher Springs allotment discussed above (Map 2).

Based on the Idaho Sage-grouse Habitat Planning Map (Map 6) (2011 updates), potential sage-grouse habitat occurs throughout the Swisher FFR. Potential sage-grouse habitat on BLM lands within the FFR is classified as key habitat and conifer encroachment (Table WDLF-6). Much of the key habitat within the allotment is adjacent to or surrounded by areas of juniper encroachment. Key habitat within the allotment is located on the periphery of large contiguous areas of key habitat to the east (Map 6).

Table WDLF-6: Potential sage-grouse habitat acreages on BLM lands, Swisher FFR, 2011

Swisher Springs FFR	Key (K)	Conifer Encroachment (R3)	Total Potential Habitat
Allotment Total	108 (71%)	45 (29%)	153

No occupied leks are known to occur within the FFR. However, the FFR is located within the 75 percent BBD buffer of lek 20310, and the significance and influences of the lek on breeding habitat within the FFR are the same as those discussed for the

Swisher Springs allotment above. This lek is located approximately 1.2 miles to the northwest of the FFR (Map 2).

Sage-grouse breeding and late-brood rearing habitat is available throughout the FFR; however, only breeding habitat occurs on BLM lands. Although no breeding habitat assessment have been conducted within the FFR, indicators of upland habitat health suggest that conditions are providing suitable breeding habitat for sage-grouse. Proximity to riparian/wetland areas adjacent to Castle Creek on private lands further enhance the suitability of breeding habitat within the FFR. Nevertheless, cheatgrass establishment, lack of desirable perennial bunchgrasses, and juniper encroachment are the major issues affecting sage-grouse habitat within the allotment.

Evaluation of Standard 8

Swisher Springs

Evaluation Finding – Allotment/watershed is:

Meeting the Standard

Not meeting the Standard, but making significant progress towards meeting

Not meeting the Standard

RMP Objectives/Desired Conditions:

Manage special status species and habitats to increase or maintain populations at levels where their existence is no longer threatened and there is no need for listing under the Endangered Species Act of 1973, as amended.

Rationale for Evaluation Finding

There are no known special status plants within the Swisher Springs allotment boundary.

Swisher Springs allotment is making significant progress toward meeting Standard 8 for special status wildlife in upland habitats. However, Standard 8 is not being met for special status wildlife in riparian/wetland habitats due to a lack of hydric vegetation and soil instability along streambanks and in wet meadows (see Standard 2 discussion above). Typically, for the reaches of stream that are not in proper functioning condition, there is inadequate riparian-wetland vegetation present to protect streambanks and dissipate energy during high flows, and plant communities are often not comprised of deep-rooted bank stabilizing hydric species. As discussed above, the suitable rating for the one late brood-rearing assessment site reflects conditions after two years of rest from livestock grazing after the 2000 Meadow wildfire, and is not representative of current riparian area conditions within the allotment manifested since the resumption of grazing. Overall, riparian areas in particular are likely not providing adequate nesting structure and cover for dependent species within the allotment due to a lack of woody species such as willows and aspen. In addition, current degraded riparian/wetland conditions are probably limiting late-brood rearing habitat use by sage-grouse.

Swisher FFR

Evaluation Finding – Allotment/watershed is:

Meeting the Standard

Not meeting the Standard, but making significant progress towards meeting

Not meeting the Standard

RMP Objectives/Desired Conditions:

Manage special status species and habitats to increase or maintain populations at levels where their existence is no longer threatened and there is no need for listing under the Endangered Species Act of 1973, as amended.

Rationale for Evaluation Finding

There are no known special status plants within the Swisher FFR.

Swisher FFR is meeting Standard 8 for special status wildlife in upland habitats. Current plant community composition is providing cover, structure and forage for most shrub-obligate species, although localized areas of cheatgrass, decrease of desirable perennial bunchgrasses, and juniper encroachment may be affecting the long-term health of upland vegetation communities in the future (5 to 10 years). Riparian/wetland habitats are negligible on BLM lands within the FFR and therefore are not applicable to the standard.

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APPENDIX A: IDAHO STANDARDS FOR RANGELAND HEALTH AND GUIDELINES FOR LIVESTOCK GRAZING MANAGEMENT

Standards for Rangeland Health

Introduction

The Standards for Rangeland Health, as applied in the State of Idaho, are to be used as the Bureau of Land Management's management goals for the betterment of the environment, protection of cultural resources, and sustained productivity of the range. They are developed with the specific intent of providing for the multiple use of the public lands. Application of the standards should involve collaboration between the authorized officer, interested publics, and resource users.

Rangelands should be meeting the Standards for Rangeland Health or making significant progress toward meeting the standards. Meeting the standards provides for proper nutrient cycling, hydrologic cycling, and energy flow.

Monitoring of all uses is necessary to determine if the standards are being met. It is the primary tool for determining rangeland health, condition, and trend. It will be performed on representative sites.

Appropriate to soil type, climate, and landform, indicators are a list of typical physical and biological factors and processes that can be measured and/or observed (e.g., photographic monitoring). They are used in combination to provide information necessary to determine the health and condition of the rangelands. Usually, no single indicator provides sufficient information to determine rangeland health. Only those indicators appropriate to a particular site are to be used. The indicators listed below each standard are not intended to be all inclusive.

The issue of scale must be kept in mind in evaluating the indicators listed after each standard. It is recognized that individual isolated sites within a landscape may not be meeting the standards; however, broader areas must be in proper functioning condition. Furthermore, fragmentation of habitat that reduces the effective size of large areas must also be evaluated for its consequences.

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.

Indicators may include, but are not limited to, the following:

1. The amount and distribution of ground cover, including litter, for identified ecological site/s) 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 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.

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 flood water, 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 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.

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 (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.

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 litter and standing dead plant material are present for site protection and for decomposition to replenish soil nutrients relative to site potential.

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.

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 Seedlings)

Exotic plant communities, other than seedlings, 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. The number of perennial species is not diminishing over time.
3. Plant vigor (production of seed and seedstalk production etc.) of remnant native or seeded (introduced) plants is maintained to enable reproduction and recruitment when favorable climatic or other environmental events occur.
4. Adequate litter and standing dead plant material is present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Standard 7 (Water Quality)

Surface and ground water 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 (Threatened and Endangered Plants and Animals)

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:

2. Parameters described in the Idaho Water Quality Standards.
3. 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.
4. Age class and structural diversity of riparian/wetland vegetation are appropriate for the site.
5. 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.
6. The diversity of native species is maintained.
7. The amount and distribution of ground cover, including litter, for identified ecological site(s) or soil-plant associations are appropriate for site stability.
8. Noxious weeds are not increasing.

Guidelines for Livestock Grazing Management

Introduction

Guidelines direct the selection of grazing management practices, and where appropriate, livestock management facilities to promote significant progress toward, or the attainment and maintenance of, the standards. Grazing management practices are livestock management techniques. They include the manipulation of season, duration (time), and intensity of use, as well as numbers, distribution, and kind of livestock. Livestock management facilities are structures such as fences, corrals, and water developments (ponds, springs, pipelines, troughs, etc.) used to facilitate the application of grazing management practices. Livestock grazing management practices and guidelines will be consistent with the Idaho Agricultural Pollution Abatement plan.

Grazing management practices and facilities are implemented locally, usually on an allotment or watershed basis. Grazing management programs are based on a combination of appropriate grazing management practices and facilities developed through consultation, coordination, and cooperation with the Bureau of Land Management, permittees, other agencies, Indian tribes, and interested publics.

These guidelines were prepared under the assumption that regulations and policies regarding grazing on the public lands will be implemented and will be adhered to by the

grazing permittees and agency personnel. Anything not covered in these guidelines will be addressed by existing laws, regulations, Indian treaties, and policies.

The BLM will identify and document within the local watershed all impacts that affect the ability to meet the standards. If a standard is not being met due to livestock grazing, then allotment management will be adjusted unless it can be demonstrated that significant progress toward the standard is being achieved. This applies to all subsequent guidelines.

Guidelines

1. Use grazing management practices and/or facilities to maintain or promote significant progress toward adequate amounts of ground cover [determined on an ecological site basis) 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. Native species are emphasized for rehabilitating disturbed rangelands. Evaluate whether native plants are adapted, available, and able to compete with weeds or seeded exotics.
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.⁷

16. On burned areas, allow natural regeneration when it is determined that populations of native perennial shrubs, grasses, and forbs are sufficient to revegetate the site. Rest burned or rehabilitated areas to allow recovery or establishment of perennial plant species.

⁷ An apparent editing mistake with numbering the 1997 Idaho guidelines was carried forward in this appendix to avoid misidentifying specific guidelines

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, medusa head, 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: METHODS

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.

Uplands

Rangeland Health Assessments - 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 of which is 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 the appropriate ecological site description, familiarity of the area, and incorporating the best professional judgment of the evaluators. The 17 indicators from the summary worksheet are compiled into three interlocking attribute categories representing soil/site stability, hydrologic function, and biotic integrity. The preponderance of evidence of each attribute determines the condition of the site.

Nested Plot Frequency and Photo Plots - Nested Plot Frequency Transect (NPFT) data provide insight into changes in the plant community, such as plant occurrence, vigor, and/or health. NPFT data are collected at permanently located study sites and includes species frequency, cover data, as well as shrub density where applicable. The methodology used to establish and collect data at these sites is described in detail in *BLM technical references 1400-4 and 1730-1*.

Frequency data show changes in the occurrence of plants. Additional phenological information and photographs provides information on the reproductive capabilities of plants. Cover data describes the percent of ground covered by plant material, biological soil crusts, gravel, rock, and plant litter.

Photographs are taken at NPFT sites as well as photo plot sites. A minimum of three photographs are taken, two general landscape views and one close-up of the photo plot. Additionally, the photo plot is sketched to help illustrate species composition, size, and vigor, and is used to help corroborate the photograph.

Shrub density is collected when shrubs are present, in either 1/100th- or 1/200th-acre plots, depending on shrub distribution and are calculated and expressed as plants per acre.

Utilization - Utilization data is important in evaluating the effects of grazing and browse on specific areas of rangeland. Utilization refers to the percentage of forage that has been removed by animals during the grazing period. It is expressed as a percentage and can characterize the amount of use on vegetation in an area or the use of individual plant species. Generally, utilization data are collected on transects located at pre-selected key use areas, such as permanently located study sites, although utilization may be collected at appropriate sites throughout a pasture or allotment.

Numerous methods are available for measuring utilization, some of which include: the Landscape Appearance Method, Key Species Method, Grazed Class Method, Cole Browse Method or Extensive Browse Method (*Interagency Technical Reference 1996 BLM/RS/ST-96/004+1730*). In general, the utilization data used in this assessment were collected using the Key Species Method and the Cole Browse Method.

Riparian/Wetland - A Standard Checklist, outlined in the 1998 BLM *Technical Reference 1737-15, A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas* (flowing water), 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 interlocking 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, Process for assessing proper functioning condition for lentic riparian-wetland areas* (USDI 1994). Lentic areas are defined as wetland-riparian areas adjacent to standing water habitats such as lakes, ponds, seeps, and meadows.

Special Status Species

Wildlife

Special status animal populations are continually tracked by BLM field office staff and the Idaho Natural Heritage Program (IDNHP) through the Idaho Fish and Wildlife Information System (IFWIS). BLM databases and hard copy files and IFWIS were referred to for occurrences of special status animal species.

Upland special status species habitats were assessed primarily by using the same data that were used to assess native plant communities under Standard 4. Indicators of upland habitat structure and functionality include abundance, diversity, vigor, production, cover, utilization, trend, and the occurrence of noxious and invasive plants.

Riparian special status species habitats were assessed primarily using information presented in Standard 2. 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 hydric (riparian) vegetation are especially important because they also assess the quality and quantity of shade, nesting/breeding habitat, forage, and escape cover.

Greater sage-grouse breeding and brood-rearing habitat assessments were conducted using methodology described in the draft document "*A Framework to Assist in Making Sensitive Species Habitat Assessments for BLM-Administered Public Lands in Idaho*" (USDI-BLM 2001), primarily as a means of evaluating the suitability of the assessment areas as habitat for sage-grouse. Although this methodology specifically addresses the habitat requirements of sage-grouse, it is also useful in assessing the general health of sagebrush steppe ecosystems and their suitability as habitat for a diversity of other dependent special status species.

Botany - Special status plant populations are tracked by both the BLM and the IDNHP. BLM databases and files and IDNHP databases are consulted for known occurrences of special status plants. Additional inventories are conducted on an ongoing basis for range projects. Monitoring of known populations occurs as time and staff allow.

APPENDIX C: TREND

A note on statistical methods:

In the past, Chi Square analysis was used to compare means between years. This statistical approach is not appropriate because Chi Square assumes independent random sampling within a population each year. That is not the case with repeated measurements of fixed transect lines.

A paired Student's T test addresses this requirement. An analysis of variance (ANOVA) or a regression analysis could be useful for determining trends across multiple years. However, these methods are generally appropriate for sample sizes of 10 or more; our 4 (or 5) years of data are not enough to show a meaningful trend using this method. The Student's T test assumes that the two populations sampled have similar variances, and samples for each mean are normally distributed. For this analysis, these parameters were assumed, but not tested.

Frequency:

At each site and for each species, the total number of hits for the 20 quadrats per belt was used as the sampling unit, providing a sample size of five for each site/species/year combination. The largest plot size (plot 4, 50 cm x 50 cm) of the nested frequency set was used for each species. The five samples per site were averaged and the standard deviation calculated. Then a paired, two-tailed Student's T test was run to determine whether the difference between the means of two adjacent sampling years (i.e. 1988 to 1998 and 2003 to 2009) was significantly different at $p < 0.1$.

Ground Cover:

Ground cover was compared between 1988 and 2009 for all three pastures at the revisited trend sites. Ground cover is recorded as a point intercept for 80 points at each of the five belts, resulting in 400 hits per site. Paired, two-tailed Student's T tests were calculated on the mean percentages of each belt.

Shrub and Tree Density:

Shrub and tree densities were counted in two 0.01-acre plots at each monitoring site. No statistical tests were run on these data since only two samples per site were taken. Similar to the frequency data, juniper (in either the mature or seedling class) were too uncommon in the density plots to reliably show trend. It appears that the monitoring sites specifically avoided dense juniper areas, so the density values shown probably do not represent juniper density across the allotment.

Pasture 1

Frequency Table Statistics

- T-test Using # Hits (not % frequency)
- For years in which a species was not encountered but had been encountered in previous years, data values were entered as zeros. (Data values for species not

encountered in a given year but encountered in later years were not entered as zeros since many plants were intentionally not recorded in previous years, i.e. annuals.)

- Most of the pre-1998 data were taken from old data reports, not access reports.
- A p-value <0.1 indicates a statistically significant difference.

Table C-1: Pasture 1 grasses and shrubs

GRASSES

Site: 11S03W32 Bluebunch WG, Plot 4				
Belt	Year			
	1988	1998	2003	2009
1	0	0	0	0
2	2	0	0	0
3	1	0	0	1
4	0	1	3	0
5	0	0	1	0
Average	0.6	0.2	0.8	0.2
S	0.8944	0.4472	1.3038	0.4472
p		0.4766	0.2080	0.4263

Site: 11S03W32 Sandberg Bluegrass, Plot 2				
Belt	Year			
	1988	1998	2003	2009
1	18	18	12	18
2	18	16	19	19
3	19	12	20	18
4	18	17	20	20
5	19	17	18	20
Average	18.4000	16.0000	17.8000	19.0000
S	0.5477	2.3452	3.3466	1.0000
p		0.1180	0.4717	0.4263

Site: 11S03W32 Idaho Fescue, Plot 4				
Belt	Year			
	1988	1998	2003	2009
1	18	16	12	5
2	20	19	17	8
3	20	18	19	11
4	16	17	18	5
5	15	17	14	2
Average	17.8000	17.4000	16.0000	6.2000
S	2.2804	1.1402	2.9155	3.4205
p		0.6483	0.2455	0.0011

Site: 11S03W32 Squirreltail, Plot 4				
Belt	Year			
	1988	1998	2003	2009
1	17	3	3	5
2	6	1	1	2
3	11	6	5	6
4	14	4	4	3
5	9	5	2	6
Average	11.4000	3.8000	3.0000	4.4000
S	4.2778	1.9235	1.5811	1.8166
p		0.0165	0.2420	0.1599

Site: 11S03W32 Sandberg Bluegrass, Plot 4				
Belt	Year			
	1988	1998	2003	2009
1	20	20	18	20
2	19	19	20	20
3	19	19	20	19
4	18	20	20	20
5	20	20	20	20
Average	19.2000	19.6000	19.6000	19.8000
S	0.8367	0.5477	0.8944	0.4472
p		0.3739	1.0000	0.7040

SHRUBS

Site: 11S03W32 Low Sagebrush, Plot 4				
Belt	Year			
	1988	1998	2003	2009
1	15	10	9	13
2	13	10	8	15
3	9	11	11	20
4	10	11	6	13
5	16	14	9	15
Average	12.6000	11.2000	8.6000	15.2000
S	3.0496	1.6432	1.8166	2.8636
p		0.3383	0.0650	0.0012

Site: 11S03W32 Low Sagebrush Seedling, Plot 4				
Belt	Year			
	1988	1998	2003	2009
1	0	3	2	0
2	1	5	6	0
3	0	7	10	0
4	0	7	7	0
5	0	6	7	0
Average	0.2000	5.6000	6.4000	0.0000
S	0.4472	1.6733	2.8810	0.0000
p		0.0027	0.2943	0.0077

Ground Cover by Percentage

- Although they appear to be similar, data collection methods for years recorded in the access reports may be different than those conducted for 1989.
- Total Vegetation and Canopy Cover cannot be determined from old data reports.
- A p-value <0.1 is significant.
- Long-term 1988-2009 reflects comparison between first and last monitored year (values <0.1 are significant).

Table C-2: Pasture 1 ground cover

11S03W32- Bare Ground, Plot 4, %				
Belt	1988	1998	2003	2009
1	30	42.5	28.75	46.25
2	23.75	36.25	16.25	38.75
3	21.25	33.75	15	16.25
4	10	25	25	28.75
5	11.25	42.5	31.25	30
Average	19.25	36	23.25	32
S	8.5055	7.2565	7.3208	11.3054
p		0.0102	0.0233	0.1378
				0.1267

11S03W32 - Non-Persistent Litter, Plot 4, %				
Belt	1988	1998	2003	2009
1	13.75	11.25	21.25	25
2	25	13.75	18.75	40
3	36.25	12.5	42.5	46.25
4	26.25	13.75	28.75	32.5
5	18.75	12.5	30	21.25
Average	24	12.75	28.25	33
S	8.4963	1.0458	9.2955	10.3305
p		0.0354	0.0212	0.3769
				0.1734

11S03W32 - Basal Vegetation, Plot 4, %				
Belt	1988	1998	2003	2009
1	10	13.75	6.25	0
2	8.75	15	11.25	3.75
3	10	15	6.25	2.5
4	11.25	16.25	10	6.25
5	10	3.75	8.75	3.75
Average	10	12.75	8.5	3.25
S	0.8839	5.1082	2.2361	2.2707
p		0.2950	0.1586	0.0020
				0.0006

11S03W32 - Total Vegetation, Plot 4, %				
Belt	1988	1998	2003	2009
1		13.75	8.75	8.75
2		15	18.75	13.75
3		15	17.5	18.75
4		16.25	18.75	20
5		3.75	17.5	12.5
Average		12.75	16.25	14.75
S		5.1082	4.2390	4.6267
p			0.3074	0.3585
				0.2663

11S03W32 - GR, RK, PL, CR, Plot 4, %				
Belt	1988	1998	2003	2009
1	46.25	32.5	43.75	28.75
2	42.5	35	53.75	17.5
3	32.5	38.75	36.25	35
4	52.5	45	36.25	32.5
5	60	41.25	30	45
Average	46.75	38.5	40	31.75
S	10.3682	4.9529	9.1001	9.9844
p		0.1206	0.8092	0.3859
				0.0717

11S03W32 - Canopy Cover, Plot 4, %				
Belt	1988	1998	2003	2009
1		11.25	2.5	8.75
2		5	7.5	11.25
3		10	11.25	18.75
4		12.5	8.75	16.25
5		7.5	8.75	11.25
Average		9.25	7.75	13.25
S		3.0104	3.2355	4.1079
p			0.5158	0.0056
				0.1405

Shrub and Tree Density

- Plants/acre from mean of two plots.
- X = Seedling.

Table C-3: Pasture 1 shrub and tree density

Site 11S03W32	1988	1998	2003	2009
Low Sagebrush	9450	10900	6150	5400
X Low Sagebrush	3550	0	5200	2900

Pasture 2

Frequency Table Statistics

- T-test Using # Hits (not % frequency)
- For years in which a species was not encountered but had been encountered in previous years, data values were entered as zeros. (Data values for species not encountered in a given year but encountered in later years were not entered as zeros since many plants were intentionally not recorded in previous years, i.e. annuals.)
- Most of the pre-1998 data were taken from old data reports, not access reports.
- A p-value <0.1 indicates a statistically significant difference.

Table C-4: Pasture 2 grasses and shrubs

GRASSES

Belt	1988	1998	2003	2009
Site: 11S03W31 Bluebunch WG, Plot4				
1	5	3	0	3
2	1	6	4	2
3	4	7	3	2
4	14	12	10	6
5	15	11	7	2
Average	7.8	7.8	4.8	3

Belt	1988	1998	2003	2009
Site: 11S03W31 Sandberg bluegrass, Plot4				
1	6	8	0	12
2	9	10	0	6
3	13	14	0	13
4	7	8	3	15
5	6	10	0	17
Average	8.2000	10.0000	0.6000	12.6000

Belt	1988	1998	2003	2009
S	6.3008	3.7014	3.8341	1.7321
p		1.0000	0.0026	0.2658

Belt	1988	1998	2003	2009
S	2.9496	2.4495	1.3416	4.1593
p		0.0367	0.0031	0.0024

Site: 11S03W31 Basin Wildrye, Plot4				
Belt	Year			
	1988	1998	2003	2009
1	1	1	1	0
2	0	0	0	1
3	1	1	1	1
4	0	0	0	0
5	0	1	0	0
Average	0.4000	0.6000	0.4000	0.4000
S	0.5477	0.5477	0.5477	0.5477
p		0.3739	0.3739	1.0000

Site: 11S03W31 Squirreltail, Plot4				
Belt	Year			
	1988	1998	2003	2009
1	7	11	0	5
2	10	13	0	9
3	10	6	1	4
4	5	5	1	4
5	4	6	0	4
Average	7.2000	8.2000	0.4000	5.2000
S	2.7749	3.5637	0.5477	2.1679
p		0.5185	0.0117	0.0125

Site: 11S03W31 Idaho Fescue, Plot4				
Belt	Year			
	1988	1998	2003	2009
1	4	4	2	0
2	3	6	0	0
3	11	8	1	0
4	10	8	4	1
5	16	12	0	0
Average	8.8000	7.6000	1.4000	0.2000
S	5.3572	2.9665	1.6733	0.4472
p		0.3883	0.0212	0.1087

Site: 11S03W31 Cheatgrass, Plot4				
Belt	Year			
	1988	1998	2003	2009
1			17	18
2			19	19
3			17	18
4			12	18
5			12	18
Average			15.4000	18.2000
S			3.2094	0.4472
p				0.1010

SHRUBS

Site: 11S03W31 Mountain Big Sagebrush, Plot4				
Belt	Year			
	1988	1998	2003	2009
1	2	1	0	2
2	5	4	0	2
3	6	4	1	2
4	6	2	0	0
5	10	5	0	0
Average	5.8000	3.2000	0.2000	1.2000
S	2.8636	1.6432	0.4472	1.0954
p		0.0329	0.0132	0.0890

Site: 11S03W31 Green Rabbitbrush, Plot4				
Belt	Year			
	1988	1998	2003	2009
1	2	6	2	3
2	4	5	4	6
3	3	1	7	3
4	4	3	1	3
5	2	4	0	4
Average	3.0000	3.8000	2.8000	3.8000
S	1.0000	1.9235	2.7749	1.3038
p		0.4954	0.6164	0.4975

Ground Cover by Percentage

- Although they appear to be similar, data collection methods for years recorded in the access reports may be different than those conducted for 1989.
- Total Vegetation and Canopy Cover cannot be determined from old data reports.
- A p-value <0.1 is significant.
- Long-term 1988-2009 reflects comparison between first and last monitored year (values <0.1 are significant).

Table C-5: Pasture 2 ground cover

11S03W31 - Bare Ground, Plot 4, %				
Belt	1988	1998	2003	2009
1	20	12.5	85	16.25
2	16.25	20	85	17.5
3	8.75	5	31.25	15
4	17.5	25	77.5	23.75
5	13.75	28.75	60	33.75
Average	15.25	18.25	67.75	21.25
S	4.2757	9.5851	22.8172	7.7560
p		0.4954	0.0055	0.0124
				0.1491

11S03W31 - Non-Persistent Litter, Plot 4, %				
Belt	1988	1998	2003	2009
1	53.75	46.25	8.75	77.5
2	46.25	41.25	8.75	80
3	21.25	41.25	25	80
4	21.25	43.75	17.5	75
5	17.5	32.5	27.5	61.25
Average	32	41	17.5	74.75
S	16.7145	5.1841	8.7945	7.8262
p		0.2296	0.0157	0.0010
				0.0020

11S03W31 - Basal Vegetation, Plot 4, %				
Belt	1988	1998	2003	2009
1	1.25	1.25	3.75	0
2	2.5	11.25	3.75	0
3	6.25	6.25	5	2.5
4	10	6.25	2.5	0
5	6.25	10	2.5	0
Average	5.25	7	3.5	0.5
S	3.4686	3.9131	1.0458	1.1180
p		0.4543	0.1412	0.0006
				0.0621

11S03W31 - Total Vegetation, Plot 4, %				
Belt	1988	1998	2003	2009
1		35	5	10
2		33.75	3.75	17.5
3		38.75	17.5	15
4		30	5	23.75
5		36.25	3.75	33.75
Average		34.75	7	20
S		3.2355	5.9029	9.1430
p			0.0002	0.0810
				0.0378

11S03W31 - GR, RK, PL, CR, Plot 4, %				
Belt	1988	1998	2003	2009
1	25	40	2.5	6.25
2	35	27.5	2.5	2.5
3	63.75	47.5	38.75	2.5
4	51.25	25	2.5	1.25
5	62.5	28.75	10	5
Average	47.5	33.75	11.25	3.5
S	17.0706	9.6014	15.7123	2.0540
p		0.1790	0.0085	0.3459
				0.0043

11S03W31 - Canopy Cover, Plot 4, %				
Belt	1988	1998	2003	2009
1		33.75	1.25	10
2		22.5	2.5	26.25
3		35	12.5	13.75
4		23.75	2.5	6.25
5		26.25	1.25	5
Average		28.25	4	12.25
S		5.7690	4.7926	8.5422
p			0.0004	0.1121
				0.0157

Shrub and Tree Density

- Plants/acre from mean of two plots.
- X = Seedling.

Table C-6: Pasture 2 shrub and tree density

Site 11S03W31	1988	1998	2003	2009
Gray Rabbitbrush	0	0	0	100
Green Rabbitbrush	1350	1800	1600	2100
Grey Horsebrush	0	100	0	0
Big Sagebrush (Mountain)	1300	1200	0	100
X Big Sagebrush (Mountain)	0	0	0	50
Low Sagebrush	0	0	0	0
X Low Sagebrush	0	0	0	0
Western Juniper	50	100	0	0
X Western Juniper	50	0	0	0

Pasture 3

Frequency Table Statistics

- T-test Using # Hits (not % frequency)
- For years in which a species was not encountered but had been encountered in previous years, data values were entered as zeros. (Data values for species not encountered in a given year but encountered in later years were not entered as zeros since many plants were intentionally not recorded in previous years, i.e. annuals.)
- Most of the pre-1998 data were taken from old data reports, not access reports.
- A p-value <0.1 indicates a statistically significant difference.

Table C-7: Pasture 3 grasses and shrubs

GRASSES

Site: 12S03W08 Bluebunch Wheatgrass, Plot 4				
Belt	Year			
	1988	1998	2003	2009
1	7	6	3	0
2	1	1	5	2
3	0	2	5	2
4	4	3	5	0
5	3	5	4	1
Average	3	3.4	4.4	1
S	2.7386	2.0736	0.8944	1.0000
p		0.5870	0.4859	0.0011

Site: 12S03W08 Squirreltail, Plot 4				
Belt	Year			
	1988	1998	2003	2009
1	13	8	3	7
2	15	7	2	5
3	18	9	2	5
4	12	8	0	1
5	12	9	5	5
Average	14.0000	8.2000	2.4000	4.6000
S	2.5495	0.8367	1.8166	2.1909
p		0.0074	0.0014	0.0402

Site: 12S03W08 Idaho Fescue,Plot 4				
Belt	Year			
	1988	1998	2003	2009
1	4	9	9	0
2	6	11	6	1
3	0	1	1	0
4	6	2	0	0
5	2	0	0	0
Average	3.6000	4.6000	3.2000	0.2000
S	2.6077	5.0299	4.0866	0.4472
p		0.6113	0.2262	0.1636

Site: 12S03W08 Cheatgrass,Plot 4				
Belt	Year			
	1988	1998	2003	2009
1		0	3	4
2		0	0	1
3		0	0	3
4		0	1	4
5		0	0	1
Average		0.0000	0.8000	2.6000
S		0.0000	1.3038	1.5166
p			0.2420	0.0213

Site: 12S03W08 Sandberg Bluegrass,Plot 4				
Belt	Year			
	1988	1998	2003	2009
1	20	18	18	20
2	17	19	20	19
3	20	19	20	19
4	16	19	19	20
5	19	19	20	18
Average	18.4000	18.8000	19.4000	19.2000
S	1.8166	0.4472	0.8944	0.8367
p		0.6885	0.0705	0.7990

Site: 12S03W08 Needlegrass,Plot 4				
Belt	Year			
	1988	1998	2003	2009
1	6	0	0	1
2	5	0	0	0
3	2	3	0	0
4	0	0	0	0
5	0	0	0	0
Average	2.6000	0.6000	0.0000	0.2000
S	2.7928	1.3416	0.0000	0.4472
p		0.2397	0.3739	0.3739

SHRUBS

Site: 12S03W08 Low Sagebrush,Plot 4				
Belt	Year			
	1988	1998	2003	2009
1	13	14	13	13
2	13	8	8	14
3	11	10	10	9
4	12	11	0	10
5	15	12	14	14
Average	12.8000	11.0000	9.0000	12.0000
S	1.4832	2.2361	5.5678	2.3452
p		0.1523	0.4340	0.2344

Site: 12S03W08 Low Sagebrush (Seedling),Plot 4				
Belt	Year			
	1988	1998	2003	2009
1		0	1	0
2		0	3	0
3		2	0	0
4		3	0	0
5		2	0	0
Average		1.4000	0.8000	0.0000
S		1.3416	1.3038	0.0000
p			0.6213	0.2420

Ground Cover by Percentage

- Although they appear to be similar, data collection methods for years recorded in the access reports may be different than those conducted for 1989.
- Total Vegetation and Canopy Cover cannot be determined from old data reports.
- A p-value <0.1 is significant.
- Long-term 1988-2009 reflects comparison between first and last monitored year (values <0.1 are significant).

Table C-8: Pasture 3 ground cover

12S03W08- Bare Ground, Plot 4, %				
Belt	1988	1998	2003	2009
1	17.5	31.25	33.75	33.75
2	18.75	41.25	41.25	27.5
3	12.5	32.5	45	37.5
4	13.75	25	27.5	18.75
5	12.5	26.25	37.5	18.75
Average	15	31.25	37	27.25
S	2.9315	6.4348	6.7662	8.5422
p				

12S03W08 - Non-Persistent Litter, Plot 4, %				
Belt	1988	1998	2003	2009
1	20	27.5	36.25	42.5
2	25	16.25	25	26.25
3	11.25	12.5	6.25	22.5
4	17.5	15	8.75	42.5
5	12.5	10	12.5	35
Average	17.25	16.25	17.75	33.75
S	5.6181	6.7315	12.6058	9.1856
p		0.7264	0.6787	

12S03W08 - Basal Vegetation, Plot 4, %				
Belt	1988	1998	2003	2009
1	10	10	7.5	1.25
2	11.25	6.25	5	6.25
3	8.75	11.25	15	3.75
4	5	3.75	12.5	2.5
5	8.75	10	10	2.5
Average	8.75	8.25	10	3.25
S	2.3385	3.1375	3.9528	1.8957
p		0.7174	0.4391	

12S03W08 - Total Vegetation, Plot 4, %				
Belt	1988	1998	2003	2009
1		23.75	23.75	32.5
2		15	16.25	18.75
3		20	18.75	23.75
4		11.25	18.75	28.75
5		18.75	28.75	27.5
Average		17.75	21.25	26.25
S		4.7926	5.0000	5.2291
p			0.1892	

12S03W08 - GR, RK, PL, CR, Plot 4, %				
Belt	1988	1998	2003	2009
1	52.5	31.25	22.5	22.5
2	45	36.25	28.75	40
3	67.5	43.75	33.75	36.25
4	63.75	48.75	51.25	36.25
5	66.25	53.75	40	43.75
Average	59	42.75	35.25	35.75
S	9.8187	9.1173	11.0185	8.0331
p				0.9131

12S03W08 - Canopy Cover, Plot 4, %				
Belt	1988	1998	2003	2009
1		15	18.75	31.25
2		8.75	11.25	12.5
3		7.5	3.75	21.25
4		7.5	3.75	26.25
5		10	28.75	25
Average		9.75	13.25	23.25
S		3.1125	10.6654	6.9933
p			0.4430	0.1120

Shrub and Tree Density

- Plants/acre from mean of two plots.
- X = Seedling.

Table C-9: Pasture 3 shrub and tree density

Site 12S03W08	1988	1998	2003	2009
Low Sagebrush	12450	9700	7850	5250
X Low Sagebrush	5100	0	150	0

APPENDIX D: RANGELAND HEALTH INDICATORS & ATTRIBUTE RATINGS

Table D-1: Swisher Springs and Swisher FFR Pasture and Location Information

Pasture	Site # ID	Location (Sec., Township, Range)	Ecological Site
Swisher Springs (1)	071701-2C	11S03WS32	Shallow Claypan 11-13
Swisher Springs (2)	071801-3C	11S03W31	Loamy 13-16
Swisher Springs (3)	071801-2B	12S03W08	Shallow Claypan 12-16
Swisher FFR (1)	071801-3B	11S3W29	Loamy 11-13

Table D-2: Swisher Springs and Swisher FFR 2001 Rangeland Health Indicator ratings

Rangeland Health Indicator	Attribute	Site 071701-2C	Site 071801-3C	Site 071801-2B	Site 071801-3B
1. Rills	S,H	n-s	n-s	n-s	n-s
2. Water Flow Patterns	S,H	s-m	n-s	m	n-s
3. Pedestals/Terracettes	S,H	s-m	n-s	m	s-m
4. Bare Ground	S,H	n-s	n-s	s-m	n-s
5. Gullies	S,H	n-s	n-s	n-s	n-s
6. Wind Scoured, Blowouts and/or Depositions	S	n-s	n-s	n-s	n-s
7. Litter Movement	S	n-s	n-s	n-s	n-s
8. Soil Surface to Erosion	S,H,B	s-m	s-m	n-s	s-m
9. Soil Surface Loss or Degradation	S,H,B	s-m	n-s	m	s-m
10. Plant Community Comp. & Distribution Relative to Infiltration & Runoff	H	n-s	n-s	n-s	n-s
11. Compaction Layer	S,H,B	n-s	n-s	n-s	n-s
12. Functional/Structural Groups	B	s-m	n-s	s-m	s-m
13. Plant Mortality/Decadence	B	n-s	n-s	s-m	n-s
14. Litter Amount	H,B	n-s	n-s	n-s	n-s
15. Annual Production	B	n-s	n-s	n-s	n-s
16. Invasive Plants	B	n-s	n-s	s-m	m
17. Reproductive Capability of Perennial Plants	B	n-s	n-s	n-s	blank

Table D-3: Swisher Springs & Swisher FFR 2011 Attribute Ratings

Attribute	Rating			
Soil/Site Stability (S)	s-m	n-s	s-m	s-m
Hydrologic Function (H)	s-m	n-s	m	s-m
Biotic Integrity (B)	s-m	n-s	s-m	s-m

¹S = Soil/Site Stability Indicator, H = Hydrologic Function Indicator, B = Biotic Integrity Indicator

²Departures from reference conditions; n-s = none to slight, s-m = slight to moderate, m = moderate, m-e = moderate to extreme, e = extreme

APPENDIX E: SPECIAL STATUS WILDLIFE SPECIES

Table E-1: Special status wildlife species in the Owyhee Field Office and occurrence potential within the Swisher Springs allotment and Swisher FFR

Common Name	Species	Status (conservation plans) ¹	General Habitat ²	Habitat Present ³	Species Present ⁴	Species/Habitat Affected
Snake River Physa	<i>Physa natricina</i>	ESA E	Believed to inhabit deep water on the margins of moderately swift rapids or riffles. Individuals have been found in relatively undisturbed areas with gravel, boulder, or cobble substrates and low percentage of epiphytic algae or macrophytes.	No	No	No
Columbia Spotted Frog	<i>Rana luteiventris</i>	ESA C (SGCN)	Cool, permanent, quiet water in streams, rivers, lakes, pools, springs, and marshes usually in hilly areas from sea level to about 3000 m. Highly aquatic, but may disperse into forests, grasslands, and shrublands	Yes; streams in allotment and FFR	Probable	Yes
Greater Sage-grouse	<i>Centrocercus urophasianus</i>	ESA C (SGCN/HPBB/BCC)	Broad sagebrush covered valleys and foothills interspersed with wet meadows.	Yes; throughout allotment and FFR	Yes	Yes
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	ESA C (SGCN/BCC)	Extensive, mature riparian woodlands, especially of cottonwoods or willows, and other open woodlands with dense understories at lower elevations. Mature riparian areas with willow and alder thickets.	No	No	No
American White Pelican	<i>Pelecanus erythrorhynchos</i>	BLM 2 (SGCN/HPBB)	Typically occur on isolated islands in freshwater lakes, marshes or rivers, on lakes, reservoirs and rivers supporting large fish populations and on mud, sand or gravel shores.	No	No	No
Bald Eagle	<i>Haliaeetus leucocephalus</i>	BGEPA – BLM 2 (SGCN/BCC)	Restricted to large rivers and water bodies near mixed conifer forest, occasionally sagebrush foothills. Nest in oldest trees in the stand. Always associated with aquatic forage area.	No	Possible	No
Golden Eagle	<i>Aquila chrysaetos</i>	BGEPA (HPBB/BCC)	Open habitats in mountains and hill country, prairies and other grasslands. Open sagebrush areas adjacent to nesting cliffs. Found on prairies, tundra, open wooded country, and barren areas, especially in hilly or mountainous areas. In Idaho, prefers open and semi-open areas in deserts and mountains.	Yes; foraging habitat throughout allotment and FFR	Yes	Yes
Northern Leopard Frog	<i>Rana pipiens</i>	BLM 2	Permanent water sources on the plains, foothill,	Yes; streams	Improbable	Yes

Common Name	Species	Status (conservation plans) ¹	General Habitat ²	Habitat Present ³	Species Present ⁴	Species/Habitat Affected
		(SGCN)	and in montane zones	in FFR and Swisher Springs Pastures 1 and 2		
Pygmy Rabbit	<i>Brachylagus idahoensis</i>	BLM 2 (SGCN)	Throughout much of the Great Basin; relatively large areas of tall/dense sagebrush and deep soils. In Idaho, closely associated with large stands of sagebrush; prefers areas of tall, dense sagebrush cover with high percent woody cover.	Yes; throughout allotment and FFR	Possible	Yes
Columbia River Redband Trout	<i>Oncorhynchus mykiss gibbsi</i>	BLM 2 (SGCN)	Redband trout are found in a range of stream habitats from desert areas in southwestern Idaho to forested mountain streams in central and northern Idaho.	No	No	No
White Sturgeon	<i>Acipenser transmontanus</i>	BLM 2 (SGCN)	Rely on streams, rivers, and estuarine habitat as well as marine waters during their lifecycle. Prefer to spawn in rivers with swift currents and large cobble; no nest is built.	No	No	No
Black Tern	<i>Chlidonias niger</i>	BLM 3 (SGCN)	Rivers and ponds. Nests in or on emergent vegetation in alkaline lakes and freshwater marshes, or in marshy areas along rivers, lakes, or ponds. Forages within a few hundred meters of nest.	No	Improbable	No
Brewer's Sparrow	<i>Spizella breweri</i>	BLM 3 (SGCN/HPBB/BCC)	Sagebrush steppe. Idaho study found Brewer's Sparrows prefer large, living sagebrush for nesting. A recent study in southwestern Idaho concluded that their distribution was influenced by both local vegetation cover and landscape-level features such as patch size.	Yes; throughout allotment and FFR	Yes	Yes
California Bighorn Sheep	<i>Ovis canadensis californiana</i>	BLM 3 (SGCN)	Extremely rugged mountain areas with jutting crags, deep canyons and precipitous cliffs. Grassy slopes near cliffs and rocky ridges in mountains. Mesic to xeric grass. Avoids dense vegetation cover. Semi-desert grassland. Canyonlands and foothills of the Owyhee River drainage.	Yes; locally throughout allotment and FFR	Improbable	No
Calliope Hummingbird	<i>Stellula calliope</i>	BLM 3 (HPBB/BCC)	Secondary successional shrub/sapling. Aspen thickets, along streams, open montane forests. Shrubby riparian areas and sparsely timbered sites. In Idaho, found in mountains along meadows, canyons and streams, in open montane forests and willow and alder thickets	Yes; FFR and Swisher Springs Pastures 2 and 3	Possible	Yes
Columbia Sharp-tailed	<i>Tympanuchus</i>	BLM 3 (SGCN/HPBB)	Found in grasslands (especially with scattered woodlands), arid sagebrush, brushy hills, oak	No	No	No

Common Name	Species	Status (conservation plans) ¹	General Habitat ²	Habitat Present ³	Species Present ⁴	Species/Habitat Affected
Grouse	<i>phasianellus columbianus</i>		savannas, and edges of riparian woodlands. In west-central Idaho study, grouse preferred big sagebrush to other summer cover types; mountain shrub and riparian cover types were critical components of winter habitat.			
Common Garter Snake	<i>Thamnophis sirtalis</i>	BLM 3	Usually found in habitats associated with water , such as streams, rivers, lakes, ponds and marshes. They can also be found in open meadows and coniferous forests.	Yes*; streams in allotment and FFR	Possible	Yes
Ferruginous Hawk	<i>Buteo regalis</i>	BLM 3 (SGCN/HPBB/BCC)	Found in shrub steppe at periphery of juniper or other woodlands.	Yes; nesting and foraging throughout allotment and FFR	Possible	Yes
Flammulated Owl	<i>Otus flammeolus</i>	BLM 3 (SGCN/HPBB/BCC)	Prefers old growth. In Idaho, occupies older ponderosa pine, Douglas-fir, and mixed coniferous forests.	No	Improbable	No
Fringed Myotis	<i>Myotis thysanodes</i>	BLM 3 (SGCN)	Found primarily in desert shrublands, sagebrush-grassland, and woodland habitats (ponderosa pine forest, oak and pine habitats, Douglas-fir). Roosts in caves, mines, rock crevices, buildings, and other protected sites. Prefer to forage in riparian areas characterized by intermittent streams with wider channels (5.5 to 10.5 meters) than ones with channels less than 2.0 meters wide.	Yes; foraging throughout allotment and FFR	Possible	Yes
Hammond's Flycatcher	<i>Empidonax hammondii</i>	BLM 3 (HPBB)	Found in coniferous forests and woodlands. In Idaho, old-growth associates in Douglas-fir/ponderosa pine forests.	No	Improbable	No
Lewis' Woodpecker	<i>Melanerpes lewis</i>	BLM 3 (SGCN/HPBB/BCC)	Found in open forests and woodlands (often logged or burned), including oak, coniferous forests (primarily ponderosa pine), and riparian woodlands and orchards.	Yes*; locally in FFR and Swisher Springs Pastures 2 and 3	Possible	Yes
Loggerhead Shrike	<i>Lanius ludovicianus</i>	BLM 3 (HPBB/BCC)	Found in open country with scattered trees and shrubs, in savannas, desert scrub and, occasionally, in open juniper woodlands. Often found on poles, wires or fenceposts.	Yes; throughout allotment and FFR	Yes	Yes
Longnose Snake	<i>Rhinocheilus</i>	BLM 3	Found in desert lowland areas that have sandy or loose soil and numerous burrows.	No	No	No

Common Name	Species	Status (conservation plans) ¹	General Habitat ²	Habitat Present ³	Species Present ⁴	Species/Habitat Affected
	<i>lecontei</i>	(SGCN)				
Mojave Black-collared Lizard	<i>Crotaphytus bicinctores</i>	BLM 3 (SGCN)	Associated with arid habitats with sparse vegetation and the presence of rocks and boulders.	No	No	No
Mountain Quail	<i>Oreortyx pictus</i>	BLM 3 (SGCN/HPBB)	Mountain quail breed and winter in shrub-dominated riparian communities of hawthorn, willow, and chokecherry in the intermountain West. Diet is dominated by plant material though invertebrates are very important during the first 8 weeks.	Yes	No	No
Northern Goshawk	<i>Accipiter gentilis</i>	BLM 3 (HPBB)	Found in deciduous and coniferous forests, along forest edges and in open woodlands. In Idaho, summers and nests in coniferous and aspen forests; winters in riparian and agricultural areas.	Yes; locally throughout allotment and FFR	Possible	Yes
Olive-sided Flycatcher	<i>Contopus borealis</i>	BLM 3 (HPBB)	Found in forests and woodlands (especially in burned-over areas with standing dead trees)	Yes*; throughout allotment and FFR	Improbable	No
Peregrine Falcon	<i>Falco peregrinus</i>	BLM 3 (SGCN/BCC)	Cliffs near forest, lakes, ponds, and rivers. Most are thought to migrate south of Idaho during winter but individuals remain near urban nest sites in Nampa and Boise year around.	No	Improbable	No
Piute Ground Squirrel	<i>Spermophilus mollis</i>	BLM 3 (SGCN)	Sagebrush and grasslands.	Yes*; throughout allotment and FFR	Improbable	No
Prairie Falcon	<i>Falco mexicanus</i>	BLM 3 (HPBB)	Cliffs and rock outcrops in sagebrush steppe, grassland, montane meadows, marshes, and riparian areas.	Yes; throughout allotment and FFR	Yes	Yes
Sage Sparrow	<i>Amphispiza belli</i>	BLM 3 (HPBB/BCC)	Shrub steppe, mixed desert shrub/grassland communities.	Yes; throughout allotment and FFR	Probable	Yes
Spotted Bat	<i>Euderma maculatum</i>	BLM 3 (SGCN)	Various habitats from desert to montane coniferous forests. Observed in canyons of Owyhee County. Normally roost in deep rock crevices of canyon and cliff walls but specific roost characteristics are not well documented.	Yes; foraging throughout allotment and FFR	Probable	Yes

Common Name	Species	Status (conservation plans) ¹	General Habitat ²	Habitat Present ³	Species Present ⁴	Species/Habitat Affected
Townsend's Big-eared Bat	<i>Plecotus townsendii</i>	BLM 3 (SGCN)	Juniper, desert shrub, and dry coniferous forest throughout Idaho; day roosts and hibernates in caves and abandoned mines, forages over water	Yes; foraging throughout allotment and FFR	Possible	Yes
Western Groundsnake	<i>Sonora semiannulata</i>	BLM 3 (SGCN)	Xeric habitat characterized by sandy or loose soil textures, talus slopes, and boulder fields. Vegetation is typically sparse, comprising of shrubs, such as shadscale, sagebrush, greasewood, and bunchgrasses and annual grasses.	No	No	No
Western Toad	<i>Bufo boreas</i>	BLM 3	Wide variety of habitats such as desert springs and streams, meadows and woodlands, and in and around ponds, lakes, reservoirs, and slow-moving rivers and streams.	Yes; throughout allotment and FFR	Possible	Yes
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	BLM 3 (HPBB/BCC)	Dry open woods, orchards, farmlands, and foothills	No	No	No
Willow Flycatcher	<i>Empidonax trailii</i>	BLM 3 (HPBB/BCC)	Found in thickets, scrubby and brushy areas, open second growth, swamps, and open woodlands. In Idaho, associated with mesic and xeric willow (riparian) habitats.	Yes; locally in FFR	Possible	Yes
Woodhouse Toad	<i>Bufo woodhousii</i>	BLM 3 (SGCN)	Found in grasslands, shrub steppe, woods, river valleys, floodplains, and agricultural lands, usually in areas with deep, friable soils.	No	No	No
Black-throated Sparrow	<i>Amphispiza bilineata</i>	BLM 4	Open shrub areas with Sagebrush, Atriplex, Rabbitbrush, saltsage, horsebrush. Not found in dense sagebrush stands. Found in desert scrub, thorn bush. In Idaho prefers open shrub areas dominated by big sage, spiny hopsage, or horsebrush exceeding 50cm in height.	Yes; throughout allotment and FFR	Improbable	No
Dark Kangaroo Mouse	<i>Microdipodops megacephalus</i>	BLM 4	Soft, sandy soils in hot dry sagebrush areas. In Idaho found in loose sands and gravel in shadscale scrub, sagebrush scrub, and alkali sink plant communities. May occur in sand dunes near margins of range	Yes; locally in Swisher Springs Pasture 3	Improbable	No
Kit Fox	<i>Vulpes velox</i>	BLM 4	Inhabits arid and semi-arid regions encompassing desert scrub, chaparral, halophytic, and grassland communities. Loose textured soils may be preferred for denning.	No	No	No
Little Pocket Mouse	<i>Perognathus longimembris</i>	BLM 4	Shadscale and low sage areas on lower slopes of alluvial fans with pea-sized gravel. Found in sagebrush, creosote bush, and cactus communities. On slopes with widely spaces	No	No	No

Common Name	Species	Status (conservation plans) ¹	General Habitat ²	Habitat Present ³	Species Present ⁴	Species/Habitat Affected
			shrubs, found in firm, sandy soil overlain with pebbles. In Idaho, found in shadscale/low sage on lower slopes of alluvial fans.			
Merriam's Ground Squirrel	<i>Spermophilus canus vigilis</i>	BLM 4	Prefers sandy soils in dry, open sagebrush and grassland habitats. Occurs in the lower Snake River Valley south and west of the Snake River in Owyhee County, Idaho and Malheur County, Oregon from Reynolds Creek to Huntington and west to Westfall.	No	No	No
White-faced Ibis	<i>Plegadis chihi</i>	BLM 4 (SGCN/HPBB)	Found mostly in freshwater areas, on marshes, swamps, ponds and rivers. In Idaho, prefers shallow-water areas.	No	Possible	Yes
Wyoming Ground Squirrel	<i>Spermophilus elegans nevadensis</i>	BLM 4	Mountainous areas and higher plateaus in open and semi-forested habitats. Grasslands. In Idaho found in grasslands and sagebrush, especially on upland slopes with loose, sandy soils. Occupies a variety of sage plain and grassland habitats such as valley bottoms and foothills, montane meadows, subalpine talus slopes, and reclaimed surface-mine areas.	Yes; throughout allotment and FFR	Possible	Yes

¹ Status includes Endangered (ESA E) and Candidate (ESA C) species listed under the Endangered Species Act (16 U.S.C. § 1531-1544), eagles (BGEPA) protected by the Bald and Golden Eagle Protection Act (16 U.S.C. § 668-668d), and BLM Type 2 (BLM 2), Type 3, (BLM 3), and Type 4 (BLM 4) special status species (USDI-BLM 2003). Additional designations under state and national conservation plans include Idaho Species of Greatest Conservation Need (SGCN; IDFG 2006), Idaho Partners in Flight High Priority Breeding Bird (HPBB; IPIF 2000), and U.S. Fish and Wildlife Service Birds of Conservation Concern (BCC; USDI-FWS 2008).

² Habitat descriptions modified from IDVMD 2011.

³ Presence of habitat within project area was determined from IDVMD 2011, Yensen and Sherman 2003, and BLM unpublished data and specialist expertise.

⁴ Categories include species presence documented (Yes), species likely to occur based on preferred habitat and local species abundance and nearby (<5 miles) occurrences within 5 miles (Probable), species may occur based on preferred habitat and occurrences within 25 miles (Possible), species not likely to occur based on limited or lack of preferred habitat and occurrence over 50 miles (Improbable), and species not present due to lack of habitat.

References

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16 U.S.C. § 1531-1544. Endangered Species Act.

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Appendix F: Common and scientific names of plants used in the Castlehead-Lambert, Garat and Swisher Evaluation Reports

Table F-1: Common and scientific names of plants referred to in Evaluation Reports

Common Name	Scientific Name
aspen	<i>Populus tremuloides</i>
bitterbrush	<i>Purshia tridentata</i>
bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>
bud sagebrush	<i>Picrothamnus desertorum</i>
bulbous bluegrass	<i>Poa bulbosa</i>
Canada thistle	<i>Cirsium arvense</i>
ceanothus	<i>Ceanothus velutinus</i>
cheatgrass	<i>Bromus tectorum</i>
crested wheatgrass	<i>Agropyron cristatum</i>
curl-leaf mountain mahogany	<i>Cercocarpus ledifolius</i>
currant	<i>Ribes spp.</i>
curvseed butterwort (bur buttercup)	<i>Ceratocephala testiculata</i>
Davis' peppergrass	<i>Lepidium davisii</i>
green rabbitbrush	<i>Ericameria teretifolia</i>
Idaho fescue	<i>Festuca idahoensis</i>
inch-high lupine	<i>Lupinus uncialis</i>
low sagebrush	<i>Artemisia arbuscula</i>
medusahead	<i>Taeniatherum caput-medusae</i>
mountain ball cactus	<i>Pediocactus simpsonii</i>
mountain big sagebrush	<i>Artemisia tridentata ssp. vaseyana</i>
needlegrass	<i>Achnatherum spp.</i>
Newberry's milkvetch	<i>Astragalus newberryi var. castoreus</i>
rabbitbrush	<i>Chrysothamnus & Ericameria spp.</i>
rattlesnake stickseed	<i>Hackelia ophiobia</i>
Sandberg bluegrass	<i>Poa secunda</i>
Scotch cottonthistle (Scotch thistle)	<i>Onopordum acanthium</i>
Slickspot peppergrass	<i>Lepidium papilliferum</i>
small burnet	<i>Sanguisorba minor</i>
snowberry	<i>Symphoricarpos oreophilus</i>
squirreltail	<i>Elymus elymoides</i>
Stream orchid	<i>Epipactis gigantea</i>
thinleaf goldenhead	<i>Pyrocoma linearis</i>
Thurber's needlegrass	<i>Achnatherum thurberianum</i>
Ute ladies'-tresses	<i>Spiranthes diluvialis</i>
Western germander	<i>Teucrium canadense var. occidentale</i>

Common Name	Scientific Name
western juniper (juniper)	<i>Juniperus occidentalis</i>
whitetop	<i>Cardaria draba</i>
Wood's rose	<i>Rosa woodsii</i>
willow	<i>Salix spp.</i>
Wyoming big sagebrush	<i>Artemisia tridentata ssp. wyomingensis</i>

Nomenclature reference: USDA, NRCS PLANTS database as of January 2012

Appendix G: Swisher Springs and FFR Allotments Actual Use and Utilization

Table G-1: Swisher Springs and FFR Allotments Actual Use 1988 through 2010

Year	Pasture 1			Pasture 2			Pasture 3			Swisher Springs Allotment	Swisher FFR (public and private land)							
	From	To	AUMs	From	To	AUMs	From	To	AUMs	Total AUM's	From	To	AUMs					
1988	4/16	6/24	151	8/2	8/31	65				216	6/25	8/1	82					
1989				7/28	10/9	149	4/16	6/26	156	305	6/26	7/28	69					
1990	4/16	7/1	176	8/1	8/31	71				247	7/2	7/31	69					
1991				7/16	8/31	105	4/16	7/1	176	281	7/2 8/31	7/15 9/16	112					
1992	4/16	6/20	145	7/31	10/4	139				284	6/21	7/30	84					
1993				7/17	10/7	167	4/16	6/21	145	312	6/22	7/16	54					
1994	4/16	6/27	153	7/29	10/5	143				296	6/28	7/28	64					
1995				4/20 7/15	5/6 9/30	190	5/7	6/26	104	294	6/27	7/14	37					
1996	4/15	6/25	138	7/17	9/30	136				274	6/26	7/16	40					
1997				7/26	10/15	137	4/16	7/10	159	296	4/1 7/11 11/4	4/15 7/25 11/4	127					
1998	4/15	7/15	176	8/2	10/5	111				287	7/16	8/1	33					
1999				7/15	10/5	146	4/16	7/1	143	289	7/2	7/14	24					
2000																		
2001																		
2002	4/15	7/1	147	7/15	9/30	145				292	7/2	7/14	25					
2003																		
2004																		
2005	4/15	7/1	127	7/2	9/30	149				276	10/1	10/31	61					
	Actual use for Swisher Spring Allotment was reported for the allotment and not separated by pasture between 2006 and 2010.									From	To	AUMs						
2006										4/20	10/31	319	4/15	5/6	11			
2007										4/20	10/15	285	4/10	No data	No data			
2008										5/1	9/12	167	11/1	11/20	22			
2009										4/15	10/31	309						
2010										4/15	10/31	309						

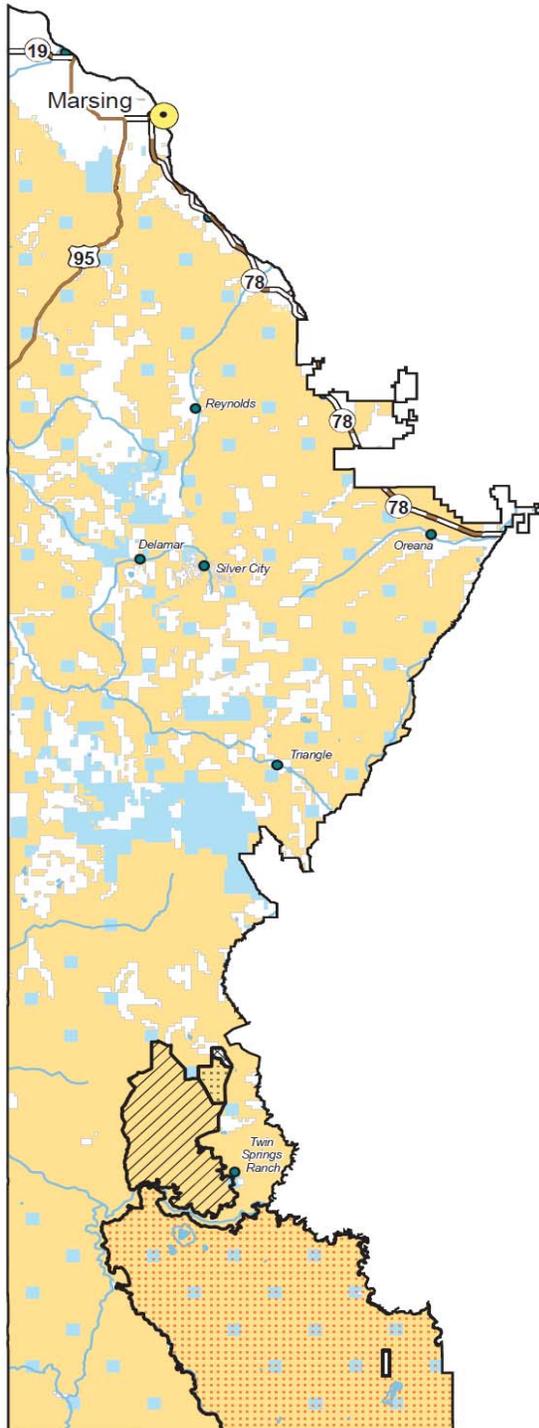
Table G-2: Swisher Springs and FFR Allotment Utilization (Percent key species utilization)

Year	Pasture 1		Pasture 2		Pasture 3		Swisher FFR	
	FEID	PSSP	FEID	PSSP	FEID	PSSP	FEID	PSSP
1983			27	32		16		
1984	10	10			0	0		
1985								
1986	16		33					
1987			56	39				
1988	43		52	38				
1989					54			
1990								
1991								
1992	40			40				
1993			65	43	51	59		
1994	39		55	30				
1995			15					
1996								
1997					37			
1998					51			
1999 - 2009	No utilization reports on record between 1999 and 2009							
2010			11				8	
2011	3		22	11		29	27	17

Maps

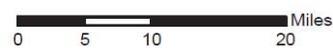
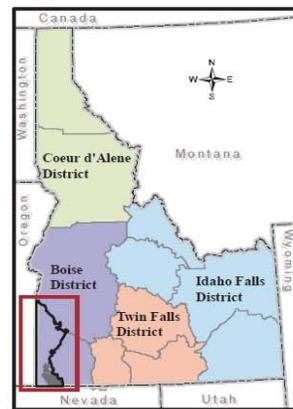
Map 1: Owyhee Field Office Group 1 Range Permit Renewals

MAP 1 RANGE PERMIT RENEWALS OWYHEE FIELD OFFICE GROUP 1 ALLOTMENTS



- BLM ADMINISTRATIVE OFFICE
- GROUP 1 GRAZING ALLOTMENTS**
- CASTLEHEAD/LAMBERT
- GARAT
- SWISHER FFR
- SWISHER SPRINGS
- SURFACE MANAGEMENT AGENCY**
- BUREAU OF LAND MANAGEMENT
- BUREAU OF RECLAMATION
- NATIONAL WILDLIFE REFUGE
- STATE
- STATE, OTHER
- PRIVATE

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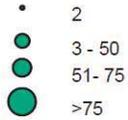


Map 2: Owyhee Field Office Group 1 Sage-grouse Management

MAP 2 OWYHEE FIELD OFFICE GROUP 1 ALLOTMENTS SAGE-GROUSE MANAGEMENT



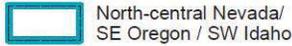
OCCUPIED SAGE-GROUSE LEKS
MAXIMUM COUNT (2006-2010)



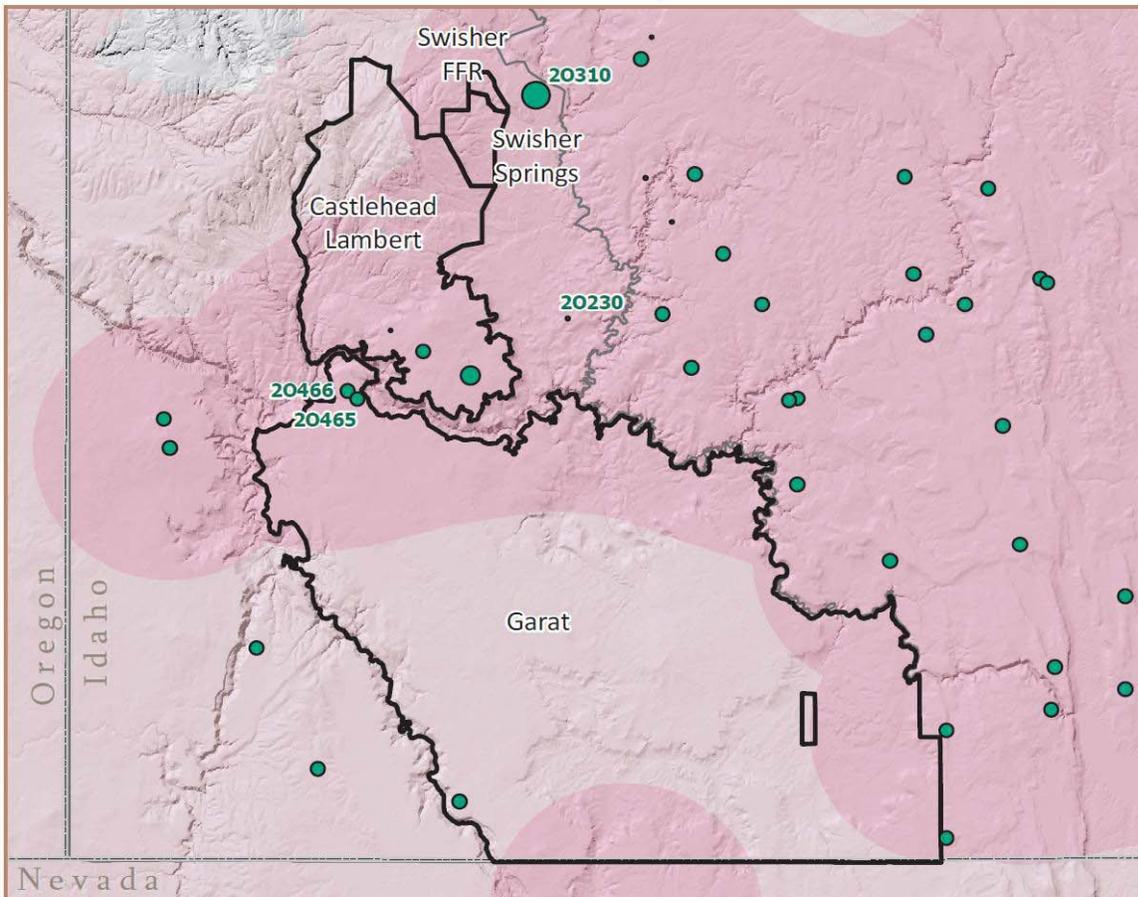
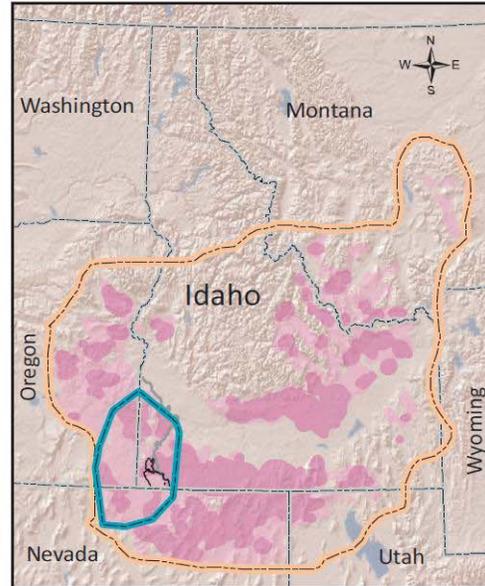
**SAGE-GROUSE
MANAGEMENT ZONE IV**



SUB-POPULATION

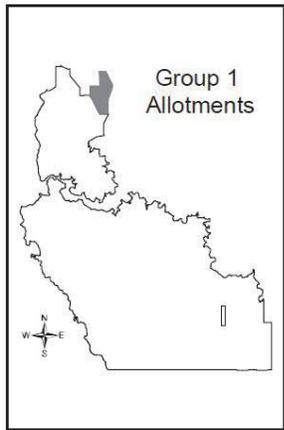


**SAGE-GROUSE
PRELIMINARY PRIORITY AREAS**

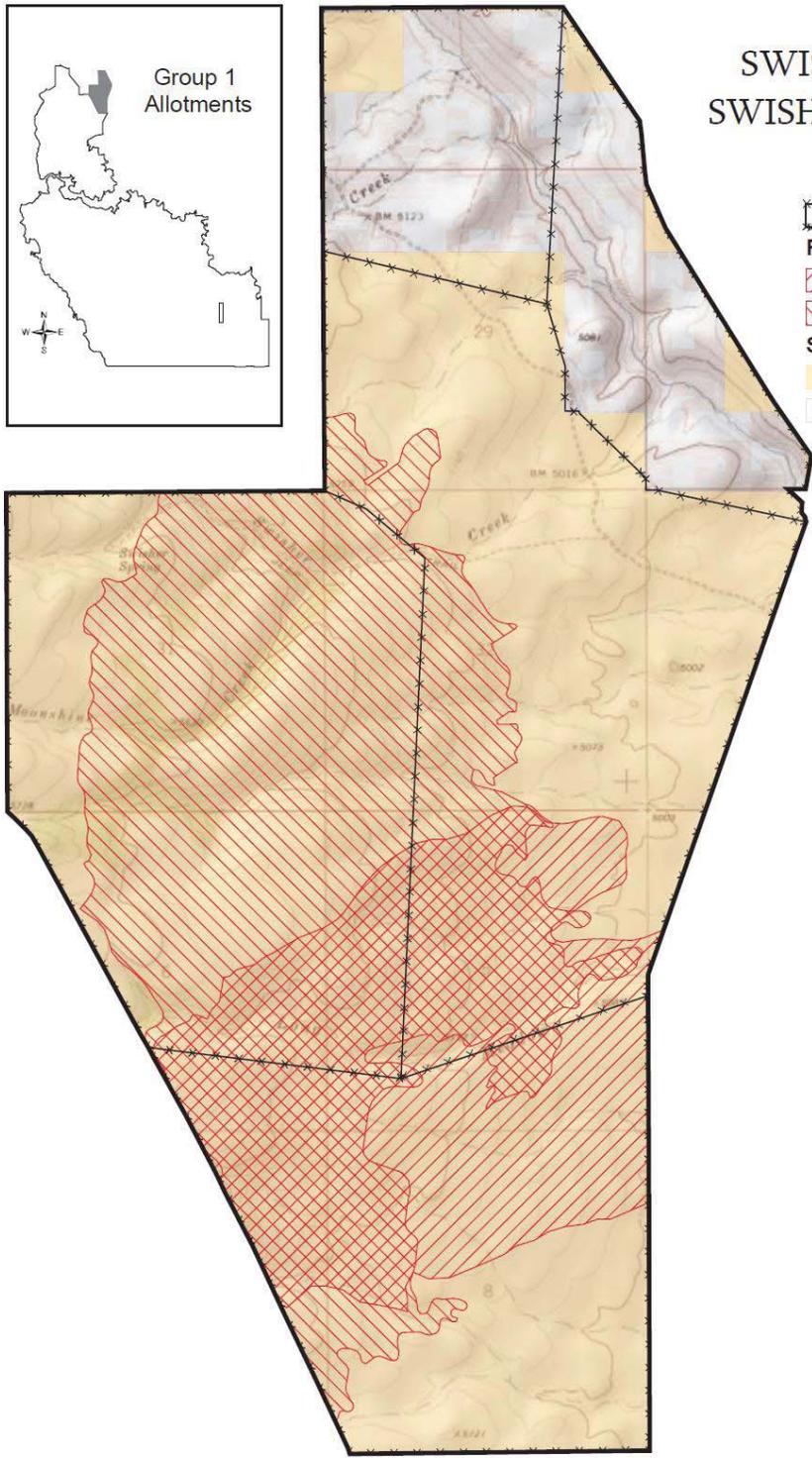


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Map 3: Fire History

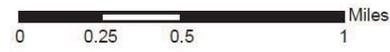


MAP 3 SWISHER SPRINGS AND SWISHER FFR ALLOTMENTS FIRE HISTORY

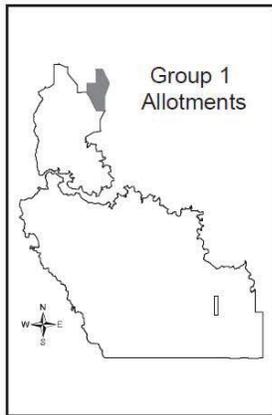


- GRAZING PASTURES
- FIRE PERIMETERS**
- CRUTCHER CROSSING - 2007
- MEADOW - 2000
- SURFACE MANAGEMENT AGENCY**
- BUREAU OF LAND MANAGEMENT
- PRIVATE

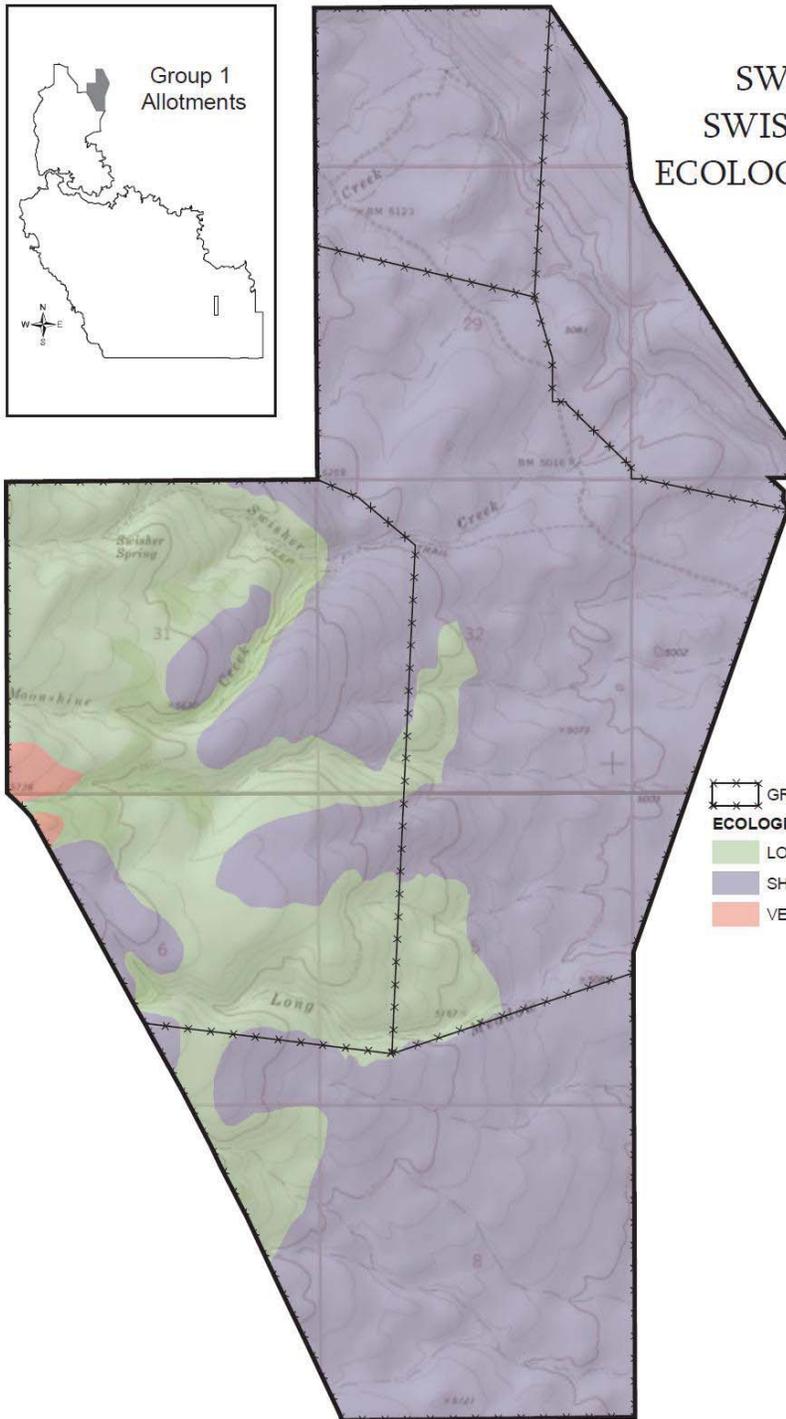
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Map 4: Ecological Site Descriptions



MAP 4 SWISHER SPRINGS AND SWISHER FFR ALLOTMENTS ECOLOGICAL SITE DESCRIPTIONS



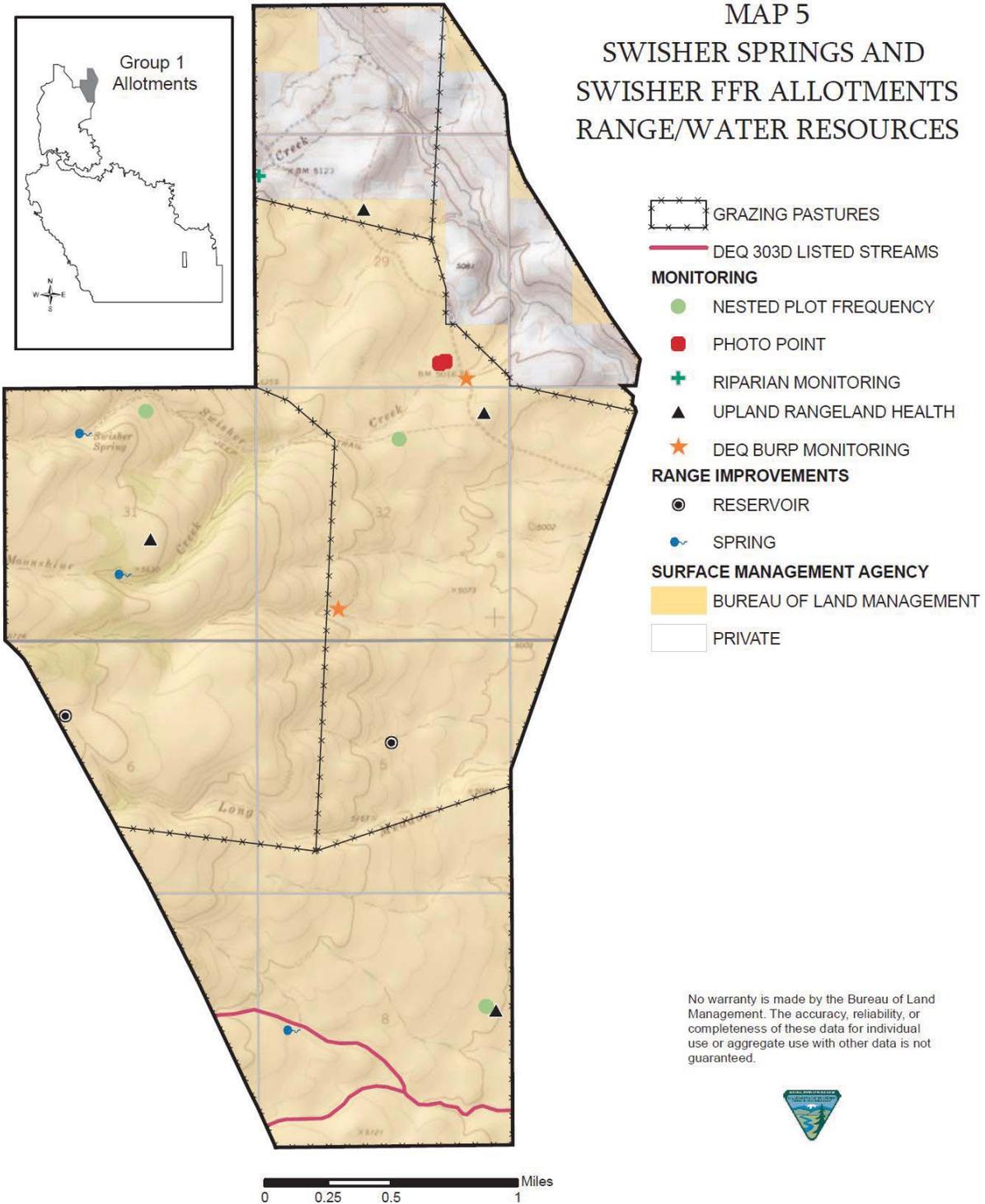
- GRAZING PASTURES
- ECOLOGICAL SITE DESCRIPTION**
- LOAMY 13-16 ARTRV/PSSPS-FEID
- SHALLOW CLAYPAN 12-16 ARAR8/FEID
- VERY SHALLOW STONY LOAM 10-14 ARAR8/POSE-PSSPS

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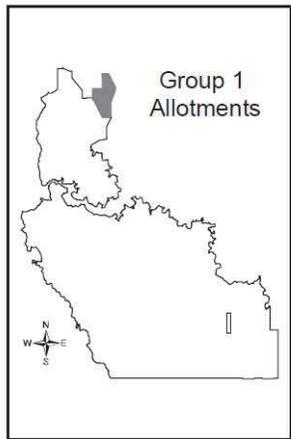


Map 5: Range and Water Resources

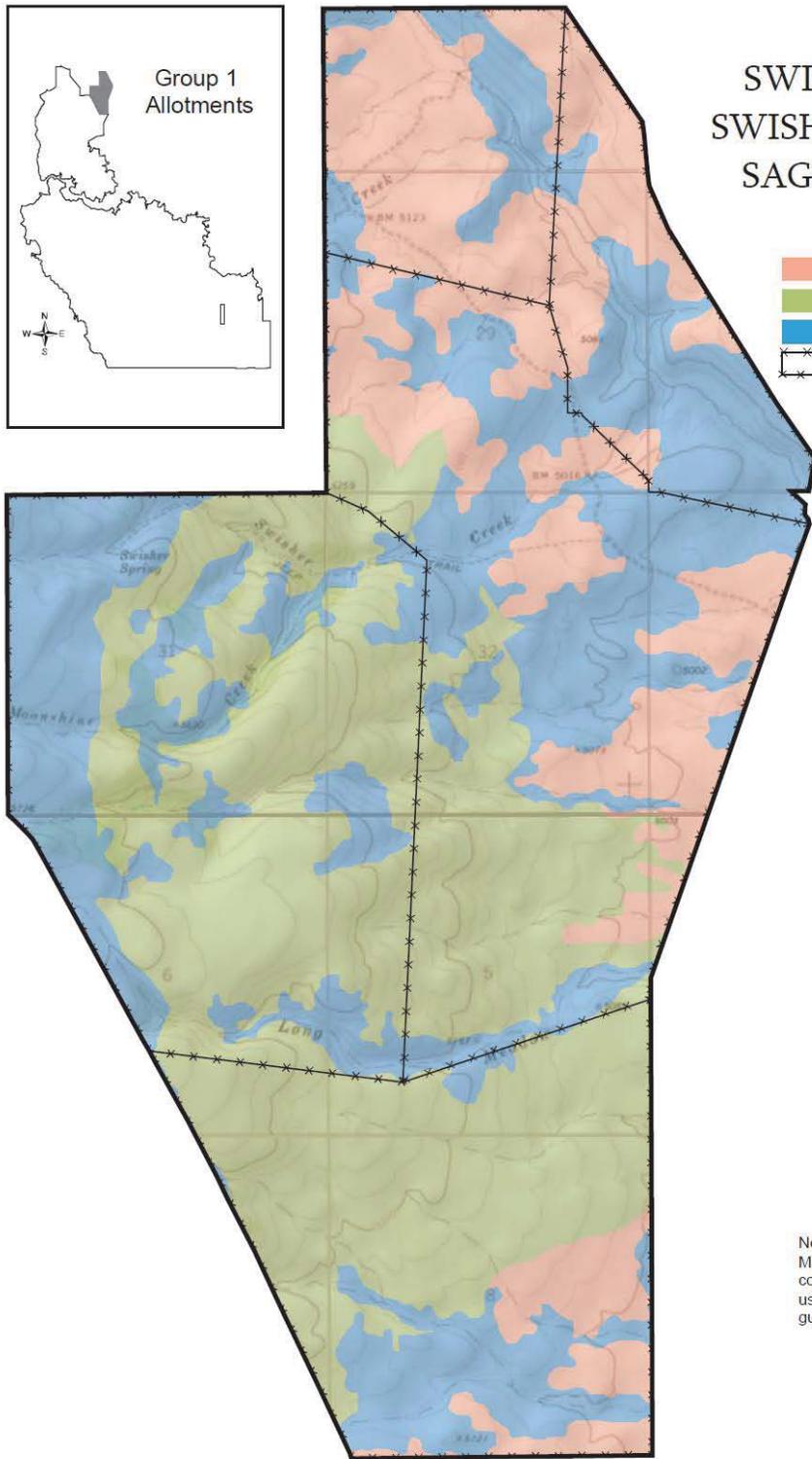
MAP 5 SWISHER SPRINGS AND SWISHER FFR ALLOTMENTS RANGE/WATER RESOURCES



Map 6: Sage-grouse Habitat



MAP 6 SWISHER SPRINGS AND SWISHER FFR ALLOTMENTS SAGE-GROUSE HABITAT



- KEY SAGE-GROUSE HABITAT
- TYPE 1: PERENNIAL GRASSLAND
- TYPE 3: CONIFER ENCROACHMENT
- GRAZING PASTURES

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