Rangeland Health Assessments
For
Morgan (0505), Combination Creek (0595), Boulder (0509), South Mountain Individual (0600), Bachelor Flat FFR (0640), Boulder Flat (0526) and Walt's Pond FFR (0659) Allotments

US Department of the Interior
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Rangeland Health Standards and Guidelines Assessment

2013 Supplement to the Morgan, Combination Creek, Boulder, South Mountain Individual, Bachelor Flat FFR, Boulder Flat, and Walt's Pond FFR Rangeland Health Standards and Guidelines Assessment
Evaluation Reports and Determinations

Morgan (0505), Combination Creek (0595), Boulder (0509), South Mountain Individual (0600), Bachelor Flat FFR (0640), Boulder Flat (0526) and Walt's Pond FFR (0659) Allotments

2013 Supplement to the Morgan, Combination Creek, Boulder, South Mountain Individual, Bachelor Flat FFR, Boulder Flat, and Walt's Pond FFR Rangeland Health Standards and Guidelines Assessment
The Rangeland Health Standards and Guidelines Assessment for the allotments were completed in 2006 as a portion of the grazing permit renewal process. Until 2013, no rangeland health determinations were completed and the permit authorizing grazing use in this allotment has not been fully processed for renewal. The current document consists of the 2006 rangeland health assessment, in full, supplemented by new information available since the 2006 document was completed. Portions of this 2013 document that supplement the 2006 document are presented in this two-field table format with the header above, while those portions carried forward unchanged from the 2006 document are outside the two-field tables. The 2013 supplement to the assessment includes data compiled between 2006 and 2013, as well as the completion of the 2013 evaluation report and determination consistent with the Livestock Grazing Permit Renewal Desk Guide for Idaho Bureau of Land Management, May 2009. The 2013 determinations for the allotments are found at the end of this document.

I. Background

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

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

II. Idaho Rangeland Health Standards Assessment

Resource conditions were evaluated according to how they relate to the Standards for Rangeland Health, as adopted by Idaho BLM in 1997. The following subsections discuss resource conditions as they relate to each standard.

Morgan (505)

Physiography

The Morgan Allotment lies approximately 20 miles west of Silver City, Idaho in Owyhee County. The elevations on the allotment range from 4,700 to 5,800 feet. The major land form in the area is categorized as "Mountains". The general area is rolling to steep with clayey, well drained, cool, moderately deep to very deep soils that formed in residuum and slope alluvium derived from basalt and welded rhyolitic tuff. The annual precipitation is 13 to 17 inches and the frost-free period is 30 to 70 days. Vegetation production and accessibility is limited by slope, depth to bedrock, very low available water capacity, restricted permeability, stones on surface, hazard of water erosion on steeper slopes and short frost-free period. Low sagebrush and Idaho fescue are the dominate species in plant communities found on the more shallow soils. Mountain big sagebrush, bluebunch wheatgrass, Idaho fescue, and scattered western juniper are generally found on deeper soils. The allotment consists of approximately 4702 acres of BLM lands 536 acres of State lands, and 213 acres of private lands, and is divided into 4 pastures (Table A-1, Appendix H, Map 1).

Table A-1: Land Status (in acres)*

Pasture	Public (BLM)	State	Private	Total
1	2,358	536	4	2,898
2	825	0	42	867
3	976	0	161	1,088
4	544	0	7	551
TOTAL	**4,702**	**536**	**213**	**5,404**

*Acreages represent best available estimates

Precipitation

Summers are hot and dry and the winters are mild. Common weather factors include low humidity, great variation in daily temperature and predominantly breezy west winds. Most of the precipitation comes in the form of rain and snow from storms tracking from the west and northwest during the winter. Approximately 30 percent of the annual moisture is received during the June to September season. Occasional late summer thunderstorms bring monsoon moisture to the region from the south. Three precipitation monitoring stations, Triangle, Silver City and Sheaville, OR, are within the general area of the Morgan Allotment.

Livestock Grazing Management

In the Owyhee Resource Management Plan (1999), the Morgan Allotment was placed in Selective Management Category "Maintain." Maintain allotments are managed with the

objective to manage the public lands with minimal expenditure of appropriated funds and maintain or improve the current satisfactory resource conditions. The allotment must meet or make progress toward meeting the Idaho Standards for Rangeland Health. Livestock use was allocated 446 animal unit months (AUMs) of forage for Active Permitted Use with cattle and/or horses.

Livestock grazing is authorized by a term grazing permit issued to Morgan Properties LP DBA Morgan Ranches. Permitted use is summarized in Table A-3.

Table A-3. Permitted Use Summary – Morgan Allotment

Operator Name & No.	**Livestock Kind & No.**	**Season of Use**	**% PL**	**AUMs**		
				Active	**Suspended**	**Permitted**
Morgan Properties LP DBA (1101510)	60 cattle	3/16 – 11/30	82	422	0	446
	8 horses	4/1 – 7/15		24		

Reported Actual use

Limited actual use reports are available for the Morgan allotment. These are summarized in Table A-2.

Table A-2: Actual Use in AUMs*

Year	**1996**	**1998**	**1999**	**2000**	**2003**	**2005**
Actual Use (AUM's)	395	436	436	113	389	391

* Actual Use Reports are submitted at the end of each grazing year by the Authorized Grazing Permittee. These reports are required for each allotment, in accordance with Terms and Conditions found on the grazing permit. Actual use reports not submitted for grazing years 1990-1995; 1997, and 2001-2002.

Livestock Management

Actual Use

Actual use has no pasture specific data as reported, however AUMs for the allotment have ranged from 113 to 436 AUMs between 1998 and 2012 with an average of 276 for the allotment (Table A-3). No data available 1997, 2001, 2002 and 2004. The allotment has both cattle and horse permitted grazing.

Table LVST-1: Morgan actual use in AUMs

	Pasture 1		**Pasture 2**		**Pasture 3**		**Pasture 4**		**Allotment AUMs**
Year	**Date**	**AUMs**	**Date**	**AUMs**	**Date**	**AUMs**	**Date**	**AUMs**	
2012	4/5-5/28 197 AUMs cattle; 7/10-7/10 20 AUMs horse								217
2011	4/16-5/5 113 AUMs								113
2010	4/15-6/1 272 AUMs								272
2009	4/14-6/3 349 AUMs cattle; 4/15-7/15 24 AUMs horse								373
2008	4/15-6/1 162 AUMs cattle; 4/15-7/15 20 AUMs horse								182
2007	4/20-6/1 173 AUMs cattle; 4/15-7/15 20 AUMs horse								193
2006	4/15-6/5 287 AUMs cattle; 4/15-7/15 20 AUMs horse								307
2005	4/1-6/15 340 AUMs cattle; 4/1-7/15 23 AUMs horse								363
2003	4/10-6/10	237 cattle	4/25-5/25	53 cattle	No Data	No Data	4/1-6/30	21 horse	311
2000	Rest	0	Rest	0	3/16-5/24 113 AUMs cattle				113
1999	3/16-6/12 413 AUMS cattle; 4/1-7/15 23 AUMs horse								436
1998	3/16-5/31 413 AUMs cattle; 4/1-7/15 23 AUMs horse								436
Ave									**276**

1. Watersheds

Ten (10) Rangeland Health evaluations were completed on the Morgan Allotment during the 2003 field season by an interdisciplinary team. The evaluations were conducted in accordance with the procedure described in BLM-Technical Reference 1734-6, "Interpreting Indicators of Rangeland Health-Version 3". Evaluation methods are discussed in Appendix B. Twelve (12) of the 17 rangeland health indicators included in the standard matrix are related to Standard 1. Table A1-1 summarizes all indicator ratings related to Standard 1, by pasture. For example, 2 sites were evaluated in Pasture 2, for a total of 24 indicator ratings related to watersheds. Of these, 8 were rated as having a "none to slight" degree of departure from reference site conditions. Indicator ratings by site are included in Appendix E. See Appendix H, Map 1 for rangeland health evaluation locations.

Table A1-1. Summary of watershed related rangeland health indicator ratings.

	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme
Pasture 1[1]	26	6	4	0	0
Pasture 2[2]	8	6	8	2	0
Pasture 3[3]	13	6	5	0	0
Pasture 4[4]	29	7	0	0	0

[1]Summarizes: 3 Shallow-Claypan 12-16" ecological sites
[2]Summarizes: 2 Shallow-Claypan 12-16" ecological sites
[3]Summarizes: 1 Shallow-Claypan 12-16" ecological site, and 1 Loamy 12-16" ecological site
[4]Summarizes: 3 Shallow-Claypan 11-13" ecological sites

Pasture 1

At RH1A, a Shallow Claypan 12-16" ecological site in the northern portion of the pasture, 11 of the 12 indicators relating to Standard 1 showed a none to slight degree of departure from reference site conditions. Water flow patterns, pedestals, soil stability, bare ground, and litter amount were all similar to reference conditions at this site. The indicator for plant community composition and distribution relative to infiltration and runoff was rated as a 'slight to moderate' degree of departure due to an observed shift in the plant community. Small perennial bunchgrasses tended to occupy shrub interspaces in higher than expected numbers, while large perennial bunchgrasses such as bluebunch wheatgrass and Idaho fescue tended to be found under shrub canopy or near large rocks.

At RH1B, a Shallow Claypan 12-16" ecological site in the northwestern portion of the pasture, the indicators for water flow patterns, pedestals/terracettes, soil surface loss and litter amount were all rated as showing a 'slight to moderate' degree of departure from reference conditions. The remaining indicators related to the watershed standard were rated as showing a 'none to slight' degree of departure. Water flows were short with many obstructions, occasional cut areas and minor deposition noted. Pedestals appeared to be mostly historic and mainly around Sandberg bluegrass, but exposed roots were occasionally observed. Some historic soil loss was

associated with stabilized water flow patterns and reduced biotic soil crusts in shrub interspaces. Abundant rock and gravel covers soil surfaces at this site. Plant community composition and distribution appears to be adequate for facilitation of infiltration and runoff processes at this site.

At RH1C, a Shallow Claypan 12-16" ecological site in the southwest portion of the pasture, 4 indicators (water flow patterns, pedestals/terracettes, plant community composition and distribution relative to infiltration and runoff, and litter amount) were rated as showing a 'moderate' degree of departure from reference conditions. Water flows are stable and indistinct where present, but some areas have more pronounced, longer than expected patterns with cut areas. Many historic pedestals around Sandberg bluegrasses were noted and primarily present in shrub interspaces. Shrubs were observed and noted as being often mounded (with soil and litter accumulation present under the shrub canopies). Shrubs were observed as being present similar to expectations when compared to reference conditions, however, large perennial bunchgrasses were present in lower than expected levels. Litter amount was lower than expected, due to lack of litter from large perennial bunchgrasses. The site appears to be stable, with abundant rock providing soil protection and resistance to erosion. Some historic soil loss appears to have resulted in a patchy soil "A" horizon. Bare ground appears to be minimal due to the abundance of rock on the soil surface.

2013 Supplement to the Morgan Rangeland Health Standards and Guidelines Assessments

2013 Field Observations

A field visit in the spring of 2013 (see Owyhee Field Office project file) showed varying impacts across pasture 1. Invasive weeds are extensive in the low elevation northern third of the pasture across soils that contain some impacts, though much was hidden under an extensive mat of old cheatgrass and medusahead litter. Trails are plentiful and sagebrush die off (potentially due to insects) is widespread. An ephemeral stream contains pugged puddles and shows decreased bank stability and function due to lack of vegetation and trampling. The steeper higher elevations toward the southern two thirds of the pasture, especially along flatter ridges and upper side slopes, are shallow, very rocky, and stable. Impacts increase towards the southern boundary where historic and active pedestaling and associated water flow paths are plentiful and mechanical disturbance is concentrated around springs and surrounding uplands.

Pasture 2

At RH2A, a Shallow Claypan12-16 ecological site, the indicator of pedestals/terracettes was rated as 'moderate to extreme' due to common, pronounced pedestals with exposed roots, as well as shrub mounding (soil and litter accumulation under shrub canopies). The indicators of water flow patterns, bare ground, soil surface resistance to erosion, soil surface loss/degradation, and plant community composition/distribution relative to infiltration/runoff were all rated as showing 'moderate' departures from reference conditions. Water flow patterns were short but connected with cut edges common, and were more numerous than expected. Excessive bare ground was associated with water flow paths, where litter and biotic soil crusts were reduced. Patches of bare ground were sometimes connected, and appeared to be associated with site disturbance. Soil surface resistance to erosion was somewhat compromised due to reduced biotic soil crusts, surface sealing, and bare edges of plant pedestals. Historic and active soil loss were apparent at this site due to pedestals with exposed roots, lack of soil "A" horizon in some areas, and

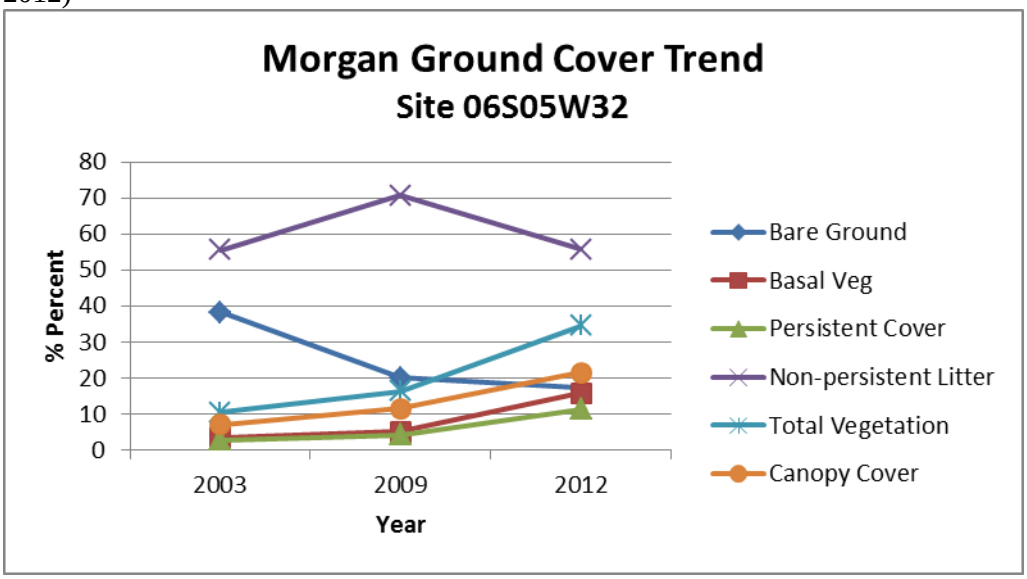
redistribution of fine soil particles. The plant community composition and distribution relative to infiltration and runoff were altered due to an overall reduction in vegetative cover in shrub interspaces, and distribution of large perennial bunchgrasses under shrub canopy.

At RH2B, a Shallow Claypan 12-16" ecological site, the indicator for water flow patterns was rated as 'moderate to extreme' due to pronounced water flow patterns that were short to long in duration, and sometime connected, with cut areas common, and ponding areas noted. The indicators of pedestals/terracettes, bare ground, and soil surface loss/degradation were rated as 'moderate.' Pedestals were common in interspaces and flow paths, and were pronounced with exposed roots. Bare ground was higher than expected, with small to moderate size patches associated with water flows paths. Higher than expected bare ground and less cover than expected from litter and biotic crusts were noted as reducing soil surface resistance to erosion.

Ground Cover Trend

Ground cover trend data were collected in pasture 2 at the nested plot frequency transect (06S05W32) in 2003, 2009, and 2012 (Figure Soil-1). Over the short and long term, rock, gravel, biological crust, and persistent litter (hereafter referred to as persistent cover), basal vegetation, total vegetation, and canopy cover are significantly (Student's t-test; p-value <0.1) increasing. Bare ground remains static over the short term and non-significantly decreased over the long term, while non-persistent litter has significantly decreased short term and remains static long term.

Figure Soil-1: Ground Cover data from trend site for pasture 2 of the Morgan allotment (2003, 2009, 2012)



Canopy cover data show an increase despite a general decline in shrub density and frequency, with the exception of sagebrush seedlings. Grass frequency data (see Standard 4) at the site suggests that a decrease in bare ground during earlier years has been the result of favorable increases in grass, shrub, and tree frequency between 2003 and 2009. Since then, increased invasive annuals, especially cheatgrass and medusahead, and shallow-rooted bunchgrasses are competing with native deep-rooted species and likely contribute to showing little improvement in

bare ground since 2009.

Overall, the site shows an upward trend with improving vegetative and persistent cover. Bare ground is within expected levels for this Shallow Claypan 12-16" ecological site though the underrepresentation of deep-rooted perennial bunchgrasses and the stark increase in invasive and shallow-rooted species suggest deterioration of biotic conditions.

Photo Trend Plot

In addition, a photo trend plot at the same location as RH2A shows the gradual increase of invasive grasses and shallow-rooted bunchgrasses after a fire in 1999. While it can be assumed that the vegetative cover present in the 2011 photos may provide some protection over the previously recorded conditions at RH2A just 2 years after the fire, the remaining underlying historic and active degradation of soils recorded for all rangeland health sites in this pasture is a problem.

2013 Field Observations

A field visit in the spring of 2013 (see Owyhee Field Office project file) near rangeland health assessment site RH2B confirms previous observations of increased impacts to soil stability and hydrologic function. Bare ground and flow paths were common and pedestaling reflected on soil surface loss. A portion of the pasture was burned in 1999, which mainly shows up as a distinct division line between areas that contain little to no shrub component.

Pasture 3

At RH3A, a Loamy 12-16" ecological site, the indicators of pedestals/terracettes and plant community composition/distribution relative to infiltration/runoff were rated as showing 'moderate' departures from reference conditions. Numerous pedestals were associated with water flow patterns. Pedestals were mainly on bluegrass plants, and root exposure was occasionally noted. Plant community structure was somewhat altered from site potential due to lack of large, perennial grasses, and an increase in small perennial bunchgrasses and annual grasses, particularly in shrub interspaces. Water flow patterns were mostly short and indistinct, but occasionally connected and more numerous than expected in some areas. Bare ground was slightly reduced in areas with water flow patterns. Litter was slightly lower than expected, and contributed mostly from annual grasses. The soil surface appeared to be protected from erosion due to cover of gravel, annual grasses and litter. Some historic and active soil loss was apparent based on presence of plant pedestals.

At RH3B, a Shallow Claypan 12-16" ecological site, the indicators of water flow patterns, pedestals/terracettes, and plant community composition relative to infiltration/runoff were rated as showing 'moderate' departures from reference conditions. Water flow patterns were mostly short, but more numerous and distinct than expected, and often connected. Numerous pedestals were noted on squirreltail and bluegrass plants, and were more pronounced in areas with distinct water flow patterns. Bare ground is approximately as expected due to abundant rock/gravel covering the soil surface. Litter is abundant and evenly distributed on the site, with exception around pedestals in cut areas. Plant community structure was somewhat altered from site potential due to lack of large, perennial grasses, and an increase in small perennial bunchgrasses

and annual grasses, particularly in shrub interspaces. Soil loss appears to be mostly historic, and mostly associated with water flow patterns. The site is currently stabilized by abundant rock, annual grasses and small perennial bunchgrasses, litter, and biotic soil crusts.

Pasture 4

At RH4A, RH4B, and RH4C, all Shallow Claypan 11-13" ecological sites, indicators relating to the watersheds standard were rated as showing a 'none to slight' or 'slight to moderate' degree of departure from reference conditions. Water flows were short and indistinct, but sometimes connected and with occasional cut areas. Pedestals are mostly historic and usually around Sandberg bluegrass. Bare ground is as expected with bare areas small and unconnected. Litter amount is as expected, and well distributed on the site. The soil surface is stabilized by abundant rock and vegetative cover. The plant community is dominated by large perennial bunchgrasses and has appropriate cover of low sagebrush, which allows for proper infiltration and runoff processes at RH4A and RH4B. At RH4C, large perennial bunchgrasses and low sagebrush dominate the plant community, but relative abundance of small perennial bunchgrasses and annual grasses is somewhat higher than expected.

2. Riparian Areas and Wetlands

Streams on the Morgan Allotment include Jordan Creek, Williams Creek, Glass Gulch, and Goose Creek. The 1999 Owyhee Resource Management Plan (RMP) RIPN-1 identified Fisheries Habitat and Riparian Condition Ratings on BLM Stream Miles. The Plan identified 1.11 miles of Jordan Creek and 1.02 miles of Williams Creek in Pasture 3 as having unsatisfactory riparian conditions. Glass Gulch and Goose Creek were not mentioned.

Inventories and assessments have been conducted by BLM between 2000 and 2001. Table A2-1 provides a summary of the latest Proper Functioning Condition of riparian areas in the allotment.

Table A2-1: Summary of Riparian Proper Functioning Condition* (miles) by Pasture

Pasture	PFC	FAR Upward Trend	FAR Static Trend or Not Apparent
1	0	0	0
2	0	0	0.4
3	0	0	2.5
4	0.2	0	1.7
Allotment Total	0.2	0	4.6

*PFC – Proper Functioning Condition; FAR – Functional-At Risk; NF - Nonfunctional

Jordan Creek

Approximately 1.4 miles of Jordan Creek flows through public land in Pasture 3 and 0.8 miles flow through Pasture 4.

Riparian Inventories and Assessments

Jordan Creek was inventoried in May and October 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). Proper Functioning Condition assessments rated the 2.2-mile segments as middle to high Functional-At Risk with no apparent trend (Table A2-2).

The JOR-002 stream segment is predominantly vegetated with a Sandbar Willow Community Type. Typical sites occupied by sandbar willow are sand and cobble deposits subject to periodic flooding each year, ditches, and lakeshores (Hanson 1995). The assessment found 9 different graminoids. Meadow foxtail and smooth brome were the most common graminoids. The assessment identified eight forbs growing on the segment. Canadian thistle, an introduced noxious weed was the most common noxious weed present. It was growing on 55 to 65 percent of the stream segment. Other noxious weeds present include scotch thistle, leafy spurge, and whitetop. All noxious weeds were present at the vegetation write-up plot, which is a rare occurrence on OFO streams.

Vegetation on the JOR-003 stream segment is dominated by a Yellow Willow Community Type. Yellow Willow Community Type occupies stream and river edges, seeps, and moist alluvial terraces. It is considered a pioneer community (Hanson 1995). Eight species of forbs and 3 graminoids species grow on the segment. Leafy spurge, Canada thistle, and Scotch thistle, all noxious weeds, grow on the segment.

Table A2-2: Riparian Indicators and Functioning Condition Rating by Stream Segment – Jordan Creek

Stream Segment	**JOR-002**	**JOR-003**
Stream miles	*1.4*	*0.8*
Pasture	*3*	*4*
Date of data collection	*5/2001*	*5/2001*
Riparian/Wetland Indicators:	Indicator Ratings[1]	
Diverse age class/structure of hydric vegetation (6)[2]	N	Y
Diverse composition of hydric vegetation (7)	N	Y
Vegetation reflects maintenance of soil moisture (8)	Y/N	Y
Plant community comprised of bank stabilizing species (9)	Y/N	Y/N
Hydric vegetation exhibits high vigor (10)	Y/N	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	N	Y/N
Adequate large woody material (12)	NA	Y
Point bars revegetating with hydric species (14)	N	Y/N
Noxious weeds are not increasing[3]	N	N
Overall functioning condition[4]	**FAR**	**FAR+**
Apparent trend[5]	**NA**	**NA**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable

[2]( ) – indicator # on Lotic Standard Checklist
[3] Leafy spurge on 5-15 percent of the stream segment JOR-003, Canada thistle on less than 1 percent of the segment and Scotch thistle on less than 1 percent of the segment. Canada thistle was found on 55-65 percent of the stream segment JOR-002. Scotch thistle was found on 45-55 percent of the stream segment. Leafy spurge was found on 25 to 35 percent of the stream segment. Whitetop was found on less than 1 percent of the stream segment.
[4]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[5]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

Williams Creek

Approximately 1.06 miles of Williams Creek flows through public land in Pasture 3.

Riparian Inventories and Assessments

Williams Creek was inventoried in May 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Proper Functioning Condition assessment rated the 1.06-mile segment as mid to high Functional-At Risk with no apparent trend (Table A2-3).

Shrub cover was high, but often the shrubs were on the opposite bank to where the livestock had access. Redosier Dogwood protects the bottoms and both banks of about one-third of the segment. Segment vegetation is dominated by a Yellow Willow Community Type. Yellow willow is common in southwestern Idaho (Moseley 1998). Hanson considered the Yellow Willow to be a pioneer community (Hanson 1995). The assessment identified 4 graminoids. Kentucky bluegrass was the most common composing 25-35 percent cover. Ten forbs were identified. Noxious weeds were common and included Canada thistle, Scotch thistle, and whitetop.

A2-3: Riparian Indicators and Functioning Condition Rating by Stream Segment – Williams Creek

Stream Segment	**WIL-001**
Stream miles	*1.06*
Pasture	*3*
Date of data collection	*5/2001*
Riparian/Wetland Indicators:	Indicator Ratings
Diverse age class/structure of hydric vegetation (6)[2]	Y/N
Diverse composition of hydric vegetation (7)	Y
Vegetation reflects maintenance of soil moisture (8)	Y/N
Plant community comprised of bank stabilizing species (9)	Y/N
Hydric vegetation exhibits high vigor (10)	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N

Stream Segment	WIL-001
Adequate large woody material (12)	Y
Point bars revegetating with hydric species (14)	Y/N
Noxious weeds are not increasing[3]	N
Overall functioning condition[4]	**FAR**
Apparent trend[5]	**NA**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] Canada thistle was found on 95-100 percent of the stream segment. Scotch thistle was found on 15-25 percent of the stream segment. Whitetop was found on 5-15 percent of the stream segment.
[4]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[5]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

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The 1.1-mile reach of Williams Creek that traverses pasture 3 was re-assessed in 2011. It was in PFC and the assessment noted that the stream is geologically confined and armored with boulders and dense woody vegetation. There were beaver and dams present, and all riparian vegetation was healthy and vigorous.

Glass Gulch

Approximately 0.4 miles of Glass Gulch, an intermittent stream, runs through public land in Pasture 2.

Riparian Inventories and Assessments

Glass Gulch was inventoried in June 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Proper Functioning Condition assessment rated the 0.4 mile segment as mid to high Functional-At Risk with no apparent trend (Table A2-4).

The stream segment was rated as a Yellow Willow /Beaked Sedge Community Type. Yellow willow is common in southwestern Idaho (Moseley 1998). Hanson considered the Yellow Willow Community Type to be a pioneer community (Hanson 1995). Nine graminoid species were identified during the riparian inventory; Kentucky bluegrass was the most common graminoid. Nine forb species were also identified. Sweet clover was the most common forb growing on the segment.

Canada thistle, a noxious weed in Idaho, was growing on 65 to 75 percent of the area. Whitetop, another noxious weed, was found on 1 to 5 percent of the segment.

Table A2-4: Riparian Indicators and Functioning Condition Rating by Stream Segment – Glass Gulch

Stream Segment	GLA-001

Stream Segment	GLA-001
Stream miles	*0.4*
Pasture Number	*2*
Date of data collection	*5/01*
Riparian/Wetland Indicators:	Indicator Rating
Diverse age class/structure of hydric vegetation (6)[2]	Y/N
Diverse composition of hydric vegetation (7)	Y
Vegetation reflects maintenance of soil moisture (8)	Y
Plant community comprised of bank stabilizing species (9)	Y/N
Hydric vegetation exhibits high vigor (10)	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N
Adequate large woody material (12)	Y
Point bars revegetating with hydric species (14)	Y
Noxious weeds are not increasing[3]	N
Overall functioning condition[4]	**FAR+**
Apparent trend[5]	**NA**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] Canada thistle was found on 65-75 percent of the stream segment. Whitetop was found on 1-5 percent of the stream segment.
[4]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[5]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

Goose Creek

Approximately 1 mile of Goose Creek, an intermittent steam, crosses public land in Pasture 4.

Riparian Inventories and Assessments

Goose Creek was inventoried in October 2000 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Proper Functioning Condition assessment rated a 0.8 mile segment as mid to high Functional-At Risk with no apparent trend. As second 0.2 mile segment was rated Proper Functioning Condition (Table A2-5).

Vegetation of stream segment GOO-001 is dominated by a Sandbar Willow Community Type. Typical sites occupied by this type are sand and cobble deposits subject to periodic flooding each year, ditches, and lakeshores (Hanson 1995). The assessment found 7 graminoids on the stream segment. None of the species occupied over 5 percent. Nine forbs were identified growing on the segment. No noxious weeds were identified.

Vegetation on segment GOO-002 is dominated by a Quaking Aspen/Willow CT. Streambanks are adequately vegetated with diverse hydric vegetation of high vigor.

Table A2-5: Riparian Indicators and Functioning Condition Rating by Stream Segment

Stream Segment	**GOO-001**	**GOO-002**
Stream miles	*0.8*	*0.2*
Pasture	*4*	*4*
Date of data collection	*10/00*	*10/00*
Riparian/Wetland Indicators:	Indicator Ratings	
Diverse age class/structure of hydric vegetation (6)[2]	Y/N	Y
Diverse composition of hydric vegetation (7)	N	Y
Vegetation reflects maintenance of soil moisture (8)	Y/N	Y
Plant community comprised of bank stabilizing species (9)	Y/N	Y
Hydric vegetation exhibits high vigor (10)	N	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	N	Y
Adequate large woody material (12)	Y/N	Y
Point bars revegetating with hydric species (14)	Y/N	Y
Noxious weeds are not increasing[3]	Y	N
Overall functioning condition[4]	**FAR+**	**PFC**
Apparent trend[5]	**NA**	**NA**

[1] Y=yes; N=no; Y/N=both attributes; NA= not applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] Canada thistle was found on 0-1 percent of the stream segment. [4]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[5]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

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In 2011, the reach of Goose Creek that occurs in pasture 4 was re-visited. The observers took photos of the stream, and noted that it is geologically confined and inaccessible to livestock. Based on the ephemeral nature of the channel, the PFC protocol was not applied.

<u>Springs</u>

There is a spring on public land in Pasture 3 but information is not available on the condition of the spring.

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The unnamed spring that occurs in pasture 3 was visited in 2011; however, the spring lacked

surface water and the potential to support riparian vegetation. Thus, the PFC protocol was not applied.

Additionally, two springs that occur in pasture 1 were assessed in PFC in 2011. Both lentic areas had adequate cover of hydric species and the riparian species all had high vigor and were reproducing.

Riparian-Associated Noxious Weeds:
Canada thistle and whitetop were found in segment GLA-001 of Glass Gulch riparian areas. Both are noxious weeds in Idaho. Canada thistle had invaded 65-75 percent of the assessment area; whitetop occupied 1-5 percent of the area. Whitetop was present on segment JOR-002 of the Jordon River. It occupied 45 to 55 percent of the assessment area. Leafy spurge, Canada thistle and Scotch thistle were present in segment JOR-003 of the Jordon River. Leafy spurge, Canada thistle and Scotch thistle are noxious weeds in Idaho. They occupied 20-35 percent, 55-65 percent and 45-55 percent of the assessment area, respectively. Whitetop, Canada thistle and Scotch thistle were found in segment WIL-001 of William Creek. Whitetop covered 5-15 percent, Canada thistle 95-100 percent and Scotch thistle 15-25 percent of the assessment area.

Riparian Utilization Monitoring

Stubble height measurements are a simple and effective tool to monitor rangeland use in key areas. Individual plant measurements are collected from herbaceous vegetation such as grasses, sedges, and rushes. Generally stubble heights of 4 to 6 inches are an acceptable standard for effective streambank, protection, prevention of sedimentation, and maintenance of plant communities (USDI, BLM 1999). Available stubble height data for streams on the Morgan allotment are summarized in Table A2-6.

Table A2-6: Riparian Utilization Monitoring and Stubble Heights

Location	Pasture	Year	Inches	Percent Shrub use
JOR-001	3	5/2001	16	25-35
JOR-002	3	5/2001	8	25-35
WIL-001	3	5/2001	3	25-35
GLA-001	2	5/2001	8	25-35
GOO-001	4	10/2000	3	25-35

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The table below is a summary of all the riparian information available for the allotment- both previously assessed, as well as supplemental, newer information (also see Map RNGE-1A).

Table RIPN-1: Morgan allotment stream information

	Allotment, Pasture Name and Miles Assessed		

Stream Name	Morgan- 01	Morgan-03	Morgan- 04	Assessment Issues/ Impacts Identified	Total Miles *Assessed*
Glass Gulch	0.4 (FARS-2000)			noxious weeds present/ lack of bank stabilizing species/ plants in low vigor/ unstable beaver dams	0.4
Goose Creek			0.2 (PFC-2000) 0.8 (FARS-2000/ pictures only- 2011)	2000: inadequate composition of hydric species to stabilize banks/ plants had low vigor 2011: well armored with woody species and bedrock/ confined channel	1.0
Jordan Creek		1.4 (FAR-2001) (pictures only-2011)		2001: noxious weeds present/ inadequate composition and age class of hydric species to protect stream banks 2011: well armored with woody species and bedrock/ affected by a diversion dam	1.4
			0.8 (FARS-2001) (pictures only- 2011)	2001: inadequate bank stabilizing species to dissipate energy/ noxious weeds present 2011: geologically confined	0.8
Jordan Creek Trib 2	0.2 (pictures only/ ephemeral-2011)				
Williams Creek		1.1 (FARS-2000) (PFC-2011)		2000: noxious weeds present/ inadequate bank stabilizing species to protect stream banks/ plants were in low vigor/ unstable beaver dams	1.1

Springs Assessed, Condition, & Issues Identified

Spring Name	Pasture/ Assessment Year	PFC Condition	Assessment Issues/ Impacts Identified
Glass Gulch Lentic	1/ 2011	PFC	
Jordan Creek Trib 1 Lentic	1/ 2011	PFC	
Unnamed Spring 1	3/ 2011	pictures only/ ephemeral/ not assessed	seasonal with lack of surface water and therefore wetland potential

3. Stream Channel/Floodplain

Streams on the Morgan Allotment include Jordan Creek, Williams Creek, Glass Gulch, and Goose Creek. Inventories and assessments were completed on these creeks during 2000 and 2001. Table A2-1 above provides a summary of the latest Proper Functioning Condition of riparian areas in the allotment.

Jordan Creek

Approximately 1.4 miles of Jordan Creek flows through public land in Pasture 3, and 0.8 miles flow through Pasture 4.

Stream Channel/Floodplain Inventories and Assessments

Jordan Creek was inventoried in May and October 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Proper Functioning Condition assessments rated the 2.3-mile segments as middle to high Functional-At Risk with no apparent trend (Table A3-1).

Both segments were classified as Rosgen F4 stream types. The F4 stream types are gravel dominated, entrenched, meandering channels, deeply incised in gentle terrain. Streambank erosion may be high where adequate vegetation isn't established on the entire slope face of the channel banks (Rosgen 1996).

JOR-003 has deep binding root mass plants on 35-64 percent of the streambanks. Fifty to seventy percent of the streambanks are stable. It has active bank erosion on 1 to 5 percent of the segment. JOR-002 has deep binding root mass on 35 to 64 percent. Streambanks are stable on 46-60 percent of the segment. Active bank erosion is only occurring on 1 to 5 percent of the segment.

Table A3-1: Stream Channel/Flood Plain Indicators and Functioning Condition Rating by Segment – Jordan Creek

Stream Segment	**JOR-002**	**JOR-003**
Date of data collection	*5/2001*	*9/2001*
Pasture	*3*	*4*
Stream miles	*1.4*	*0.8*
Stream Channel/Flood Plain Indicator	Indicator Ratings[1]	
Floodplain inundated frequently (1)[2]	Y/N	Y/N
Beaver dams are active and stable (2)	Y	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N	Y/N
Upland watershed not contributing to riparian degradation (5)	Y	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	N	Y/N
Adequate large woody material (12)	NA	Y
Floodplain and channel characteristics dissipate energy (13)	Y/N	Y/N
Point bars revegetating with hydric species (14)	N	Y/N
Lateral stream movement associated with natural sinuosity (15)	Y/N	Y

Stream Segment	JOR-002	JOR-003
System is vertically stable (16)	Y	Y
No excessive erosion or deposition (17)	B	Y
Overall functioning condition[3]	**FAR**	**FAR+**
Apparent trend [4]	**NA**	**NA**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[4]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

Williams Creek

Approximately 1.06 miles of Williams Creek flows through public land in Pasture 3.

Stream Channel/Floodplain Inventories and Assessments

Williams Creek was inventoried in May 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The stream was classified as Functional-At Risk. The apparent trend was not identified (Table A3-2).

Forty-five to fifty-five percent of the stream segment was classified as a Rosgen F4. Rosgen F4 stream types are gravel dominated, entrenched, meandering channels, deeply incised in gentle terrain. Streambank erosion may be high where adequate vegetation isn't established on the entire slope face of the channel banks (Rosgen 1996).

The assessment found deep binding root mass plants on 65-84 percent of the stream channel. The streambanks are stable on 45-56 percent of the segment. Active bank erosion is occurring on 5 to 15 percent of the segment. Excessive erosion or deposition is occurring on the segment (Table A3-2).

Table A3-2: Stream Channel/Flood Plain Indicators and Functioning Condition Rating by Segment – Williams Creek

Stream Segment	WIL-001
Date of data collection	*5/2001*
Pasture	*3*
Stream miles	*1.06*
Stream Channel/Flood Plain Indicator	Indicator Rating
Floodplain inundated frequently (1)[2]	Y/N
Beaver dams are active and stable (2)	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N
Upland watershed not contributing to riparian degradation (5)	Y/N

Stream Segment	WIL-001
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N
Adequate large woody material (12)	Y
Floodplain and channel characteristics dissipate energy (13)	Y/N
Point bars revegetating with hydric species (14)	Y/N
Lateral stream movement associated with natural sinuosity (15)	Y/N
System is vertically stable (16)	Y/N
No excessive erosion or deposition (17)	Y/N
Overall functioning condition[3]	**FAR**
Apparent trend [4]	**NA**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[4]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

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The 1.1 miles of Williams Creek that traverse pasture 3 was re-assessed in 2011. It was in PFC and the assessment noted that the stream is geologically confined and armored with boulders and dense woody vegetation. There were beaver and dams present, and all riparian vegetation was healthy and vigorous.

Glass Gulch

Approximately 0.4 miles of Glass Gulch, an intermittent stream, crosses public land in Pasture 2.

Stream Channel/Floodplain Inventories and Assessments

Glass Gulch was inventoried in May 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The stream segment was classified as mid to high Functional-At Risk. The apparent trend was not identified (Table A3-3).

The stream was rated a Rosgen E6 on 35-45 percent of the segment. Rosgen E6 streams are channel systems with moderate to high sinuosity, gentle to moderately steep channel gradients, and very low channel width-depth ratios. The E6 stream channels are very stable unless the streambanks are disturbed and significant changes in sediment supply and/or stream flow occur (Rosgen 1996).

The assessment found plants with deep binding root masses on 65-84 percent of the segment. The streambanks were stable on 66-84 percent of the segment. Active bank erosion was occurring on less than 1 percent of the segment.

Table A3-3: Stream Channel/Flood Plain Indicators and Functioning Condition Rating by Segment – Glass Gulch

Stream Segment	**GLA-001**
Date of data collection	*5/2001*
Stream miles	*0.4*
Pasture	*2*
Stream Channel/Flood Plain Indicator	Indicator Rating[1]
Floodplain inundated frequently (1)[2]	Y/N
Beaver dams are active and stable (2)	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y
Upland watershed not contributing to riparian degradation (5)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N
Adequate large woody material (12)	Y
Floodplain and channel characteristics dissipate energy (13)	Y
Point bars revegetating with hydric species (14)	Y
Lateral stream movement associated with natural sinuosity (15)	Y
System is vertically stable (16)	Y
No excessive erosion or deposition (17)	Y
Overall functioning condition[3]	**FAR+**
Apparent trend [4]	**NA**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[4]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

Goose Creek

Approximately 1 mile of Goose Creek, an intermittent stream, crosses public land in Pasture 4.

Stream Channel/Floodplain Inventories and Assessments

Goose Creek was inventoried in October 2000 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The inventory separated the stream into two segments. One was 0.2 miles the other was 0.8 miles. The 0.2 miles was classified as Proper Functioning Condition. The 0.8 mile segment was classified as mid to high Functional-At Risk with no apparent trend (Table A3-4).

The assessment classified the 35 to 54 percent of the stream as a Rosgen B4. The B4 stream types are moderately entrenched systems with gradients of 2 to 4 percent. They are considered relatively stable and are not high sediment supply steam channels (Rosgen 1996).

The assessment found deep binding root mass plants on 35-54 percent of the segment. Stable streambanks existed on 50-70 of the segment. Active erosion of the streambanks was not evident.

Table A3-4: Stream Channel/Flood Plain Indicators and Functioning Condition Rating by Segment – Goose Creek

Stream Segment	**GOO-001**	**GOO-002**
Date of data collection	*10/2000*	*10/2000*
Pasture	*4*	*4*
Stream miles	*0.8*	*0.2*
Stream Channel/Flood Plain Indicator	**Indicator Rating[1]**	
Floodplain inundated frequently (1)[2]	Y	Y
Beaver dams are active and stable (2)	NA	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N	Y/N
Upland watershed not contributing to riparian degradation (5)	Y/N	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y	Y
Adequate large woody material (12)	N	Y
Floodplain and channel characteristics dissipate energy (13)	Y/N	Y
Point bars revegetating with hydric species (14)	Y	Y
Lateral stream movement associated with natural sinuosity (15)	Y/N	Y
System is vertically stable (16)	Y	Y
No excessive erosion or deposition (17)	Y	Y
No excessive erosion or deposition (17)	Y	Y
Overall functioning condition[3]	**FAR+**	**PFC**
Apparent trend[4]	**NA**	**NA**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[4]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

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In 2011, the reach of Goose Creek that occurs in pasture 3 was re-visited. The observers took photos of the stream, and noted that it is geologically confined and inaccessible to livestock. Based on the ephemeral nature of the channel, the PFC protocol was not applied.

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The table below is a summary of all the riparian information available for the allotment- both previously assessed, as well as supplemental, newer information (also see Map RNGE-1A).

Table RIPN-2: Stream information on the Morgan allotment

	Allotment, Pasture Name, and Miles Assessed				
Stream Name	**Morgan- 01**	**Morgan- 03**	**Morgan- 04**	**Assessment Issues/ Impacts Identified**	**Total Miles *Assessed***
Glass Gulch	0.4 (FARS- 2000)			noxious weeds present/ lack of bank stabilizing species/ plants in low vigor/ unstable beaver dams	0.4
Goose Creek			0.2 (PFC- 2000) 0.8 (FARS- 2000/ pictures only- 2011)	2000: inadequate composition of hydric species to stabilize banks/ plants had low vigor 2011: well armored with woody species and bedrock/ confined channel	1.0
Jordan Creek		1.4 (FAR- 2001) (pictures only- 2011)		2001: noxious weeds present/ inadequate composition and age class of hydric species to protect stream banks 2011: well armored with woody species and bedrock/ affected by a diversion dam	1.4
			0.8 (FARS- 2001) (pictures only- 2011)	2001: inadequate bank stabilizing species to dissipate energy/ noxious weeds present 2011: geologically confined	0.8
Jordan Creek Trib 2	0.2 (pictures only/ ephemeral- 2011)				0.2
Williams Creek		1.2 (FARS - 2000) (PFC- 2011)		2000: noxious weeds present/ inadequate bank stabilizing species to protect stream banks/ plants were in low vigor/ unstable beaver dams	1.1

4. Native Plant Communities

Ten (10) Rangeland Health evaluations were completed on the Morgan Allotment during the 2003 field season by an interdisciplinary team. The evaluations were conducted in accordance with the procedure described in BLM-Technical Reference 1734-6, "Interpreting Indicators of Rangeland Health- Version 3". Evaluation methods are discussed in Appendix B. Table A4-1 summarizes all indicator ratings related to Standard 1, by pasture. Nine (9) of the 17 standard indicators are related to Standard 4. For example, 3 sites were evaluated in Pasture 1, for a total of 27 indicator ratings related to native plant communities. Of these, 16 were rated as having a "none to slight" degree of departure from reference site conditions. Indicator ratings by site are included in Appendix E. See Map 1` for rangeland health evaluation locations.

Table A4-1. Summary of native plant community-related rangeland health indicator ratings.

	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme
Pasture 1[1]	16	6	4	1	0
Pasture 2[2]	2	9	7	0	0
Pasture 3[3]	4	11	0	3	0
Pasture 4[4]	18	6	0	3	0

[1]Summarizes: 3 Shallow-Claypan 12-16" ecological sites

[2]Summarizes: 2 Shallow-Claypan 12-16" ecological sites
[3]Summarizes: 1 Shallow-Claypan 12-16" ecological site, and 1 Loamy 12-16" ecological site
[4]Summarizes: 3 Shallow-Claypan 11-13" ecological sites

Pasture 1

At RH1A, a Shallow Claypan 12-16" ecological site, 8 of the 9 indicators related to Standard 4 were rated as showing a 'none to slight' degree of departure from reference site conditions. The site is dominated by low sagebrush, with Idaho fescue, bluebunch wheatgrass dominating the understory. Cheatgrass is present in trace amounts, and Vulpia and rabbitbrush were also noted in slightly higher than expected amounts. Functional and structural groups are all present on this site in a composition that is similar to expected conditions. Perennial plants on this site appeared to be vigorous and reproductively capable.

At RH1B, a Shallow Claypan 12-16" ecological site, the indicator for invasive plants was rated as a 'moderate' departure from reference site conditions due to scattered occurrence of cheatgrass. All expected functional and structural groups were present at the site, though non-native annual grasses were more common than expected, distribution of biotic soil crusts was patchy, and shrub cover was somewhat higher than expected. Perennial plants on this site appeared to be vigorous and reproductively capable.

At RH1C, a Shallow Claypan 12-16" ecological site, the indicator for invasive plants was rated as 'moderate to extreme' due to common occurrence of cheatgrass, and higher than expected cover of rubber rabbitbrush. Three plant community indicators were rated as showing a 'moderate' departure from reference conditions at this site: functional structural groups, plant mortality and decadence, and litter amount. The site is dominated by low sagebrush and an understory of cheatgrass and Sandberg bluegrass. Idaho fescue is well below potential at this site. Shrub decadence was noted at this site, and crown die-out of pedestaled Sandberg bluegrass was also common. Litter amount was significantly lower than expected, due to lack of litter contributions from large perennial bunchgrasses. Annual production was within 60-80% of expected, and reproductive capability of perennial plants was somewhat lower than expected. Sagebrush leader growth was less than expected, and Sandberg bluegrass in shrub interspaces did not appear vigorous.

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Background Information

The Horse Creek Fire started on October 5, 1999, and burned 743 acres of the 5,462-acre Morgan allotment (14 percent); 588 acres burned in pasture 1 and 155 acres burned in pasture 2. Only 250 acres of BLM lands in the Morgan allotment were rehabilitated with seeding treatments. The site prior to the burn was composed of mountain big sagebrush and antelope bitterbrush, with limited grass understory; after the burn, the big sagebrush was removed. The burned area was aerial seeded with orchardgrass and small Burnett and transplant seeded mountain big sagebrush. The allotment was rested from grazing for two full growing seasons. Some annual invasives are scattered throughout the allotment.

Pasture 1

At RH1C, a Shallow Claypan 12-16" ecological site, the indicator for invasive plants was rated as moderate to extreme due to common occurrence of cheatgrass and higher-than-expected cover

of rubber rabbitbrush. Three plant community indicators were rated as a moderate departure from reference conditions at this site: functional/structural groups, plant mortality and decadence, and litter amount. Observer comments state the large perennial bunchgrasses are absent from the community, which accounts for the moderate departure for functional/structural groups indicator. The site is dominated by low sagebrush and an understory of cheatgrass and Sandberg bluegrass. Idaho fescue is well below potential at this site. Shrub decadence was noted at this site, and crown die-out of pedestaled Sandberg bluegrass was also common. Litter amount was significantly lower than expected, due to lack of litter contributions from large perennial bunchgrasses. Annual production was within 60 to 80 percent of expected, and reproductive capability of perennial plants was somewhat lower than expected. Sagebrush leader growth was less than expected, and Sandberg bluegrass in shrub interspaces did not appear vigorous.

Utilization
Utilization data for pasture 1 show a range of utilization from slight to light use from 1980 to 2012 (Table VEG-1).

Table VEG-1: Utilization data for pasture 1 in the Morgan allotment 1980-2012

Date	PSSP	FEID	SIHY	POA
7/1/1980	17	18	14	
6/16/1981	13	16	12	
6/9/1982	10	15	11	
9/24/1986		30		
10/4/1989	29			
8/31/1993		38		
11/5/1997		33		
6/11/2009	19		21	
6/22/2011	19			15
6/13/2012	23		16	17

Pasture 2
At RH2A, a Shallow Claypan 12-16" ecological site, the indicators of plant mortality and decadence and invasive plants were rated as showing a 'moderate' departure from reference site conditions. Pedestaled grasses in shrub interspaces often displayed crown die-out and low vigor. Invasive plants included cheatgrass, medusahead, soft brome and western juniper. These species were common, but distribution was patchy across the site. Litter amount is somewhat lower than expected in shrub interspaces, and production was reduced due to lower than expected relative abundance of large perennial bunchgrasses. Idaho fescue and bluebunch wheatgrass are common under shrub canopy, but the interspaces are dominated by Sandberg bluegrass. Vigor and reproductive capability of perennial bunchgrasses located under shrub cover appeared to be good, but fewer seedheads than expected were present on Sandberg bluegrass in shrub interspaces.

At RH2B, a Shallow Claypan 12-16" ecological site, the indicators of reproductive capability of perennial plants, and Invasive Plants were rated as showing a 'moderate' departure from

reference conditions. Cheatgrass is scattered on the site, and seedhead production is less than expected on bunchgrasses in shrub interspaces. Plants located under shrub cover appeared more vigorous and had more seedheads. Reduced vigor was noted on pedestaled bunchgrasses, and annual production was 60-80% of expected. All expected functional/structural groups were present on the site, but relative abundance was somewhat altered from reference conditions. Sagebrush cover was higher than expected, and though Idaho fescue was the dominant understory species, Sandberg bluegrass was more abundant than expected. Litter amount was somewhat reduced in shrub interspaces, but present in expected amounts under shrubs.

Long-term Vegetation Studies (Trend)

Two trend sites are located in Pasture 2 of the Morgan allotment. One is a photo plot in T06S, R05W, Section 33, and one is a nested plot frequency transect (NPFT) site in T06S, R05W, Section 32. The photo plot was established in 1987, and photos were taken again in 2003. At this site, litter and perennial bunchgrass cover appeared to decrease, but cover and average size of sagebrush appeared to increase. At the NPFT site, which was established in 1985 and re-visited in 2003, a significant reduction in shrubs is apparent in 2003 photos, due to a 1999 wildfire. At this site, frequency of bluebunch wheatgrass increased significantly, but Idaho fescue, squirreltail and both low and big sagebrush decreased (Table A4-2). Frequency data are also presented in Appendix G.

Table A4-3. Frequency (%) data, Morgan Pasture 2
T06S, R05W, Section 32

Species	**%**	**%**
	1985	**2003**
Bluebunch WG p=0.046	5	14
Low sagebrush p=0.000	18	0
Big sagebrush p=0.051	6	1
Rabbitbrush p=0.931	4	4
Idaho fescue p=0.000	89	50
Sandbergs BG p=0.587	78	74
Bitterbrush p=0.101	1	6
Squirreltail p=0.004	48	27

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Pasture 2

Trend Data

The NPFT site in pasture 2 was re-read in 2009 and 2012 and continues to show a static frequency of bluebunch wheatgrass and long-term static frequency of Idaho fescue (Table VEG-2, Figure VEG-1). Sandberg bluegrass, cheatgrass, medusahead, and squirreltail have increased on this site. Shrub density has shown an increase in Wyoming big sagebrush and antelope bitterbrush, and a static long-term trend in yellow rabbitbrush.

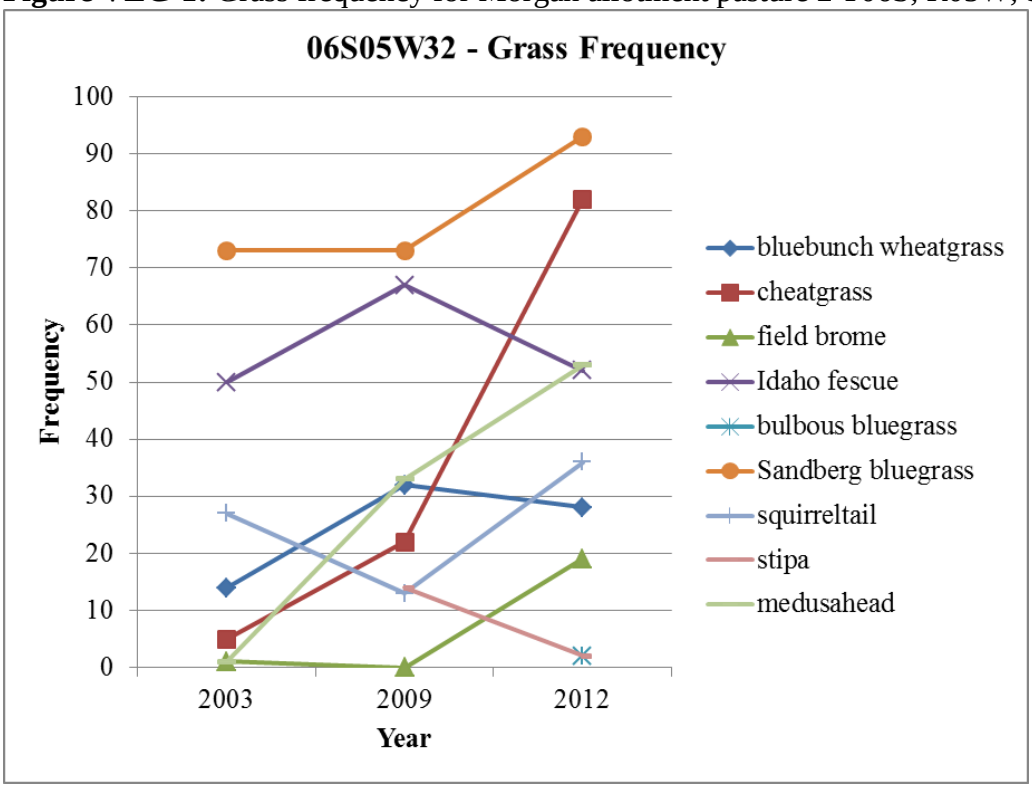
One photo plot was established in 1987, and photos were taken again in 2003, 2009, and 2012. At this site, litter and perennial bunchgrass cover appeared to increase, but cover and average

size of sagebrush appeared to remain static.

Table VEG-2: Grass frequency data for Morgan allotment pasture 2 T06S, R05W, Section 32

Grasses		**Percentage**		
Species		**2003**	**2009**	**2012**
AGSP	bluebunch wheatgrass	14	32	28
BRTE	cheatgrass	5	22	82
BRJA	field brome	1	0	19
FEID	Idaho fescue	50	67	52
POBU	bulbous bluegrass			2
POSE	Sandberg bluegrass	73	73	93
SIHY	squirreltail	27	13	36
STIPA	stipa		14	2
TACA8/TAAS2	medusahead	1	33	53

Figure VEG-1: Grass frequency for Morgan allotment pasture 2 T06S, R05W, Section 32



Utilization

Utilization data for pasture 2 ranged from slight to light use from 1980 to 2012; in 1976, there was moderate use recorded (Table VEG-3).

Table VEG-3: Utilization data for pasture 2 in the Morgan allotment 1976-2013

Date	**PSSP**	**FEID**	**SIHY**	**POA**

9/29/1976	44	40	48	
7/1/1980	19	25	18	
6/16/1981	19	18	13	
6/9/1982	12	12	11	
6/28/1983	12	15	13	
9/24/1986		25		
8/31/1993		24		
6/26/1991		39		
11/5/1997		28		
7/16/2009				30
8/4/2011				21
6/13/2013 & 7/10/2013	23		16	17

Pasture 3

At RH3A, a Loamy 12-16" ecological site, the indicator for invasive plants was rated as showing a 'moderate to extreme' degree of departure from reference conditions, due to common occurrence of cheatgrass. At this site, all functional/structural groups were present, but relative abundance of large perennial bunchgrasses was lower than expected, and small perennial bunchgrasses were more common. Litter amount was slightly lower than expected, and a significant portion of litter was from annual grasses. Annual production was 60-80% of expected due to decreased production from bluebunch wheatgrass. Reproductive capability of pedestaled Sandberg bluegrass appeared to be somewhat reduced, though abundant seedheads were noted on vigorous bluebunch wheatgrass plants.

At RH3B, a Shallow Claypan 12-16" ecological site, the indicators for plant morality/decadence and invasive plants were rated as showing a 'moderate to extreme' departure from reference conditions. Crown die-out and decadence was common on bunchgrasses in shrub interspaces, particularly on pedestaled Sandberg bluegrass plants. In addition, decadence of sagebrush plants was fairly common. Cheatgrass was common throughout the evaluation site. Functional and structural groups are all represented at this site, but fewer large perennial bunchgrasses are present, particularly in interspaces. Sandberg bluegrass and annual grasses have increased, and shrub cover is higher than expected. Litter amount was similar to expected, but a larger than expected proportion was contributed by annual grasses and forbs. Reproductive capability of pedestaled bunchgrasses appears to be reduced.

Pasture 3

Utilization

Utilization data for pasture 3 ranged from slight to light use from 1986 to 2012 (Table VEG-4).

Table VEG-4: Utilization data pasture 3 for the Morgan allotment 1986-2012

Date	PSSP	FEID	SIHY	POA
9/24/1986	25			
6/26/1991		27		
8/4/2011		6		22
6/13/2012	23		10	17

Pasture 4

At RH4A, RH4B, and RH4C, all Shallow Claypan 11-13" ecological sites, the indicator for invasive plants was rated as showing a 'moderate to extreme' departure from reference conditions. Cheatgrass is common in patches throughout the pasture. A 'slight to moderate' departure from reference conditions was noted for functional/structural groups at RH2A and RH2B. All expected plant community components are present at these sites, but relative abundance of large perennial grasses is somewhat below potential, and a corresponding increase in small perennial bunchgrasses and non-native annual grasses was observed. Grasses appeared highly vigorous, and seedheads were abundant on bluebunch wheatgrass. Annual production was within 80% of expected amounts, and litter was as expected.

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Pasture 4

Utilization

Utilization data was recorded in 2011 and no use was apparent. In 2012, slight to light use was recorded on bluebunch wheatgrass, squirreltail, and Sandberg bluegrass.

Upland Utilization Monitoring. Utilization of Idaho fescue was measured several times from 1993 through 1997. No new utilization data has been collected since 1997. Available data are presented in Table A4-3.

Table A4-7: Average Percent Utilization of Idaho Fescue

Year	Pasture 1	Pasture 2	Pasture 3	Pasture 4	Pasture 5
1993	**36**	**24**	**--**	**--**	**42**
1994*	**30**	**10**	**20**	**20**	**10**
1995*	**30**	**30**	**--**	**--**	**30**
1996	**--**	**39**	**27**	**--**	**--**
1997	**--**	**24**	**--**	**--**	**33**

***Based upon ocular estimates**
-- No Data is available for these years.

5. Rangeland Seeding

This standard does not apply to this allotment.

6. Exotic Plant Communities

Although non-native plants occur on the Morgan allotment, they do not form the dominant vegetation type in significant portions of any pasture. The allotment is managed for native plant communities; therefore, this standard does not apply.

7. Surface and Ground Water Quality

This assessment includes a review of data collected and water quality standards established by Idaho Department of Environmental Quality (IDEQ). The State is broken into basins and sub-basins and assessment units. The new 2005 Integrated Report (303(d)/305(b)) uses "assessment units" within the sub-basin. Assessment units are groups of similar streams within a sub-basin that have similar land use practices, ownership, or land management. Assessment units are assessed for pollutants and assigned Beneficial Uses with associated Water Quality Standards. Beneficial Use Reconnaissance Program (BURP) is a field assessment of stream segments (all IDEQ data and standards mentioned here are available on the IDEQ web site- see references listed in section IV of this document).

Bureau of Land Management (BLM) also collects data that can include riparian inventories, riparian Proper Functioning Condition (PFC) assessments, riparian habitat evaluation forms, stream survey forms, riparian aquatic data sheets, thermograph data and water quality monitoring data (BLM data is available at the Owyhee Field Office).

Pastures 3 and 4

Both Pastures 3 and 4 border on Jordan Creek and share portions of the Creek. Jordan Creek within the Morgan Allotment is divided into two assessment units. The unit division is at the mouth of Williams Creek. The segment from Williams Creek to the state line is identified as assessment unit #17050108SW001_05 and includes the Glass Gulch as a second order tributary. Jordan Creek from the mouth of Williams Creek to source is assessment unit #17050108SW004_05. Both assessment units share the same assigned Beneficial Uses identified in Table A7-1.

Table A7-1: Listed Beneficial Uses and support status for both Assessment Units of Jordan Creek.

Beneficial Uses	Status – 001_05	Status – 004_05
Aquatic Life Use – Cold	Not Supporting	Not Supporting
Aquatic Life Use—SS	Not Assessed	Not Assessed
Primary Contact Recreation	Not Assessed	Not Supporting
Special Resource Water	Not Assessed	Not Assessed

SS = Salmonid Spawning

Other beneficial uses within both assessment units which were not assessed are Agriculture, Industrial Water Supply, Wildlife Habitats and Aesthetics.

IDEQ has not identified impairments on the main stem of the assessment unit from Williams Creek to the state line. IDEQ has identified several impairments for the assessment unit source to Williams Creek, 17050108SW004_5. The identified impairments were bacteria, mercury, oil and grease, pesticides and siltation.

Excessive erosion or deposition of sediment was observed on portions of Jordan Creek (segment JOR-002) during the riparian inventory. Jordan Creek was not adequately vegetated to protect banks and dissipate stream energy during high flows on all of segment JOR-002 and portions of segment JOR-003.

The State of Idaho criterion for cold-water biota beneficial use requires water temperatures of 22º C or less with a maximum daily average of less than 19 degrees C. BLM monitored water temperature in Jordan Creek during summer of 2004 and documented temperatures were exceeding the cold water criteria. No information was collected on bacteria concentrations in Jordan Creek in Pastures 3 and 4.

Pastures 1 and 2

Glass Gulch forms the boundary between Pastures 1 and 2. Glass Gulch, (hydrologic unit code 17050108SW001_02), is a second order tributary to Jordan Creek. Second order tributaries to Jordan Creek are assigned beneficial uses and have identified impairments. Listed water quality standards for Glass Gulch are summarized in Table A7-2.

Table A7-2: Listed Beneficial Uses and support status for Glass Gulch.

Beneficial Uses	Status
Aquatic Life Use – Cold	Not Supporting
Aquatic Life Use—SS	Not Assessed
Primary Contact Recreation	Not supporting

SS = Salmonid Spawning

Other beneficial uses within both assessment units are Agriculture, Industrial Water Supply, Wildlife Habitats and Aesthetics; these uses have not been assessed.

IDEQ has identified several impairments for the assessment unit tributaries 17050108SW001_02. The identified impairments were bacteria, mercury, oil and grease, pesticides and siltation. No excessive erosion or sediment deposition was identified during the riparian inventory. However, 0.4 mile of Glass Gulch was rated in mid to high Functional at Risk Condition. Not all stream banks were adequately vegetated to protect them from scouring and to dissipate energy during high stream flows.

Pasture 3

Williams Creek is a separate assessment unit. Williams Creek, 17050108SW003_03, has not been assigned beneficial uses and it has not been assessed by IDEQ. The BLM installed a water temperature logger during the summer of 2004; temperatures exceeded criteria for both salmonid spawning and cold-water aquatic life. A water sample was taken May 4, 2004 and tested for

bacteria *Escherichia coli (E. coli).* The result was 400 organisms per 100 milliliters, within the standard of 576 per 100 millimeters for recreation secondary contact. High levels of sediment are being moved through the lower reaches of Williams Creek. Excessive erosion or deposition of sediment was noted during the riparian inventory.

Pasture 4

Goose Creek, 17050108SW004_02, is a second order tributary to Jordan Creek and is located in the upper Jordan Creek assessment unit #17050108SW004_05 (Table A7-1). Pollutants identified for this assessment unit are discussed under Jordan Creek (Pastures 3 and 4). Goose Creek was sampled to examine bacteria *Escherichia coli (E. coli)* concentrations on May 6, 2004. The result was 10 organisms per 100 milliliters, well within the standard of 576 per 100 millimeters for recreation secondary contact. No excessive erosion or sediment deposition was noted during the riparian inventory of Goose Creek. However, 0.8 mile of the stream was rated as mid to high Functional at Risk condition. Not all stream banks were adequately vegetated to protect them from scouring and dissipate energy during high stream flows.

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The Morgan allotment falls within the Jordan subbasin. There are 2.9 miles of stream that are not supporting one or more of the subbasin's beneficial uses and 6.9 miles that have not been assessed. The subbasin's beneficial uses that are not being met include cold-water aquatic life and secondary contact recreation. The pollutants of concern include flow alteration, mercury, and temperature (IDEQ, 2010). Pastures 3 and 4 contain steams that are on the 303(d) list of impaired waters for mercury and/or flow alteration. The streams that occur in AUs ID17050108SW001_05, ID17050108SW004_02, and ID17050108SW004_05 have been de-listed for temperature because a TMDL has been developed and approved. However, they remain on the 303(d) list for flow alteration and mercury.

8. Threatened and Endangered Plants and Animals

Botany

No federally listed plant species are known to occur in the Morgan Allotment, although the U.S. Fish and Wildlife Service (USFWS) considers all of Idaho to be within the potential range of Ute ladies'-tresses (*Spiranthes diluvialis*), a federally threatened orchid species. This plant occurs in spring, seep, and riparian habitats. Due to the difficulty in narrowly defining potential habitat for this species, USFWS has chosen to apply a loose definition and requires Section 7 consultation only in three counties of southeast Idaho or in areas where the plant is actually found (USFWS 2002). Surveys specifically for this plant are recommended prior to authorizing federal actions in southwest Idaho, but not required.

No BLM special status plant species are known to occur on the Morgan Allotment. Site-specific plant surveys are conducted prior to construction of range projects.

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Botany

No populations of special status plant species are known to occur in this allotment. There is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment. Records show no reported special status plants in this allotment, so this standard is not applicable.

Information sources

Elemental Occurrences (EOs) for special status plant (SSP) populations is recorded in the Idaho Fish and Wildlife Information System (IFWIS) Species Diversity database (IDFG, 2011). EOs are derived by completion and review of Idaho rare plant observation reports through the Idaho Natural Heritage Program. Other sources that were used to assess and evaluate the composition and condition of SSP habitats within the Morgan allotment include RHAs, photographs, field notes, Plants database (USDA NRCS, 2013) literature search, and information summarized above in Standards in this document. Records show no reported special status plants in this allotment.

Wildlife

A number of species classified as BLM "Sensitive Species" and/or State of Idaho "Species of Special Concern" are known or likely to occur within the allotment. A summary of these species, their legal status, and their key habitat associations is included in Appendix C-3.

Riparian Habitat

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Riparian Habitat

Pastures 1, 3, 4

Glass Gulch, Goose, and Jordan Creeks were assessed under Standards 2 and 3 as properly functioning (see Standards 2 and 3). Because they are identified as properly functioning, an assumption is being made that these reaches of streams and spring locations are providing at least minimum riparian vegetation diversity, composition, and structure to provide adequate riparian and aquatic habitat conditions for avian, terrestrial and aquatic wildlife species.

Evaluation of Standard 7 identified streams on the IDEQ's 303(d) list of impaired steams and that water quality parameters are not being met for the watershed's beneficial uses. The list of beneficial uses includes water quality standards for cold-water aquatic life. However, the cause for not meeting water quality parameters is due to mercury pollutants and altered water flow and not livestock grazing practices (see Standard 7).

Approximately 4 miles of stream riparian habitat in this allotment are represented by six Proper Functioning Condition assessments. One was in Proper Functioning Condition, 3 were Functioning-At Risk at the high end of the scale and two were Functional-At Risk with static trend. For the two FAR-static the structural diversity, composition and vigor of hydric vegetation were at least partially lacking in these stream reaches resulting in habitat that is generally not adequately providing for the needs for dependant special status animals.

General Upland Habitat Assessment

Most of this allotment was in near reference conditions with variable trends. Abundance and diversity of grasses, forbs and shrubs were generally near what is expected for the sites and are likely to be providing habitat that is adequate for the needs of most dependant special status and other wildlife species. Two of the ten assessments had moderate departure from reference conditions and probably were not providing all the habitat needs of special status and other wildlife species. A fire in Pastures 1 and 2 will require some time for habitat to recover back to reference conditions. The localized lack of large bunchgrasses and reduced shrub cover is limiting cover, structure and forage for sage grouse, numerous song birds, pygmy rabbits and others including a diversity of insects, rodents, birds and others that are critical prey for most raptors including prairie falcons, northern harriers, and ferruginous hawks.

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Upland Habitat *Pastures 1, 2, 3, and 4* Pastures 1, 2, 3, and 4 in the Morgan allotment are managed as native plant communities. The Standard 4 evaluation noted an increase in annual invasive species with a departure of perennial grasses from reference site condition. This is consistent with vegetation information collected by the sage-grouse habitat assessments for pastures 1 and 2 that documented the dominance of annual species and an unsuitable-marginal canopy cover of large perennial grasses. These conditions signal a transition in plant community composition and structure that reduces cover and forage values for sagebrush steppe-dependent species.

Sage Grouse

Refer to Appendix C-3 for sage grouse habitat assessment worksheets that include specific rating criteria for each habitat indicator.

Sage grouse lek (breeding ground) surveys from 1994 to 2003 have identified several active leks within and in close proximity of this allotment.

<u>Pasture 1</u>

Breeding Habitat

Two sage grouse breeding habitat evaluations were conducted in this pasture. The first is located in the southern portion of the pasture (T7S, R5W Section 6 SWNW). The evaluation was conducted in June 2004 and is identified as “A” in Table A8-1 that summarizes the two

evaluations for this pasture. The site is low sagebrush/Bluebunch/Idaho fescue with about 10 percent cheatgrass. Mountain big sagebrush and antelope bitterbrush primarily occurs in the draws and more mesic upland sites. The site has good forb diversity and density. Limiting factors are forb/grass height and sagebrush height. Overall rating is marginal habitat.

The second evaluation was near the middle of Pasture 1 (T6S, R5W Section 31 SWSE). The evaluation was conducted in June 2005 and is identified as "B" in Table A8-1. Idaho threetip sagebrush formed a stringer along the drainage bottom within the area dominated by alkali sagebrush. Adjacent uplands were big sagebrush and Idaho fescue. There was good forb abundance and diversity. Big sagebrush height and cover were marginal. Idaho threetip sagebrush has excellent height, but is columnar. Overall indicator rating was suitable habitat.

Table A8-1: Sage Grouse Breeding Habitat Assessment

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

Late Brood-rearing

Four late brood-rearing habitat evaluations were conducted in Pasture 1 in July, 2004. They were spread out across the north side of the pasture. The first evaluation (T6S, R6W Section 25, middle of Section) is identified as "A" in Table A8-2 that summarizes the evaluations for the pasture. The assessment was located in an upland sagebrush site at a small reservoir. Some riparian type vegetation occurred at the water's edge. Grazing use at the site was heavy (60-80%) at the time of the evaluation. Mountain big sagebrush provides moderate cover in drainage and around the reservoir. All indicators rated as marginal habitat.

The second evaluation (T6S, R5W Sec 30 NESE) is identified as "B" in Table A8-2. The site was a small spring. Surrounding vegetation was low sagebrush/Idaho fescue/cheatgrass. Mountain big sagebrush occurs in pockets with good species density and diversity. There was poor shrub and grass cover near spring, but good forb density and diversity in the immediate vicinity of the spring. Three indicators were ranked as suitable habitat, but the proximity of the sagebrush cover indicator was ranked unsuitable due to cover being more than 300 yards from spring. The overall rating was suitable habitat.

The third evaluation (T6S, R5W Section 30 SW) is identified as "C" in Table A8-2. The Site was in an intermediate drainage. No water was flowing at time of evaluation; however there were many areas that were moist. Good forb and wetland grasses were present in the moist areas. Willows were growing in the channel bottom. There are pockets along the channel that

are small meadows. In places the channel was incised, thus the indicator for stability is ranked unsuitable habitat. Indicator for forb availability was marginal. Upland vegetation was dominated by low sagebrush. Overall rating was marginal habitat.

The fourth evaluation (T6S, R5W Section 32 NWNW) is identified as "D" in Table A8-2. The site was an incised channel that had water. The bottom of the incision was wet meadow-like. Density and diversity of forbs were good. Sagebrush cover was within 100 yards of the riparian area. Two indicators ranked habitat as marginal due to xeric plants within wet meadow and minor erosion. Forb availability and proximity of sagebrush cover ranked suitable habitat. Overall rating is marginal habitat.

In summary, three of the four evaluations were marginal habitat and one was suitable habitat. Of the four evaluations, two indicators were ranked unsuitable.

Table A8-2: Sage Grouse Late Brood-Rearing Habitat Assessment

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Riparian and wet meadow communities:			
Riparian and Wet Meadow Plant Community	B,C	A,D	
Riparian and Wet Meadow Stability	B	A,D	C
Forb Availability	B,D	A,C	
Proximity of Sagebrush Cover	C,D	A	B
Overall Late Brood-rearing Habitat Assessment	**B**	**A,C,D**	

Pasture 2

Breeding Habitat

One sage grouse breeding habitat evaluation was conducted near the center of Pasture 2 (T6S, R5W32 NESE). The evaluation occurred in June 2004 on a sagebrush site, low sagebrush/Idaho fescue. The area had been burned within 6 years prior to 2004. Grass recruitment following the fire was good but stature is lower than expected. Two exotic annual bromes were present. The overall rating was marginal habitat based on shrub cover, grass cover and poor forb abundance (Table A8-3).

Table A8-3: Sage Grouse Breeding Habitat Assessment

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Average Sagebrush Canopy Cover	A		
Average Sagebrush Height		A	
Sagebrush Growth Form		A	
Average Grass and Forb Height	A		
Average Perennial Grass Canopy Cover	A		
Average Forb Canopy Cover		A	
Preferred Forb Abundance and Diversity			A

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Overall Site Evaluation		**A**	

Late Brood-rearing

Three late brood-rearing habitat evaluations were conducted in Pasture 2. The first evaluation (T6S, R5W Section 33 SWSW) is identified as "A" in Table A8-4 that summarizes the evaluations for the pasture. The October 2003 evaluation was on an intermittent stream that stability was being affected by grazing and trailing. There were a few wetland grasses and forbs, but no willows and sedges. Marginal shrub cover started within 100 yards of the stream, but at 150 yards, the cover was good with good forb diversity and abundance. The overall rating was marginal habitat.

The second evaluation (T6S, R5W Section 33 SWNW) is identified as "B" in Table A8-4. The October 2003 evaluation was on an intermittent stream. This stream was characterized by cut banks and large patches of bare patches that were often connected. Limited and patchy shrub cover was within 100 yards of the stream. Forb diversity and abundance were limited. Overall, the evaluation ranked the site as marginal habitat.

The third evaluation (T6S, R5W Section 33 SWSW) is identified as "C" in Table A8-4. The July 2004 evaluation was on a small spring within the drainage. Good forb diversity and density occurred at the spring. Small patches of mountain big sagebrush occurred along the drainage, and good cover of mountain big sagebrush was within 300 yards. The area immediately surrounding the greenbelt was low sagebrush and poor grass cover. The overall ranking was marginal habitat.

Table A8-4: Sage Grouse Late Brood-Rearing Habitat Assessment

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Riparian and wet meadow communities:			
Riparian and Wet Meadow Plant Community	C	A,B	
Riparian and Wet Meadow Stability		A,C	B
Forb Availability	A,C	B	
Proximity of Sagebrush Cover	A,B		C
Overall Late Brood-rearing Habitat Assessment		**A,B,C**	

Pasture 3

Breeding Habitat

Two sage grouse breeding habitat evaluations were conducted in this pasture. The first was located in the southern portion of the pasture (T6S, R5W Section 34 NWNW). The evaluation was conducted in June 2004 and is identified as "A" in Table A8-5 that summarizes the two evaluations for this pasture. The evaluation was representative of the western one-half. It is in a

western juniper/low sage/cheatgrass site with mountain big sagebrush in small pockets in drainages. Cheatgrass was the dominate grass throughout the area. Inter-space native grass cover and forb availability were the limiting factors. The overall ranking was marginal habitat.

The second evaluation was near the middle of Pasture 3 (T6S, R5W Section 34/27). The evaluation was conducted in June 2004 and is identified as "B" in Table A8-5. Vegetation was low sagebrush/squirreltail, Sandberg bluegrass and cheatgrass with mountain big sagebrush in shallow drainages and small pockets on ridge tops. The assessment area ranked as marginal habitat overall based on grass height, low interspatial grass cover and poor forb diversity and abundance.

Table A8-5: Sage Grouse Breeding Habitat Assessment

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

Pasture 4

Breeding Habitat

One sage grouse breeding habitat evaluation was conducted in the western portion of Pasture 4 (T6S, R5W, Sec's 21&22). The evaluation was done in June 2004 on a sagebrush site characterized with low sagebrush/bluebunch wheatgrass, cheatgrass and bottlebrush squirreltail. Mountain big sagebrush and basin big sagebrush occurred in the drainages and steeper slopes. Thruber needlegrass and robust bluebunch wheatgrass was growing on steeper slopes. The site ranked as marginal habitat based on shrub height, interspatial grass cover and forb availability. Grass cover was the most limiting factor (Table A8-6).

Table A8-6: Sage Grouse Breeding Habitat Assessment

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

Focal Species

Sage-grouse

On March 5, 2010, the USFWS (USDI USFWS, 2010) published a finding in the Federal Register 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 BLM Type 2 sensitive species to a candidate species under the ESA.

This allotment lies within the regional Snake River Plain Management Zone for sage-grouse. In 2012, preliminary priority habitat (PPH) and general priority habitat (GPH) were modeled to identify lands in Idaho important to sage-grouse sustainability. PPH includes breeding, late brood-rearing, and winter concentration areas. General priority habitat are lands that may serve as important corridors between PPH and habitat islands within corridors, or occupied habitats characterized by low lek densities (Makela & Major, 2012)The BLM collaborated with respective state wildlife agencies to identify these areas. Modeling results indicate that all (100 percent) of the Morgan allotment lies within PPH (Table WDLF-1, Map WDLF-1A). Two active leks are known to occur within this allotment. This allotment provides seasonal breeding, upland summer, riparian, and winter habitat for sage-grouse.

Table WDLF-1: Acres[1] and portions of preliminary priority and general priority habitat within the Morgan allotment (Map WDLF-1A)

Allotment/Pasture Name	Acres of PPH Sagebrush Habitat in Allotment[2]	Acres of PPH Perennial Grassland in Allotment	Acres of PPH Juniper Encroachment in Allotment	Acres of PGH in Allotment	Portion of Allotment in PPH/PGH
Pasture 1	2,908 (100%)	0	0	0	2,908 (100%)
Pasture 2	846 (98%)	0	21 (2%)	0	867 (100%)
Pasture 3	1,137 (100%	0	0	0	1,137 (100%)
Pasture 4	551 (100%)	0	0	0	551 (100%)
Allotment Total	5,441 (100%)	0	0	0	5,441 (100%)

[1]PPH/PGH habitat acreage totals include public lands, state lands, and private property.
[2]PPH sagebrush can also include small amounts of perennial grasslands, conifer encroachment, and non-habitat.

Pasture 1

Three sage-grouse breeding and two upland summer habitat assessment have been collected on three different reference sites on July 2 and 3, 2012, and August 13, 2012. Two assessments are located in Shallow Claypan 12-16” Low sagebrush / Idaho fescue site, two on a Loamy 12-16” Wyoming big sagebrush / bluebunch wheatgrass site, and one site was located in Loamy 13-16” Mountain big sagebrush / bluebunch wheatgrass-Idaho fescue site. The pasture is managed as a native plant community (Standard 4).

Shallow Claypan 12-16” Low sagebrush / Idaho fescue

Breeding Habitat Assessment
The sagebrush overstory is characterized by a marginal canopy cover (36 percent) and marginal height (98.8 cm) with an unsuitable columnar shape. The understory is characterized by a marginal canopy cover of perennial grasses (13 percent) and unsuitable canopy of perennial forbs (0 percent) with a marginal combined perennial grass/forb height of (17 cm) (Table WDLF-2). The number of preferred species (7) is suitable, but their abundance is unsuitable. Overall, because of combined overstory and understory conditions created by the less-than-desirable height and columnar shape of the sagebrush component and the less-than-desirable canopy cover and height of perennial grasses, breeding habitat conditions are less than adequate (marginal) because of the reduced nesting and hiding structure and the rare occurrence of forbs.

Winter Habitat Assessment
This information was collected as part of a breeding habitat assessment conducted on July 2, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a marginal canopy cover (36 percent) and marginal height (98.8 cm). Overall, sagebrush occurrence and height are providing suitable winter cover and forage conditions for sage-grouse and is not a limiting factor in this pasture (Table WDLF-2).

Table WDLF-2: Sage-grouse habitat indicators and pasture 1 ratings (Refer to Appendix B and Figure WDLF-1A for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	Breeding	[1]Winter
Sagebrush Canopy Cover (%)	36.0	marginal	suitable
Sagebrush Height (cm)	98.8	marginal	suitable
Sagebrush Form	columnar	unsuitable	
Perennial Grass and Forb Height (cm)	17.0	marginal	
[2]Perennial Grass Canopy Cover (%)	13.0	marginal	
Perennial Forb Canopy Cover (%)	0.0	unsuitable	
Preferred Forb Availability (#)	7	suitable	
Overall Pasture Evaluation Rating		**marginal**	**suitable**

[1]Winter habitat ratings extrapolated from breeding habitat assessment information collected on 7/2/2012.
[2]Perennial grass canopy cover does not include Poa species.

Loamy 12-16” Wyoming big sagebrush / bluebunch wheatgrass site

Breeding Habitat Assessment
This information was collected as part of an upland summer habitat assessment conducted on

August 13, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months and the data collection protocols are the same, this information can provide insight into breeding habitat conditions earlier in the spring, although the forb information is not used because of the time year the data was collected would influence their numbers and abundance.

The sagebrush overstory is characterized by a marginal canopy cover (37 percent) and marginal height (128.8 cm) with an unsuitable columnar shape. The understory is characterized by a marginal canopy cover of perennial grasses (6 percent) (Table WDLF-3). Overall, less-than-adequate (marginal) overstory/understory story conditions for nesting and hiding sage-grouse are shown to be occurring in this pasture due to less-than-desirable sagebrush occurrence and physical shape combined with reduced perennial grass occurrence.

Upland Summer Habitat Assessment
The sagebrush overstory is characterized by a marginal canopy cover (37 percent) and suitable height (128.8 cm). The understory is characterized by a marginal combined canopy cover of perennial grasses and forbs (14 percent) (Table WDLF-3). The number of preferred forb species (8) is suitable. Overall, less-than-adequate (marginal) occurrence, height, and columnar shape of the sagebrush overstory and marginal perennial grass/forb understory conditions are not providing favorable structure and composition for hiding/escape cover for late brood-rearing sage-grouse.

Winter Habitat Assessment
This information was collected as part of a breeding habitat assessment conducted on August 13, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a suitable canopy cover (37 percent) and suitable height (128.8 cm). Overall, sagebrush occurrence and height are providing suitable winter cover and forage conditions for sage-grouse and is not a limiting factor in this pasture (Table WDLF-3).

Table WDLF-3: Sage-grouse habitat indicators and pasture ratings (Refer to Appendix B and Figure WDLF-1A for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	[1]Breeding	Upland Summer	[1]Winter
Sagebrush Canopy Cover (%)	37.0	marginal	marginal	suitable
Sagebrush Height (cm)	128.8	marginal	marginal	suitable
Sagebrush Form	columnar	unsuitable		
[2]Perennial Grass Canopy Cover (%)	6.0	marginal		
Combined Grass/Forb Canopy Cover (%)	14.0		marginal	
Preferred Forb Availability (#)	8		suitable	
Overall Pasture Evaluation Rating		**marginal**	**marginal**	**suitable**

[1]Breeding and winter habitat ratings extrapolated from upland habitat assessment information collected on 8/13/2012.

[2]Perennial grass canopy cover does not include Poa species.

Loamy 13-16” Mountain big sagebrush / bluebunch wheatgrass-Idaho fescue

Breeding Habitat Assessment

The sagebrush overstory is characterized by a marginal canopy cover (14 percent) and marginal height (87.0 cm) with a marginal mixed (spreading/columnar) shape. The understory is characterized by an unsuitable canopy cover of perennial grasses (4 percent) and unsuitable canopy of perennial forbs (4 percent) with a marginal combined perennial grass/forb height of 17.5 cm (Table WDLF-4). The number of preferred forb species (3) is not well represented and their abundance is unsuitable. Overall, because of the combined overstory and understory conditions created by the less than desirable height and mixed shape of the sagebrush component and the deficient canopy cover and height of perennial grasses along with the absence of preferred forbs, nesting and hiding cover values are not adequate and therefore this site is not providing adequate (unsuitable) composition and structure for sage-grouse breeding and early brood-rearing.

Winter Habitat Assessment

This information was collected as part of a breeding habitat assessment conducted on July 2, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a marginal canopy cover (14 percent) and marginal height (87 cm). Overall, sagebrush occurrence and height are providing suitable winter cover and forage conditions for sage-grouse and is not a limiting factor in this pasture (Table WDLF-4).

Table WDLF-4: Sage-grouse habitat indicators and pasture 1 ratings (Refer to Appendix B and Figure WDLF-1A for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	Breeding	[1]Winter
Sagebrush Canopy Cover (%)	14.0	marginal	suitable
Sagebrush Height (cm)	87.0	marginal	suitable
Sagebrush Form	mixed	marginal	
Perennial Grass and Forb Height (cm)	17.5	marginal	
[2]Perennial Grass Canopy Cover (%)	4.0	unsuitable	
Perennial Forb Canopy Cover (%)	4.0	unsuitable	
Preferred Forb Availability (#)	3	unsuitable	
Overall Pasture Evaluation Rating		**unsuitable**	**suitable**

[1]Winter habitat ratings extrapolated from breeding habitat assessment information collected on 7/2/2012.

Pasture 2
Two sage-grouse breeding habitat assessments have been collected on Shallow Claypan 11-13" Low sagebrush / bluebunch wheatgrass sites. The pasture is managed as a native plant community (Standard 4).

Shallow Claypan 11-13" Low sagebrush / bluebunch wheatgrass site

Breeding Habitat Assessment
The site is dominated by bitterbrush (inclusion) within the larger low sagebrush habitat type. On this site, the canopy cover of bitterbrush is 18 percent with an overall shrub canopy cover (both bitterbrush and low sagebrush) of 20 percent. The sagebrush overstory component is characterized by an unsuitable canopy cover (2 percent) and suitable height (56 cm) with a suitable spreading mixed shape. The understory is characterized by a marginal canopy cover of perennial grasses (10 percent) and unsuitable canopy cover of perennial forbs (0 percent) with a marginal combined perennial grass/forb height of 15.2 cm (Table WDLF-5). The number of preferred forb species (8) recorded is favorable but their occurrence and availability is unsuitable. Overall, the dominance of bitterbrush provides additional overstory structure for sage-grouse nesting and hiding cover although the occurrence of low sagebrush in minimal. However, the less-than-desirable occurrence and height of perennial grasses and forbs reduce the effective herbaceous understory component needed for successful nesting and hiding cover. Therefore, this site is providing less-than-adequate (marginal) breeding habitat conditions for sage-grouse.

Winter Habitat Assessment
This information was collected as part of a breeding habitat assessment conducted on July 3, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by an unsuitable canopy cover (2 percent) and suitable height (56 cm). Overall, sagebrush is a sub-dominant species in this community. Although the availability of sagebrush is critical for shelter and forage to support wintering sage-grouse, the dominance of bitterbrush will provide limited cover; therefore, this site is providing less-than-adequate (marginal) winter habitat conditions for sage-grouse (Table WDLF-5).

Table WDLF-5: Sage-grouse habitat indicators and pasture 1 ratings (Refer to Appendix B and Figure WDLF-1A for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	Breeding	[1]Winter
Sagebrush Canopy Cover (%)	2.0	unsuitable	unsuitable
Sagebrush Height (cm)	56.0	suitable	suitable
Sagebrush Form	spreading	suitable	
Perennial Grass and Forb Height (cm)	15.2	marginal	
[2]Perennial Grass Canopy Cover (%)	10.0	marginal	
Perennial Forb Canopy Cover (%)	0	unsuitable	

Preferred Forb Availability (#)	8	suitable	
Overall Pasture Evaluation Rating		**marginal**	**unsuitable**

[1]Winter habitat ratings extrapolated from breeding habitat assessment information collected on 7/3/2012.

Other Species

Redband trout were found in Jordan and Williams Creek during 1977 and 1996 fish inventories. The habitat is marginal, the riparian habitat is functional-at-risk, the water temperatures exceed temperatures deemed optimum for salmonid spawning, and several pollutants exist in the water (See Standard 7).

Pygmy rabbit sign has been found in Pasture 1 in 2002 and 2005. Habitat in parts of Pasture 1 was altered by fire in 1977 and 1999. Surveys from 1994 through 2005 for Columbia spotted frog found frogs in the general area along Jordan Creek, but not within the allotment.

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Columbia Spotted Frog Portions of pastures 3 and 4 are identified within the modeled distribution of the Columbia spotted frog. Potential habitat exists along stream channels, wetlands, and springs (Map WDLF-2A). Inventory/target survey information in 2009 on Grave Creek did not record any occurrence of spotted frog in pasture 2.

Combination Creek (595)

Physiography

The Combination Creek Allotment is approximately five mile long and four miles wide. The elevation of the allotment is between 4,700 and 6,100 feet. The allotment lies 15 miles south of Silver City, Idaho in Owyhee County. The major land forms in the allotment are foothills, tablelands and structural benches. The general area is undulating to steep with loamy, well drained, cool, shallow and moderately deep soils. The soils formed in residuum and colluvium derived from welded rhyolitic tuff. The annual precipitation is 13 to 18 inches and the frost-free period is 60 to 90 days. Vegetation production and accessibility is limited by slope, depth to bedrock, very low available water capacity, stones on surface, hazard of water erosion on steeper slopes and short frost free period. Low sagebrush and Idaho fescue are the dominate species in plant communities found on the more shallow soils. Mountain sagebrush, bluebunch wheatgrass and Idaho fescue are generally found on deeper soils.

Land Status

The Combination Creek grazing allotment consists of approximately 5,137 acres, including public, State, and Private Lands. Table B-1 summarizes acreages for this allotment.

Table B-1: Land Status (in acres)*

Public	State	Private	Total
3,143	1,951	43	5,137

*Acreages based on best available estimates.

Livestock Grazing Management

In the 1999 Owyhee Resource Management Plan (RMP) Table LVST-1, the Combination Creek Allotment was placed in Selective Management Category "Improve" with medium priority. Improve allotments are managed with the objective to manage the public lands with adequate expenditure of funding and manpower to improve current unsatisfactory resource conditions. The allotment must also meet or move toward meeting the Idaho Standards for Rangeland Health. Livestock use is allocated 410 animal unit months (AUMs) of forage for Active Permitted Use with cattle.

Livestock grazing is authorized by a term grazing permit issued to Morgan Properties LP DBA Morgan Ranches. Permitted use is summarized in Table B-2.

Table B-2. Permitted Use on the Combination Creek Allotment.

Operator Name & No.	Livestock Kind & No.	Season of Use	% PL	AUMs		
				Active	Suspended	Permitted
Morgan Properties LP DBA (1101510)	103 cattle	6/1 – 10/31	79	410	0	410

Reported Actual Use

Table B-3 displays the level of use based on the Actual Use Reports in BLM files.

Table B-3. Reported Actual Use*

Year	1995	1996	1997	1998	1999	2000	2003	2005
Use (AUM's)	409	409	409	410	409	409	297	407

* Actual Use Reports are submitted at the end of each grazing year by the Authorized Grazing Permittee. These reports are required for each allotment, in accordance with Terms and Conditions found on the grazing permit. Actual use reports were not submitted for grazing years 1990-1994, 2001-2002, and 2004.

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Actual Use
Actual use for the allotment has ranged from 314 to 410 AUMs between 1997 and 2012, with an average of 354 AUMs for the allotment (Table LVST-2).

Table LVST-2: Actual use for pasture 1 in the Combination Creek allotment 1997-2012

Year	Date	AUMS
2012	6/15-10/15	319
2011	7/2-10/1	323
2010	6/17-10/15	314
2009	6/15-10/15	319
2008	6/5-10/31	338
2007	6/15-10/31	285
2006	6/10-10/31	341
2005	6/1-10/31	409
2004	No Data	No Data
2003	8/1-10/31	323
2002	No Data	No Data
2001	No Data	No Data
2000	6/1-10/31	409
1999	6/1-10/31	409
1998	6/1-10/31	410
1997	6/1-10/31	409
Avg		**354**

1. Watersheds

Three (3) rangeland health evaluations were completed on the Combination Creek Allotment during the 2003 field season by an interdisciplinary team. The evaluations were conducted in accordance with the procedure described in BLM-Technical Reference 1734-6, "Interpreting

Indicators of Rangeland Health-Version 3." Evaluation methods are discussed in Appendix B. Twelve (12) of the 17 rangeland health indicators included in the standard matrix are related to Standard 1. Table B1-1 summarizes all indicator ratings related to Standard 1, by pasture. For example, 3 sites were evaluated in the allotment, for a total of 36 indicator ratings related to watersheds. Of these, 19 were rated as having a "none to slight" degree of departure from reference site conditions. Indicator ratings by site are included in Appendix E. See Appendix H – Map 2 for rangeland health evaluation locations.

Table B1-1. Rangeland Health Indicator Rating Summary – Combination Creek Allotment

	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme
Pasture 1	19	8	9	0	0

[1]Summarizes: 2 Shallow Claypan 12-16" and 1 Loamy 13-16" ecological site

Pasture 1

RH1A is a Shallow Claypan 12-16" ecological site adjacent to the nested plot frequency trend study site in this allotment. At this site, the indicator for water flow patterns was rated as showing a 'moderate' degree of departure from reference site conditions. Water flow patterns were mostly short and stabilized by gravel, but sometimes connected. More pronounced flow patterns were associated with slopes. Pedestals were noted on Idaho fescue and Sandberg bluegrass, particularly on steeper slopes, where terracettes were also noted. Amount of bare ground was minimal due to abundant rock/gravel. Trailing areas had small patches of bare ground. Litter is slightly reduced in flow paths, and some accumulation (mounding) was noted under shrubs. The soil surface is resistant to erosion, and stabilized by abundant rock and gravel as well as vegetative cover. The plant community is dominated by Idaho fescue with scattered shrubs, and composition and structure are adequate to facilitate infiltration and runoff processes.

RH1B is a Shallow Claypan 12-16" ecological site in the southern half of the allotment. At this site, indicators for water flow patterns, bare ground, and soil surface resistance to erosion, soil surface loss/degradation, and litter amount were all rated as showing 'moderate' departures from reference conditions. Water flow patterns are mostly short, but some are connected and longer than expected, with some cut areas. Many small and often connected patches of bare ground were noted due to lack of herbaceous vegetation in shrub interspaces. Soil surface resistance to erosion is reduced due to reduced soil surface organic matter, litter, and biotic soil crusts. Historic soil loss is apparent due to stabilized plant pedestals, a degraded soil "A" horizon and residual gravel on the soil surface. Litter amount is as expected under shrub canopy, but moderately reduced in interspaces, where litter from perennial grasses is lacking. The plant community composition and structure is somewhat altered from reference conditions, due to an increase in big sagebrush cover and lack of large perennial bunchgrasses.

RH2C is a Loamy 13-16" ecological site in the northern half of the Combination Creek allotment. At this site, the indicators of water flow patterns, soil surface loss/degradation, and litter amount were rated as showing 'moderate' departures from reference conditions. Water flow patterns are more numerous and longer than expected, and often connected due to lack of obstructions such as large rocks and plants. Soil loss appears to have occurred historically, as evidenced by a patchy soil "A" horizon and stabilized plant pedestals. The site appears to be

currently stable and resistant to erosion due to presence of gravel on the soil surface. Litter amount is significantly less than expected in shrub interspaces and water flow paths. Pedestals were commonly noted, but appear to be historic, and are currently stabilized by biotic soil crusts. Bare ground is minimal, due to abundant gravel in shrub interspaces. The plant community is somewhat altered from reference conditions, and may be altering infiltration and runoff processes to some extent due to patchy distribution of shrubs and grasses.

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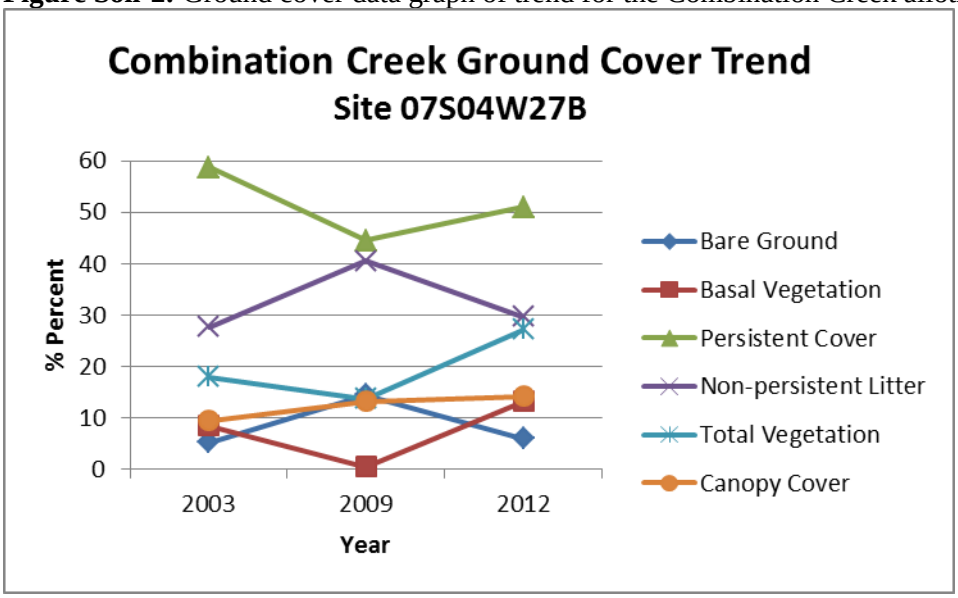
Ground Cover Trend

Ground cover trend data were collected in at the nested plot frequency transect (07S04W27B) in 2003, 2009, and 2012 (Figure Soil-2). Bare ground and non-persistent litter have been static over the long term and decreasing significantly (Student's t-test; p-value <0.1) over the short term after a spike in 2009. Basal vegetation and total vegetation show increases over both the long and short term. Persistent cover has non-significantly increased short-term and decreased over the long term while canopy cover increased long-term but remains static short-term.

Figure Soil-2: Ground cover data graph of trend for the Combination Creek allotment (2003, 2009, 2012)



The site shows a long-term static to slight upward trend with some improvement in vegetative cover between 2003 and 2012. Bare ground displays some variability over the years, but overall appears to be kept in check by sufficient cover over the long term and remains low. Ground cover data correspond well with frequency data readings for grasses (see Standard 4) for the site, which also remained primarily static over the long term, with a good representation of deep-rooted bunchgrasses. Shrub density and frequency show an increasing trend for sagebrush over the most recent years but generally has remained static, as is reflected in the canopy cover data. Overall interpretations of frequency trend and ground cover data suggest that watershed conditions at the trend site have maintained with little long-term improvement.

2. Riparian Areas and Wetlands

Streams on the Combination Creek allotment include North Boulder Creek, Combination Creek, South Boulder Creek, and Bogus Creek. The 1999 Owyhee Resource Management Plan (RMP) Table RIPN-1 identified Fisheries Habitat for 1.18 miles of Combination Creek. The reaches of North Boulder Creek, South Boulder Creek and Bogus Creek that are located within the Combination Creek allotment are not identified as Fisheries Habitat in the RMP.

Inventories and assessments were completed for streams on this allotment in 2000 and 2001 by Riparian Resources. Table B2-1 provides a summary of the latest Proper Functioning Condition ratings for streams on the allotment. Of a total of 5.6 assessed miles, 1.0 miles are in PFC, 1.1 miles are FAR with an apparent upward trend, and 3.5 miles are FAR with no apparent trend.

Table B2-1. Summary of riparian Proper Functioning Condition ratings.

Stream	Segment ID	Stream Miles	PFC Condition Rating*	Apparent Trend**
North Boulder	NBO-001	1.0	PFC	N/A
Combination	COM-001	0.9	FAR	N/A
	COM-002	0.2	FAR	N/A
	COM-003	1.0	FAR	N/A
South Boulder	SBO-001	0.5	FAR	N/A
	SBO-002	0.4	FAR	N/A
Bogus	BOG-001	0.5	FAR	N/A
	BOG-002	1.1	FAR	UP

*PFC – Proper functioning condition; FAR – Functional-at Risk; NF – Non-functional
**UP – Apparent upward trend; DN – Apparent downward trend; NA – No apparent trend

North Boulder Creek

Approximately 1.0 miles of North Boulder Creek flows through public land along the northern boundary.

Riparian Inventories and Assessments

North Boulder Creek was inventoried in September 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The inventory included a Proper Functioning Condition assessment. The assessment concluded the segment is in Proper Functioning Condition. The stream supports a diverse riparian plant community with adequate bank-stabilizing vegetative cover. Table B2-2 shows indicator ratings for this stream segment that apply to Standard 2.

The riparian vegetation was classified as a Yellow Willow Community Type. This type occupies stream and river edges, seeps, and moist alluvial terraces (Hanson 1995). The inventory did not identify trees on the segment but did identify 4 shrub species, 8 graminoids and 8 forbs.

Table B2-2: Riparian Indicators and Functioning Condition Rating by Stream Segment – North Boulder Creek

Stream Segment	**NBO-001**
Stream miles	*1.0*
Date of data collection	*9/2001*
Riparian/Wetland Indicators:	**Indicator Rating[1]**
Diverse age class/structure of hydric vegetation (6)[2]	Y
Diverse composition of hydric vegetation (7)	Y
Vegetation reflects maintenance of soil moisture (8)	Y
Plant community comprised of bank stabilizing species (9)	Y
Hydric vegetation exhibits high vigor (10)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y
Adequate large woody material (12)	Y
Point bars revegetating with hydric species (14)	Y
Noxious weeds are not increasing[3]	N
Overall functioning condition[4]	**PFC**
Apparent trend[5]	**NA**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] Leafy spurge on 5 to 15 percent and Canada thistle on less than 1 percent of the segment.
[4]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[5]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

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In 2011, the 1.0 mile of North Boulder Creek that form the northern boundary of the allotment was re-visited. The observers took photos of the stream, and noted that it is geologically confined and inaccessible to livestock. Based on the inaccessibility of the channel, the PFC protocol was not applied.

Combination Creek

Approximately 2.2 miles of Combination Creek, an intermittent stream, crosses public land in the allotment. Combination Creek was inventoried following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D) in three segments. The first two segments, COM-002 and COM-003 were completed in October of 2000. A third segment, COM-001, was completed in September of 2001. The Proper Functioning Condition assessment rated all three segments as Functional-At Risk mid/low. The apparent trend was not identified (Table B2-3).

The inventory classified the vegetation on segment COM-001 as Whiplash Willow Community Type, Kentucky Bluegrass Community Type, and Yellow Willow Community Type. Segment

COM-002 was vegetated with a Redosier Dogwood Community Type, Lemmon's Willow/Bench Community Type, and Sandbar Willow Community Type. Segment COM-003 was predominantly vegetated with a Redosier Dogwood Community Type, and a Whiplash Willow Community Type.

Kentucky bluegrass was the most widely distributed graminoid. Canada thistle was found on less than one percent of segment COM-003.

Table B2-3: Functioning Condition Rating– Combination Creek

Stream Segment	**COM-001**	**COM-002**	**COM-003**
Stream miles	*0.9*	*0.2*	*1.0*
Date of data collection	*9/2001*	*10/2000*	*10/2000*
Riparian/Wetland Indicators:	**Indicator Rating[1]**		
Diverse age class/structure of hydric vegetation (6)[2]	Y/N	Y/N	Y/N
Diverse composition of hydric vegetation (7)	Y/N	Y/N	Y/N
Vegetation reflects maintenance of soil moisture (8)	Y/N	Y/N	Y/N
Plant community comprised of bank stabilizing species (9)	Y/N	Y/N	Y/N
Hydric vegetation exhibits high vigor (10)	Y/N	Y/N	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	Y/N	Y/N
Adequate large woody material (12)	Y/N	Y/N	Y/N
Point bars revegetating with hydric species (14)	Y/N	N	Y/N
Noxious weeds are not increasing[3]	Y	Y	N
Overall functioning condition[4]	**FAR**	**FAR-**	**FAR-**
Apparent trend[5]	**NA**	**NA**	**NA**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] Canada thistle on less than 1 percent of segment COM-003.
[4]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[5]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

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In 2011, 1.0 mile of the 2.2 miles of Combination Creek was re-visited. The reach was again rated FAR based on juniper encroachment, livestock use, and a water diversion. Only 10 to 15 percent of the reach contained hydric species and several large cutbanks were present, with active erosion occurring. Additionally, both the young willows and the herbaceous vegetation that were present along the reach had moderate to heavy browse.

South Boulder Creek

Approximately 0.9 miles of South Boulder Creek crosses public land in the allotment.

Riparian Inventories and Assessments

South Boulder Creek was inventoried in September 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Proper Functioning Condition assessment rated the stream in two segments. Both were middle to low Functional-At Risk with no apparent trend (Table B2-4).

The segments were predominantly vegetated with a Whiplash Willow Community Type. The Whiplash Willow is considered a pioneer species on newly deposited alluvial materials. Under severe disturbance the stands will be replaced by Kentucky bluegrass (Hanson 1995).

The assessment found Kentucky bluegrass to be the most common graminoid on the two segments. However, it was more dominant on the lower, SBO-001, segment. There it was 15 to 25 percent of the cover. Five to seven forbs were found on the 2 segments. The assessment did not find any noxious weeds.

Table B2-4: Riparian Indicators and Functioning Condition Rating by Stream Segment – South Boulder Creek

Stream Segment	**SBO-001**	**SBO-002**
Stream miles	*0.5*	*0.4*
Date of data collection	*9/2001*	*9/2001*
Riparian/Wetland Indicators:	**Indicator Rating[1]**	
Diverse age class/structure of hydric vegetation (6)[2]	Y	Y/N
Diverse composition of hydric vegetation (7)	Y/N	Y/N
Vegetation reflects maintenance of soil moisture (8)	Y/N	Y/N
Plant community comprised of bank stabilizing species (9)	Y/N	Y/N
Hydric vegetation exhibits high vigor (10)	Y/N	N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	N
Adequate large woody material (12)	N	N
Point bars revegetating with hydric species (14)	N	N
Noxious weeds are not increasing	Y	Y
Overall functioning condition[3]	**FAR-**	**FAR-**
Apparent trend[4]	**NA**	**NA**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[4]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

In 2011, 0.5 mile of the 0.9 miles of South Boulder Creek was re-visited. The reach was rated in PFC because it is geologically confined and the stream banks are stabilized with adequate riparian woody and herbaceous species. Additionally, there was active recruitment of willows occurring.

Bogus Creek

Approximately 1.58 miles of Bogus Creek crosses public land in the allotment.

Riparian Inventories and Assessments

Bogus Creek was inventoried in October 2000 and September 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Proper Functioning Condition assessments rated the stream as Functional-At Risk. The lower segment was rated as low to middle Functional-at Risk. The upper section was ranked as low but with a "possible upward trend" (Table B2-5).

The vegetation on the lower segment of the stream and part of the upper segment were classified as a Redosier Dogwood Community Type (CT). Stands are typically located on flat alluvial benches adjacent to moderate to high gradient streams. Undisturbed stands dominated by Redosier dogwood community type form dense, communities dominated by shrubs. When disturbance occurs, stands tend to open (Hansen 1995).

Other vegetation communities on the upper segment were a Whiplash Willow CT, Lemmon's Willow/Bench CT, and a Sandbar Willow CT. Kentucky bluegrass was the dominant graminoid on only a portion of the segments. Two to 6 species of graminoids were present on the segments. No noxious weeds were identified on Bogus Creek.

Table B2-5: Riparian Indicators and Functioning Condition Rating by Stream Segment – Bogus Creek

Stream Segment	BOG-001	BOG-002
Stream miles	*0.5*	*1.1*
Date of data collection	*9/2001*	*10/2000*
Riparian/Wetland Indicators:	**Indicator Rating[1]**	
Diverse age class/structure of hydric vegetation (6)[2]	Y/N	N
Diverse composition of hydric vegetation (7)	Y/N	Y/N
Vegetation reflects maintenance of soil moisture (8)	Y/N	Y/N
Plant community comprised of bank stabilizing species (9)	Y/N	Y/N
Hydric vegetation exhibits high vigor (10)	Y/N	Y/N

Stream Segment	BOG-001	BOG-002
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	Y/N
Adequate large woody material (12)	Y/N	Y/N
Point bars revegetating with hydric species (14)	Y/N	N
Noxious weeds are not increasing	Y	Y
Overall functioning condition[3]	**FAR**	**FAR**
Apparent trend[4]	**NA**	**UP**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[4]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

Riparian Utilization Monitoring

Stubble height measurements are a simple and effective tool to monitor rangeland use in key areas. Individual plant measurements are collected from herbaceous vegetation such as grasses, sedges, and rushes. Generally stubble heights of 4 to 6 inches are an acceptable standard for effective streambank, protection, prevention of sedimentation, and maintenance of plant communities (USDI, BLM 1999). Stubble height and percent use of shrubs is displayed in Table B2-6.

Table B2-6. Riparian Utilization Data

Location	Pasture	Year	Stubble Height (Inches)	Shrub use (% leader growth)
SBO-001	1	9/2001	1	25-35
SBO-002	1	9/2001	1	25-35
COM-001	1	9/2001	4	26-50
COM-002	1	10/2000	3	26-50
COM-003	1	10/2000	3.6	>51
NBO-001	1	9/2001	9	0-25
NBO-001	1	9/1996	9.2	*
BOG-001	1	9/1999	2	76-100
BOG-001	1	9/2001	12	76-100
BOG-002	1	10/2000	3	76-100

*Shrub use not measured

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The table below is a summary of all the riparian information available for the allotment, both previously assessed, as well as supplemental, newer information (also see Map RNGE-1B).

Table RIPN-3: Stream information for pasture 1 on the Combination Creek allotment

Stream Name	Miles Assessed	Assessment Issues/ Impacts Identified	Total Miles
Bogus Creek	1.1 (FARD- 2001) 0.5 (FARS- 2001)	inadequate composition of hydric species to stabilize stream banks during high flows/ plants had low vigor/ lack of large woody material present/ point bars were not revegetation	1.6
Combination Creek	2.2 (FARS- 2000)	inadequate composition and age class of hydric species to stabilize stream banks during high flows/ plants had low vigor/ a lack of large woody material/ noxious weeds present	2.2
	1.0 (FAR- 2011)	inadequate hydric species/ cutbanks and active erosion/ heavy use of both woody and herbaceous vegetation	0
North Boulder Creek	1.1 (PFC- 2001) (pictures only- 2011)	noxious weeds present	
South Boulder Creek	0.5 (FARS- 2001) (PFC- 2011)	2001- presence of KBG/inadequate composition of hydric species to stabilize stream banks/ plants had low vigor/ lack of large woody material/ point bars not revegetating	0.5
	0.4 (FARS- 2001)	2001- presence of KBG/inadequate composition of hydric species to stabilize stream banks/ plants had low vigor/ lack of large woody material/ point bars not revegetating	0.4

3. Stream Channel/Floodplain

The Combination Creek Allotment has a number of streams. They include North Boulder Creek, Combination Creek, South Boulder Creek, and Bogus Creek. Inventories and assessments have been conducted by BLM between 2000 and 2001. Refer to Table B2-1 for a summary of the results of PFC assessments on stream segments located in the Combination Creek allotment.

North Boulder Creek

Approximately 1.0 miles of North Boulder Creek flows through public land at the Northern boundary.

Stream Channel and Floodplain Inventories and Assessments

North Boulder Creek was inventoried in September 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The inventory included a Proper Functioning Condition assessment. The assessment concluded the segment is in Proper Functioning Condition (Table B3-1).

The inventory characterized 50 percent of the channel as a Rosgen B4c stream channel type. The B4c stream types are moderately entrenched systems with gradients of less than 2 percent. They are considered relatively stable and are not high sediment supply steam channels (Rosgen 1996).

Approximately 80-100 percent of the streambanks were stable. Vegetation with deep binding root masses was on 65-84 percent of the streambanks. There was active lateral cutting on less than one percent of the streambanks. There was no pugging or other human caused disturbance. However, there was two species of noxious weeds on the segment.

Table B3-1: Stream Channel/Flood Plain Indicators and Functioning Condition Rating by Segment – North Boulder Creek

Stream Segment	**NBO-001**
Date of data collection	*9/2001*
Stream Miles	*1.0*
Stream Channel/Flood Plain Indicator	**Indicator Rating[1]**
Floodplain inundated frequently (1)[2]	Y
Beaver dams are active and stable (2)	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y
Upland watershed not contributing to riparian degradation (5)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y
Adequate large woody material (12)	Y
Floodplain and channel characteristics dissipate energy (13)	Y
Point bars revegetating with hydric species (14)	Y
Lateral stream movement associated with natural sinuosity (15)	Y
System is vertically stable (16)	Y
No excessive erosion or deposition (17)	Y
Overall functioning condition[3]	PFC

[1] Y=yes; N=no; Y/N=both attributes; NA= not applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional

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In 2011, the 1.0 mile of North Boulder Creek that form the northern boundary of the allotment was re-visited. The observers took photos of the stream, and noted that it is geologically confined and inaccessible to livestock. Based on the inaccessibility of the channel, the PFC protocol was not applied.

Combination Creek

Approximately 2.2 miles of Combination Creek, an intermittent stream, crosses public land in the allotment.

Stream Channel and Floodplain Inventories and Assessments

Combination Creek was inventoried in September 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Proper Functioning Condition assessment divided the stream into three segments. The three segments were rated Functional-At Risk low/mid without an apparent trend (Table B3-2).

The three segments were rated primarily as B4c, B4 and F4b Rosgen stream channel types. The B4 stream types are moderately entrenched systems. They are considered relatively stable and are not high sediment supply steam channels (Rosgen 1996). The F4 stream types are gravel dominated, entrenched, meandering channel, deeply incised in gentle terrain. Streambank erosion may be high where adequate vegetation isn't established on the entire slope face of the channel banks (Rosgen 1996).

All three segments had plants with deep binding root mass on 35-64 percent of the channel. Two segments had stable streambanks on 40-60 percent of the segment. One had 50-70 percent stable streambanks. On two segments active bank erosion was occurring on only 1-5 percent of the streambanks. One segment had active bank erosion on 5 to 15 percent of the segment.

Table B3-2: Stream Channel/Flood Plain Indicators and Functioning Condition Rating by Segment – Combination Creek

	COM-001	**COM-002**	**COM-003**
Date of data collection	*9/2001*	*10/2000*	*10/2000*
Stream Miles	*0.9*	*0.2*	*0.1*
Stream Channel/Flood Plain Indicator	Indicator Rating		
Floodplain inundated frequently (1)	Y/N	Y/N	N
Beaver dams are active and stable (2)	N	N	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	N	N	Y/N
Upland watershed not contributing to riparian degradation (5)	Y/N	Y/N	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	Y/N	Y/N
Adequate large woody material (12)	Y/N	Y/N	Y/N
Floodplain and channel characteristics dissipate energy (13)	Y/N	Y	Y/N
Point bars revegetating with hydric species (14)	Y/N	N	Y/N
Lateral stream movement associated with natural sinuosity (15)	Y/N	Y/N	Y/N
System is vertically stable (16)	Y	Y	Y
No excessive erosion or deposition (17)	Y	Y/N	Y/N
Overall functioning condition[3]	FAR	FAR	FAR

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional

In 2011, 1.0 mile of the 2.2 miles of Combination Creek was re-visited. The reach was again rated FAR based on Juniper encroachment, livestock use, and a water diversion. Only 10 to 15 percent of the reach contained hydric species, and several large cutbanks were present, with active erosion occurring. Additionally, both the young willows and the herbaceous vegetation that were present along the reach had moderate to heavy browse.

South Boulder Creek

Approximately 0.9 miles of South Boulder Creek crosses public land in the allotment.

Stream Channel and Floodplain Inventories and Assessments

South Boulder Creek was inventoried in September 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). Two stream segments were assessed for Proper Functioning Condition. Both were middle to low Functional-At Risk with no apparent trend (Table B3-3).

Forty-five to fifty-five percent of the SBO-001 segment was classified as a Rosgen B4c stream type. The B4c stream types are moderately entrenched systems with gradients of less than 2 percent. They are considered relatively stable and are not high sediment supply steam channels (Rosgen 1996). The SBO-001 segment had plants with deep binding root masses on 35 to 64 percent of the segment. It had stable streambanks on 50 to 70 percent of the segment. Active bank erosion was occurring on only 1 to 5 percent of the segment.

Thirty-five to forty-five percent of the SBO-002 segment was rated as a Rosgen F4 stream type. The F4 stream types are gravel dominated, entrenched, meandering channel, deeply incised in gentle terrain. Streambank erosion may be high where adequate vegetation isn't established on the entire slope face of the channel banks (Rosgen 1996). The assessment found plants with deep binding root masses on 35 to 64 percent of the segment. Fifty to seventy percent of the streambanks were stable. Five to 15 percent of the segment had active bank erosion.

Table B3-3: Stream Channel/Flood Plain Indicators and Functioning Condition Rating by Segment – South Boulder Creek

Stream Segment	**SBO-001**	**SBO-002**
Date of data collection	*9/2001*	*9/2001*
Stream Miles	*0.5*	*0.4*
Stream Channel/Flood Plain Indicator	**Indicator Rating[1]**	
Floodplain inundated frequently (1)[2]	Y/N	Y/N
Beaver dams are active and stable (2)	N	N

Stream Segment	SBO-001	SBO-002
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	N	N
Upland watershed not contributing to riparian degradation (5)	Y/N	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y	N
Adequate large woody material (12)	N	N
Floodplain and channel characteristics dissipate energy (13)	Y/N	Y/N
Point bars revegetating with hydric species (14)	N	N
Lateral stream movement associated with natural sinuosity (15)	Y/N	Y/N
System is vertically stable (16)	Y	Y
No excessive erosion or deposition (17)	Y/N	Y/N
Overall functioning condition[3]	**FAR**	**FAR**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional

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In 2011, 0.5 mile of the 0.9 miles of South Boulder Creek was re-visited. The reach was rated in PFC because it is geologically confined and the stream banks are stabilized with adequate riparian woody and herbaceous species. Additionally, there was active recruitment of willows occurring.

Bogus Creek

Approximately 1.58 miles of Bogus Creek crosses public land in the allotment. Bogus Creek was inventoried in October 2000 and September 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Proper Functioning Condition assessments rated the stream as Functional-At Risk. The lower segment was rated as low to middle. The upper section was ranked as low but with a "possible upward trend" (Table B3-4).

The BOG-001 segment was rated as 25-35 percent F3b stream type. F3 stream types are cobble dominated, entrenched, meandering channels, deeply incised in gentle terrain. Sediment supply in the F3 steam types is moderate to high, depending on bank erodibility conditions. (Rosgen 1996) On the BOG-001 segment, 35-64 percent of the streambanks are covered with plants with deep, soil-binding root masses. However, 70-90 percent of the streambanks were considered stable. Active bank erosion was occurring on less than 5 percent of the section.

The BOG-002 segment was classified as a B4 steams type. The B4 stream types are moderately entrenched systems with gradients from 2 to 4 percent. They are considered relatively stable and are not high sediment supply stream channels. (Rosgen 1996) The BOG-002 segment has deep binding root mass plants on 36-64 percent of the segment. Thirty to fifty percent of the segment

was rated as stable. Active bank erosion is occurring on 5 to 15 percent of the segment. The channel appeared over-widened on most of the segment.

Table B3-4: Stream Channel/Flood Plain Indicators and Functioning Condition Rating by Segment – Bogus Creek

	BOG-001	**BOG-002**
Date of data collection	9/2001	10/2000
Stream Miles	0.5	1.1
Stream Channel/Flood Plain Indicator	**Indicator Rating[1]**	
Floodplain inundated frequently (1)[2]	Y/N	Y/N
Beaver dams are active and stable (2)	N	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N	N
Riparian area is widening or has achieved potential extent (4)	Y/N	N
Upland watershed not contributing to riparian degradation (5)	Y/N	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	Y/N
Adequate large woody material (12)	Y/N	Y/N
Floodplain and channel characteristics dissipate energy (13)	Y/N	Y
Point bars revegetating with hydric species (14)	Y/N	N
Lateral stream movement associated with natural sinuosity (15)	Y/N	N
System is vertically stable (16)	Y	Y
No excessive erosion or deposition (17)	Y/N	Y/N
Overall functioning condition[3]	**FAR**	**FAR**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional

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The information below is a summary of all the riparian assessment information for the Combination Creek allotment, both previously assessed as well as the supplemental information (also see Map RNGE-1B).

Table RIPN-4: Stream information for pasture 1 on the Combination Creek allotment

Stream Name	Miles Assessed	Assessment Issues/ Impacts Identified	Total Miles
Bogus Creek	1.2 (FARD- 2001) 0.5 (FARS- 2001)	inadequate composition of hydric species to stabilize stream banks during high flows/ plants had low vigor/ lack of large woody material present/ point bars were not revegetation	1.6
	2.2 (FARS- 2000)	inadequate composition and age class of hydric species to stabilize stream banks during high flows/ plants had low vigor/ a lack of large woody material/ noxious weeds present	2.2
Combination Creek	1.0 (FAR- 2011)	inadequate hydric species/ cutbanks and active erosion/ heavy use of both woody and herbaceous vegetation	1.0
North Boulder Creek	1.1 (PFC- 2001) (pictures only- 2011)	noxious weeds present	1.1
	0.5 (FARS- 2001) (PFC- 2011)	2001- presence of KBG/inadequate composition of hydric species to stabilize stream banks/ plants had low vigor/ lack of large woody material/ point bars not revegetating	0.5
South Boulder Creek	0.4 (FARS- 2001)	2001- presence of KBG/inadequate composition of hydric species to stabilize stream banks/ plants had low vigor/ lack of large woody material/ point bars not revegetating	0.4

4. Native Plant Communities

Three (3) Rangeland Health Evaluations completed during the 2003 field season by an interdisciplinary team, in accordance with BLM-Technical Reference 1734-6, "Interpreting Indicators of Rangeland Health-Version 3." Methods are also discussed in Appendix B. Nine (9) of the 17 standard indicators are related to the native plant communities standard. Table B4-1 summarizes all indicator ratings related to Standard 4. Three (3) sites were evaluated in the allotment, for a total of 27 indicator ratings related to native plant communities. Of these, 19 were rated as having a "none to slight" degree of departure from reference site conditions. Indicator ratings by site are included in Appendix E. Refer to Appendix H, Map 2 for locations or rangeland health evaluations.

Table B4-1. Summary of Indicator Ratings by Pasture

	none to slight	slight to moderate	moderate	moderate to extreme	extreme

	none to slight	slight to moderate	moderate	moderate to extreme	extreme
Pasture 1[1]	8	12	7	0	0

[1]Summarizes: 2 Shallow-Claypan 12-16" and 1 Loamy 13-16" sites

At RH1A, a Shallow Claypan 12-16" ecological site, indicators related to Standard 4 were rated as showing 'none to slight' or 'slight to moderate' degrees of departure from reference conditions. Western juniper and bulbous bluegrass are scattered on this site, and biotic soil crusts are less common than expected. Some crown die-out was noted on Idaho fescue, which also had fewer seedheads than expected. Shrubs and the majority of grasses showed good vigor and reproductive capability. Low sagebrush cover was similar to expected levels at this site.

At RH2B, a Shallow Claypan 12-16" ecological site, the indicators for litter and reproductive capability of perennial plants were rated as showing 'moderate' degrees of departure from reference conditions. Litter is as expected beneath shrubs, but is reduced in interspaces. Less litter than expected is contributed by large perennial bunchgrasses. Reproductive capability of perennial plants is lower than expected due to apparent low vigor and lack of seedheads on perennial bunchgrasses in shrub interspaces. Grasses under shrub cover appeared to be vigorous and reproductively capable. Functional/structural groups are all present on the site, but relative abundance of large perennial bunchgrasses is lower than expected, while cover of small perennial bunchgrasses and mountain big sagebrush is slightly higher than expected. Crown die-out was noted on Idaho fescue and Sandberg bluegrass in shrub interspaces, and annual production is approximately 60-80% of expected.

At RH1C, the indicators of plant mortality and decadence, and litter amount were rated as showing a 'moderate' degree of departure from reference conditions. Crown die-out of pedestaled grasses was scattered to common on the site. Litter was significantly reduced in shrub interspaces and water flow paths. Western juniper is scattered on the site, but within expected distribution for this site. Annual production is approximately 60-80% of expected due to an overall decrease in grass cover in shrub interspaces. Functional/structural groups are all present on the site, but shrubs are slightly increased, and cover of Idaho fescue and bluebunch wheatgrass is slightly below potential, particularly in shrub interspaces. The majority of perennial grasses show adequate reproductive capability, but vigor is reduced on pedestaled plants.

Long-term Vegetation Studies (Trend)

Two trend sites are located on the Combination Creek allotment. A photo plot was established in T07SR04W27 in 1984, and photos were taken in 1984, 1987, 1992, and 2003. Based upon these photos, it appears that shrubs have increased, and currently are at an appropriate level in the plant community. A diverse age-class of western juniper is evident in photos for all years, although it appears that young juniper trees are more common in the 2003 photos. Bunchgrass cover appeared to vary between years, but bunchgrasses are well-distributed across the site and Idaho fescue forms the dominant understory vegetation in 2003.

A nested plot frequency transect (NPFT) study was established in 1983 at a second location in T07S, R04W, Section 27, and was revisited in 2003. Based upon frequency data, very little change was observed in bunchgrass composition. Low sagebrush frequency decreased (Table B4-2). Frequency data are also presented in Appendix G. Based on site photos, bunchgrass cover appears to be the same between years, but sagebrush cover increased due to larger average size of individual plants, and western juniper appears to be encroaching into the trend site. In 2003, density of low sagebrush was approximately 6,900 plants per acre, and density of western juniper was 50 plants per acre.

Table B4-2. Nested Plot Frequency Data-
Combination Creek T07S, R04W, Section 27B

	1985	2003
Bluebunch WG	30	31
Low sagebrush	70	41
Idaho fescue	98	89
Sandberg BG	88	77
Squirreltail	15	12

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Background Information

The Deer Creek Fire in 1994 burned 85 acres of the 4,204-acre Combination Creek allotment (2 percent). No rehabilitation seedings or rest from grazing was administered. Some annual invasives are scattered throughout the allotment.

Trend Data

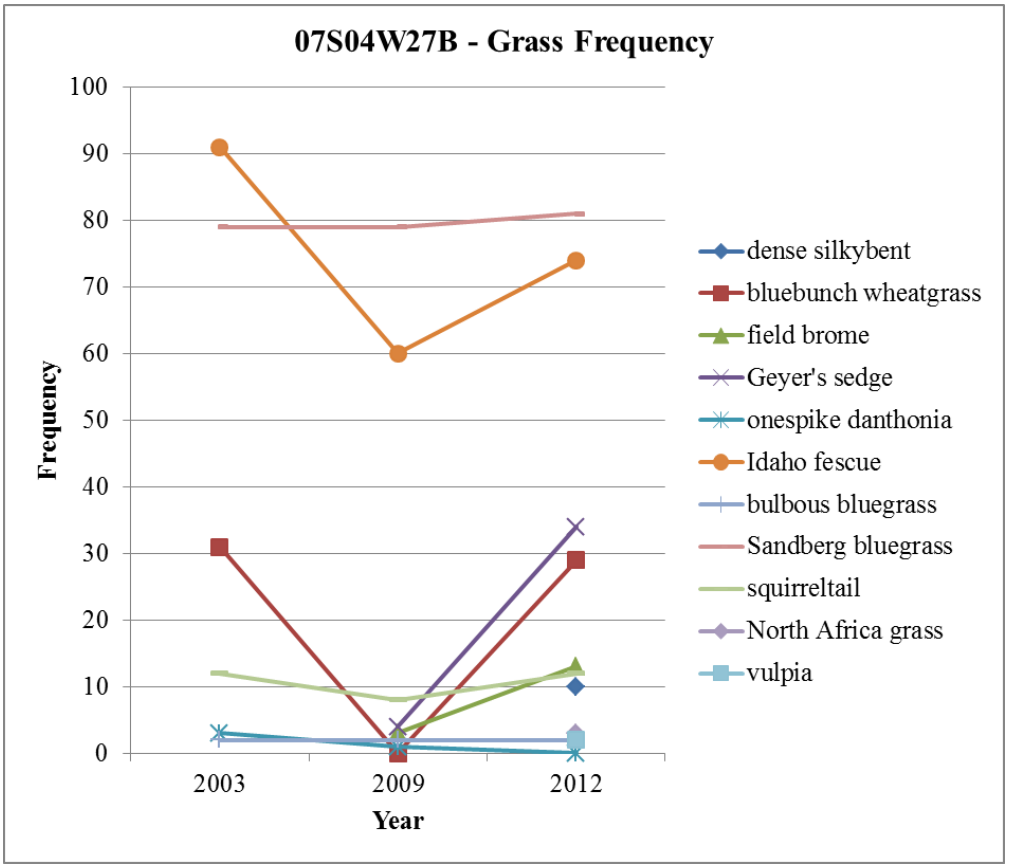
The NPFT site was re-read in 2009 and 2012 and continues to show a long-term static frequency of bluebunch wheatgrass and short-term increased frequency of Idaho fescue (Table VEG-5, Figure VEG-2). Sandberg bluegrass, field brome and annual invasives have increased on this site. There may have been a misidentification of Geyer's sedge in 2012 and bluebunch wheatgrass in 2009 on this site. Shrub and tree density has shown an increase in Wyoming big sagebrush and low sagebrush, and a static long-term trend in juniper.

One photo plot was established in 1984, and photos were taken again in 2003, 2009, and 2012. At this site, litter and perennial bunchgrass cover appeared to increase, but cover and average size of sagebrush appeared to remain static.

Table VEG-5: Nested plot frequency data for the Combination Creek allotment T07S, R04W, Section 27B

Grasses		**Percentage**		
Species		**2003**	**2009**	**2012**
APIN	dense silkybent			10
AGSP	bluebunch wheatgrass	31	0	29
BRJA	field brome		3	13
CAGE2	Geyer's sedge		4	34
DAUN	onespike danthonia	3	1	SEE CAGE2
FEID	Idaho fescue	91	60	74
POBU	bulbous bluegrass	2	2	2
POSE	Sandberg bluegrass	79	79	81
SIHY	squirreltail	12	8	12
VEDU	North Africa grass			3
VULPIA	vulpia			2

Figure VEG-2: Nested plot frequency data for the Combination Creek allotment T07S, R04W, Section 27B



Utilization

Pasture 1

Utilization data collected ranged from slight to heavy use from 1975 to 1992 (Table VEG-6).

Table VEG-6: Utilization data from trend site for pasture 1 of the Combination Creek allotment (1975-1992)

DATE	SITE	SHIHY	FEID	AGSP	PUTR
11/19/1975	07SR04W22	67	73	64	
9/30/1976	07S04W14		68	90	
10/28/1980	07S04W07				39
11/2/1983			30		
10/29/1985			41	20	
9/30/1986	07S04W27		10	10	
10/7/1987			55		
10/5/1988	07S04W27		54		
10/4/1989			59		
10/22/1992	07S04W27		42		

5. Rangeland Seeding

This standard does not apply in this allotment.

6. Exotic Plant Communities

This standard does not apply in this allotment, which is managed for native plant communities.

7. Surface and Ground Water Quality

This assessment includes a review of data collected and water quality standards established by Idaho Department of Environmental Quality (IDEQ). The State is broken into basins and sub-basins and assessment units. The new 2005 Integrated Report (303(d)/305(b)) uses "assessment units" within the sub-basin. Assessment units are groups of similar streams within a sub-basin that have similar land use practices, ownership, or land management. Assessment units are assessed for pollutants and assigned Beneficial Uses with associated Water Quality Standards. Beneficial Use Reconnaissance Program (BURP) is a field assessment of stream segments (all IDEQ data and standards mentioned here are available on the IDEQ web site- see references listed in section IV of this document).

Bureau of Land Management (BLM) also collects data that can include riparian inventories, riparian Proper Functioning Condition (PFC) assessments, riparian habitat evaluation forms, stream survey forms, riparian aquatic data sheets, thermograph data and water quality monitoring data (BLM data is available at the Owyhee Field Office).

There are four streams that border or cross the Combination Creek Allotment. The four creeks are all in the Jordan Sub-Basin and are within three assessment units and 4 stream reaches (Table B7-1).

The three assessment units share the same status. These streams have not been assessed by IDEQ and have not been assigned beneficial uses. These assessment units are tributaries to the Jordan Creek assessment unit #17050108SW004_05, which was listed by IDEQ as having the following impairments to water quality: bacteria, mercury, oil and grease, pesticides, and siltation.

The BLM collected data in 2004 that is summarized in Table B7-1. The State of Idaho criterion for Cold-Water Aquatic Life (CWAL) requires water temperatures of 22º C or less with a maximum daily average of less than 19 degrees C. The criteria for Secondary Recreation Contact are that bacteria *Escherichia coli (E. coli)* concentrations will be below the standard of 576 per 100 millimeters.

Table B7-1: Evaluation of IDEQ criteria for temperature and bacteria (*E. coli*).

Hydrologic Unit Code	Stream	Temperature	*E. coli* count	Meets/Not meeting criteria
17050108SW006_04	South Fork Boulder	Not Meeting	10	Meeting
17050108SW006_04	Bogus	Not Meeting	10	Meeting
17050108SW007_05	North Fork Boulder	Not Meeting	---	---
17050108SW009_02	Combination	Not Meeting	5,200	Not Meeting

(---) No Data collected on North Fork Boulder Creek.

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The Combination Creek allotment falls within the Jordan subbasin. The streams that traverse the allotment have not been assessed by IDEQ. Therefore, information is not available regarding the beneficial uses or pollutants that may be impacting the streams that occur within the allotment.

8. Threatened and Endangered Plants and Animals

Botany

No federally listed plant species are known to occur in the Combination Allotment, although the U.S. Fish and Wildlife Service (USFWS) considers all of Idaho to be within the potential range of Ute ladies'-tresses (*Spiranthes diluvialis*), a federally threatened orchid species. This plant occurs in spring, seep, and riparian habitats. Due to the difficulty in narrowly defining potential habitat for this species, USFWS has chosen to apply a loose definition and requires Section 7 consultation only in three counties of southeast Idaho or in areas where the plant is actually found (USFWS 2002). Surveys specifically for this plant are recommended prior to authorizing federal actions in southwest Idaho, but not required.

No BLM special status plant species are known to occur on the Combination Creek Allotment. Site-specific plant surveys are conducted prior to construction of range projects.

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Botany No populations of special status plant species are known to occur in this allotment. There is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment. Records show no reported special status plants in this allotment, so this standard is not applicable. **Information sources** Elemental Occurrences (EOs) for special status plant (SSP) populations is recorded in the Idaho Fish and Wildlife Information System (IFWIS) Species Diversity database (IDFG, 2011). EOs are derived by completion and review of Idaho rare plant observation reports through the Idaho Natural Heritage Program. Other sources that were used to assess and evaluate the composition and condition of SSP habitats within the Combination Creek allotment include RHAs, photographs, field notes, Plants database (USDA NRCS, 2013) literature search, and information summarized above in Standards in this document. Records show no reported special status plants in this allotment.

Wildlife

A number of species classified as BLM "Sensitive Species" and/or State of Idaho "Species of Special Concern" are known or likely to occur within the allotment. A summary of these species, their legal status, and their key habitat associations is included in Appendix C.

Riparian Habitat

All 3.43 miles of streams in the Combination Creek Allotment are Functional-At Risk. Structural diversity, composition, and vigor of hydric vegetation are at least partially lacking in these stream reaches resulting in habitat that is generally not adequately providing for the needs for dependent special status animals. However, approximately one mile has an upward apparent trend and slightly less than a mile has a downward apparent trend.

There are 4 springs located in the allotment. These springs are marginally adequate to provide for the needs of dependent special status animals.

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Riparian Habitat Combination, Bogus, North Boulder, and South Boulder Creeks are perennial streams within this allotment and have been assessed as functioning-at-risk (see Standards 2 and 3). Riparian habitat issues included inadequate hydric vegetation to stabilized banks, low vigor of riparian plants, and lack of woody debris to dissipate energy of high flow events.

General Upland Habitat Assessment

All of the assessments on this allotment are slight to moderate deviation from reference conditions with a slight downward trend. Abundance and diversity of grasses, forbs and shrubs are generally as expected for the site and are likely to be providing habitat that is adequate for the needs of most dependent special status and other wildlife species. The localized lack of large bunchgrasses and reduced shrub cover is limiting cover, structure and forage for sage grouse, numerous song birds, pygmy rabbits and others including a diversity of insects, rodents, birds and others that are critical prey for most raptors including prairie falcons, northern harriers, and ferruginous hawks. While mature stands of western juniper provide high quality habitat for a large diversity of birds, bats and other species, increasing dense stands of young (seral) juniper have been shown to support a reduced diversity and abundance of birds (Sauder 2002).

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Upland Habitat The Combination Creek allotment is meeting native vegetation Standards for Rangeland Health (see Standard 4). Evaluation of Standard 4 identified an increase in Idaho fescue and bluebunch wheatgrass; however, Sandberg bluegrass has become a co-dominant species. Because there are no additional vegetation data available (e.g., sage-grouse habitat assessments), an assumption is being made that the plant community in this allotment is at least providing minimal composition, structure and forage for most sagebrush steppe-dependent species.

Sage grouse

The Combination Creek Allotment currently is providing unsuitable habitat for Sage Grouse. Breeding habitat has been assessed in accordance with methodologies described in "A Framework to Assist in Making Sensitive Species Habitat Assessments for BLM-Administered Public Lands in Idaho" (as revised in May, 2001). Refer to Appendix C for sage grouse habitat assessment worksheets that include specific rating criteria for each habitat indicator. Sage grouse lek (breeding ground) surveys from 1994 to 2003 have not identified active leks within or in close proximity of this allotment.

Breeding habitat

In June 2004 a sage grouse breeding habitat evaluation was conducted across the entire allotment (T7S, R4W, Sec. 27). Low sagebrush/Idaho fescue was the predominate vegetation on upper slopes and ridge tops while western juniper forests with low sagebrush and Idaho fescue understory occupy drainages and lower slopes. Other grasses were bluebunch wheatgrass and squirreltail. The density of grasses was good but stature was poor. Several preferred foraging forbs were rare in occurrence. Overall, the allotment is unsuitable habitat based on low shrub and grass height, low forb abundance and woodland forest.

Table B8-1: Sage Grouse Breeding Habitat Assessment

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Average Sagebrush Canopy Cover *			
Average Sagebrush Height		A	
Sagebrush Growth Form	A		
Average Grass and Forb Height		A	

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Average Perennial Grass Canopy Cover	A		
Average Forb Canopy Cover	A		
Preferred Forb Abundance and Diversity			A
Overall Site Evaluation			**A**

*not recorded

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Focal Species

Sage-grouse

On March 5, 2010, the USFWS (USDI USFWS, 2010) published a finding in 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 BLM Type 2 sensitive species to a candidate species under the ESA.

This allotment lies within the regional Snake River Plain Management Zone for sage-grouse. In 2012, preliminary priority habitat (PPH) and general priority habitat (GPH) were modeled to identify lands in Idaho important to sage-grouse sustainability. PPH includes breeding, late brood-rearing, and winter concentration areas. General priority habitat are lands that may serve as important corridors between PPH and habitat islands within corridors, or occupied habitats characterized by low lek densities (Makela & Major, 2012). The BLM collaborated with respective state wildlife agencies to identify these areas. Modeling results indicate that there are no acres (0 percent) of PPH and 949 acres (23 percent) of GPH in this allotment (Table WDLF-6, Map WDLF-1B). This allotment has limited value as seasonal breeding, upland summer, riparian, and winter habitat for sage-grouse but may provide island habitats and travel corridors connecting to PPH. No active leks are known to occur in this allotment.

Table WDLF-6: Acres[1] and portions of preliminary priority and general priority habitat within the Combination Creek allotment (Map WDLF-1B)

Allotment/Pasture Name	Acres of PPH Sagebrush Habitat in Allotment[2]	Acres of PPH Perennial Grassland in Allotment	Acres of PPH Juniper Encroachment in Allotment	Acres of PGH in Allotment	Portion of Allotment in PPH/PGH
Allotment Total	0	0	0	949 (23%)	949 (23%)

[1]PPH/PGH habitat acreage totals include public lands, state lands, and private property.
[2]PPH sagebrush can also include small amounts of perennial grasslands, conifer encroachment, and non-habitat.

Focal Species

Sage-grouse

A breeding habitat assessment was conducted in 2004. The assessment showed that breeding habitat conditions were unsuitable in the Combination Creek allotment (see 2004 assessment). However, the PPH/GPH habitat map shows this allotment to be 100 percent PGH. The value of this allotment is the islands of sagebrush and habitat connectivity to areas of PPH. Because upland habitat conditions are shown to be meeting Standard 4 (see Standard 4), an assumption is

being made that upland habitat conditions are providing at least minimum cover values for sage-grouse and other sagebrush steppe species in this allotment.

Other Species

Surveys found redband trout were present in Combination Creek in 1977 and were present in the South Fork Boulder Creek. The habitat was marginal, the riparian habitat was Functional-At Risk and the water temperatures exceed temperatures deemed optimum for salmonid spawning. A survey for Columbia spotted frog did not find occupied habitat.

Boulder (0509)

Physiography

The Boulder Allotment lies 15 miles south of Silver City, Idaho in Owyhee County, and is composed of 3 pastures in two separate units totaling 2,027 acres of public, private and state lands (Table C-1, Appendix H). The elevation on the allotment is between 5,100 and 5,900 feet. The major landforms in the areas are foothills, tablelands, and structural benches. The general area is undulating to steep with clayey, and loamy, well drained, cool, shallow and moderately deep soils. The soils formed in residuum and alluvium derived from welded rhyolitic tuff, breccia, and basalt. The annual precipitation is 13 to 18 inches and the frost-free period is 60 to 95 days (Appendix F). Vegetation production and accessibility is limited by depth to hardpan, depth to bedrock, low available water capacity, restricted permeability, slope, stones on surface and short frost-free period. Low sagebrush and Idaho fescue are the dominate vegetation species in plant communities found on the more shallow soils. Mountain sagebrush, bluebunch wheatgrass, and Idaho fescue are generally found on deeper soils.

Table C-1: Land status (in acres)*

Pasture	Public	State	Private	Total
1	794	1	0	795
2	621	1	0	622
3	447	2	161	610
Total	**1,862**	**4**	**161**	**2,027**

*Acreages represent best available estimates.

Livestock Grazing Management

In the Owyhee Resource Management Plan (1999) Table LVST-1, the Boulder Bridge Allotment was placed in Selective Management Category "Improve" with medium priority. Improve allotments are managed with the objective to manage the public lands with adequate expenditure of funding and manpower to improve current unsatisfactory resource conditions. The allotment must meet or make progress toward meeting the Idaho Standards for Rangeland Health. Livestock use was allocated 225 animal unit months (AUMs) of forage for Active Permitted Use with cattle.

Livestock grazing is authorized by a term grazing permit issued to Dale L. Berrett. Permitted use is summarized in Table C-2.

Table C-2. Permitted Use Summary – Boulder Allotment.

Operator Name & No.	Livestock Kind & No.	Season of Use	% PL	AUMs		
				Active	Suspended	Permitted
Dale Berrett (1101388)	97 cattle	4/15 – 6/30	91	225	0	225

A three pasture rest rotation has been used since 1996. Season of use for this time period is presented in Table C-3, and reported actual use is presented in Table C-4.

Table C-3: Season of use by pasture, 1996-2006

Pasture	1996	1997	1998	1999	2000	2001	2002	2003	2004	2006	2006
1	Rest	4/15 5/15	5/16 6/15	Rest	4/15 5/15	5/16 6/30	Rest	Data by Pasture not Available; allotment used 4/15-6/30		5/16 6/15	5/16 6/15
2	4/15 5/15	Rest	4/15 5/15	4/15 5/15	Rest	4/15 5/15	5/16 6/30			4/15 5/15	4/15 5/15
3	5/16 6/30	5/16 6/30	Rest	5/16 6/30	5/16 6/30	Rest	4/15 5/15			Rest	Rest

Table C-4: Reported Actual Use in AUMs*

Pasture	1996	1997	1998	1999	2000	2003	2005
1	Rest	112	**	Rest	113	Rest	151
2	113	Rest	**	112	Rest	108	Rest
3	113	113	Rest	113	98	93	51
Total	226	225	225	225	211	201	202

* Actual Use Reports are submitted at the end of each grazing year by the Authorized Grazing Permittee. These reports are required for each allotment, in accordance with Terms and Conditions found on the grazing permit. No actual use reports were submitted for grazing years 1990-1995, 2001-2002, and 2004.
**Use reported on an allotment basis, use by pasture not specified.

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Actual Use

Actual use for the allotment has ranged from 201 to 244 AUMs between 1997 and 2012, with an average of 217 AUMs for the allotment (Table LVST-3). No data were recorded for 2001, 2002, and 2004.

Table LVST-3: Actual use on the Boulder allotment 1998-2012

	Pasture 1 (Boulder/West)		**Pasture 2 (Rail/East)**		**Pasture 3 (Pole)**		**Allotment AUMS**
	Date	**AUMS**	**Date**	**AUMS**	**Date**	**AUMS**	
2012	4/17-5/17	83	Rest	Rest	5/18-6/30	118	201
2011	4/20-5/25	108	5/26-6/30	108	Rest	Rest	216
2010	Rest	Rest	4/20-5/20	111	5/21-7/2	103	214
2009	4/17-5/17	120	Rest	Rest	5/24-6/24	124	244
2008	5/20-6/20	114	4/20-5/20	114	Rest	Rest	228
2007	4/15-5/15	114	Rest	Rest	5/15-6/30	111	225
2006	5/19-6/19	121	4/24-5/19	98	Rest	Rest	219
2005	4/15-5/29	151	Rest	Rest	6/3-7/15	51	202
2003	Rest	Rest	4/17-5/16	108	5/17-6/27	93	201
2000	4/15-5/15	113	Rest	Rest	5/16-6/30	98	211
1999	Rest	Rest	4/15-5/15	112	5/16-6/30	113	225

1998	4/18-6/18 208 AUMS						208	
1997	4/15-5/15	112	Rest	Rest	5/16-6/30	113	225	

1. Watersheds

Eight (8) rangeland health evaluations were completed on the Boulder Allotment during the 2001 and 2003 field seasons by an interdisciplinary team. The evaluations were conducted in accordance with the procedure described in BLM-Technical Reference 1734-6, "Interpreting Indicators of Rangeland Health-Version 3." Evaluation methods are discussed in Appendix B. Twelve (12) of the 17 rangeland health indicators included in the standard matrix are related to Standard 1. Table C1-1 summarizes all indicator ratings related to Standard 1, by pasture. For example, 2 sites were evaluated in Pasture 1, for a total of 24 indicator ratings related to watersheds. Of these, 11 were rated as having a "none to slight" degree of departure from reference site conditions. Indicator ratings by site are included in Appendix E. See Appendix G, Map 3 for rangeland health evaluation locations.

Table C1-1. Summary of Indicator Ratings by Pasture

Watersheds	none to slight	slight to moderate	moderate	moderate to extreme	extreme
Pasture 1[1]	11	7	6	0	0
Pasture 2[2]	20	10	4	2	0
Pasture 3[3]	31	14	3	0	0

[1]Summarizes: 2 Shallow Claypan 12-16" ecological sites
[2]Summarizes: 2 Shallow Claypan 12-16" ecological sites, and 1 Loamy 13-16" ecological site
[3]Summarizes: 2 Shallow Claypan 12-16" ecological sites, and 1 Loamy 13-16" ecological site

<u>Pasture 1</u>

RH1A (completed in 2001) in the northwest quarter of the pasture, is a Shallow Claypan 12-16" ecological site. At this site, the indicator for pedestals/terracettes was rated as showing a 'moderate' degree of departure from reference conditions. Pedestals were most distinct and common on exposed slopes and in shrub interspaces. Water flow patterns at this site appeared to be short and stable, but more numerous than expected. Bare ground, plant community structure, litter amount and distribution, and soil stability are all as expected. Some historic soil loss was apparent, due to presence of water flow paths and pedestaled plants in shrub interspaces.

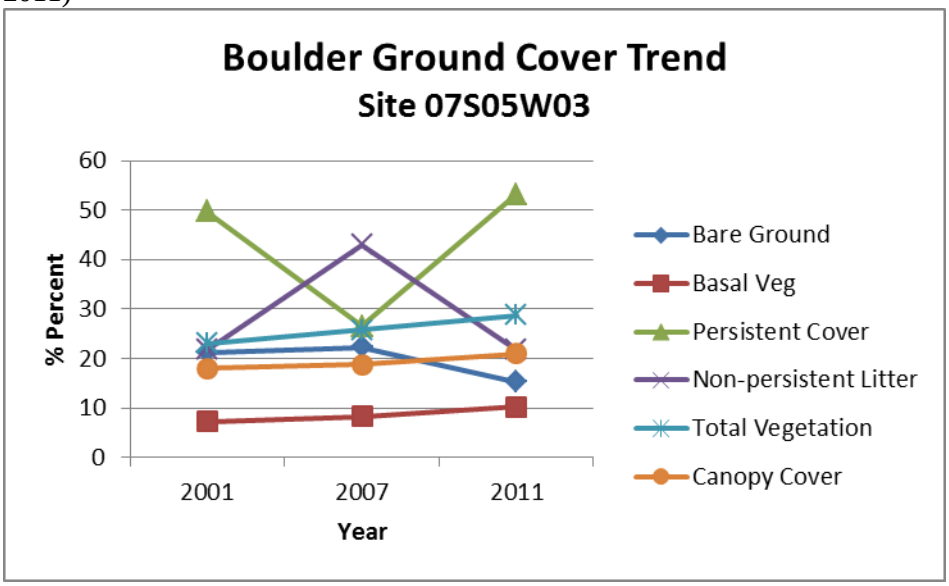
RH1B (completed in 2003) in the southeast quarter of the pasture, is a Shallow-Claypan 12-16" ecological site. At this site, the indicators of water flow patterns and pedestals/terracettes were rated as showing a 'moderate' departure from reference conditions. Water flow patterns were mainly short but sometimes connected, with cut areas common. Shrubs and rocks limit the length of these flow patterns. Pedestals were commonly noted on Sandberg bluegrass plants in shrub interspaces; pedestals appeared to be both active and historic, with root exposure occasionally noted. Bare ground was slightly higher than expected, and comprised of small, unconnected patches. Litter amount was slightly less than expected, but evenly distributed. Abundant rock and gravel are present throughout the site, and are stabilizing soils. Some historic

soil loss was apparent due to pedestals, water flow paths and a patchy soil "A" horizon. The plant community composition and distribution are somewhat altered relative to infiltration and runoff; the majority of large perennial bunchgrasses are located under shrub canopy, and smaller perennial grasses dominate the shrub interspaces.

Ground Cover Trend

Ground cover trend data were collected in pasture 1 at the nested plot frequency transect (07S05W03) in 2001, 2007, and 2011 (Figure Soil-3). Over the long term, basal vegetation, persistent cover, non-persistent litter, and canopy cover have remained static. Total vegetation has increased while bare ground has been significantly (Student's t-test; p-value <0.1) decreasing. Over the short term, bare ground and non-persistent litter have decreased, with the latter significantly; persistent cover has increased, while the remaining readings of basal vegetation, total vegetation, and canopy cover are static.

Figure Soil-3: Ground Cover data graph of trend for pasture 1 of the Boulder allotment (2001, 2007, 2011)



The site has maintained and displays few changes that have occurred for vegetation and persistent cover between 2001 and 2011. Bare ground has responded positively to the maintenance of ground cover and an increase in persistent cover by slightly improving, especially over the latter part of the years; values fall within expected ranges for a Shallow Claypan 12-16" ecological site.

Frequency data (see Standard 4) show a drastic decline in medusahead, but this recording may not be accurate, as the species may have been misidentified as vulpia. Canopy cover is not corresponding with shrub frequency data, which display a decline of low sagebrush from 1990 to 2007 and no recent improvement. Deep-rooted native species are present and show a long-term decline, while shallow-rooted bunchgrasses continue to dominate along with increasing invasive annuals. Overall interpretations of ground cover trend and frequency trend data suggest that watershed conditions are maintained with little to no improvement and that biotic condition is

declining over the long term.

2013 Field Observations

A field visit in 2013 (see Owyhee Field Office project file) included the trend site and rangeland health assessment site 100803-2A. Pedestals are common and in various stages of stabilization. Water flow patterns are present and contain surface sealing; sizes, connectivity, and gravel cover on bare ground varies though rock and cobble content are very high. Biological soil crusts are common and deep-rooted perennial bunchgrasses are present among common Sandberg bluegrass that is very small for this time of year due to dry conditions. Many of the grasses are growing under the protection of sagebrush which, for the most part, is dying off across the landscape.

Pasture 2

RH2A (completed in 2001), is a Loamy 13-16" ecological site with Inclusions of Shallow Claypan 12-16" ecological site type. At this site, water flow patterns were near what is expected, with minimal evidence of soil movement in flow paths. Pedestals appeared to be historic, but were few in number due to lack of bunchgrasses in interspaces. Bare ground was as expected due to high cover of annual grasses in the understory. Litter amounts were higher than expected and evenly distributed, due to prevalence of annual grasses. Biotic soil crusts were mostly present in protected areas. Some historic soil loss was apparent in shrub interspaces. The plant community structure is altered due to a higher than expected shrub cover, scattered western juniper and dominance of annual grasses in the understory.

RH2B is a Shallow Claypan 12-16" ecological site with inclusions of the Loamy 13-16" ecological site type. The indicator for water flow patterns was rated as showing a 'moderate' departure from reference site conditions, but described as nearly matching expected conditions. Length and connectivity of flow paths increased with slope at this site. Pedestals were slightly more common than expected, and mostly noted in shrub interspaces. Bare ground was as expected, with biotic soil crusts, rock, and gravel providing significant amounts of ground cover. Vegetative cover was adequate for site protection, but the large bunchgrass component was largely missing from the understory, and compensated for by Sandberg bluegrass. Some historic soil loss appears to have occurred in interspaces, but the site currently appears to be resistant to erosion.

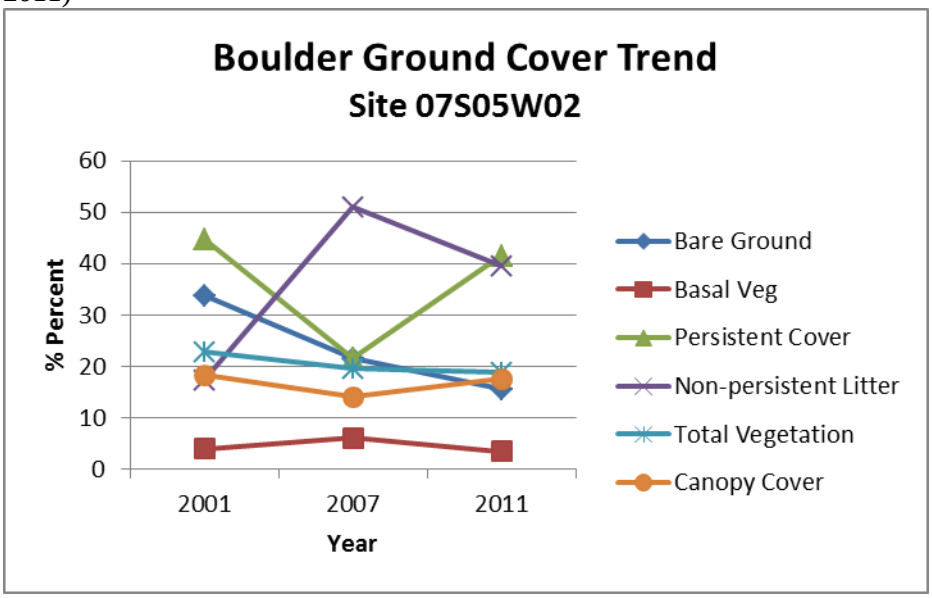
RH2C is a Shallow Claypan 12-16" ecological site located at the permanent trend site in Pasture 2. At this site, the indicators for water flow patterns and pedestals/terracettes were rated as showing a 'moderate to extreme' degree of departure from reference conditions, and the indicators of soil surface loss/degradation and plant community composition/distribution relative to infiltration/runoff were rated as showing 'moderate' departures. Water flow patterns were short but more numerous than expected and occasionally connected, with common cut areas. Pedestals were present on all perennial bunchgrasses in shrub interspaces. Pedestaled Sandberg bluegrass appeared highly decadent, and root exposure was commonly noted. Historic soil loss appeared to be significant, based upon prominent pedestals and water flow patterns. The plant community structure is altered relative to infiltration and runoff due to lack of large perennial bunchgrasses and an increase in shrub cover. Annual grasses and small perennial bunchgrasses dominate the understory at this site. Litter is evenly distributed at the site, but somewhat reduced

from expected amounts, and bare ground is slightly increased, though abundant rock and gravel are contributing significantly to ground cover.

Ground Cover Trend

Ground cover trend data were collected in pasture 2 at the nested plot frequency transect (07S05W02) in 2001, 2007, and 2011 (Figure Soil-4). Static trend is apparent over the long term for basal vegetation, canopy cover, and persistent litter. Bare ground and total vegetation have decreased significantly (Student's t-test; p-value <0.1) while non-persistent litter is on the rise. Over the short term, persistent litter and canopy cover have been significantly increasing, though basal and total vegetation have been static. Both bare ground and non-persistent litter show a non-significant reduction.

Figure Soil-4: Ground Cover data graph of trend for pasture 2 of the Boulder allotment (2001, 2007, 2011)



Bare ground has responded positively to the overall long-term static ground cover trend by decreasing over time and remaining within expected levels for a Shallow Claypan 12-16" ecological site. This may, however, be partially due to an increase in non-persistent litter from various invasive annual grasses.

Frequency data (see Standard 4) shows that North Africa grass has experienced a drastic increase between 2007 and 2011, competing with other grass species that all show a decline. Shrub frequency suggests a steady decline in low sagebrush over the years, though canopy cover data does not reflect this occurrence. Overall interpretation of the data suggests that ground cover trend has remained static over the long term, with some reductions in bare ground, while frequency data display deteriorating biotic conditions.

2013 Field Observations

A field visit in 2013 (see Owyhee Field Office project file) showed variable impacts across the pasture with areas of heavier use concentrated along the extended uplands near Rail Creek.

Recent mechanical impacts and churned soils were common and invasive annuals, especially medusahead, were widespread. Observations matched previously recorded impacts of historic and active moderate-to-extreme conditions for several soil and hydrologic indicators.

Pasture 3

At RH3A (completed in 2001), Shallow Claypan 12-16" ecological site, the indicator for pedestals/terracettes was rated as showing a 'moderate' degree of departure from reference conditions. Pedestals were distinct, but mostly appeared to be historic in nature and currently stable. Water flow patterns were slightly more common than expected, but mostly short and stable. Bare ground was as expected at this site, with gravel covering the ground in plant interspaces. Plant community structure is near what is expected for the site, though large perennial bunchgrasses tend to be distributed under shrub canopy. Some physical crusting was noted, but the site appeared to be resistant to erosion overall due to adequate ground cover and soil surface organic matter.

At RH3B (completed in 2001), a Shallow Claypan 12-16" ecological site, conditions related to Standard 1 are similar to reference conditions. Water flow patterns were short, stable, and unconnected. Some historic pedestals were noted in shrub interspaces. Bare ground was as expected, with abundant rock/gravel, and biotic soil crust present. Soil surface organic matter and structure appear to be appropriate for the site, and the soil "A" horizon was intact. The shrub component was somewhat higher than expected in plant community, but perennial bunchgrasses were well distributed and overall plant community structure appears to be adequate for facilitation of infiltration and runoff processes.

At RH3C (completed in 2003), a Shallow Claypan 12-16" ecological site, indicators for water flow patterns and pedestals/terracettes were rated as showing a 'moderate' departure from reference conditions. Water flow patterns were short but sometimes connected, with many shrubs and rocks limiting flow pattern length. Pedestals were common on all grass species in shrub interspaces, with exposed roots also common; pedestals appeared to be mainly the result of frost heaving. Amount of bare ground was higher than expected; bare areas were small and occasionally connected. The soil surface appears to be stabilized by abundant rock and vegetative cover, but biotic soil crusts and litter are somewhat below potential. Some historic soil loss was evident, due to prominent water flow patterns, and patchy soil "A" horizon in some areas. The plant community is somewhat altered from expected composition and distribution due to an increase in shrubs. The site is dominated by Idaho fescue, but Sandberg bluegrass and bottlebrush squirreltail make up a slightly higher than expected proportion of the understory component at this site.

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2013 Field Observations

A field visit in 2013 (see Owyhee Field Office project file) showed widespread pedestaling and connected water flow paths from past soil surface loss and degradation that continue to display erosion relics. A rocky and gravelly surface stabilizes but vegetation cover is reduced due to past soil loss. The area is full of springs and seeps that are heavily impacted.

2. Riparian Areas and Wetlands

Portions of Rail Creek and Cattle Creek occur within the Boulder Allotment. These stream segments are not identified for manageable Fisheries habitat in the 1999 Owyhee Resource Management Plan. Inventories and assessments were conducted by Riparian Resources on Rail Creek in 2000.

Rail Creek

Approximately 1.1 miles of Rail Creek crosses public land in Pasture 2.

Riparian Inventories and Assessments

Rail Creek was inventoried following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D) in June 2000. The Assessment rated the 1.1 mile segment as high Functional-At Risk with no apparent trend (Table C2-1).

Flows of Rail Creek within the allotment are intermittent. Vegetation in the stream segment was characterized by 3 different community types. They were Kentucky Bluegrass Community Type (CT), Sandbar Willow CT and Baltic Rush CT. Kentucky bluegrass was the dominant graminoid on both the Kentucky Bluegrass CT and Sandbar Willow CT. Baltic rush dominated the graminoids on the Baltic Rush CT. Only the Sandbar Willow Community Type had shrubs. All three community types had a variety of graminoid and forbs. This reach is adequately stabilized by hydric species with deep, binding root masses capable of protecting streambanks during periodic high flow events. However, diversity of hydric vegetation is low. Canada thistle, an Idaho noxious weed, was found on less than 1 percent of the Kentucky Bluegrass Community Type. No other noxious weeds were identified.

Table C2-1: Riparian Indicators and Functioning Condition Rating by Stream Segment – Rail Creek

Stream Segment	**RAI-003**
Stream miles	*1.11*
Pasture	*2*
Date of data collection	*6/2000*
Riparian/Wetland Indicators:	Indicator Ratings[1]
Diverse age class/structure of hydric vegetation (6)[2]	Y/N
Diverse composition of hydric vegetation (7)	N
Vegetation reflects maintenance of soil moisture (8)	Y
Plant community comprised of bank stabilizing species (9)	Y
Hydric vegetation exhibits high vigor (10)	Y

Stream Segment	RAI-003
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y
Adequate large woody material (12)	N
Point bars revegetating with hydric species (14)	Y
Noxious weeds are not increasing[3]	N
Overall functioning condition[4]	FAR+
Apparent trend[5]	NA

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] Leafy spurge on 5 to 15 percent and Canada thistle on less than 1 percent of the segment.
[4]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[5]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

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In 2004, the same 1.1 mile of Rail Creek was re-visited. The reach was again rated FAR because there was inadequate hydric species present to stabilize stream banks, the stream banks were terraced with active erosion occurring, the riparian species had low vigor, and upland species were encroaching. In 2011, a MMIM site was established on the same reach of Rail Creek and conditions had improved. The mean stubble height was 15.6 inches, woody use was 10 percent, and stream bank alterations were 9 percent.

Cattle Creek

Cattle Creek heads in Pasture 3 of the Boulder Allotment (509).

Riparian Inventories and Assessments

The BLM conducted a Proper Functioning Condition assessment of Cattle Creek in October of 2000. However, the assessment essentially stopped at the west boundary of Pasture 3. Thus, the riparian zone condition in Pasture 3 has not been assessed for Proper Functioning Condition.

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In 2000, 0.5 mile of Cattle Creek was assessed as a portion of a larger assessment that extended to the west into the Wroten allotment. The reach was rated FAR with an upward trend. Issues identified include unstable beaver dam present, the vegetation had low vigor, the vegetation was inadequate to protect stream banks, there was vertical instability, and there was a lack of woody material to aid in dissipating energy during high flows.

Springs

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The NHD identifies one spring within pasture 3 of the Boulder allotment. The unnamed spring was assessed in 2012 and rated FAR. There was heavy sedimentation, erosion, and livestock trampling, and the riparian-wetland area appeared to be shrinking. There were upland plants encroaching into the riparian area, and the riparian vegetation that was present was not adequate to dissipate energy and stabilize soils.

Two additional spring areas occur in pasture 3 and were assessed in 2004 and 2011. Minear Creek Spring was assessed FAR in 2004 because it was a deserted and non-functioning development. Unnamed Spring 2 was assessed FAR in 2011 because the area had a high presence of bare ground with active erosion occurring, there were inadequate riparian species present to protect the soils, and there were upland species encroaching into the riparian area.

Riparian Utilization Monitoring

Stubble height measurements are a simple and effective tool to monitor rangeland use in key areas. Individual plant measurements are collected from herbaceous vegetation such as grasses, sedges, and rushes. Generally stubble heights of 4 to 6 inches are an acceptable standard for effective streambank, protection, prevention of sedimentation, and maintenance of plant communities (USDI, BLM 1999). Table C2-2 displays the data for the allotment.

Table C2-2: Riparian Utilization Monitoring and Stubble Heights

Location	Pasture	Year	Inches	Shrub use
RAI-003	2	6/2000	8-10	>50%

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The information below is a summary of all the riparian assessment information for the allotment- both previously assessed as well as the supplemental information (also see Map RNGE-1C).

Table RIPN-4: Stream information for the Boulder allotment

	Allotment, Pasture Name, and Miles Assessed			
Stream Name	**Boulder- 02**	**Boulder- 03**	**Assessment Issues/ Impacts Identified**	**Total Miles *Assessed***
Rail Creek	1.1 (FARS- 2001/ FARD-2004)		lack of hydric species diversity/ inadequate large woody material/ noxious weeds present	1.1
Cattle Creek		0.5 (FARU- 2000)	unstable beaver dam/ plants had low vigor/ vertical instability/ unstable stream banks	0.5

Springs Assessed, Condition, & Issues Identified			
Spring Name	**Pasture/Assessment Year**	**PFC Condition**	**Assessment Issues/ Impacts Identified**
Unnamed Spring 1 0509	1/ 2012	FAR	livestock trailing/ erosion and deposition/ soil compaction/ area losing extent
Minear Creek Spring	3/ 2004	FAR	non-functioning development
Unnamed Spring 2 0509	3/ 2011	FAR	sedimention/ upland species encroaching/ bare ground/ inadequate riparian species present

MIM Metrics						
Stream Name	**Pasture/ Assessment Year**	**Mean Stubble Height (inches)**	**Woody Use (%)**	**Streambank Alteration (%)**	**Stable Bank (%)**	**Covered Bank (%)**
Rail Creek	2/ 2011	15.6	10	9	83	100

3. Stream Channel/Floodplain

Segments of 2 streams, Rail Creek and Cattle Creek, are located on the Boulder allotment. Inventories and assessments were conducted by Riparian Resources on Rail Creek in 2000.

Rail Creek

Approximately 1.1 miles of Rock Creek flows through public land in Pasture 2.

Stream Channel/Floodplain Inventories and Assessments

Rail Creek was inventoried following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D) in June 2000. The Assessment rated the 1.11 mile segment as high Functional-At Risk with no apparent trend (Table C3-1).

Flows of Rail Creek within the allotment are intermittent. Stream segment RAI-003 was determined to be 25 to 35 percent Rosgen B4c stream type. The B4c stream types are moderately entrenched systems with gradients of less than 2 percent. These stream types are considered relatively stable and are not high sediment supply stream channels. (Rosgen 1996)

Seventy to eighty percent of the streambanks were stable. One to five percent of the stream segment had active bank erosion.

Table C3-1: Stream Channel/Flood Plain Indicators – Rail Creek

Stream Segment	**RAI-003**
Date of data collection	*6/2000*
Pasture	*2*

Stream Segment	**RAI-003**
Stream Miles	*1.1*
Stream Channel/Flood Plain Indicator	**Indicator Rating[1]**
Floodplain inundated frequently (1)[2]	Y/N
Beaver dams are active and stable (2)	NA
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N
Riparian area is widening or has achieved potential extent (4)	Y/N
Upland watershed not contributing to riparian degradation (5)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y
Adequate large woody material (12)	N
Floodplain and channel characteristics dissipate energy (13)	Y
Point bars revegetating with hydric species (14)	Y
Lateral stream movement associated with natural sinuosity (15)	Y
System is vertically stable (16)	Y
No excessive erosion or deposition (17)	Y
Overall functioning condition[3]	**FAR+**
Apparent trend[4]	**S**

[1] (Y=yes, N=no, Y/N =both)
[2]( ) - item # on Function/Health Assessment
[3]PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

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In 2004, the same 1.1 mile of Rail Creek was re-visited. The reach was again rated FAR because there was inadequate hydric species present to stabilize stream banks, the stream banks were terraced with active erosion occurring, the riparian species had low vigor, and upland species were encroaching. In 2011, a MMIM site was established on the same reach of Rail Creek and conditions had improved. The mean stubble height was 15.6 inches, woody use was 10 percent, and stream bank alterations were 9 percent.

Cattle Creek

Cattle Creek heads in Pasture 3 of the Boulder Allotment.

Stream Channel/Floodplain Inventories and Assessments

The BLM conducted a Proper Functioning Condition assessment of Cattle Creek in October of 2000. However, the assessment essentially stopped at the west boundary of Pasture 3. Thus, the stream channel and flood plain condition in Pasture 3 has not been assessed for Proper Functioning Condition.

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In 2000, 0.5 mile of Cattle Creek was assessed as a portion of a larger assessment that extended to the west into the Wroten allotment. The reach was rated FAR with an upward trend. Issues identified include: unstable beaver dam present, the vegetation had low vigor, the vegetation was inadequate to protect stream banks, there was vertical instability, and there was a lack of woody material to aid in dissipating energy during high flows.

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The information below is a summary of all the riparian assessment information for the allotment- both previously assessed as well as the supplemental information (also see Map RNGE-1C).

Table RIPN-5: Stream information for the Boulder allotment

	Allotment, Pasture Name, and Miles Assessed			
Stream Name	**Boulder- 02**	**Boulder- 03**	**Assessment Issues/ Impacts Identified**	**Total Miles *Assessed***
Rail Creek	1.1 (FARS-2001/ FARD-2004)		lack of hydric species diversity/ inadequate large woody material/ noxious weeds present	1.1
Cattle Creek		0.5 (FARU-2000)	unstable beaver dam/ plants had low vigor/ vertical instability/ unstable stream banks	0.5

MIM Metrics						
Stream Name	**Pasture/ Assessment Year**	**Mean Stubble Height (inches)**	**Woody Use (%)**	**Streambank Alteration (%)**	**Stable Bank (%)**	**Covered Bank (%)**
Rail Creek	2/ 2011	15.6	10	9	83	100

4. Native Plant Communities

Eight (8) Rangeland Health Evaluations completed on the Boulder (0509) allotment during the 2003 field season by an interdisciplinary team, in accordance with BLM-Technical Reference 1734-6, “Interpreting Indicators of Rangeland Health-Version 3”. Methods are also discussed in Appendix B. Nine (9) of the 17 standard indicators are related to the native plant communities standard. Table C4-1 summarizes all indicator ratings related to Standard 4, by pasture. For example, 2 sites were evaluated in Pasture 1, for a total of 18 indicator ratings related to watersheds. Of these, 10 were rated as having a “slight to moderate” degree of departure from

reference site conditions. Indicator ratings by site are included in Appendix E. Refer to Appendix H, Map 3 for locations of rangeland health evaluations.

Table C4-1. Summary of Indicator Ratings by Pasture

	none to slight	slight to moderate	moderate	moderate to extreme	extreme
Pasture 1[1]	8	9	1	0	0
Pasture 2[2]	8	10	8	0	1
Pasture 3[3]	21	10	5	0	0

[1]Summarizes: 2 Shallow Claypan 12-16" ecological sites
[2]Summarizes: 2 Shallow Claypan 12-16" ecological sites, and 1 Loamy 13-16" ecological site
[3]Summarizes: 2 Shallow Claypan 12-16" ecological sites, and 1 Loamy 13-16" ecological site

Pasture 1

At RH1A, a Shallow Claypan 12-16" ecological site, the indicators related to Standard 4 were rated as showing 'none to slight' and 'slight to moderate' degrees of departure from reference conditions. Bur buttercup and western juniper were present in trace amounts at the site. Though Idaho fescue was only slightly below site potential, this species tended to be distributed under shrub canopy, and Sandberg bluegrass was more common that expected in interspaces. Cover of low sagebrush was similar to what is expected for this ecological site. Plant vigor and reproductive capability appeared to be adequate for maintenance of the plant community. Annual production and litter resembled reference conditions.

At RH1B, a Shallow-Claypan 12-16" ecological site, a majority of the indicators related to Standard 4 were rated as showing a 'slight to moderate' degree of departure from reference conditions. All functional/structural groups were represented at this site, but large perennial bunchgrasses tended to occur under shrub canopy, while Sandberg bluegrass was more common in shrub interspaces. Perennial bunchgrasses and sagebrush were co-dominant at this site. Some decadence was observed on pedestaled bunchgrasses, which also showed reduced reproductive capability. Bunchgrasses located under shrub canopy showed good vigor and reproductive capability. Litter amount and annual production were slightly reduced, particularly where Idaho fescue was poorly distributed. A few western juniper trees were noted in the area, and a trace of cheatgrass, medusahead wildrye and bur buttercup occurred along a nearby road.

Pasture 2

At RH2A, a Loamy 13-16" ecological site, the indicator for invasive plants was rated as showing an 'extreme' departure from reference conditions, and functional/structural groups, plant mortality/decadence, and litter amount were rated as showing 'moderate' departures. Cheatgrass is the dominant understory species at this site, western juniper is scattered, and bur buttercup was also noted in the area. Cover of big sagebrush was higher than expected, and bluebunch wheatgrass and Idaho fescue were both well below potential. Litter amount was higher than expected, due to the abundance of annual grasses and many broken sagebrush branches scattered throughout site as noted by the observers. Also noted were many shrubs old and decadent with low vigor and standing dead material. Many shrubs were old and decadent with low vigor and

standing dead material. Some shrub recruitment was noted, but little recruitment of perennial bunchgrasses was noted.

At RH2B, a Shallow Claypan 12-16" ecological site with Loamy 13-16" inclusions, the indicators for functional/structural groups and invasive plants were rated as showing a 'moderate' departure from reference conditions. Bluebunch wheatgrass and Idaho fescue only occur in trace to scattered amounts; Sandberg bluegrass and non-native annual grasses dominate the understory. Some historic crown die-out was noted on remaining bunchgrasses, as well as some shrub decadence. Litter amount and annual production appeared to be near expected levels for the site, and plant vigor and reproductive capability appeared to be adequate.

At RH2C, a Shallow Claypan 12-16" ecological site near the Pasture 2 trend site, the indicators for functional/structural groups and reproductive capability of perennial plants were rated as showing a 'moderate' departure from reference conditions. Although all functional/structural groups are present in the plant community, large perennial bunchgrasses are well below potential. Structurally smaller perennial bunchgrasses, and native annual grasses make up a larger proportion of the understory than expected. Extensive mortality and decadence was noted on pedestaled bunchgrasses occurring in shrub interspaces; these same plants displayed low vigor and reproductive capabilities. Litter amount was slightly lower than expected, and annual production was approximately 60-80% of expected. Western juniper and cheatgrass occurred in trace amounts at this site.

Pasture 3

At RH3A, a Shallow Claypan 12-16" the indicator for invasive plants was rated as showing a 'moderate' departure from reference conditions due to the presence of western juniper and bulbous bluegrass. Functional/structural groups nearly match what is expected for the site, although Sandberg bluegrass and bulbous bluegrass appeared to be increasing. Idaho fescue was abundant, and shrub cover was appropriate to the site. Litter amount and annual production were both as expected, and plants appeared vigorous and reproductively capable. Recruitment of Idaho fescue was noted.

At RH3B, a Shallow Claypan 12-16" ecological site, western juniper and bulbous bluegrass were present, and sagebrush cover was somewhat higher than expected. Idaho fescue is the dominant understory species, and appeared to be vigorous and reproductively capable. Litter and annual production were within the expected range.

At RH3C, a Loamy 13-16" ecological site, sagebrush and Idaho fescue dominate the plant community. However, the indicators for plant mortality/decadence, invasive plants, and reproductive capability of perennial plants were rated as showing a 'moderate' departure from reference conditions. Crown die-out was noted on pedestaled Idaho fescue and Sandberg bluegrass plants; these plants also showed significantly fewer seedheads than expected. Antelope bitterbrush displayed a hedged growth form and decreased vigor. Rubber rabbitbrush was more common than expected on the site, and western juniper was scattered. Litter amount was slightly below expected levels, but annual production was within 80% of expected.

Long-term Vegetation Studies (Trend)

Trend studies were established in 1990 in Pastures 1 and 2 and re-read in 2001. At both study sites, Sandberg bluegrass declined somewhat, but frequency in the community remained relatively high (Table C4-5). Frequency of Idaho fescue was unchanged, but squirreltail declined from 88% to 53% at one site, and from 61% to 31% at the second site. Bluebunch wheatgrass was not detected in 1990, and was detected at each site in 2001.

At T07S, R05W, Sec. 02, density of mature sagebrush plants decreased from 16,750 plants per acre in 1990, to 10,900 plants per acre in 2001. At T07S, R05W, Sec. 03, density of mature sagebrush plants decreased slightly from 20,500 plants per acre in 1990, to 18,900 plants per acre in 2001. Frequency data are also presented in Appendix G.

Table C4-5. Nested plot frequency (%) data, Boulder Allotment.

Species	07S05W02		07S05W03	
	1990	2001	1990	2001
Idaho fescue	17	18	96	96
Sandberg bluegrass (1)*	36	20	35	20
Bottlebrush squirreltail	88	53	61	31
Low Sagebrush	66	63	82	77

*Unless noted, species frequency is based on occurrence within a 50cm X 50cm plot. A number in parentheses following the species name indicates that frequency data is from a different plot size, as follows: (1) = 5x5cm, (2) = 25x25cm, (3) = 25x50cm

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Pasture 1

Grass frequency trend data were collected in pasture 1 at the nested plot frequency transect 07S05W03 in 2001, 2007, and 2011 (Table VEG-7 and Figure VEG-3). Over the long term, Idaho fescue has decreased, but there has been a short-term significant increase in frequency. Bluebunch wheatgrass, squirreltail, and Sandberg bluegrass have remained static. Total vegetation has increased while bare ground has been significantly decreasing. Annual invasives have increased significantly on the site. Shrub density of mature low sagebrush shows a long-term decrease on the site; however, seedlings have increased. (Short-term compares the two most recent years, long-term the first against the last year.)

Frequency data show a drastic decline in medusahead, but this may be misidentification of vulpia; see the 2011 data (Table VEG-7 and Figure VEG-3). Low sagebrush has declined over the most recent years from 1990 to 2007. Though shallow-rooted bunchgrasses have a strong occurrence and several invasive annuals occupy the site, deep-rooted native species are present.

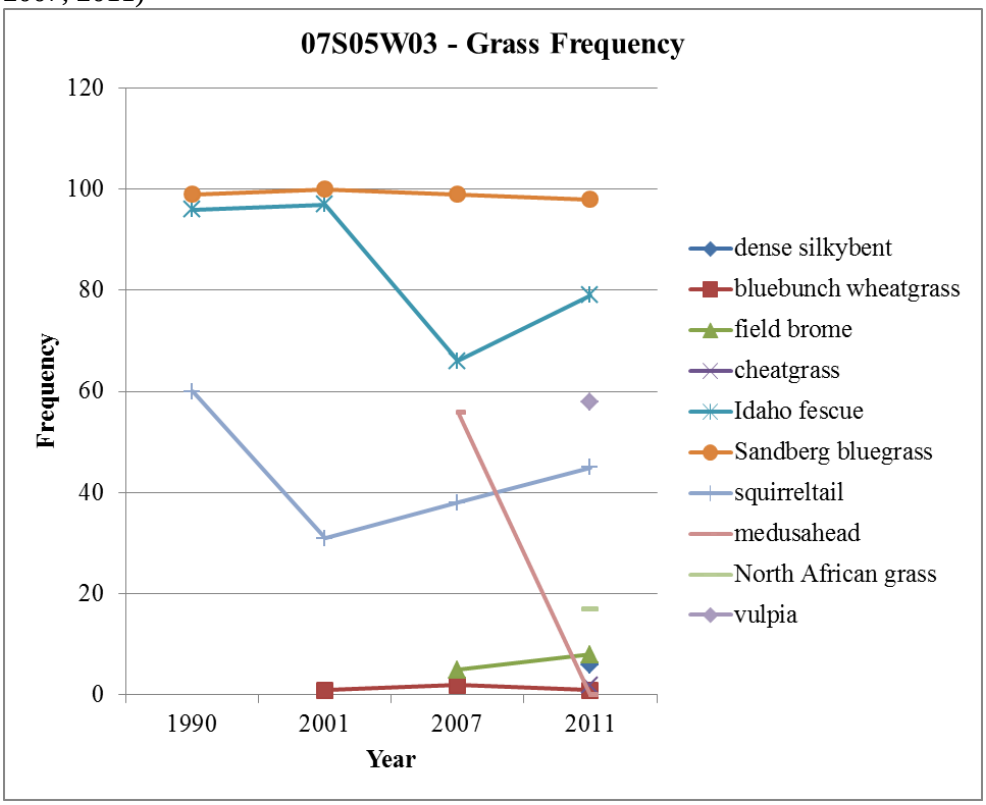
Overall interpretations of grass frequency trend suggest that vegetation conditions are maintained, but at risk for annual invasives.

Table VEG-7: Grass frequency data from trend site for pasture 1 of the Boulder allotment (1990, 2001, 2007, and 2011)

Grasses		**Percentage**			
Species		**1990**	**2001**	**2007**	**2011**
APIN	dense silkybent				6
AGSP	bluebunch wheatgrass		1	2	1
BRJA	field brome			5	8
BRTE	cheatgrass				2
FEID	Idaho fescue	96	97	66	79[s]
POSE	Sandberg bluegrass	99	100	99	98
SIHY	squirreltail	60	31	38	45
TAAS	medusahead			56	0
VEDU	North African grass				17
VULPIA	vulpia				58

[s]values are statistically significant (p-value <0.1)

Figure VEG-3: Grass frequency data graph of trend for pasture 1 of the Boulder allotment (1990, 2001, 2007, 2011)



Pasture 2

Grass frequency trend data were collected in pasture 2 at the nested plot frequency transect 07S05W02 in 2001, 2007, and 2011 (Table VEG-8 and Figure VEG-4). Over the long term, Idaho fescue has decreased in frequency, and short term, squirreltail has decreased significantly.

Bluebunch wheatgrass and Sandberg bluegrass have remained static. Annual invasives have increased significantly on the site. Shrub density of mature low sagebrush shows a long-term decrease on the site.

Frequency data shows dominating Sandberg bluegrass and annual invasives, competing strongly with other deep-rooted bunchgrass species that all show a decline.

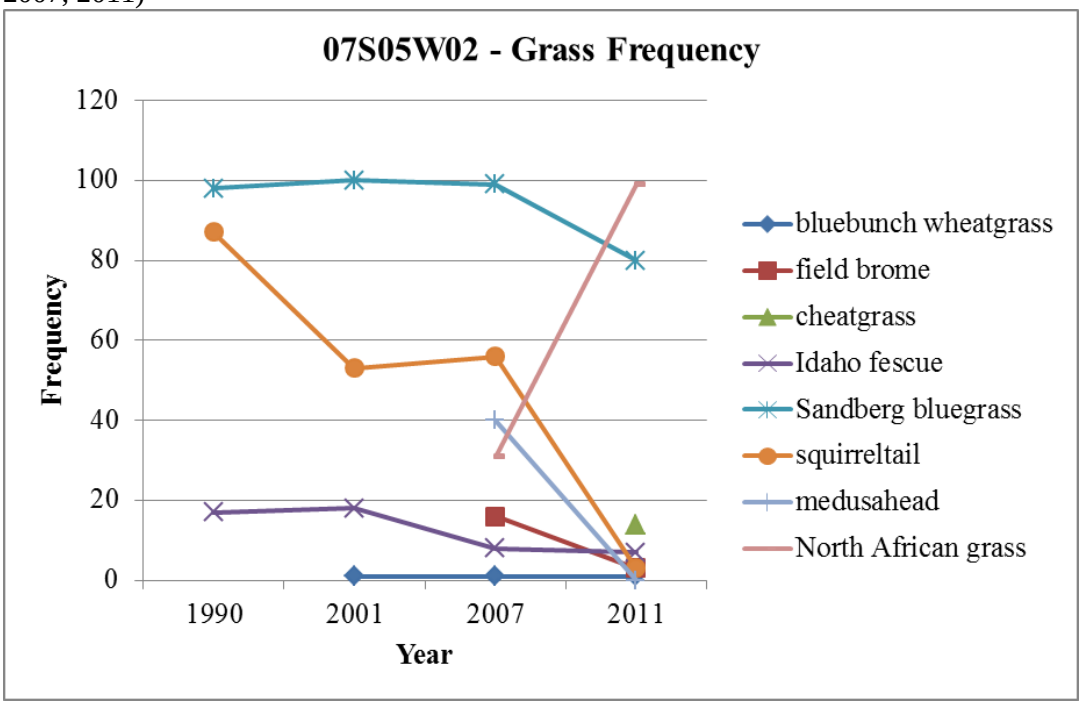
Overall interpretation of the data suggests that grass frequency trend has biotic integrity of the site has been compromised by annual invasives.

Table VEG-8: Grass frequency data from trend site for pasture 2 of the Boulder allotment (1990, 2001, 2007, and 2011).

Grasses		**Percentage**			
Species		**1990**	**2001**	**2007**	**2011**
AGSP	bluebunch wheatgrass		1	1	1
BRJA	field brome			16	3[s]
BRTE	cheatgrass				14
FEID	Idaho fescue	17	18	8	7
POSE	Sandberg bluegrass	98	100	99	80[s]
SIHY	squirreltail	87	53	56	3[s]
TAAS	medusahead			40	0
VEDU	North African grass			31	99[s]

[s]values are statistically significant (p-value <0.1)

Figure VEG-4: Grass frequency data graph of trend for pasture 2 of the Boulder allotment (1990, 2001, 2007, 2011)



Upland Utilization Monitoring

Utilization refers to the percentage of annual production of forage that has been removed by animals throughout the grazing season. Table C4-8 displays the data on uplands for the allotment.

Table C4-8: Average Percent Utilization of Key Perennial Grasses

Utilization Year	Idaho Fescue	Squirreltail
1993	52	29
1994	56	59
1995	57	--
1996	67	--
1997	67	--
1998	63	--
1999	58	55
2000	64	59
2001	47	41

-- Data was not collected on this species during these years.

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Utilization

Pasture 1

Utilization data for pasture 1 ranged from slight to heavy use from 1950 to 2011 (Table VEG-9).

Table VEG-9: Utilization data for pasture 1 in the Boulder allotment 1950-2011

Date	SIHY	FEID
10/22/1950	14	
11/19/1975	47	63
9/17/1981	14	24
6/21/1983	16	12
9/14/1984	35	38
8/26/1986		29
6/23/1987		40
6/22/1988		30
6/6/1989		31
7/19/1990		41
6/28/1993		56
6/23/1994		52
6/23/1995		65
5/20/1997		64
6/16/1998		59

5/13/2000	59	64
6/14/2001	46	47
5/24/2011	37	

Pasture 2
Utilization data for pasture 2 ranged from slight to heavy use from 1993 to 2011 (Table VEG-10). In 1996 and 1999, Nebraska sedge was measured on Rail Creek at 3 to 4 inches and 3 inches respectively.

Table VEG-10: Utilization data for pasture 2 in the Boulder allotment 1993-2011

Date	SIHY	FEID	POSE	CANE
5/20/1993	30	45		
6/23/1994	59	66		
5/17/1995		70		
5/24/1996		70		
5/24/1996				3-4"
5/20/1998		69		
5/25/1999	55	52		
7/22/1999				3"
5/23/2001	37		53	
6/26/2008		24		
5/24/2011	12			

Pasture 3
Utilization data for pasture 3 ranged from moderate to heavy use from 1995 to 2012 (Table VEG-11).

Table VEG-11: Utilization data for pasture 3 on the Boulder allotment 1995-2012

Date	FEID	AGSP
10/31/1995	44	
7/12/1996	60	
7/21/1997	68	
7/15/1999	61	
7/17/2000	66	
7/17/2012	44	37

5. Rangeland Seeding

This standard does not apply in this allotment.

6. Exotic Plant Communities

This standard does not apply in this allotment.

7. Surface and Ground Water Quality

This assessment includes a review of data collected and water quality standards established by Idaho Department of Environmental Quality (IDEQ). The State is broken into basins and sub-basins and assessment units. The new 2005 Integrated Report (303(d)/305(b)) uses "assessment units" within the sub-basin. Assessment units are groups of similar streams within a sub-basin that have similar land use practices, ownership, or land management. Assessment units are assessed for pollutants and assigned Beneficial Uses with associated Water Quality Standards. Beneficial Use Reconnaissance Program (BURP) is a field assessment of stream segments (all IDEQ data and standards mentioned here are available on the IDEQ web site- see references listed in section IV of this document).

Bureau of Land Management (BLM) also collects data that can include riparian inventories, riparian Proper Functioning Condition (PFC) assessments, riparian habitat evaluation forms, stream survey forms, riparian aquatic data sheets, thermograph data and water quality monitoring data (BLM data is available at the Owyhee Field Office).

Pastures 3 and 4

Rail Creek, within the Boulder Bridge Allotment, is tributary to the Jordan Creek assessment unit that is from the source to the mouth of Williams Creek. All tributaries to Jordan Creek assessment unit are identified as #17050108SW004_02, which includes the Rail Creek as a second order tributary.

Table A7-1: Listed Beneficial Uses and support status for Rail Creek

Beneficial Uses	Status
Aquatic Life Use – Cold	Not Supporting
Aquatic Life Use—SS	Not Assessed
Primary Contact Recreation	Not Supporting

SS = Salmonid Spawning

Other beneficial uses within the assessment unit are Agriculture, Industrial Water Supply, Wildlife Habitats, and Aesthetics; these uses have not been assessed.

IDEQ has identified several impairments for the assessment unit's first and second order tributaries. The identified impairments were bacteria, mercury, oil and grease, pesticides and siltation.

Flows of Rail Creek within the allotment are intermittent. Stream banks of Rail Creek are well-vegetated and stable and thus not likely contributing sediment to the Jordan Creek assessment unit. No excessive erosion or sediment deposition was observed (see standard 3).

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The Boulder allotment falls within the Jordan subbasin. There are 2.2 miles of stream that are not supporting one or more of the subbasin's beneficial uses. The subbasin's beneficial uses that are not being met include cold-water aquatic life and secondary contact recreation. The pollutants of concern include mercury, and temperature (IDEQ, 2010).

Pastures 1 and 2 contain steams that are on the 303(d) list of impaired waters. The streams that occur in AU# ID17050108SW004_02 have been de-listed for temperature because a TMDL has been developed and approved. However, they remain on the 303(d) list for mercury.

8. Threatened and Endangered Plants and Animals

Botany

No federally listed plant species are known to occur in the Boulder Allotment, although the U.S. Fish and Wildlife Service (USFWS) considers all of Idaho to be within the potential range of Ute ladies'-tresses (*Spiranthes diluvialis*), a federally threatened orchid species. This plant occurs in spring, seep, and riparian habitats. Due to the difficulty in narrowly defining potential habitat for this species, USFWS has chosen to apply a loose definition and requires Section 7 consultation only in three counties of southeast Idaho or in areas where the plant is actually found (USFWS 2002). Surveys specifically for this plant are recommended prior to authorizing federal actions in southwest Idaho, but not required.

No BLM special status plant species are known to occur on the Boulder Allotment. Site-specific plant surveys are conducted prior to construction of range projects.

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Botany
No population of special status plant species are known to occur in this allotment. There is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment. Records show no reported special status plants in this allotment for this reason this standard is not applicable.

Information sources
Elemental Occurrences (EOs) for special status plant (SSP) populations is recorded in the Idaho Fish and Wildlife Information System (IFWIS) Species Diversity database (IDFG, 2011). EOs are derived by completion and review of Idaho rare plant observation reports through the Idaho Natural Heritage Program. Other sources that were used to assess and evaluate the composition and condition of SSP habitats within the Boulder allotment include RHAs, photographs, field notes, Plants database (USDA NRCS, 2013), literature search, and information summarized above in Standards in this document. Records show no reported special status plants in this allotment.

Wildlife

A number of species classified as BLM "Sensitive Species" and/or State of Idaho "Species of Special Concern" are known or likely to occur within these allotments. A summary of these species, their legal status, and their key habitat associations is included in Appendix C.

Riparian Habitat

The 1.11 miles of Rail Creek is high Functional-At Risk without an apparent trend. Flows of Rail Creek within the allotment are intermittent. Structural diversity, composition and vigor of hydric vegetation are at least close to meeting habitat needs for dependant special status animals.

One spring located in Pasture 3 was assessed in 2004. It was found to be Functional-At Risk. Thus, it is at least marginally adequate to provide for the needs of dependant special status animals.

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Riparian Habitat *Pastures 1, 2, and 3* Rail Creek, Cattle Creek, and several unnamed springs are assessed as functioning-at-risk (see Standard 2 and 3). Riparian habitat issues included inadequate vegetation to stabilize banks and the presence of noxious weeds. Evaluation of Standard 7 identified streams on the IDEQ's 303(d) list of impaired steams and that water quality parameters are not being met for the watershed's beneficial uses. The list of beneficial uses includes water quality standards for cold-water aquatic life (see Standard 7).

General Upland Habitat Assessment

Most of the allotment (seven of eight assessments) is in the Slight to Moderate deviation from reference conditions with a stable trend. Abundance and diversity of grasses, forbs and shrubs are generally as expected for the site and are likely to be providing habitat that is adequate for the needs of most dependant special status and other wildlife species. Some western juniper and cheatgrass have invaded the site causing a decrease of the shrub/grass species. The localized lack of large bunchgrasses and reduced shrub cover is limiting cover, structure and forage for sage grouse, numerous song birds, pygmy rabbits and others including a diversity of insects, rodents, birds and others that are critical prey for most raptors including prairie falcons, northern harriers, and ferruginous hawks. While mature stands of western juniper provide high quality habitat for a large diversity of birds, bats and other species, increasing dense stands of young (seral) juniper have been shown to support a reduced diversity and abundance of birds (Sauder 2002). A summary of threatened and sensitive species is included in Appendix C.

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Upland Habitat *Pastures 1, 2, and 3* Pastures 1, 2, and 3 in the Boulder allotment are managed as native plant communities. Plant

community information in Standard 4 shows a moderate-extreme departure in abundance of bluebunch wheatgrass from reference site conditions to an herbaceous community dominated by shallow-rooted bunchgrasses and annual invasive species. The transition in the plant community composition is favoring more grazing-tolerant grass species such as Sandberg bluegrass and invasive annual species. These understory species do not have the robust growth form or stature such as bluebunch wheatgrass and do not provide the plant composition, structure, and function for sagebrush steppe-dependent species.

Sage grouse

The majority of Boulder Allotment was classified as key habitat for sage grouse. Breeding and brood-rearing habitats have been assessed in accordance with methodologies described in "A Framework to Assist in Making Sensitive Species Habitat Assessments for BLM-Administered Public Lands in Idaho" (as revised in May, 2001). Refer to Appendix C for sage grouse habitat assessment worksheets that include specific rating criteria for each habitat indicator. Sage grouse lek (breeding ground) surveys from 1994 to 2003 have identified active leks within and in close proximity of this allotment

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Focal Species

Sage-grouse

On March 5, 2010, the USFWS (USDI USFWS, 2010) published a finding in the Federal Register that found the 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 BLM Type 2 sensitive species to a candidate species under the ESA.

This allotment lies within the regional Snake River Plain Management Zone for sage-grouse. In 2012, preliminary priority habitat (PPH) and general priority habitat (GPH) were modeled to identify lands in Idaho important to sage-grouse sustainability. PPH includes breeding, late brood-rearing, and winter concentration areas. General priority habitat are lands that may serve as important corridors between PPH and habitat islands within corridors, or occupied habitats characterized by low lek densities (Makela & Major, 2012). The BLM collaborated with respective state wildlife agencies to identify these areas. Modeling results indicate that all three pastures of the Boulder allotment (100 percent) lie within PPH (Table WDLF-7, Map WDLF-1C). No active leks are known to occur within this allotment. This allotment provides seasonal breeding, upland summer, riparian, and winter habitat for sage-grouse.

Table WDLF-7: Acres[1] and portions of preliminary priority and general priority habitat within the Boulder allotment (Map WDLF-1C)

Allotment/Pasture Name	Acres of PPH Sagebrush Habitat in Allotment[2]	Acres of PPH Perennial Grassland in Allotment	Acres of PPH Juniper Encroachment in Allotment	Acres of PGH in Allotment	Portion of Allotment in PPH/PGH
Pasture 1	722	0	0	0	722 (100%)
Pasture 2	691	0	0	0	691 (100%)
Pasture 3	580	0	0	0	580 (100%)
Allotment Total	1,993	0	0	0	1,993 (100%)

[1]PPH/PGH habitat acreage totals include public lands, state lands, and private property.
[2]PPH sagebrush can also include small amounts of perennial grasslands, conifer encroachment, and non-habitat.

Pasture 1

Breeding Habitat

One sage grouse breeding habitat evaluation was conducted in Pasture 1. It was located near the center of the pasture (T7S, R5W Sec 3, NE, SE). The evaluation was conducted in June 2004 and is identified as "A" in Table C8-1. Vegetation was low sagebrush/Idaho fescue, bottlebrush squirreltail, Japanese brome, and cheatgrass with patches of mountain big sagebrush in small pockets throughout. Silver sagebrush occurs in large drainage bottom. The two dominate grasses, Idaho fescue and squirreltail have too low of stature to provide cover. Thirteen species of forbs, of which 7 are on the preferred forb list, are sparse. Overall breeding habitat is unsuitable.

Table C8-1: Sage Grouse Breeding Habitat Assessment

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

Pasture 1

Late Brood-rearing

Three late brood-rearing habitat evaluations were conducted in Pasture 1 in 2004 and 2003. They are spread out across the south half of the pasture. The first evaluation (T7S, R5W Sec 3, SE, SW) is identified as "A" in Table C8-2 that summarizes the evaluations for the pasture. This is a wet meadow site, five small wet meadow areas. The upper meadow has water and has head cutting. Forb density and diversity was good, forbs are also present in adjacent upland sagebrush. The upland is low sagebrush with Idaho fescue and cheatgrass. Mountain big sagebrush occurs in small pockets throughout the area. Sagebrush is the limiting factor being over 100 yards from a wet meadow. Overall rating is marginal habitat.

The second evaluation (Section 3 T7S, R5W, Sec 3, near center of Section) is identified as "B" in Table C8-2. The site is a reservoir with shallow water supporting primarily reeds. Adjacent moist area was a narrow band up to ten feet wide surrounding the wet area. The sagebrush upland begins immediately beyond the moist area and is characterized by low sagebrush and Idaho fescue. Forbs were most abundant in the moist belt. Overall marginal habitat rating is based on head cutting and sagebrush cover.

The third evaluation (T7S, R5W Section 3 SWSE) is identified as "C" in Table C8-2. The site was an intermittent stream with grasses and grass like species dominating and stabilizing the banks. The adjacent upland beginning more than 100 yards from stream is low sagebrush with bluebunch wheatgrass and Idaho fescue with small inclusions of big sage and rabbitbrush. Grass cover was tall and continuous, forb diversity was high and abundance was fair. Overall the site was rated as marginal habitat.

In summary, Pasture 1 has marginal habitat.

Table C8-2: Sage Grouse Late Brood-Rearing Habitat Assessment

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Riparian and wet meadow communities:		C	
Riparian and Wet Meadow Plant Community	A,B	C	
Riparian and Wet Meadow Stability		A,B,C	
Forb Availability	A,B	C	
Proximity of Sagebrush Cover		A,B,C	
Overall Late Brood-rearing Habitat Assessment		**A,B,C**	

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Pasture 1 One sage-grouse breeding habitat assessment was conducted on June 14, 2012, and two sage-grouse upland summer habitat assessments were conducted August 9, 2012, in this pasture. The breeding habitat assessment and one of the upland summer habitat assessments were located on a Shallow Claypan 12-16" Low sagebrush / Idaho fescue ecological site. The second upland summer habitat assessment was conducted in a basin big sagebrush / bluebunch wheatgrass inclusion. This pasture is managed as a native plant community.

Breeding Habitat Assessment
The sagebrush overstory is characterized by a marginal canopy cover (32 percent) and suitable height (33.1 cm) with a marginal mixed (spreading/columnar) shape. The understory is characterized by a marginal canopy cover of perennial grasses (10 percent) and unsuitable canopy cover of forbs (4 percent) with a marginal combined height of 11.7 cm (Table WDLF-8). Overall, the pasture showed marginal overstory/understory conditions, indicating that the required nesting and hiding cover are not fully being provided. Although the assessment indicated the canopy cover of forbs was unsuitable along the transect line, a belt transect to record to diversity of forb species in the area is favorable. Overall, because the combined marginal sagebrush overstory and marginal herbaceous understory conditions, this site is shown to be providing less than adequate (marginal) nesting and hiding cover values for breeding and early brood-rearing sage-grouse.

Winter Habitat Assessment
This information was collected as part of a breeding habitat assessment conducted on June 14, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a marginal canopy cover (32 percent) and suitable height (33.1 cm). Overall, suitable sagebrush occurrence and marginal height are providing marginal winter cover and forage conditions for sage-grouse. Because the average height of the sagebrush is limiting the amount of sagebrush forage above 15cm annual snow fall, this pasture is therefore providing less-than-adequate (marginal) winter habitat conditions for sage-grouse (Table WDLF-8).

Table WDLF-8: Sage-grouse habitat indicators and pasture ratings (Refer to Appendix B and Figure WDLF-1C for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	Breeding	[1]Winter
Sagebrush Canopy Cover (%)	32.0	marginal	suitable
Sagebrush Height (cm)	33.1	marginal	marginal
Sagebrush Form	mixed	marginal	
Perennial Grass and Forb Height (cm)	11.7	marginal	
[2]Perennial Grass Canopy Cover (%)	10.0	marginal	
Perennial Forb Canopy Cover (%)	4.0	unsuitable	
Preferred Forb Availability (#)	8	suitable	
Overall Pasture Evaluation Rating		**marginal**	**marginal**

[1]Winter habitat rating extrapolated from upland habitat assessment information collected on 6/14/2012.
[2]Perennial grass canopy cover does not include Poa species.

Low sagebrush/Idaho Fescue Ecological Site

Sagebrush is much reduced on this site because of the Agora moth that has defoliated and killed all the sagebrush. Therefore, because of the absence of any sagebrush overstory, this site in its current condition has little value for sage-grouse and is unsuitable breeding, upland summer and winter habitat.

Big Basin Sagebrush / Bluebunch wheatgrass – Idaho Fescue Inclusion

Breeding Habitat Assessment
This information was collected as part of an upland summer habitat assessment conducted on August 9, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months and the data collection protocols are the same, this information can provide insight into breeding habitat conditions earlier in the spring, although the forb information is not used because of the time year the data was collected.

The sagebrush overstory is characterized by a suitable canopy cover (22 percent) and marginal height (98.8cm) with an unsuitable columnar shape. The understory is characterized by an unsuitable canopy cover of perennial grasses (4 percent) (Table WDLF-9). Overall, the pasture showed marginal overstory/understory conditions indicating that required nesting and hiding cover values are not being provided. Overall, because the columnar structure of the sagebrush overstory and the reduced abundance of perennial grasses in the understory, nesting and hiding cover values are not adequate (unsuitable) for breeding and early brood-rearing sage-grouse.

Upland Summer Habitat Assessment
The sagebrush overstory is characterized by a suitable canopy cover (22 percent) and marginal height (98.8 cm). The understory is characterized by a combined marginal canopy cover of perennial grasses and forbs (6 percent) (Table WDLF-9). Overall, although the sagebrush overstory is meeting desired conditions, the unsuitable occurrence of perennial grasses under the predominantly columnar shape of the overstory reduces hiding and escape cover values and therefore is providing less-than-adequate (marginal) late summer brood-rearing sage-grouse habitat.

Winter Habitat Assessment
This information was collected as part of an upland summer habitat assessment conducted on August 9, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a suitable canopy cover (22 percent) and marginal height (98.8 cm). Overall, suitable sagebrush occurrence and marginal height are providing marginal winter cover and forage conditions for sage-grouse. Because the average height of the sagebrush is limiting the amount of sagebrush forage above 15 cm annual snow fall, this pasture is therefore providing less than desirable winter habitat conditions for sage-grouse. (Table WDLF-9).

Table WDLF-9: Sage-grouse habitat indicators and pasture ratings ratings (Refer to Appendix B and Figure WDLF-1C for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	[1]Breeding	Upland Summer	[1]Winter
Sagebrush Canopy Cover (%)	22.0	suitable	suitable	suitable
Sagebrush Height (cm)	91.8	marginal	marginal	suitable
Sagebrush Form	columnar	unsuitable		
[2]Perennial Grass Canopy Cover (%)	4.0	unsuitable		
Combined Grass/Forb Canopy Cover (%)	6.0		marginal	
Preferred Forb Availability (#)	6		suitable	
Overall Pasture Evaluation Rating		**unsuitable**	**marginal**	**suitable**

[1]Breeding and winter habitat ratings extrapolated from upland habitat assessment information collected on 8/9/2012.
[2]Perennial grass canopy cover does not include Poa species.

Pasture 2

Breeding Habitat

One sage grouse breeding habitat evaluation was conducted in this pasture. It is located near the center of the pasture (T7S, R5W Section 2 NWSE). The evaluation was conducted in May 2001 and is identified as "A" in Table C8-3. Shrub cover is less than ten percent with low vigor and death loss. Bluebunch wheatgrass is rare in interspaces and forbs are adequate for this ecological site, loamy 13-16 inches. Overall, the site is rated as marginal habitat.

Table C8-3: Sage Grouse Breeding Habitat Assessment

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

* Not rated

Pasture 2

Late Brood-rearing

Two late brood-rearing habitat evaluations were conducted in Pasture 2 in 2003 and 2004. One was near the north boundary and the other near the south boundary on Rail Creek. The first evaluation (Section 3, T7S, R5W, SESW) is identified as "A" in Table C8-4 that summarizes the evaluations for the pasture. The intermittent stream channel was two feet below the flood plain with some minor erosion. The flood plain had scattered mountain big sagebrush, but was mostly a meadow well covered with grasses and forbs, good density and diversity. Big mountain sagebrush begins at meadows edge. The over all habitat rating was suitable.

Table C8-4: Sage Grouse Late Brood-Rearing Habitat Assessment

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Riparian and wet meadow communities:	A		
Riparian and Wet Meadow Plant Community		A	
Riparian and Wet Meadow Stability	A		
Forb Availability	A		
Proximity of Sagebrush Cover	A		
Overall Late Brood-rearing Habitat Assessment	**A**		

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Pasture 2

One sage-grouse breeding habitat assessment was conducted in pasture 2 on July 14, 2012. The assessment was conducted on a Shallow Claypan 12-16" Low sagebrush / Idaho fescue ecological site. This pasture is managed as a native plant community.

Breeding Habitat Assessment

The sagebrush overstory is characterized by a marginal canopy cover (30 percent) and suitable height (38 cm) with a marginal mixed (spreading/columnar) shape. The understory is characterized by a suitable canopy cover of perennial grasses (2 percent) and an unsuitable canopy cover of perennial forbs with a combined marginal height (17.9 cm) (Table WDLF-10). Although the perennial canopy cover of forbs is unsuitable, the number of individual species (9) recorded by the belt transect show the availability of forbs in the area is favorable. Overall, because overstory/understory conditions are present to create adequate nesting and hiding cover and preferred forbs occur and are available, this pasture therefore is providing adequate (suitable) nesting, hiding, and forage conditions for sage-grouse during the breeding season.

Winter Habitat Assessment

This information was collected as part of a breeding habitat assessment conducted on July 14, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a suitable canopy cover (30 percent) and marginal height (41.3 cm). Overall, suitable sagebrush occurrence and marginal height are providing marginal winter cover and forage conditions for sage-grouse. Because the average height of the sagebrush is limiting the amount of sagebrush forage above 15cm annual snow fall, this pasture is therefore providing less than adequate (marginal) winter habitat conditions for

sage-grouse (Table WDLF-10).

Table WDLF-10: Sage-grouse habitat indicators and pasture ratings (Refer to Appendix B and Figure WDLF-1C for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	Breeding	[1]Winter
Sagebrush Canopy Cover (%)	30.0	marginal	suitable
Sagebrush Height (cm)	38.0	marginal	marginal
Sagebrush Form	spreading	suitable	
Perennial Grass and Forb Height (cm)	17.9	marginal	
[2]Perennial Grass Canopy Cover (%)	18.0	suitable	
Perennial Forb Canopy Cover (%)	2.0	unsuitable	
Preferred Forb Availability (#)	9	suitable	
Overall Pasture Evaluation Rating		**suitable**	**marginal**

[1]Winter habitat ratings extrapolated from breeding habitat assessment information collected on 7/14/2012.
[2]Perennial grass canopy cover does not include Poa species.

Pasture 3

Breeding Habitat

One sage grouse breeding habitat evaluation was conducted in this pasture. It is located near the center of the pasture (T7S, R5W Section 18 NWSE). The evaluation was conducted in May 2001 and is identified as "A" in Table C8-5. The ecological site is Loamy 13-16 inches. The mesic sagebrush site was supporting expected sagebrush height but had a marginal shrub canopy cover. The grass and forb marginal height is suitable as grass canopy cover. The overall the habitat rating was marginal.

Table C8-5: Sage Grouse Breeding Habitat Assessment

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

*Not rated

Pasture 3
Two sage-grouse breeding habitat assessment were conducted on July 12, 2012, and August 12, 2012, and two sage-grouse upland summer habitat assessments were conducted August 8, 2012, in this pasture. The breeding habitat assessments were conducted on Shallow Claypan 12-16" Low sagebrush / Idaho fescue ecological sites and the upland summer habitat assessments were located on Loamy12-16" Wyoming big sagebrush / bluebunch wheatgrass ecological sites. This pasture is managed as a native plant community.

Shallow Claypan 12-16" Low sagebrush / Idaho fescue ecological site

Breeding Habitat Assessment
The sagebrush overstory is characterized by a marginal canopy cover (27 percent) and suitable height (43.6 cm) with a marginal mixed (spreading/columnar) shape. The understory is characterized by an unsuitable canopy cover of perennial grasses (4 percent) and forbs (1 percent) with a combined unsuitable height of 6 cm (Table WDLF-11). Overall, unsuitable understory story conditions for nesting and hiding sage-grouse are occurring due to the reduced occurrence of perennial grasses and forbs required for to create adequate nesting and hiding cover.

Winter Habitat Assessment
This information was collected as part of a breeding habitat assessment conducted on June 12 and July 2, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a marginal canopy cover (27 percent) and suitable height (43.6 cm). Overall, sagebrush occurrence and height are providing suitable winter cover and forage conditions for sage-grouse and is not a limiting factor in this pasture (Table WDLF-11).

Table WDLF-11: Sage-grouse habitat indicators and pasture ratings (Refer to Appendix B and Figure WDLF-1C for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	Breeding	[1]Winter
Sagebrush Canopy Cover (%)	27.0	marginal	suitable
Sagebrush Height (cm)	43.6	suitable	suitable
Sagebrush Form	mixed	marginal	
Perennial Grass and Forb Height (cm)	6.0	unsuitable	
[2]Perennial Grass Canopy Cover (%)	4.0	unsuitable	
Combined Grass/Forb Canopy Cover (%)	1.0	unsuitable	
Preferred Forb Availability (#)	9.5	suitable	
Overall Pasture Evaluation Rating		**unsuitable**	**suitable**

[1]Winter habitat ratings extrapolated from breeding habitat assessment information collected on 6/12/2012 and 7/2/2012.
[2]Perennial grass canopy cover does not include Poa species.

Loamy12-16" Wyoming big sagebrush / bluebunch wheatgrass ecological site

Breeding Habitat Assessment
This information was collected as part of an upland summer habitat assessment conducted on August 14, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months and the data collection protocols are the same, this information can provide insight into breeding habitat conditions earlier in the spring, although the forb information is not used because of the time year the data was collected.

The sagebrush overstory is characterized by a marginal canopy cover (41 percent) and marginal height (107.9 cm) with a marginal mixed (spreading/columnar) shape. The understory is characterized by an unsuitable canopy cover of perennial grasses (8 percent) (Table WDLF-12). Overall, because of marginal overstory/understory conditions of sagebrush and perennial grasses, nesting and hiding cover values are less than adequate (marginal) required for breeding and early brood-rearing sage-grouse.

Upland Summer Habitat Assessment
The sagebrush overstory is characterized by a marginal canopy cover (41 percent) and suitable height (107.9 cm). The understory is characterized by a combined suitable canopy cover of perennial grasses and forbs (17 percent) (Table WDLF-12). Nine species of preferred forbs were recorded.

Overall, the upland summer habitat indicators suggest that upland summer habitat conditions may be providing adequate overstory/understory conditions for late brood rearing sage-grouse; however; because of the significant difference of conditions (largely perennial grass canopy cover) between the two sites assessed (Appendix B), this pasture is considered to be providing less-than-adequate (marginal) late season upland summer habitat conditions for late summer brood-rearing sage-grouse.

Winter Habitat Assessment
This information was collected as part of an upland summer habitat assessment conducted on August 14, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a suitable canopy cover (41 percent) and suitable height (107.9 cm). Overall, sagebrush occurrence and height are providing suitable winter cover and forage conditions for sage-grouse and is not a limiting factor in this pasture (Table WDLF-12).

Table WDLF-12: Sage-grouse habitat indicators and pasture ratings (Refer to Appendix B and Figure WDLF-1C for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	[1]Breeding	Upland Summer	[1]Winter
Sagebrush Canopy Cover (%)	41.0	marginal	marginal	suitable
Sagebrush Height (cm)	107.9	marginal	marginal	suitable
Sagebrush Form	mixed	marginal		
[2]Perennial Grass Canopy Cover (%)	8.0	marginal		
Combined Grass/Forb Canopy Cover (%)	17.0		suitable	
Preferred Forb Availability (#)	9.5		suitable	
Overall Pasture Evaluation Rating		**marginal**	**marginal**	**suitable**

[1]Breeding and winter habitat ratings extrapolated from upland summer habitat assessment information collected on 8/14/2012.
[2]Perennial grass canopy cover does not include Poa species.

Other Species

Columbia spotted frog surveys did not find occupied habitat.

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Columbia Spotted Frog Pastures 1 and 2 are within the modeled distribution of the Columbia spotted frog. Potential habitat exists along stream corridors and springs (Map WDLF-2C).

South Mountain Individual Allotment (600)

Physiography

The South Mountain Individual Allotment lies approximately 12 miles southwest of Silver City, Idaho in Owyhee County. The allotment is composed of two separated pastures. The allotment is in USDA Natural Resource Conservation Service Major Land Resource Area 25, Owyhee High Plateau (USDA, NRCS 2004). The allotment consists of 4,518 acres of public, State, and private lands in 2 pastures (Table D-1).

The elevation of the allotment is between 4,900 and 5,400 feet. The major landforms are foothills, tablelands, and mountains. The general area is undulating moving toward steep with clayey and loamy, well drained, cool, moderately deep to very deep soils that formed in residuum and slope alluvium derived from basalt, breccia, and welded rhyolitic tuff. The annual precipitation is 13 to 18 inches and the frost-free period is 30 to 95 days. Vegetation production and accessibility is limited by slope, depth to bedrock, very low available water capacity, restricted permeability, stones on surface, hazard of water erosion on steeper slopes and short frost-free period. Low sagebrush and Idaho fescue are the dominant species in plant communities found on the more shallow soils. Mountain big sagebrush, bluebunch wheatgrass, Idaho fescue, and scattered western juniper are generally found on deeper soils (USDA, NRCS 1990).

Land Status

Table D-1: Land Status (in acres)*

	Public	State	Private	Total
Pasture 1	1,038	817	10	1,865
Pasture 2	2,481	26	146	2,653
Total	3,519	843	156	4,518

*Acreages represent best available estimates.

Livestock Grazing Management

In the 1999 Owyhee Resource Management Plan (RMP), the South Mountain Individual Allotment was placed in Selective Management Category “Improve” with low priority. Improve allotments are managed with the objective to manage the public lands with adequate expenditure of funding and manpower to improve current unsatisfactory resource conditions. The allotment must meet or make progress toward meeting the Idaho Standards for Rangeland Health. The RMP identified 511 animal unit months (AUMs) of active preference for livestock grazing.

Livestock grazing is authorized by a term grazing permit issued to Morgan Properties LP DBA Morgan Ranches. Current permitted use in this allotment is summarized in Table D-2.

Table D-2. Permitted Use Summary – South Mountain Individual Allotment.

Operator Name & No.	Livestock Kind & No.	Season of Use	% PL	AUMs		
				Active	Suspended	Permitted
Morgan Properties LP DBA (1101510)	100 cattle	4/20 – 11/30	69	511	0	511

In accordance with the grazing permit Terms and Conditions; the grazing permittee is required to submit Actual Use Reports at the conclusion of each grazing season. Table D-3 summarizes the total AUMs and displays the period of use as reported each year on Actual Use Reports.

Table D-3: Reported Actual Use by Pasture

Pasture	1995*	1996*	1997	1998	1999	2000	2003	2005
1	4/20-5/31 9/1-11/30	4/20-5/31 9/1-11/30	4/10-7/10	4/10-7/10	4/10-7/10	4/20-6/30	4/20-5/15	4/20-/30
2			9/01-1/30	9/01-11/30	9/01-11/30	10/1-11/30	5/15-6/3 10/1-10/31	10/1-11/1
Total AUMs	506	511	520	520	520	517	259	358

***** Actual use report not pasture specific these years.
Note: No actual use reports were submitted for years 1990-1994, 2001-2002, and 2004,

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Actual Use
Actual use for the allotment has ranged from 78 to 736 AUMs between 1997 and 2012, with an average of 342 for the allotment (Table LVST-4). AUMs were re-calculated in 2013 and some numbers did not match calculations from 2006 RHA as listed above.

Table LVST-4: Actual use on the South Mountain Individual allotment 1997-2012

Year	Pasture 1		Pasture 2		Allotment AUMS
	Date	AUMS	Date	AUMS	
2012	4/20-5/26	166	6/3-6/30	133	299
2011	4/20-5/4 78 AUMs				78
2010	4/20-5/31; 6/7-6/17 141 AUMs				141
2009	4/16-5/12	147	5/12-6/5	131	278
2008	4/15-5/10	100	5/10-5/25	58	158
2007	4/20-5/10	95	5/10-6/2	104	199
2006	4/15-5/30	287	5/31-6/15	100	387

2005	4/20-6/30	327	10/1-11/1	25	352
2004	No Data	No Data	No Data	No Data	No Data
2003	4/20-5/15	147	5/15-6/3	113	260
2002	No Data	No Data	No Data	No Data	No Data
2001	No Data	No Data	No Data	No Data	No Data
2000	2/20-6/30	502	10/1-11/30	234	736
1999	4/10-7/10; 9/1-11/30 520 AUMs				520
1998	9/1-11/30	207	4/10-7/10	313	520
1997	4/10-7/10; 9/1-11/30 519 AUMs				519
Ave.					347

1. Watersheds

Five (5) qualitative Rangeland Health Evaluations (RLH sites) of the watershed condition on the South Mountain Individual Allotment were completed during the 2003 field season by an interdisciplinary team. The evaluations were conducted in accordance with the procedure described in BLM-Technical Reference 1734-6, "Interpreting Indicators of Rangeland Health-Version 3". Evaluation methods are discussed in Appendix B. Twelve (12) of the 17 standard indicator ratings are related to Standard 1. Table D1-1 summarizes all indicator ratings related to Standard 1, by pasture. For example, 2 sites were evaluated in Pasture 1, for a total of 24 indicator ratings related to watersheds. Of these, 10 were rated as having a "none to slight" degree of departure from reference site conditions. Indicator ratings by site are included in Appendix E. See Appendix H, Map 4 for rangeland health evaluation locations.

Table D1-1. Summary of Watershed related indicator ratings

Watershed	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme
Pasture 1[1]	10	8	1	5	0
Pasture 2[2]	13	14	3	6	0

[1]Summarizes: 2 Shallow Claypan 12-16" ecological sites
[2]Summarizes: 3 Shallow Claypan 12-16" ecological sites

<u>Pasture 1</u>

The 2 evaluations completed in Pasture 1 (RH1A, RH1B) were located in T7S, R5W, Section 12 (Appendix H, Maps). Very similar conditions were found on both sites. The indicators for water flow patterns and pedestals/terracettes were rated as showing a 'moderate to extreme' departure from reference conditions at both sites. Water flow patterns were generally distinct, short, often connected and with well-defined cut areas. Many obstructions were observed that were influencing the flow paths. Pedestals were abundant around Sandberg bluegrass and to a lesser degree Idaho fescue. Some pedestals appeared to be active, with exposed roots common; other pedestals were stabilized, and covered with mosses. Soil surface loss or degradation was rated as showing a 'moderate' departure at both sites; the soil "A" horizon appeared degraded in shrub interspaces, and soil loss was evidenced by pedestals and cut areas associated with water flow

patterns. Bare ground was more than expected and associated with pedestals, and flow paths where gravel was absent. Amount of litter was slightly less than expected. Abundant gravel, vegetation and moss on Site RH1A provided good soil surface resistance to erosion. Soil surface resistance to erosion on RH1B was impaired and often associated with interspaces where biological crust was reduced and on bare slopes of pedestals. Idaho fescue showed mortality and was being replaced with Sandberg bluegrass on both sites.

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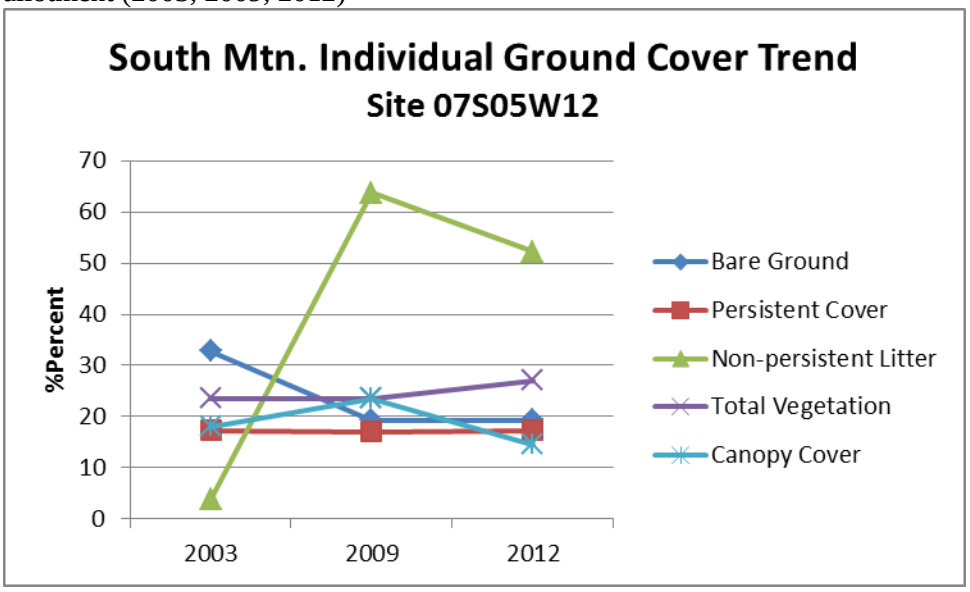
Ground Cover Trend

Ground cover trend data were collected in pasture 1 at the nested plot frequency transect 07S05W12 in 2003, 2009, and 2012 (Figure Soil-5). Over the long-term, basal and total vegetation, as well as persistent cover, have remained static. Bare ground has decreased non-significantly (Student's t-test; p-value <0.1) while canopy cover and non-persistent litter have increased, with the latter significantly. Short-term trend shows static readings for bare ground and persistent cover, while non-persistent litter and canopy cover are decreasing, with the latter significantly. Basal and total vegetation data for 2009 were not used due to inconsistencies in data recording and therefore exclude short-term trend.

Figure Soil-5: Ground cover data from trend site for pasture 1 of the South Mountain Individual allotment (2003, 2009, 2012)



The site shows a relatively static ground cover trend between 2003 and 2012. Very few readings are significant and conditions have been maintained, though an increase in invasive annuals may have contributed to a drastic rise in non-persistent litter. In general, grass frequency data (see Standard 4) suggest a steep decrease in Sandberg bluegrass that coincides with an increase in field brome and North Africa grass. Field brome prefers to germinate on a bed of litter so that the spike in non-persistent litter up to 2009 corresponds with this increase based on frequency data.

Bare soils may have benefitted from the establishment of invasive annuals by providing ground cover but, since 2009, readings show no improvement, although averages are as expected for a

Shallow Claypan 12-16" ecological site. Canopy cover has decreased and corresponds with a decline in low sagebrush over the most recent years. Overall interpretations of trend data suggest that ground cover conditions are primarily static while frequency trend data suggest that biotic conditions have deteriorated from 2009 to 2012.

Pasture 2

Three (3) evaluations (RH2A, RH2B) were located in T07S, R04W, Section 08 and one (RH2C) was located in T07S, R04W, Section 20. At RH2A RH2B and RH2C, the indicators for water flow patterns and pedestals/terracettes were rated as showing a 'moderate to extreme' departure from reference site conditions. In addition, soil loss/degradation was rated as 'moderate' at all 3 sites in this pasture.

The water flow patterns on Site RH2A were frequent, short, wide, and more distinct than expected relative to slope. Cut banks were common. Historic and active pedestals were observed around mixed plant species and occasionally around rocks. Some historic and active soil loss was observed as indicated by a patchy "A" horizon, reduced biological crust in flow paths and disturbance in less rocky areas. Bare ground was slightly more than expected and associated with flow paths and pedestals. Soil surface resistance to erosion was slightly less than expected due to a reduction in stabilizing agents. Surface sealing, platy soil structure and vesicular pores were present on site. Idaho fescue was slightly reduced in the plant community. Hydrologic problems were apparent throughout the site.

At RH2B, a defined matrix of short and connected flow paths were observed. Cut areas were common. Flow paths were more prevalent than expected. Pedestals were common around Idaho fescue and Sandberg bluegrass plants. Some exposed roots were observed. Bare ground areas were small and unconnected in flow paths and interspaces. Site was very rocky with abundant gravel present. Some soil movement was observed in flow paths.

Site RH2C had water flow paths much longer than expected with severe cut edges and they were often connected. There were many historic and active pedestals present on Idaho fescue and Sandberg bluegrass plants. Terracettes and shrub mounding (soil and litter accumulation under shrub canopies) was common. Bare ground areas were more prevalent than expected, especially in flow paths and edges of pedestals. Resistance to erosion was provided by abundant gravel cover, but was not continuous and did not provide complete protection from raindrop impact. Vegetation, organic matter, and biological crust cover were reduced. Significant soil loss was observed as indicated by pedestals, "A" horizon largely gone in water flow paths and interspaces. A slight reduction of large decreaser grasses in interspaces was noted, but the biotic change was slight.

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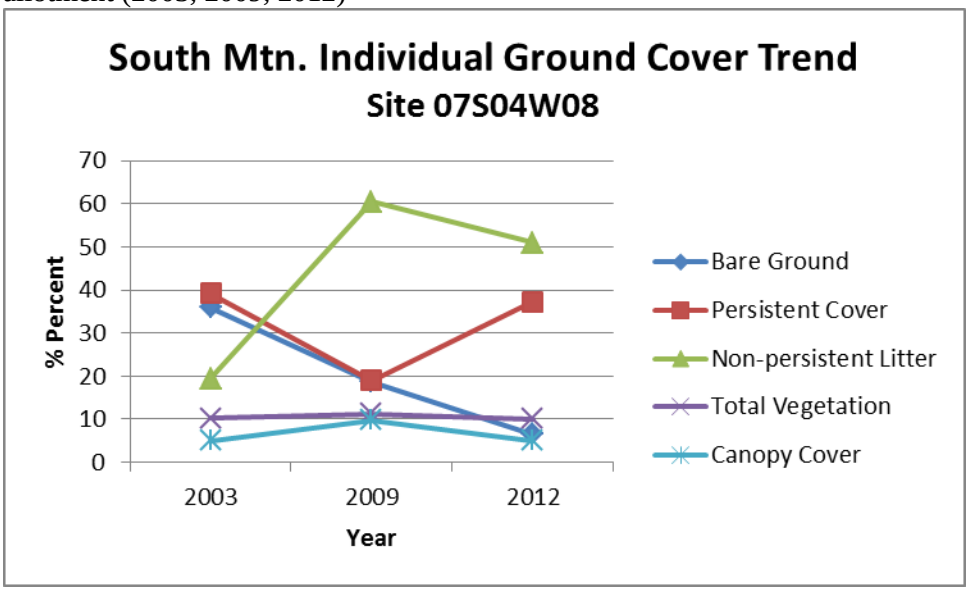
Ground Cover Trend

Ground cover trend data were collected in pasture 2 at the nested plot frequency transect 07S04W08 in 2003, 2009, and 2012 (Figure Soil-6). Over the long term, basal and total vegetation, as well as canopy and persistent cover, have remained static. Bare ground has

decreased while non-persistent litter has increased, both significantly (Student's t-test; p-value <0.1). Short-term trend shows more variability with non-persistent litter, bare ground, and canopy cover decreasing, the latter two significantly. Persistent cover shows a significant increase. Basal and total vegetation data for 2009 were not used due to inconsistencies in data recording; short-term trend was therefore excluded, while long-term values are only displayed in Figure Soil-6.

Figure Soil-6: Ground cover data from trend site for pasture 2 of the South Mountain Individual allotment (2003, 2009, 2012)



A static ground cover trend is apparent for total vegetation and canopy cover over the long term between 2003 and 2012 and reflects positively on bare soils, which has been steadily decreasing to levels well within expected ranges for a Shallow Claypan 12-16" ecological site. Persistent cover and non-persistent litter display short-term variability but have generally maintained or increased, respectively, over the long term. Canopy cover has been relatively static, which does not coincide with a decrease displayed in sagebrush shrub frequency and density data.

Grass frequency trend data (see Standard 4) suggest that shallow bunchgrasses dominate and that deep-rooted perennial bunchgrasses are decreasing while invasive annuals are well represented and on the incline. Overall interpretations of ground cover trend and frequency trend data suggest that ground cover has maintained and that biotic conditions are deteriorating.

2013 Field Observations

A field visit in the spring of 2013 (see Owyhee Field Office project file) showed variable impacts in the northern half of the allotment that are dominated by shallow, rocky soils. Widespread, extensive pedestaling within deep defined water flow paths made walking difficult, with much of the original surface horizon having been lost; some gravel remains but is not plentiful enough to effectively stabilize. Biological soil crusts are present although not as abundant as expected, especially in interspaces.

2. Riparian Areas and Wetlands

Stream on the South Mountain Individual Allotment include Rail Creek, South Mountain Creek, South Boulder Creek, and Old Man Creek. The Owyhee Resource Management Plan (1999) Table RIPN-1 identified Fisheries Habitat and Riparian Condition Ratings on Bureau of Land Management (BLM) Stream Miles. The creeks found in this allotment were not identified in Table RIPN-1 of the 1999 Owyhee Resource Management Plan. BLM inventoried streams and assessed conditions in 2000 and 2001. Table D2-0 summarizes the functioning condition of streams in the allotment.

Table D2-0: Summary of Riparian Proper Functioning Condition* (miles) by Pasture

Pasture	PFC	FAR Upward Trend	FAR Static Trend or Not Apparent
1	0	0	0.3
2	0	0	3.3
Allotment Total	0	0	3.6

*PFC – Proper Functioning Condition; FAR – Functional-At Risk; NF - Nonfunctional

<u>Rail Creek</u>

Approximately 0.26 miles of Rail Creek crosses public land in Pasture 1.

Riparian Inventories and Assessments

Rail Creek was inventoried in June 2000 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). Proper Functioning Condition assessments rated the 0.26 mile segment (RAI-004) as Functional-At Risk (FAR) low. The apparent trend was not identified (Table D2-1).

The RAI – 004 inventory segment was not classified for community type. The inventory found little riparian shrub and tree cover. Yellow willow was the most common shrub on the segment in the allotment. Mature willows were more common across the allotment boundary fence. The segment had a diverse composition of graminoid riparian species including sedges, rushes and spike rushes. Kentucky bluegrass, meadow foxtail, water sedge, and Baltic rush were the most common graminoids. Common yarrow and dandelion were the most common forbs. The streambank cover of deep-rooted graminoids was inadequate to protect stream. The noxious weed Canada thistle was found on 1-5 percent of the segment

Table D2-1: Riparian Indicators and Functioning Condition Rating by Stream Segment – Rail Creek

	RAI-004
Pasture Number	*1*
Stream miles	*0.26*
Date of data collection	*6/2000*
Riparian/Wetland Indicators:	Indicator Rating[1]

	RAI-004
Pasture Number	*1*
Diverse age class/structure of hydric vegetation (6)[2]	N
Diverse composition of hydric vegetation (7)	Y
Vegetation reflects maintenance of soil moisture (8)	Y/N
Plant community comprised of bank stabilizing species (9)	Y
Hydric vegetation exhibits high vigor (10)	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	N
Adequate large woody material (12)	N
Point bars revegetating with hydric species (14)	Y/N
Noxious weeds are not increasing	Y
Overall functioning condition[3]	**FAR-**
Apparent trend[4]	**NA**

[1](Y=yes, N=no, Y/N = A portion meets and a portions does not meet)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3]* PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

2013 Supplement to the South Mountain Individual Allotment Rangeland Health Standards and Guidelines Assessment
A MMIM site was established in 2011 on the same reach of Rail Creek described above. Conditions had improved and the stubble height was 21 inches, the woody use was 10 percent, and the stream bank alteration was 11 percent. However, the actual use reported for the same year was approximately 22 percent of the average reported for the past 15 years. Therefore, the short-term indicators collected for a MMIM are not representative of the long-term impacts associated with much higher actual use.

<u>South Mountain Creek</u>

Approximately 1.49 miles of South Mountain Creek crosses public land on the boundary and within Pasture 2. It is an ephemeral to intermittent stream.

Riparian Inventories and Assessments

South Mountain Creek was inventoried in October 2000 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Proper Functioning Condition assessment rated the 1.49 mile segment as Functional-At Risk low. The apparent trend was not identified (D2-2).

Riparian vegetation was sparse in places and completely lacking in other places. The segment supported vegetation classified as Sandbar Willow Community Type, Baltic Rush Community

Type, Yellow Willow Community Type and Whiplash Willow Community Type. Approximately 5-10 percent of the segment had no discernible vegetation type.

Sandbar willow, Whiplash willow and yellow willow were the most common shrubs. Sheldon's sedge, Baltic rush, redtop, and mat *muhlenbergia* were the common graminoids. No noxious weeds were identified on the stream segment.

Table D2-2: Riparian Indicators and Functioning Condition Rating by Stream Segment – South Mountain Creek

	SMC-002
Stream miles	*1.49*
Date of data collection	*10/2000*
Pasture Number	*2*
Riparian/Wetland Indicators:	**Indicator Rating[1]**
Diverse age class/structure of hydric vegetation (6)[2]	Y/N
Diverse composition of hydric vegetation (7)	N
Vegetation reflects maintenance of soil moisture (8)	Y/N
Plant community comprised of bank stabilizing species (9)	N
Hydric vegetation exhibits high vigor (10)	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	N
Adequate large woody material (12)	Y/N
Point bars revegetating with hydric species (14)	N
Noxious weeds are not increasing	Y
Overall functioning condition[3]	FAR-
Apparent trend[4]	NA

[1](Y=yes, N=no, Y/N = A portion meets and a portions does not meet)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3]* PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

2013 Supplement to the South Mountain Individual Allotment Rangeland Health Standards and Guidelines Assessment
A portion (0.6 mile) of the reach was re-visited in 2011. Photos were taken and the documentation noted that the stream was ephemeral; therefore, the PFC protocol was not applied. However, it also noted that moderate to severe grazing was occurring on all riparian species and that red band trout were present. The photos show an inadequate amount of hydric species cover and trampled stream channel and banks.

South Boulder Creek

South Boulder Creek crosses public land for approximately 1.8 miles along the allotment boundary in the southeast corner of Pasture 2.

Riparian Inventories and Assessments

South Boulder Creek was inventoried in September 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The stream was divided into 3 segments. SBO-001 was 0.54 miles long and rated as Functional-At Risk low/mid. SBO-002 was 0.4 miles long and rated Functional-At Risk low, and SBO-003 was 0.9 miles long and rated Functional-At Risk mid.

Segments SBO-001 and SBO-002 were vegetated with a Whiplash Willow Community Type. Segment SBO-003 was vegetated with a Redosier Dogwood Community Type. Segment SBO-003 had the most diverse and vigorous riparian vegetation. Shrubs, primarily redosier dogwood, were more abundant on this segment. Kentucky bluegrass and common horsetail were also abundant. Two to five graminoids were found on the segments. Segment SBO-002 had little understory left. Two graminoids were present: bulbous bluegrass and Kentucky bluegrass; both are introduced species. The segments had a range of 5 - 7 forb species. Common horsetail was the most abundant. Noxious weeds were not identified on the segment.

Table D2-3: Riparian Indicators and Functioning Condition Rating by Stream Segment – South Boulder Creek

Stream Segment	**SBO-001**	**SBO-002**	**SBO-003**
Stream miles	*0.54*	*0.4*	*0.9*
Date of data collection	*9/2001*	*9/2001*	*9/2001*
Pasture Number	*2*	*2*	*2*
Riparian/Wetland Indicators:	**Indicator Rating**		
Diverse age class/structure of hydric vegetation (6)	Y	Y/N	Y
Diverse composition of hydric vegetation (7)	Y/N	Y/N	Y
Vegetation reflects maintenance of soil moisture (8)	Y/N	Y/N	Y/N
Plant community comprised of bank stabilizing species (9)	Y/N	Y/N	Y
Hydric vegetation exhibits high vigor (10)	Y/N	N	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	N	Y
Adequate large woody material (12)	N	N	Y
Point bars revegetating with hydric species (14)	N	N	Y/N
Noxious weeds are not increasing	Y	Y	Y
Overall functioning condition	**FAR**	**FAR**	**FAR**

Stream Segment	SBO-001	SBO-002	SBO-003
Apparent trend	**NA**	**NA**	**NA**

[1](Y=yes, N=no, Y/N = A portion meets and a portions does not meet)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3] PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

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Two of the three reaches (1.3 miles) described above were re-visited in 2011and were in PFC. The assessments note that the stream is geologically confined and allows little access to livestock. There were vigorous riparian species along both reaches and the stream banks had adequate cover to stabilize and protect the banks during high flows. However, the actual use reported for the same year was approximately 22 percent the average reported for the past 15 years. Therefore, the condition rating may not be representative of the long-term impacts associated with much higher actual use.

<u>Old Man Creek</u>

Approximately 0.75 miles of Old Man Creek crosses public land in Pasture 1.

Riparian Inventories and Assessments

Old Man Creek was inventoried in June 2000 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). However, the segment in the South Mountain Individual Allotment was not inventoried. The inventoried segment is higher in the drainage in the adjacent allotment. The report discusses a water diversion structure having a significant impact. There was no surface water below the diversion structure.

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Approximately 0.3 mile of Old Man Creek was assessed FAR in 2004 because the banks were terraced with erosion occurring and the channel was over-wide.

Livestock Riparian Use Monitoring –

Stubble height measurements are a simple and effective tool to monitor rangeland use in key areas. Individual plant measurements are collected from herbaceous vegetation such as grasses, sedges, and rushes. Generally, stubble heights of 4 to 6 inches are an acceptable standard for

effective streambank protection, prevention of sedimentation, and maintenance of plant communities (USDI, BLM 1999).

Table D-4: Riparian Stubble Heights and Percent Shrub Use

Location	Pasture	Date	Stubble Height in Inches	Percent Shrub use	Comments
Rail Ck	1	6/7/2000	4	>51	Water present
South Boulder Ck 003	2	9/20/2001	4.5	26-51	Water present
South Boulder Ck 002	2	9/21/2001	1	>51	Water present
South Boulder CK 001	2	9/21/2001	1	>51	Water present
South Mt Ck	2	10/17/2000	3	>51	Water present
South Mt Ck	2	7/28/1999	4.5	95% use on willows	Dry
South Mt Ck	2	7/22/1999	3.5	93%	NA
South Mt Ck T7SR4WS5 SWSE	2	9/11/1997	4.5	63%	NA
South Mt. Ck	2	10/8/1996	3.5	37%	NA
South Mt. Ck	2	9/11/1996	2	65%	At spring

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The information below is a summary of all the riparian assessment information for the allotment- both previously assessed as well as the supplemental information (also see Map RNGE-1C).

Table RIPN-6: Riparian assessment information for the South Mountain Individual allotment

	Allotment, Pasture Name, and Miles Assessed			
Stream Name	**South Mnt Ind-01**	**South Mnt Ind- 02**	**Assessment Issues/ Impacts Identified**	**Total Miles *Assessed***
Old Man Creek	0.3 (FARU-2004)		terraced banks/ overwide channel	0.3
Rail Creek	0.3 (FARS-2000)		lack of age class of hydric vegetation/ inadequate hydric veg to protect stream banks/ plants had low vigor/ point bars not revegetating	0.3
South Boulder Creek	1.7 (FAR- 2000) 1.3 (PFC- 2011)		2000- vegetation present does not reflect maintenance of hydric soils/ inadequate vegetation to protect stream banks/ point bars are not revegetating 2011- the stream is geologically confined and inaccessible to livestock	1.7

South Mountain Creek		1.5 (FARS-2000) 0.6 (re-visit; pictures only-2011)	2000- inadequate composition of hydric species to stabilize stream banks and protect against high flows/ plants had low vigor/ point bars were not revegetating 2011- appears FAR- lack of hydric vegetation and trampled stream channel/ banks- also fish bearing	1.5

MIM Metrics

Stream Name	Pasture/ Assessment Year	Mean Stubble Height (inches)	Woody Use (%)	Streambank Alteration (%)	Stable Bank (%)	Covered Bank (%)
Rail Creek	1/ 2011	21.2	10	11	91	99

3. Stream Channel/Floodplain

Streams on the South Mountain Individual Allotment include Rail Creek, South Mountain Creek, South Boulder Creek, and Old Man Creek. Inventories and assessments were conducted by Bureau of Land Management (BLM) in 2000 and 2001.

Rail Creek

Approximately 0.26 miles of Rail Creek crosses public land in Pasture 1.

Riparian Inventories and Assessments

Rail Creek was inventoried in June 2000 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). Proper Functioning Condition assessments rated the 0.26 mile segment as Functional-At Risk (FAR) low. The apparent trend was not identified (Table D3-1).

Rail Creek was classified as a Rosgen B6c, C6, E4, and F6 stream types equally on 80 percent of the segment. Rail Creek had deep binding root mass plants on 35-64 percent of the streambanks. Fifteen to twenty-five percent of the streambanks were stable. Pugging was evident on 35 to 45 percent of the segment. Pugging was occurring equally between the streambanks and non-streambanks. The segment had active bank erosion on 15 to 25 percent of the segment. One to five percent of the stream had active down cutting.

Table D3-1: Stream Channel/Floodplain Indicators and Functioning Condition Rating by Segment – Rail Creek

Stream Segment	**RAI-004**
Date of data collection	*6/2000*
Stream miles	*0.26*
Stream Channel/Floodplain Indicator	Indicator Rating[1]
Floodplain inundated frequently (1)[2]	Y/N
Beaver dams are active and stable (2)	Y/N
Sinuosity, width/depth ratio, gradient in balance with landscape setting (3)	N

Stream Segment	RAI-004
Upland watershed not contributing to riparian degradation (5)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	N
Adequate large woody material (12)	N
Floodplain and channel characteristics dissipate energy (13)	Y/N
Point bars revegetating with hydric species (14)	Y/N
Lateral stream movement associated with natural sinuosity (15)	N
System is vertically stable (16)	Y/N
No excessive erosion or deposition (17)	N
Overall functioning condition[3]	FAR-
Apparent trend[4]	NA

[1](Y=yes, N=no, Y/N = A portion meets and a portions does not meet)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3] PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

2013 Supplement to the South Mountain Individual Rangeland Health Standards and Guidelines Assessment
A MMIM site was established in 2011 on the same reach of Rail Creek described above. Conditions had improved and the stubble height was 21 inches, the woody use was 10 percent, and the stream bank alteration was 11 percent. However, the actual use reported for the same year was approximately 22 percent the average reported for the past 15 years. Therefore, the short-term indicators collected for a MMIM are not representative of the long-term impacts associated with much higher actual use.

South Mountain Creek

Approximately 1.49 miles of South Mountain Creek crosses public land on the boundary and within Pasture 2. It is an intermittent to ephemeral stream.

Riparian Inventories and Assessments

South Mountain Creek was inventoried in October 2000 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Proper Functioning Condition assessment rated the 1.49 mile segment as Functional-At Risk low. The apparent trend was not identified (Table D3-2).

The majority of the stream was classified as Rosgen stream type F4b or B4. The F4b type was most common. The F4 stream types are gravel dominated and entrenched, meandering channels that are deeply incised in gentle terrain. Streambank erosion may be high where adequate vegetation isn't established on the entire slope face of the channel banks (Rosgen 1996).

South Mountain Creek had vegetation with deep binding roots on 35-64 percent of the streambanks. Only 50-70 percent was considered to be stable. The channel was over-widened on most of the segment. Active streambank erosion was occurring on 1-5 percent of the segment. No downcuts were observed on this creek.

Pugging was observed on some portions of the streambanks but it was less than 5 percent. A recent road grading was identified as a human disturbance factor. Noxious weeds were not observed.

Table D3-2: Stream Channel/Floodplain Indicators and Functioning Condition Rating by Segment – South Mountain Creek

Stream Segment	**SMC-002**
Date of data collection	*10/2000*
Stream miles	*1.49*
Stream Channel/Floodplain Indicator	**Indicator Rating[1]**
Floodplain inundated frequently (1)	Y/N
Beaver dams are active and stable (2)	N
Sinuosity, width/depth ratio, gradient in balance with landscape setting (3)	N
Upland watershed not contributing to riparian degradation (5)	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	N
Adequate large woody material (12)	Y/N
Floodplain and channel characteristics dissipate energy (13)	Y/N
Point bars revegetating with hydric species (14)	N
Lateral stream movement associated with natural sinuosity (15)	Y/N
System is vertically stable (16)	Y
No excessive erosion or deposition (17)	Y/N
Overall functioning condition*	FAR-
Apparent trend	NA

[1](Y=yes, N=no, Y/N = A portion meets and a portions does not meet)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3]PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

2013 Supplement to the South Mountain Individual Allotment Rangeland Health Standards and Guidelines Assessment
A portion (0.6 mile) of the reach was re-visited in 2011. Photos were taken and the documentation noted that the stream was ephemeral; therefore, the PFC protocol was not applied. However, it also noted that moderate to severe grazing was occurring on all riparian species and that red band trout were present. The photos show an inadequate amount of hydric

species cover and trampled stream channel and banks.

South Boulder Creek

South Boulder Creek crosses public land for approximately 1.8 miles along the allotment boundary in the southeast corner of Pasture 2.

Riparian Inventories and Assessments

South Boulder Creek was inventoried in September 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The stream was divided into three segments. SBO-001 was 0.54 miles long and rated as Functional-At Risk low/mid. SBO-002 was 0.4 miles long and rated Functional-At Risk low, and SBO-003 was 0.9 miles long and rated Functional-At Risk mid (Table D3-3).

Forty to fifty percent of each of the three segments was classified as B4 Rosgen stream geomorphology types. The B4 stream types are moderately entrenched systems. They are considered relatively stable and are not high sediment supply stream channels (Rosgen 1996).

F4 channels were the next most common. The F4 stream types are gravel dominated, entrenched, and meandering channels that are deeply incised in gentle terrain. Streambank erosion may be high where adequate vegetation isn't established on the slope face of the channel banks (Rosgen 1996).

Deep binding root mass vegetation was found on 35-64 percent of the streambanks. There was lateral stability on 50-80 percent of the streambanks. SBO-003 was the most stable segment. The stream channel was not entrenching on any segment, but the channel was over-widened on all three segments. Active streambank erosion was occurring more on SBO-002 when compared to the other two segments. SBO-002 had bank erosion occurring on 5-15 percent of the segment.

There was no evidence of human induced disturbance factors. However, pugging was evident. SBO-002 had the most significant pugging. It had pugging on 35-45 percent of the segment. Thirty percent of the pugging was on the streambanks.

Table D3-3: Stream Channel/Floodplain Indicators and Functioning Condition Rating by Segment – South Boulder Creek

Stream Segment	**SBO-001**	**SBO-002**	**SBO-003**
Date of data collection	*9/2001*	*9/2001*	*9/2001*
Stream miles	*0.54*	*0.4*	*0.9*
Stream Channel/Floodplain Indicator	Indicator Rating[1]		
Floodplain inundated frequently (1)[2]	Y/N	Y/N	Y/N
Beaver dams are active and stable (2)	N	N	N

Stream Segment	SBO-001	SBO-002	SBO-003
Sinuosity, width/depth ratio, gradient in balance with landscape setting (3)	N	N	Y/N
Upland watershed not contributing to riparian degradation (5)	Y/N	Y/N	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	N	Y
Adequate large woody material (12)	N	N	Y
Floodplain and channel characteristics dissipate energy (13)	Y/N	Y/N	Y
Point bars revegetating with hydric species (14)	N	N	Y/N
Lateral stream movement associated with natural sinuosity (15)	Y/N	Y/N	Y/N
System is vertically stable (16)	Y	Y	Y
No excessive erosion or deposition (17)	Y/N	Y/N	Y
Overall functioning condition[3]	FAR-	FAR-	FAR
Apparent trend[4]	NA	NA	NA

[1] (Y=yes, N=no, Y/N = A portion meets and a portions does not meet)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3]PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

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Two of the three reaches (1.3 miles) described above were re-visited in 2011 and were in PFC. The assessments note that the stream is geologically confined and allows little access to livestock. There were vigorous riparian species along both reaches and the stream banks had adequate cover to stabilize and protect the banks during high flows.

Old Man Creek

Approximately 0.75 miles of Old Man Creek crosses public land in Pasture 1.

Riparian Inventories and Assessments

Old Man Creek was inventoried in June 2000 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). However, the segment in the South Mountain Individual Allotment was not inventoried. The inventoried segment is higher in the drainage (within the adjacent allotment) and the report discusses a water diversion structure having a significant impact. There was no surface water below the diversion structure.

The information below is a summary of all the riparian assessment information for the allotment- both previously assessed as well as the supplemental information (also see Map RNGE-1C).

Table RIPN-7: Riparian assessment information for the South Mountain Individual allotment

	Allotment, Pasture Name, and Miles Assessed			
Stream Name	**South Mnt Ind-01**	**South Mnt Ind- 02**	**Assessment Issues/ Impacts Identified**	**Total Miles**
Old Man Creek	0.3 (FARU-2004)		terraced banks/ overwide channel	0.3
Rail Creek	0.3 (FARS-2000)		lack of age class of hydric vegetation/ inadequate hydric veg to protect stream banks/ plants had low vigor/ point bars not revegetating	0.3
South Boulder Creek	1.7 (FAR- 2000) 1.3 (PFC- 2011)		2000- vegetation present does not reflect maintenance of hydric soils/ inadequate vegetation to protect stream banks/ point bars are not revegetating 2011- the stream is geologically confined and inaccessible to livestock	1.7
South Mountain Creek		1.5 (FARS-2000) 0.6 (re-visit; pictures only-2011)	2000- inadequate composition of hydric species to stabilize stream banks and protect against high flows/ plants had low vigor/ point bars were not revegetating 2011- appears FAR- lack of hydric vegetation and trampled stream channel/ banks- also fish bearing	1.5

MIM Metrics						
Stream Name	**Pasture/ Assessment Year**	**Mean Stubble Height (inches)**	**Woody Use (%)**	**Streambank Alteration (%)**	**Stable Bank (%)**	**Covered Bank (%)**
Rail Creek	1/ 2011	21.2	10	11	91	99

4. Native Plant Communities

Five (5) Rangeland Health evaluations were completed on the Morgan Allotment during the 2003 field season by an interdisciplinary team. The evaluations were conducted in accordance with the procedure described in BLM-Technical Reference 1734-6, "Interpreting Indicators of Rangeland Health- Version 3". Evaluation methods are discussed in Appendix B. Table D4-1 summarizes all indicator ratings related to Standard 1, by pasture. Nine (9) of the 17 standard indicators are related to Standard 4. For example, 3 sites were evaluated in Pasture 2, for a total of 27 indicator ratings related to native plant communities. Of these, 6 were rated as having a "none to slight" degree of departure from reference site conditions. Indicator ratings by site are included in Appendix E. Refer to Appendix H, Map 4 for rangeland health evaluation locations.

Table D4-1. Summary of Native Plant Communities related indicator ratings

Native Plant Communities	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme
Pasture 1[1]	2	10	4	1	1
Pasture 2[2]	6	12	9	0	0

[1]Summarizes: 2 Shallow Claypan 12-16" ecological sites
[2]Summarizes: 3 Shallow Claypan 12-16" ecological sites

Pasture 1

The two evaluations were completed in Pasture 1 (RH1A, RH1B), both located in T7S, R5W, Section 12. The indicator for plant mortality/decadence was rated as 'extreme' at RH1A, and 'moderate to extreme' at RH1B. At both sites, reproductive capability of perennial plants was rated as showing a 'moderate' departure from reference conditions.

Site RH1A had abundant gravel in interspaces which was providing some resistance to erosion. Dramatic soil loss and degradation of soil surface in interspaces and around pedestals were observed on the site. All structural/functional groups were present. Idaho fescue was dominant in interspaces, but crown die-out was commonly observed, and relative abundance of small perennial bunchgrasses was higher than expected. Biological crust was slightly less than expected. Mortality was common on Idaho fescue and Sandberg bluegrass. Annual production was slightly reduced due to morality of Idaho fescue. Tall annual willowherb (*Epilobium brachycarpum)* was more common than expected on this site with a trace of bulbous bluegrass. Vigor and seedhead production was low on Idaho fescue. Vigor and reproductive capability of shrubs appeared adequate.

At RH1B, resistance to erosion was reduced. In shrub interspaces where biological crust was less common, pedestals and soil instability were observed. Interspaces often displayed evidence of loss and degradation with some loss under shrub canopies. All functional/structural groups were present. Mortality was extensive on Idaho fescue and common on Sandberg bluegrass, which also displayed reduced reproductive capability. Litter amount and annual production was slightly below expected. Western juniper and rabbitbrush were present populations were within the expected range for the site. Low sagebrush recruits were common and some bluebunch wheatgrass seedlings were found on the site.

Pasture 2

Two (2) evaluations (RH2A, RH2B) in T7S, R4W, Section 8 and one (RH2C) in T7S, R4W, Section 20 were completed in Pasture 2. The indicator of plant mortality/decadence was rated as showing a 'moderate' departure from expected conditions at all 3 sites. In addition, the invasive plants indicator was rated as 'moderate' at RH2B and RH2C, and reproductive capability of perennial plants was rated as 'moderate' at RH2B.

Site RH2A showed soil surface resistance to erosion to be slightly reduced with less than expected stabilizing agents. Historic and active surface soil loss and degradation was observed. Idaho fescue was the dominant grass in shrub interspaces, and bluebunch wheatgrass was present in trace amounts. Large, cool season perennial bunchgrasses were below site potential, while structurally smaller bunchgrasses were higher than expected. Cover of shrubs was as expected. Litter amount was slightly reduced in trailing areas and flow paths. Pedestaled Idaho fescue and

bluegrasses showed crown die-out. The annual production was slightly less than expected. Pedestaled plants showed reduced vigor and seedhead production. Idaho fescue was fairly robust in protected areas.

Site RH2B had reduced soil surface resistance to erosion with slightly less than expected stabilizing agents. Historic and active soil loss and degradation was observed on the site, which is dominated by low sagebrush and Idaho fescue. Idaho fescue populations were slightly below site potential but all other structural/functional groups were nearly as expected. Multiple age classes of all species were present. Litter amount was slightly reduced in trailing areas and in flow paths. Western juniper was slightly more common than expected, with a scattered distribution across the site. There was some crown die-out observed on pedestaled grasses. There was a slight reduction in Idaho fescue annual production. Seedhead production was limited on Idaho fescue and Sandberg bluegrass.

On Site RH2C resistance to erosion was provided by abundant, but not continuous, gravel armor. Raindrop impact was observed where vegetation, organic matter, and biological crust were reduced. Significant soil losses were occurring throughout site and were associated with pedestals. Litter amount was reduced in flow paths. The site is dominated by low sagebrush and Idaho fescue. All functional/structural groups were present in similar to expected amounts. Idaho fescue was reduced between shrubs but within the expected range for the site. Decadence and mortality were observed on pedestaled Idaho fescue and Sandberg bluegrass plants. Western junipers were scattered to common on the site and a trace of bulbous bluegrass was present. Seedheads were reduced on Idaho fescue but most plants appeared vigorous with multiple age classes present.

Long-term Vegetation Studies (Trend)

Two nested plot frequency transect (NPFT) studies were established on the allotment in 1991 and reread in 2003. One plot was located at T07S, R04W, Section 8 (07S04W08), and one is located in T07S, R05W, Section 12 (0705W12) (Table D4-2). In Pasture 1, Sandberg bluegrass increased slightly, but frequency of Idaho fescue and bottlebrush squirreltail decreased significantly. Low sagebrush frequency remained unchanged. In pasture 2, Sandberg bluegrass, Idaho fescue, bottlebrush squirreltail and low sagebrush all declined in frequency. Frequency data are also presented in Appendix G. In photos from both sites, plants appeared to be vigorous in 1991, but vigor appeared to low in 2003.

Table D4-2. Frequency (%) of Key species, South Mountain Individual Allotment

	0705W12 (Pasture 1)		07S04W08 (Pasture 2)	
Species	**1991**	**2003**	**1991**	**2003**
Sandberg bluegrass	88	98	100	91
Idaho fescue	99	44	37	27
Bottlebrush squirreltail	22	5	63	43
Low sagebrush	58	55	37	27

Trend Data

Pasture 1

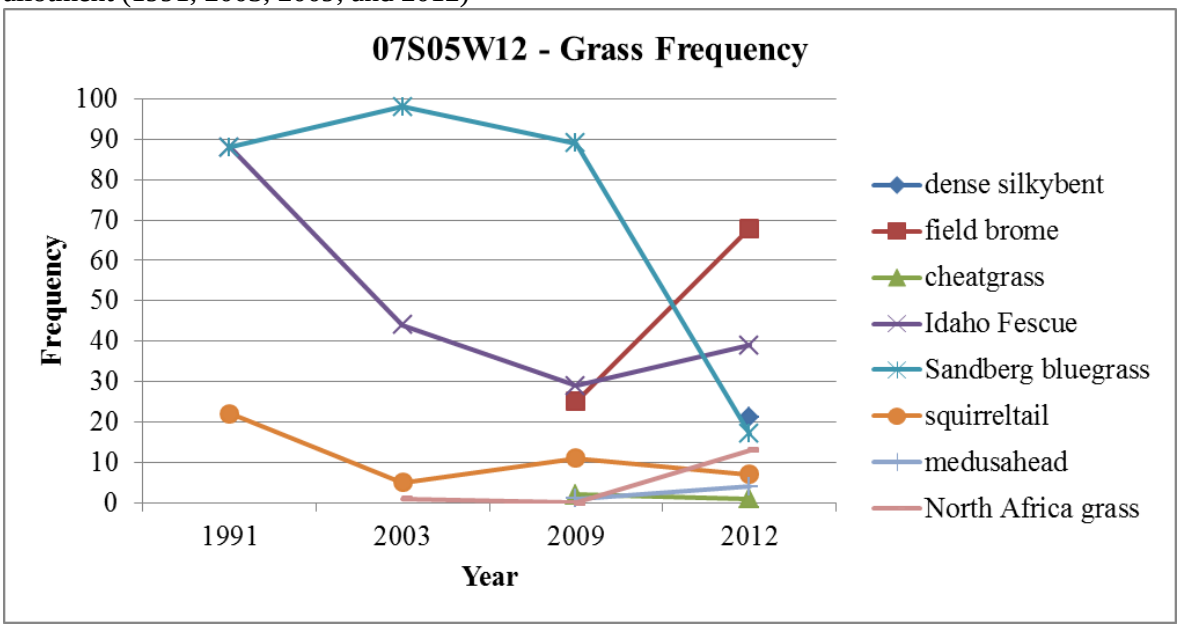
Ground cover trend data were collected in pasture 1 at the nested plot frequency transect 07S05W12 in 2003, 2009, and 2012 (Table VEG-11 and Figure VEG-5). Sandberg bluegrass has decreased significantly over the long and short term. There was a short-term increase in Idaho fescue; however, since 1991, it has experienced a long-term decrease. Annual invasives have shown a significant increase in frequency, with field brome dominating the site. Low sagebrush frequency has decreased in frequency but increased in density. (Short-term compares the two most recent years, long-term the first against the last year.)

Overall interpretation of frequency data suggests a steep decrease in Sandberg bluegrass that coincides with an increase in field brome and North Africa grass. The integrity of the biotic community has been compromised by field brome.

Table VEG-11: Grass frequency data from trend site for pasture 1 of the South Mountain Individual allotment (1991, 2003, 2009, and 2012)

Grasses		**Percentage**			
Species		**1991**	**2003**	**2009**	**2012**
APIN	dense silkybent				21
BRJA	field brome			25	68
BRTE	cheatgrass			2	1
FIED	Idaho Fescue	88	44	29	39
POSE	Sandberg bluegrass	88	98	89	17
SIHY	squirreltail	22	5	11	7
TACA8	medusahead			1	4
VEDU	North Africa grass		1	0	13

Figure VEG-5: Grass frequency data from trend site for pasture 1 of the South Mountain Individual allotment (1991, 2003, 2009, and 2012)



Pasture 2

Three evaluations (RH2A, RH2B, and RH2C) were completed in pasture 2. The indicator of plant mortality/decadence was rated as a moderate departure from expected conditions at all three sites. In addition, the invasive plants indicator was rated as moderate at RH2B and RH2C, and reproductive capability of perennial plants was rated as moderate at RH2B.

Trend Data

Grass frequency trend data were collected in pasture 2 at the nested plot frequency transect 07S04W08 in 2003, 2009, and 2012 (Table VEG-12 and Figure VEG-6). Over the long term, Idaho fescue and squirreltail are on a downward trend. The site is dominated by Sandberg bluegrass and field brome. Annual invasives are increasing on the site. Low sagebrush frequency and density have decreased on the site.

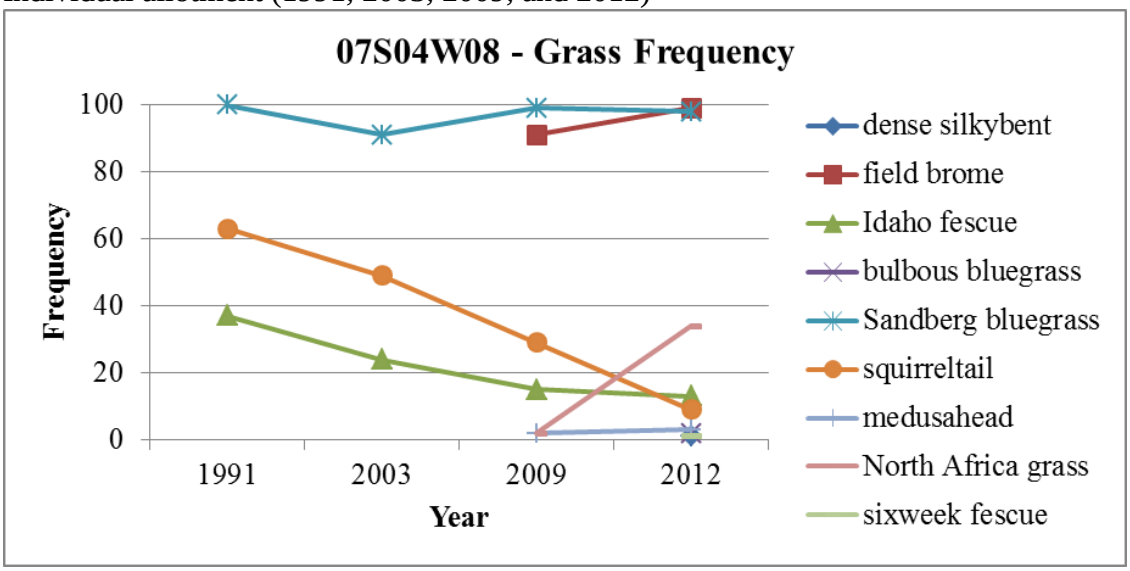
Deep-rooted perennial bunchgrasses are decreasing while invasive annuals are increasing on the site. Overall interpretation of grass frequency trend data suggests that the site is dominated by field brome and Sandberg bluegrass and has compromised the biotic integrity of the site.

Table VEG-12: Grass frequency data from trend site for pasture 2 of the South Mountain Individual allotment (1991, 2003, 2009, and 2012)

Grasses		**Percentage**			
Species		**1991**	**2003**	**2009**	**2012**
APIN	dense silkybent				1
BRJA	field brome			91	99
FEID	Idaho fescue	37	24	15	13
POBU	bulbous bluegrass				2
POSE	Sandberg bluegrass	100	91	99	98

SIHY	squirreltail	63	49	29	9
TACA8	medusahead			2	3
VEDU	North Africa grass			2	34
VULPIA	sixweek fescue				1

Figure VEG-7: Grass frequency data from trend site for pasture 2 of the South Mountain Individual allotment (1991, 2003, 2009, and 2012)



Upland Utilization Monitoring

Utilization data were gathered in Pastures 1 and 2 during six years in the period between 1988 and 1999. Data gathered during these years found use was in the Slight (5-20%) to Light (20-40%) categories. Use pattern maps indicate that use of key species was typically heavy (60-80%) to severe (80-100%) near waters rapidly decreased with distance from water. The procedure for monitoring utilization is provided in Appendix B of this report.

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Utilization

Pasture 1

Data collected in 2008 and 2009 were incomplete for analysis. Utilization data collected ranged from slight to light use from 1990 to 2012 (Table VEG-13).

Table VEG-13: Utilization data from trend site for pasture 1 of the South Mountain Individual allotment (1990-2012)

Date	PSSP	FEID	POSA
7/19/1990		18	
10/19/1994		13	
5/28/2009		3	

5/24/2011		30	
6/22/2011			11
6/20/2012			22

Pasture 2
Utilization data collected ranged from slight to light use from 1992 to 2012 (Table VEG-14).

Table VEG-14: Utilization data from trend site for pasture 2 of the South Mountain Individual allotment (1992-2012)

Date	PSSP	FEID	POSA
10/22/1992		9	
8/4/1993		37	
10/19/1994		25	
7/22/1999		11	
10/21/2008		3	
9/8/2009		28	
8/3/2011	14		22
7/19/2012	26		

5. Rangeland Seeding

This Standard does not apply to this allotment as no area is managed for seeded species.

6. Exotic Plant Communities

This Stand does not apply to this allotment.

7. Surface and Ground Water Quality

This assessment includes a review of data collected and water quality standards established by Idaho Department of Environmental Quality (IDEQ). The State is divided into basins and sub-basins and assessment units. The new 2005 Integrated Report (303(d)/305(b)) uses "assessment units" within the sub-basin. Assessment units are groups of similar streams within a sub-basin that have similar land use practices, ownership, or land management. Assessment units are assessed for pollutants and assigned Beneficial Uses with associated Water Quality Standards. The Beneficial Use Reconnaissance Program (BURP) is a field assessment of stream segments (all IDEQ data and standards mentioned here are available on the IDEQ web site- see references listed in section IV of this document).

The Bureau of Land Management (BLM) also collects data that can include riparian inventories, riparian Proper Functioning Condition (PFC) assessments, riparian habitat evaluation forms, stream survey forms, riparian aquatic data sheets, thermograph data and water quality monitoring data (BLM data is available at the Owyhee Field Office (OFO)).

There is 0.3 mile of Rail Creek and approximately 1.0 mile of Old Man Creek in Pasture 1. There is 1.5 mile of South Mountain Creek and 1.8 miles of South Boulder Creek in Pasture 2.

IDEQ has placed Rail Creek in the Jordan Assessment Unit. The unit has been assigned the following beneficial uses; Cold-water aquatic life (CWAL), Salmonid Spawning (SS) and Primary Contact-Recreation (PCR). The Jordan assessment unit is not supporting the criteria for CWAL and PCR. Salmonid spawning criteria has not been assessed. Pollutants listed for the Assessment Unit are bacteria, mercury, oil and gas, pesticides and siltation.

IDEQ has placed South Mountain Creek and South Boulder Creek in the Big Boulder Assessment Unit. The Unit has not been assessed and has not been assigned beneficial uses.

Most of South Mountain Creek, South Boulder Creek, and Rail Creek were assessed as having excessive levels of erosion or sediment deposition (see Standard 3 evaluation and Riparian Inventory data). These streams all were rated in Functional at Risk Condition. Most segments were inadequately vegetated with hydric vegetation to protect stream banks and dissipate stream energies during high flows.

The BLM also collected water temperature and *Escherichia coli (E. coli)* data in 2001 and 2004. The criterion for Primary Recreation Contact is that the *E. coli* count will be less than the standard of 576 per 1000 millimeters. Rail Creek, with an *E. coli* count of 500, met the IDEQ criterion for PCR in 2004. South Mountain Creek, with an *E. coli* count of 4,000, did not meet the PCR criterion in 2004. The State of Idaho criterion for CWAL requires water temperatures of 22º C or less with a maximum daily average of less than 19º C. Old Man Creek and South Mountain Creek did not meet temperature criteria for CWAL. A temperature logger data recorder was established in South Boulder Creek in 2001. From July 5 through August 14, water temperature met CWAL criteria but did not meet the colder SS temperature criteria. Following August 14, extreme spikes in temperature occurred between night and day indicating the logger was not in water. After August 18, the water raised enough to cover the logger and from then until it was removed on August 28 the water temperature was above the CWAL criteria. A BLM survey crew in 1977 noted warm-water springs in South Boulder Canyon, but the exact location was not noted.

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The South Mountain Individual allotment falls within the Jordan subbasin. There are approximately 0.9 mile of stream that are not supporting one or more of the subbasin's beneficial uses, and 7.8 miles that have not been assessed. The subbasin's beneficial uses that are not being met include cold-water aquatic life and secondary contact recreation. The pollutants of concern include mercury and temperature (IDEQ, 2010). Pasture 1 of the allotment contains steams that have been placed on the 303(d) list of impaired waters. The streams occur in AU# ID17050108SW004_02 which has been de-listed for temperature, but remains on the 303(d) list for mercury.

8. Threatened and Endangered Plants and Animals

Botany

No federally listed plant species are known to occur in the South Mountain Individual Allotment, although the U.S. Fish and Wildlife Service (USFWS) considers all of Idaho to be within the potential range of Ute ladies'-tresses (*Spiranthes diluvialis*), a federally threatened orchid species. This plant occurs in spring, seep, and riparian habitats. Due to the difficulty in narrowly defining potential habitat for this species, USFWS has chosen to apply a loose definition and requires Section 7 consultation only in three counties of southeast Idaho or in areas where the plant is actually found (USFWS 2002). Surveys specifically for this plant are recommended prior to authorizing federal actions in southwest Idaho, but not required.

No BLM special status plant species are known to occur on the South Mountain Individual Allotment. Site-specific plant surveys are conducted prior to construction of range projects.

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Botany No populations of special status plant species are known to occur in this allotment. There is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment. Records show no reported special status plants in this allotment, so this standard is not applicable. **Information sources** Elemental Occurrences (EOs) for special status plant (SSP) populations is recorded in the Idaho Fish and Wildlife Information System (IFWIS) Species Diversity database (IDFG, 2011). EOs are derived by completion and review of Idaho rare plant observation reports through the Idaho Natural Heritage Program. Other sources that were used to assess and evaluate the composition and condition of SSP habitats within the South Mountain Individual allotment include RHAs, photographs, field notes, Plants database (USDA NRCS, 2013) literature search, and information summarized above in Standards in this document. Records show no reported special status plants in this allotment.

Wildlife

A number of species classified as BLM "Sensitive Species" and/or State of Idaho "Species of Special Concern" are known or likely to occur within the allotment. A summary of these species, their legal status, and their key habitat associations is included in Appendix C.

Riparian Habitat

The BLM riparian assessments were conducted in 2000 and 2001. All 4 miles of assessed stream riparian habitat (Rail Creek, South Mountain Creek and South Boulder Creek) in this

allotment are low to mid Functional-At Risk. Structural diversity, composition and vigor of hydric vegetation are lacking in these stream reaches resulting in habitat that were not adequately providing for the needs for dependant special status animals.

The allotment was surveyed for Columbia spotted frog, but occupied habitat was not found.

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Columbia Spotted Frog Inventory/target survey information in 2008 near a stock pond did not record any occurrence of spotted frogs in pasture 1.

It is not known whether redband trout occur in Rail Creek. Surveys on South Mountain Creek in 1977 and on South Boulder Creek in 1996 verified redband trout presence. Redband trout habitat in South Mountain Creek and South Boulder Creek is unsatisfactory: riparian assessments being Functional-At Risk on both creeks and temperatures exceeding both Cold-water aquatic life and Salmonid Spawning criteria on South Mountain Creek and not meeting Salmonid Spawning criteria on South Boulder Creek.

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Riparian Habitat South Mountain, Old Man, and Rail Creeks are perennial streams that flow within this allotment and have been assessed as functioning-at-risk. Riparian habitat issues included low vigor of riparian plant species, lack of vegetation composition and age classes of hydric species, channel widening, trampling of banks, and inadequate vegetation to stabilize banks (see Standards 2 and 3). Evaluation of Standard 7 identified streams on the IDEQ's 303(d) list of impaired steams and that water quality parameters are not being met for the watershed's beneficial uses. The list of beneficial uses includes water quality standards for cold-water aquatic life (see Standard 7). However, livestock grazing practices are not the casual factor for not meeting water quality parameters.

General Upland Habitat Assessment

Most of this allotment is not near reference conditions, departure being 'Moderate', with a declining trend. Abundance and diversity of grasses, forbs and shrubs are generally less than that expected for the site and are not providing habitat that is adequate for the needs of most dependant special status and other wildlife species. The localized lack of large bunchgrasses and reduced shrub cover are limiting cover, structure and forage for sage grouse, numerous song birds, pygmy rabbits and others including a diversity of insects, rodents, birds that are critical prey for most raptors including prairie falcons, northern harriers, and ferruginous hawks. While mature stands of western juniper provide high quality habitat for a large diversity of birds, bats and other species, increasing dense stands of young (seral) juniper have been shown to support a

reduced diversity and abundance of birds (Sauder 2002). Site stability is being provided by ground cover, litter and biological soil crusts.

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Upland Habitat *Pasture 1* Pasture 1 in the South Mountain Individual allotment is managed as native plant community. Plant community information in Standard 4 recorded a long-term decrease (currently showing a short-term increase) in the frequency of Idaho fescue, a substantial decrease in Sandberg bluegrass, and substantial increase in field brome. Idaho fescue and field brome are the dominant understory species. The dominance of field brome signals a transition in the plant community composition favoring smaller stature, more grazing-tolerant annual grass species. These understory species do not have the robust growth form or stature such as Idaho fescue and do not provide the plant composition, structure, and function for sagebrush steppe dependent species. *Pasture 2* Pasture 2 in the South Mountain Individual allotment is managed as native plant community. Plant community information in Standard 4 recorded a long-term downward trend in Idaho fescue and squirreltail, the pasture is dominated by Sandberg bluegrass, and annual invasive are increasing. The dominance of Sandberg bluegrass and the increase of annual invasive species signal a transition in the plant community composition favoring smaller stature, more grazing-tolerant grass species. These understory species do not have the robust growth form or stature such as Idaho fescue and do not provide the plant composition, structure, and function for sagebrush steppe-dependent species.

Big Game and other Vertebrates

The allotment is spring/summer/fall range for pronghorn antelope, Rocky Mountain elk and mule deer (1999 Owyhee Resource Management Plan). The native perennial grasses, forbs and shrubs have departed from the reference conditions to such an extent that they are not providing good habitat to support the forage and cover needs for these large ungulates and other smaller vertebrates.

Sage grouse

The South Mountain Individual Allotment includes key habitat for sage grouse. Breeding habitat has been assessed in accordance with methodologies described in “A Framework to Assist in Making Sensitive Species Habitat Assessments for BLM-Administered Public Lands in Idaho” (as revised in May 2001). Refer to Appendix C for sage grouse habitat assessments worksheets that include specific rating criteria for each habitat indicator. Sage grouse lek (breeding ground) surveys from 1994 to 2003 have identified active leks within and in close proximity to this allotment.

Pasture 1 had one sage grouse breeding habitat assessment (T7S, R5W, Section 13 SWSE) completed in 2004. Table B8-1 portrays the suitability by habitat indicators. Vegetation was

characterized by low sagebrush, Idaho fescue and bottlebrush squirreltail with mountain big sagebrush occurring in pockets along the drainage and on a slope shoulder of an east facing ridge. Western juniper is spotty in distribution. Low sagebrush had a 7-10 percent cover and was 8 to 12 inches tall with a spreading growth form. Idaho fescue and squirreltail grasses provided good cover, 25-35 percent, but lacked stature and height, 2 to 4 inches tall. Five of six forb species are preferred by sage grouse, however four of them are rare in occurrence. Shrub cover and interspace grass cover were inadequate cover for large ground nesting birds. The overall rating was marginal breeding habitat.

Table B8-1: Sage Grouse Breeding Habitat Assessment

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

Pasture 2 had one sage grouse breeding habitat assessment (7S4W17) completed in 2004. Table B8-2 portrays the suitability by habitat indicators. Vegetation was characterized by western juniper, low sagebrush and Idaho fescue. Density of Idaho fescue was adequate, 30 percent cover in the interspaces, but the diameter and height (3 to 4 inches tall) were less than desirable. Shrub cover was 20-25 percent with a spreading growth form up to 11-13 inches tall. Juniper was common. There was a poor forb density and abundance. The preferred forbs were rare to sparse. Overall the breeding habitat was marginal.

Table B8-2: Sage Grouse Breeding Habitat Assessment

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

On March 5, 2010, the USFWS (USDI USFWS, 2010) published a finding in 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 BLM Type 2 sensitive species to a candidate species under the ESA.

This allotment lies within the regional Snake River Plain Management Zone for sage-grouse. In 2012, preliminary priority habitat (PPH) and general priority habitat (GPH) were modeled to identify lands in Idaho important to sage-grouse sustainability. PPH includes breeding, late brood-rearing, and winter concentration areas. General priority habitat are lands that may serve as important corridors between PPH and habitat islands within corridors, or occupied habitats characterized by low lek densities (Makela & Major, 2012). The BLM collaborated with respective state wildlife agencies to identify these areas. Modeling results indicate that 4,231 acres (93 percent) of the South Mountain Individual allotment lies within PPH (Table WDLF-13, Map WDLF-1D). Three active leks are recorded within pasture 2. This allotment provides seasonal breeding, upland summer, riparian, and winter habitat for sage-grouse.

Table WDLF-13: Acres[1] and portions of preliminary priority and general priority habitat within the South Mountain Individual allotment (Map WDLF-1D)

Allotment/Pasture Name	Acres of PPH Sagebrush Habitat in Allotment[2]	Acres of PPH Perennial Grassland in Allotment	Acres of PPH Juniper Encroachment in Allotment	Acres of PGH in Allotment	Portion of Allotment in PPH/PGH
Pasture 1	1,915 (98%)	0	30 (2%)	0	1,945 (100%)
Pasture 2	929 (36%)	0	1,251 (49%)	106 (4%)	2,286 (89%)
Allotment Total	2,844 (63%)	0	1,281 (28%)	106 (2%)	4,231 (93%)

[1]PPH/PGH habitat acreage totals include public lands, state lands, and private property.
[2]PPH sagebrush can also include small amounts of perennial grasslands, conifer encroachment, and non-habitat.

Pasture 1
Three sage-grouse upland summer habitat assessments were conducted in pasture 1 on August 14, 2012. All assessments was collected on a Loamy 12-16" Wyoming big sagebrush / bluebunch wheatgrass ecological sites. This pasture is managed as a native plant community.

Breeding Habitat Assessment
This information was collected as part of a upland summer habitat assessment conducted on August 14, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months and the data collection protocols are the same, this information can provide insight into breeding habitat conditions earlier in the spring, although the forb information is not used because of the time year the data was collected.

The sagebrush overstory is characterized by a marginal canopy cover (34 percent) and marginal height (112.7 cm) with a marginal mixed (spreading/columnar) shape. The understory is characterized by a marginal canopy cover of perennial grasses (8 percent) (Table WFLD-15). Overall, less-than-adequate (marginal) overstory/understory story conditions for nesting and hiding sage-grouse are shown to be occurring in this pasture due to less-than-desirable sagebrush

and perennial grass occurrence and structure.

Upland Summer Habitat Assessment
The sagebrush overstory is characterized by a marginal canopy cover (34 percent) and suitable height (112.7 cm). The understory is characterized by a marginal combined canopy cover of perennial grasses and forbs (9.3 percent) (Table WDLF-14). The number of preferred forb species (4) is marginal. Overall, less than adequate (marginal) overstory/understory conditions and less-than-desirable number of preferred forb species do not provide favorable structure and composition for hiding/escape cover and forage for late brood-rearing sage-grouse.

Winter Habitat Assessment
This information was collected as part of a breeding habitat assessment conducted on August 14, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a suitable canopy cover (34 percent) and suitable height (112.7 cm). Overall, sagebrush occurrence and height are providing suitable winter cover and forage conditions for sage-grouse and are not limiting factors in this pasture (Table WDLF-14).

Table WDLF-14: Sage-grouse habitat indicators and pasture ratings (Refer to Appendix B and Figure WDLF-1D for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	[1]Breeding	Upland Summer	[1]Winter
Sagebrush Canopy Cover (%)	34.7	marginal	marginal	suitable
Sagebrush Height (cm)	112.7	marginal	marginal	suitable
Sagebrush Form	mixed	marginal		
[2]Perennial Grass Canopy Cover (%)	8.0	marginal		
Combined Grass/Forb Canopy Cover (%)	9.3	marginal	marginal	
Preferred Forb Availability (#)	4		marginal	
Overall Pasture Evaluation Rating		**marginal**	**marginal**	**suitable**

[1]Breeding and winter habitat ratings extrapolated from upland habitat assessment information collected on 8/14/2012.
[2]Perennial grass canopy cover does not include Poa species.

Pasture 2
Two sage-grouse upland summer habitat assessments were conducted in Pasture 1 on August 15, 2012. Both assessments was collected on a Shallow Claypan 12-16” Low sagebrush / Idaho fescue ecological sites. This pasture is managed as a native plant community.

Breeding Habitat Assessment
This information was collected as part of an upland summer habitat assessment conducted on August 15, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months and the data collection protocols are the same, this information can

provide insight into breeding habitat conditions earlier in the spring, although the forb information is not used because of the time year the data was collected.

The sagebrush overstory is characterized by a suitable canopy cover (22 percent) and marginal height (38.5 cm) with a marginal mixed (spreading/columnar) shape. The understory is characterized by a marginal canopy cover of perennial grasses (9 percent) (Table WDLF-15). Overall, less-than-adequate (marginal) overstory/understory story conditions for nesting and hiding sage-grouse are shown to be occurring in this pasture due to less-than-desirable sagebrush and perennial grass occurrence and structure for nesting and early brood-rearing sage-grouse.

Upland Summer Habitat Assessment
The sagebrush overstory is characterized by a marginal canopy cover (22 percent) and suitable height (38.5 cm). The understory is characterized by a combined unsuitable canopy cover of perennial grasses and forbs (10 percent) (Table WDLF-15). The number of preferred forb species (5) is marginal. Overall, less-than-adequate (marginal) overstory/understory conditions and less-than-desirable number of preferred forb species does not provide favorable structure and composition for hiding/escape cover and forage for late brood-rearing sage-grouse.

Winter Habitat Assessment
This information was collected as part of a breeding habitat assessment conducted on August 15, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a marginal canopy cover (22 percent) and suitable height (38.5 cm). Overall, sagebrush occurrence and height are providing suitable winter cover and forage conditions for sage-grouse and is not a limiting factor in this pasture (Table WDLF-15).

Table WDLF-15: Sage-grouse habitat indicators and pasture ratings (Refer to Appendix B and Figure WDLF-1D for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	[1]Breeding	Upland Summer	[1]Winter
Sagebrush Canopy Cover (%)	22.0	suitable	marginal	suitable
Sagebrush Height (cm)	38.5	marginal	marginal	suitable
Sagebrush Form	mixed	marginal		
[2]Perennial Grass Canopy Cover (%)	9.0	marginal		
Combined Grass/Forb Canopy Cover (%)	10.0		marginal	
Preferred Forb Availability (#)	5		marginal	
Overall Pasture Evaluation Rating		**marginal**	**marginal**	**suitable**

[1]Breeding and winter habitat ratings extrapolated from upland habitat assessment information collected on 8/15/2012.
[2]Perennial grass canopy cover does not include Poa species.

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Columbia Spotted Frog Both pastures 1 and 2 are within the mapped distribution of the Columbia spotted frog. Potential habitat exists along stream corridors and springs (Map WDLF-2D).

E. Bachelor Flat FFR Allotment (640)

Physiography

The Bachelor Flat FFR allotment is approximately 13 miles southwest of Silver City, Idaho in Owyhee County. The allotment is composed of two pastures. The northern pasture is associated with private lands along Big Boulder Creek and the southern pasture is associated with private lands along Old Man Creek. The allotment is in USDA Natural Resource Conservation Service Major Land Resource Area 25, Owyhee High Plateau (USDA, NRCS 2004). The allotment encompasses public, State and private lands totaling approximately 2,176 acres (Table E-1).

The elevation of the allotment is between 4,600 and 5,100 feet. The annual precipitation ranges from 11-15 inches and the frost-free periods range from 75 to120 days. The major landforms in the area are categorized as structural benches, foothills and bottomlands. Soils are commonly moderately deep to hardpan loams with a slope of 1 to 35 percent. The hazard of water erosion is slight or moderate. The hazard of wind erosion is moderate. Common vegetation includes low sagebrush, Idaho fescue, bluebunch wheatgrass, and mountain big sagebrush with an occasional western juniper

Table E-1: Land Status (in acres)*

	Public	State	Private	Total
Pasture 1	653	198	421	1,272
Pasture 2	248	0	656	904
Total	**901**	**198**	**1,077**	**2,176**

*Acreages represent best available estimates

Livestock Grazing Management

In the Owyhee Resource Management Plan (1999), the Bachelor Flat FFR Allotment was placed in Selective Management Category "Improve" with low priority. Improve allotments are managed with the objective to manage the public lands with adequate expenditure of funding and manpower to improve current unsatisfactory resource conditions. They must also meet or make progress in meeting the Idaho Standards for Rangeland Health. The RMP identified 127 animal unit months (AUMs) of active preference for livestock grazing.

Livestock grazing is authorized by a term grazing permit issued to Tom Quintana. The current permit for this allotment is summarized in Table E-2.

Table E-2. Permitted Use Summary – Bachelor Flat FFR Allotment.

Operator Name & No.	Livestock Kind & No.	Season of Use	% PL	AUMs		
				Active	Suspended	Permitted
Tom Quintana (1101451)	125 cattle	12/01-12-31	100	127	0	127

In accordance with the grazing permit Terms and Conditions, the grazing permittee is required to submit Actual Use Reports at the conclusion of each grazing season annually. Table E-3 summarizes the total AUMs and Table E-4 displays the period of use as reported each year on Actual Use Reports. Although the authorization is for 100 percent public land, the allotment is only 42 percent public land. The percent public land in the allotment is considered when calculating actual use on public lands.

Table E-3: Actual Use in AUMs

Pasture	1994	2002	2003	2004	2005
1	112	28	32	101	77
2	0	77	20	32	32
Allotment	112	105	52	133	109

* Actual Use Reports are submitted at the end of each grazing year by the Authorized Grazing Permittee. These reports are required for each allotment, in accordance with Terms and Conditions found on the grazing permit.

Table E-4: Season of Use from Actual Use

Pasture	1994	2002	2003	2004	2005
1	5/24 - 6/26 7/2 - 7/6	5/6 - 6/19	6/12 - 6/16	4/1 - 4/16	4/5 - 4/16
2	Rest	6/15 - 7/10	11/20 - 12/9	6/11 - 6/15	6/15 -6/19

Note: No actual use reports were submitted for grazing years 1990-1993, and 1995-2001.

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Actual Use

Actual use for the allotment has ranged from 51 to 207 AUMs between 2002 and 2012, with an average of 122 AUMs for the allotment (Table LVST-5). Calculations for AUMs were re-configured in 2013 and AUMs differ slightly from 2006 data interpretation. No actual use was reported from 1997 to 2001, 2006, and 2011.

Table LVST-5: Actual use for the Bachelor Flat FFR allotment 2002-2012

	Pasture 1		Pasture 2		Allotment AUMS
Year	**Date**	**AUMS**	**Date**	**AUMS**	
2012	12/1-12/31				127
2010	4/16-5/7 82 AUMS				82
2009	6/15-7/1; 9/1-9/15	105	4/20-5/20	102	207
2008	Rest	Rest	Rest	Rest	Rest
2007	5/1-6/1 107 AUMS				107
2005	4/5-4/16	76	6/15-6/19	32	108
2004	4/1-4/16	99	6/11-6/15	31	130
2003	6/12-6/16	31	11/20-12/9	20	51
2002	5/6-6/19	91	6/15-7/10	75	166
Ave		80		52	**122**

1. Watersheds

Two (5) qualitative Rangeland Health Evaluations (RLH sites) of the watershed condition on the Bachelor Flat FRR Allotment were completed during the 2001 field season by an interdisciplinary team. The evaluations were conducted in accordance with the procedure described in BLM-Technical Reference 1734-6, "Interpreting Indicators of Rangeland Health-Version 3". Evaluation methods are discussed in Appendix B. Twelve (12) indicator ratings are related to Standard 1. Table E1-1 summarizes all indicator ratings related to Standard 1, by pasture. For example, 1 site was evaluated in Pasture 1, for a total of 12 indicator ratings related to watersheds. Of these, 10 were rated as having a "none to slight" degree of departure from reference site conditions. Indicator ratings by site are included in Appendix E. See Map 5 for rangeland health evaluation locations.

Table E1-1. Summary of Watershed related indicator ratings

Watersheds	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme
Pasture 1[1]	10	0	2	0	0
Pasture 2[2]	6	5	1	0	0

[1]Summarizes: 1 Shallow Claypan 12-16" ecological site
[2]Summarizes: 1 Shallow Claypan 12-16" ecological site

Pasture 1

The evaluation in pasture 1 (T6S, R4W Sec. 30), RH1A, was on a shallow claypan ecological site in a previously burned area. The date and magnitude of the fire are not available but the photographs suggest it was less than five years prior to completion of the range health evaluation. All indicators of the watershed condition had a "None to Slight" departure, except for plant community composition and amount of litter, which were rated as 'moderate'. Annual cheatgrass and medusahead were the dominant species on the site, bunchgrasses were well below potential, and shrubs were lacking. The amount of litter was higher than expected due to dominance of annual grasses. Site photographs indicate an abundance of litter from residual cheatgrass and medusahead. It appeared that soil surface loss and degradation were relatively recent, and related to post-fire effects. The annual species are giving the soil resistance to both wind and water movement. Desirable perennial species were present and showing signs of re-establishment.

2010 Flint Creek Fire

The Flint Creek wildfire burned the north-eastern boundary of pasture 1 in 2010. No emergency stabilization and rehabilitation (ESR) was completed after the fire due to little potential for rehabilitation. The post-fire Resource Advisor Report (see Owyhee Field Office project file) states that the vegetation is primarily a disparate mixture of healthy bluebunch wheatgrass stands and exotic invasive annual grasses (mostly medusahead and ventenata), with some scattered junipers in this very rocky area. The wind-driven fire and flashy fuels resulted in a cool burn with little heat input into the soil, little apparent mortality to the juniper, and the annual grass seeds were not killed by this cool fire. The bluebunch wheatgrass stands were expected to readily

re-sprout and did not require any rehabilitation efforts other than being rested from grazing. However, the pasture appears to have been grazed without rest after the fire based on actual use data (see above).

2013 Field Observations

A site visit in the spring of 2013 (see Owyhee Field Office project file) was made to re-examine the rangeland health assessment site RH1A that was monitored in 2001 before the latest fire in 2010 (see Appendix E); however, this RHA site previously burned in a fire that was estimated to have occurred in the latter half of the 1990s, though no data is available. A fire line is present to the east of the evaluated site and, behind it, contains vegetation communities more appropriate to what is expected for a Shallow Claypan 12-16" ecological site unburned areas.

Observations were very similar to those previously made in the 2001 assessment above, though pedestals were noted to be at moderate levels and appeared to be primarily historic due to the presence of biological soil crusts and mosses. Soil surface resistance to erosion and soil surface loss and degradation were rated as slight-to-moderate due to past loss of surface soils that was much more apparent alongside slopes than on the more stable ridgeline. The absence of shrubs and their lack of post-fire recruitment are influencing infiltration, while a strong presence of invasive annuals competes with the remaining shallow and deep-rooted bunchgrasses and, in places, cover the slope with a dense litter mat.

Pasture 2

The evaluation in Pasture 2 (T7S, R5W Sec. 1), RH2A, was on a shallow claypan ecological site. At this site, the indicator for pedestals/terracettes was rated as showing a 'moderate' departure from reference conditions due to active pedestals that appeared to be exacerbated by trampling. The remaining indicators related to Standard 1 were rated as 'none to slight' or 'slight to moderate.' Water flow patterns were short and rarely interconnected, bare ground was slightly higher than expected. Soil structure and resistance to erosion were as expected, but the plant community was slightly altered due to a higher than expected Sandberg bluegrass component, and somewhat reduced Idaho fescue.

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2013 Field Observations

A field visit in the spring of 2013 (see Owyhee Field Office project file) showed widespread impacts to soils. Entering the pasture eastbound, a small, shallow, ephemeral drainage shows one of many dry creek beds that drain toward Jordan Creek. Surrounding uplands are sparsely vegetated and, while rocks do provide some stabilization, contain common bare ground, pedestaling, surface sealing, and reduced biologic soil crusts. The lack of a surface horizon between many of the pedestals reflects on soil loss. Similar conditions can be observed all along the southern road and toward the northern boundary west of a reservoir. The fence delineating Bachelor Flat FFR pasture 2 and Boulder Flat pasture 1 appears to have been down for quite a while, as evidenced by the deteriorated conditions of the scattered posts, allowing unrestricted movement of unknown cattle numbers across allotment boundaries.

Taken together, these observations differ from the 2003 monitoring assessment at pasture 2 site

RH2A (see above) that reflected less disturbance. Upon additional review of the 2003 data, especially the photos, indicator ratings appear to be underestimated for bare soils, while the site summary for RH2A shows a moderate departure from reference conditions due to active pedestals that appeared to be exacerbated by trampling.

2. Riparian Areas and Wetlands

Streams on the Bachelor Flat FFR Allotment include Big Boulder Creek, Rail Creek, and Old Man Creek. The majority of the creeks are on State and private land. The 1999 Owyhee Resource Management Plan Table RIPN-1 identified 1.06 miles of Big Boulder Creek as having unsatisfactory riparian resources. Rail Creek and Old Man Creek are not mentioned.

Big Boulder Creek

The majority of Big Boulder creek crosses State and private land in Pasture 1. Two different segments (BIG-001 and BIG-002) occur on public land. One is approximately 0.48 mile and the other is approximately 0.28 mile. Big Boulder Creek has been manipulated in many ways including channelization, roads, a hayfield, and irrigation ditch.

Riparian Inventories and Assessments

Big Boulder Creek was inventoried in October 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures. The inventory divided the public land in the allotment into two segments. One segment was totally within the allotment and the other was only partially in the allotment. Both segments were assessed as Functional-At Risk high. The apparent trends were not identified Table (E2-1).

The BIG-001 segment was 0.48 mile in length. It is located in Section 25. The vegetation was classified as Yellow Willow Community Type or Sandbar Willow Community Type. Each community had a mix of shrubs, graminoids, and forbs. Yellow willow, Whiplash willow, and sandbar willow were the dominant shrubs. Redtop, common spikerush, and fowl bluegrass were the most common graminoids. The noxious weed Leafy spurge was found on 65-75 percent of the segment. Canada thistle was on 35-45 percent of the segment.

The BIG-002 segment was 0.28 mile in length. It is located in Section 31. It was classified as Sandbar Willow Community Type. It had a mix of shrubs, graminoids and forbs. Sandbar willow and yellow willow were the most common shrubs. Redtop was the most abundant graminoid. The segment had an abundance of the noxious weeds leafy spurge and Canada thistle.

Table E2-1: Riparian Indicators and Functioning Condition Rating by Stream Segment – Big Boulder Creek

Stream Segment	**BIG-001**	**BIG-002**
Stream miles	*0.48*	*0.28*

Stream Segment	**BIG-001**	**BIG-002**
Date of data collection	*10/8/2001*	*10/8/2001*
Pasture Number	*1*	*1*
Riparian/Wetland Indicators:	Indicator Ratings[1]	
Diverse age class/structure of hydric vegetation (6)[2]	Y	Y/N
Diverse composition of hydric vegetation (7)	Y	Y
Vegetation reflects maintenance of soil moisture (8)	Y	Y
Plant community comprised of bank stabilizing species (9)	Y	Y/N
Hydric vegetation exhibits high vigor (10)	Y/N	N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y	Y/N
Adequate large woody material (12)	Y/N	Y
Point bars revegetating with hydric species (14)	Y	Y/N
Noxious weeds are not increasing[3]	N	N
Overall functioning condition[4]	**FAR+**	**FAR+**
Apparent trend[5]	**NA**	**NA**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] Leafy spurge and Canada thistle were identified on both segments.
[4]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[5]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

Rail Creek

Rail Creek forms the western boundary of Pasture 1. Approximately 0.5 mile is on public land.

Riparian Inventories and Assessments

Rail Creek was inventoried in October 2000 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). Proper Functioning Condition assessments rated the creek as Functional-At Risk high/mid. The apparent trend was not identified (Table E2-2).

The vegetation was classified as Yellow Willow Community Type and Lanceleaf Cottonwood/Willow Community Type. The segment had a balance of trees, shrubs and graminoids. Cover of woody species varied between 65 and 100 percent. Redosier dogwood, Whiplash willow, yellow willow and Wood's rose were the dominant shrubs. Kentucky bluegrass was the dominant graminoid. There was a small population of the noxious weed Canada thistle.

Table E2-2: Riparian Indicators and Functioning Condition Rating by Stream Segment – Rail Creek

Stream Segment	**RAI-001**
Stream miles	*0.5*
Date of data collection	*10/16/2000*
Pasture Number	*1*
Riparian/Wetland Indicators:	Indicator Ratings[1]
Diverse age class/structure of hydric vegetation (6)[2]	Y
Diverse composition of hydric vegetation (7)	Y
Vegetation reflects maintenance of soil moisture (8)	Y/N
Plant community comprised of bank stabilizing species (9)	Y
Hydric vegetation exhibits high vigor (10)	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y
Adequate large woody material (12)	Y
Point bars revegetating with hydric species (14)	Y
Noxious weeds are not increasing[3]	N
Overall functioning condition[4]	**FAR+**
Apparent trend[5]	**NA**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] Canada thistle was found on the segment.
[4]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[5]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

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Rail Creek was re-assessed in 2011 and was in PFC. The stream is geologically confined and is well armored with woody species and boulders, limiting livestock access to approximately 50 percent of the stream.

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Springs One spring was assessed in 2012 as part of a sage-grouse assessment. The lentic area was in PFC. Adequate riparian species were present to stabilize and protect the area and soils, riparian species were in good vigor and recruitment was occurring.

Riparian Utilization

Livestock use in the riparian zone is typically measured by the stubble heights of graminoid species and the percent utilization of woody species. Stubble height measurements are a simple and effective tool to monitor rangeland use in key areas. Individual plant measurements are

collected from herbaceous vegetation such as grasses, sedges, and rushes. Generally stubble heights of 4 to 6 inches are an acceptable standard for effective streambank, protection, prevention of sedimentation, and maintenance of plant communities (USDI, BLM 1999). Table E2-3 displays data available on use of riparian resources in the allotment.

Table E2-3: Riparian Stubble Heights and Percent Shrub Use

Location	Pasture	Date	Stubble Height in Inches	Percent Shrub Use	Comments
BIG-001	1	10/8/2001	15-30	26-50	Young shrubs used >50%
BIG-002	1	10/8/2001	15	26-50	Young shrubs used >50%
RAI-001	1	10/16/2000	5	26-50	Young shrubs used >50%

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The table below is a summary of all the riparian information available for the allotment, both previously assessed, as well as supplemental, newer information (also see Map RNGE-1E).

Table RIPN-8: Riparian information for the Bachelor Flat FFR allotment pasture 1

Stream Name	Miles Assessed	Assessment Issues/ Impacts Identified	Total Miles
Big Boulder Creek	1.5 (FARS-2001) (pictures only- 2011)	2001: plants had low vigor/ inadequate hydric veg to protect stream banks 2011: geologically confined/ woody species protecting stream banks	1.5
Rail Creek	0.5 (FAR- 2001) (PFC- 2011)	2001: vegetation does not reflect maintenance of hydric soils/ noxious weeds present/ plants had low vigor 2011: geologically confined/ woody species protecting stream banks	0.5

Springs Assessed, Condition, & Issues Identified

Spring Name	Pasture/Assessment Year	PFC Condition	Assessment Issues/ Impacts Identified
0604-02-07S05W1A-2012	1/ 2012	PFC	a dam and some trampling present

3. Stream Channel/Floodplain

The stream channel and floodplain resources on the Bachelor Flat FFR Allotment are associated with Big Boulder Creek, Rail Creek and Old Man Creek. The majority of the creeks are on State and private land.

<u>Big Boulder Creek</u>

The majority of Big Boulder Creek crosses State and private land in Pasture 1. Two different segments are on public land. One is approximately 0.48 mile and the other is approximately 0.28 mile. Big Boulder Creek has been manipulated in many ways including channelization, roads, a hay field and irrigation ditch.

Stream Channel/Floodplain Inventories and Assessments

Big Boulder Creek was inventoried in October 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The inventory divided the public land in the allotment into two segments. One segment was totally within the allotment and the other was only partially in the allotment. Both segments were assessed as Functional-At Risk high. The apparent trends were not identified (Table E3-1).

The BIG-001 segment was 0.48 mile in length. It is located in Section 25. It was rated Rosgen stream type B4c and F4 equally. The B4c stream types are moderately entrenched systems with gradients of less than 2 percent. These stream types are considered relatively stable and are not high sediment supply stream channels (Rosgen 1996). The F4 stream types are gravel dominated, entrenched, meandering channels, deeply incised in gentle terrain. Streambank erosion may be high where adequate vegetation isn't established on the entire slope face of the channel banks (Rosgen 1996). The segment had deep binding root mass plants on 65 to 84 percent of the stream. Seventy to ninety percent of the streambanks were stable. The stream was vertically and laterally stable.

The BIG-002 segment was 0.28 mile in length. It is located in Section 31. This segment also was primarily Rosgen B4c and F4 stream types. It had deep binding root mass plants on 35-64 percent of the length. The segment was vertically and laterally stable.

Table E3-1: Stream Channel/Floodplain Indicators and Functioning Condition Rating by Segment – Big Boulder Creek

Stream Segment	**BIG-001**	**BIG-002**
Date of data collection	*10/8/2001*	*10/8/2001*
Stream miles	*0.48*	*0.28*
Pasture	*1*	*1*
Stream Channel/Floodplain Indicator	**Indicator Rating[1]**	
Floodplain inundated frequently (1)[2]	Y/N	Y/N
Beaver dams are active and stable (2)	N	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N	Y/N
Upland watershed not contributing to riparian degradation (5)	Y	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y	Y/N
Adequate large woody material (12)	Y/N	Y
Floodplain and channel characteristics dissipate energy (13)	Y/N	Y/N
Point bars revegetating with hydric species (14)	Y	Y/N
Lateral stream movement associated with natural sinuosity (15)	Y	Y
System is vertically stable (16)	Y	Y
No excessive erosion or deposition (17)	Y	Y
Overall functioning condition[3]	**FAR+**	**FAR+**

Stream Segment	BIG-001	BIG-002
Apparent trend[4]	**NA**	**NA**

[1](Y=yes, N=no, Y/N = A portion meets and a portions does not meet)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3]PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

Rail Creek

Rail Creek forms the western boundary of Pasture 1. Approximately 0.5 mile is on public land.

Stream Channel/Floodplain Inventories and Assessments

Rail Creek was inventoried in October 2000 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). Proper Functioning Condition assessments rated the creek as Functional-At Risk high/mid. The apparent trend was not identified (Table E3-2).

The stream was rated as primarily B4 and B3 Rosgen stream types. The B4 and B3 stream types are moderately entrenched systems. These stream types are considered relatively stable and are not high sediment supply stream channels (Rosgen 1996).

The stream had deep binding root mass plants on 65 to 84 percent of the length. Seventy to ninety percent of the streambanks were stable. The stream was vertically stable but had lateral cutting on <1 percent.

Table E3-2: Stream Channel/Floodplain Indicators and Functioning Condition Rating by Segment – Rail Creek

Stream Segment	**RAI-001**
Date of data collection	*10/16/2000*
Pasture	*1*
Stream miles	*0.5*
Stream Channel/Floodplain Indicator	Indicator Rating[1]
Floodplain inundated frequently (1)[2]	Y
Beaver dams are active and stable (2)	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N
Upland watershed not contributing to riparian degradation (5)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y
Adequate large woody material (12)	Y
Floodplain and channel characteristics dissipate energy (13)	Y
Point bars revegetating with hydric species (14)	Y

Stream Segment	RAI-001
Lateral stream movement associated with natural sinuosity (15)	Y
System is vertically stable (16)	Y
No excessive erosion or deposition (17)	Y
Overall functioning condition[3]	**FAR+**
Apparent trend[4]	**NA**

[1](Y=yes, N=no, Y/N = A portion meets and a portions does not meet)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3]PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

Stream Channel/Floodplain Inventories and Assessments

Old Man Creek was inventoried in June of 2000. However, the inventory did not include the segments in the Bachelor Flat FFR Allotment. The segment inventoried is about 1 mile upstream from the allotment boundary. The inventory indicates that the stream's water had been diverted.

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The table below is a summary of all the riparian information available for the allotment- both previously assessed, as well as supplemental, newer information (also see Map RNGE-1E).

Table RIPN-9: Riparian information for Bachelor Flat FFR allotment pasture 1

Stream Name	Miles Assessed	Assessment Issues/ Impacts Identified	Total Miles
Big Boulder Creek	1.5 (FARS-2001) (pictures only- 2011)	2001: plants had low vigor/ inadequate hydric veg to protect stream banks 2011: geologically confined/ woody species protecting stream banks	1.5
Rail Creek	0.5 (FAR- 2001) (PFC- 2011)	2001: vegetation does not reflect maintenance of hydric soils/ noxious weeds present/ plants had low vigor 2011: geologically confined/ woody species protecting stream banks	0.5

4. Native Plant Communities

Two (2) Rangeland Health Evaluations completed on the Bachelor Flat allotment during the 2001 field season by an interdisciplinary team, in accordance with BLM-Technical Reference 1734-6, "Interpreting Indicators of Rangeland Health-Version 3". Methods are also discussed in Appendix B. Nine (9) of the 17 standard indicators are related to the native plant communities standard. Table E4-1 summarizes all indicator ratings related to Standard 4, by pasture. For example, 1 site was evaluated in Pasture 1, for a total of 9 indicator ratings related to watersheds. Of these, 6 were rated as having a "none to slight" degree of departure from reference site

conditions. Indicator ratings by site are included in Appendix E. Refer to Appendix H, Map 5 for rangeland health evaluation locations.

Table E4-1. Summary of Native Plant Community-related indicator ratings

Standard 4	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme
Pasture 1[1]	6	0	1	0	2
Pasture 2[2]	5	4	0	0	0

[1]Summarizes: 1 Shallow Claypan 12-16" ecological site
[2]Summarzies: 1 Shallow Claypan 12-16" ecological site

Pasture 1

The evaluation in Pasture 1 (T6S, R4W Sec. 30), RLH1, was on a shallow claypan ecological site that appeared to have been involved in a wildfire. The date and magnitude of the fire could not be determined, but the photographs suggest it was within five years of when the evaluation was completed. At this site, the indicators for functional/structural groups and invasive plants were rated as 'extreme' and the indicator for litter amount was rated as 'moderate.' Shrubs were missing from the site due to the fire, and cheatgrass and medusahead were the dominant species on the site. Litter amount was more than expected and composed mostly of annual grass litter. The photographs indicate an abundance of litter from residual cheatgrass and medusahead. Some Sandberg bluegrass and bluebunch wheatgrass were present at the site, and appeared vigorous and reproductively capable.

Pasture 2

The evaluation in Pasture 2 (T7S, R5W Sec. 1), RLH2, was on a shallow claypan ecological site. At this site, all indicators related to Standard 4 were rated as showing a 'none to slight' or 'slight to moderate' degree of departure from reference conditions. All functional structural groups were present on the site, but Sandberg bluegrass dominated the interspaces, while Idaho fescue tended to occupy protected areas under shrubs and near rock outcrops. Perennial plants appeared to be vigorous and reproductively capable at this site, and annual production was as expected. A variety of age classes of western juniper were scattered at the site and cheatgrass was noted as scattered and common.

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Background Information

The Flint Creek Fire 2010 burned 84 acres (pasture 1) of the 2,189-acre Bachelor Flat FFR allotment (4 percent). No rehabilitation seedings or rest from grazing was administered. Some annual invasives are scattered throughout the allotment.

Table VEG-14: Summary of native plant community-related indicator ratings

Standard 4	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme
Pasture 1[1]*	7	2	3	0	0
Pasture 1[1]	10	0	2	0	0
Pasture 2[2]	6	5	1	0	0

[1]Summarizes: One Shallow Claypan 12-16" ecological site

[2]Summarzies: 1 Shallow Claypan 12-16" ecological site
*Summarizes: 2013 RHA evaluation in pasture 1.

Pasture 1
A new 2013 RHA was completed for Bachelor Flat FFR allotment (T6S, R4W Sec. 30). This RHA was completed on a previously used RHA site burned in 2010 (Flint Creek Fire) and prior to 2001 (see 2001 evaluation). The indicator ratings are summarized in Table VEG-14. Shrubs are missing from the functional/structural groups, with no observable recruitment of seedlings. Invasive annual plants are common throughout. Reproductive capability of perennial plants shows vigor and capable of reproduction if favorable climatic conditions are present. The overall interpretation of the biotic integrity is not meeting based on lack of the shrub component due to recent and past fire events.

Utilization
Pasture 1
Utilization data on bluebunch wheatgrass in June 2011 show 3 percent utilization. In 2012, utilization on Sandberg bluegrass was 19 percent; no other utilization data have been collected on the Bachelor Flat FFR allotment pasture 1.

Pasture 2
Utilization data from May and August 2011 show 3 percent utilization on Sandberg bluegrass, Idaho fescue at 18 percent, and bluebunch wheatgrass at 14 percent; no other utilization data have been collected on the Bachelor Flat FFR allotment pasture 2.

5. Rangeland Seeding

This Standard does not apply to the Bachelor Flat FFR Allotment.

6. Exotic Plant Communities

This Standard does not apply to the Bachelor Flat FFR Allotment.

7. Surface and Ground Water Quality

This assessment includes a review of data collected and water quality standards established by Idaho Department of Environmental Quality (IDEQ). The State is divided into basins and sub-basins and assessment units. The new 2005 Integrated Report (303(d)/305(b)) uses "assessment units" within the sub-basin. Assessment units are groups of similar streams within a sub-basin that have similar land use practices, ownership, or land management. Assessment units are assessed for pollutants and assigned Beneficial Uses with associated Water Quality Standards. The Beneficial Use Reconnaissance Program (BURP) is a field assessment of stream segments (all IDEQ data and standards mentioned here are available on the IDEQ web site- see references listed in section IV of this document).

The Bureau of Land Management (BLM) also collects data that can include riparian inventories, riparian Proper Functioning Condition (PFC) assessments, riparian habitat evaluation forms,

stream survey forms, riparian aquatic data sheets, thermograph data and water quality monitoring data (BLM data are available at the Owyhee Field Office).

The three streams on the allotment lie with two Idaho Department of Environmental Quality (IDEQ) assessment units. Old Man Creek and Big Boulder Creek are within the Big Boulder Assessment Unit from the confluence of North and South Fork Boulder Creeks to the mouth. This unit has not been assigned beneficial uses and has not been assessed. Pollutants are not listed. Rail Creek is part of the Jordan Creek 1st and 2nd order Assessment Unit. Beneficial uses assigned are Cold-water aquatic life (CWAL), Salmonid Spawning (SS), and Primary Contact Recreation (PCR). This Assessment Unit is not supporting CWAL and PCR uses. SS has not been assessed. Pollutants for the Assessment Unit, not specific to the allotment, were bacteria, mercury, oil and grease, pesticides and siltation.

On both Big Boulder Creek and Rail Creek sediment deposition and erosion was not excessive (see Standard 3 and riparian inventories). Most stream banks were adequately vegetated with hydric plant species (portions of the BIG-002 segment were not). Thus, the streams are likely not contributing to excessive sedimentation in the Jordan Creek first and second order Assessment Unit.

In 2004, BLM found temperatures exceeding SS and CWAL criterion on all three creeks in the allotment. The State of Idaho criterion for CWAL beneficial use requires water temperatures of 22º C or less with a maximum daily average of less than 19º C.

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The Bachelor Flat allotment falls within the Jordan sub-basin. There are 0.5 miles of stream that are not supporting one or more of the sub-basin's beneficial uses, and 0.9 mile that have not been assessed. The sub-basin's beneficial uses that are not being met include cold-water aquatic life and secondary contact recreation. The pollutants of concern include mercury and temperature (IDEQ, 2010). Pasture 1 of the allotment occurs in AU# ID17050108SW004_02, and the streams within the AU are on the 303(d) list of impaired waters for mercury. The AU has been delisted for temperature because a TMDL has been developed and approved.

8. Threatened and Endangered Plants and Animals

Botany

No federally listed plant species are known to occur in the Bachelor Flat FFR Allotment, although the U.S. Fish and Wildlife Service (USFWS) considers all of Idaho to be within the potential range of Ute ladies'-tresses (*Spiranthes diluvialis*), a federally threatened orchid species. This plant occurs in spring, seep, and riparian habitats. Due to the difficulty in narrowly defining potential habitat for this species, USFWS has chosen to apply a loose

definition and requires Section 7 consultation only in three counties of southeast Idaho or in areas where the plant is actually found (USFWS 2002). Surveys specifically for this plant are recommended prior to authorizing federal actions in southwest Idaho, but not required.

No BLM special status plant species are known to occur on the Bachelor Flat FFR Allotment. Site-specific plant surveys are conducted prior to construction of range projects.

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Botany

No populations of special status plant species are known to occur in this allotment. There is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment. Records show no reported special status plants in this allotment, so this standard is not applicable.

Information sources
Elemental Occurrences (EOs) for special status plant (SSP) populations is recorded in the Idaho Fish and Wildlife Information System (IFWIS) Species Diversity database (IDFG, 2011). EOs are derived by completion and review of Idaho rare plant observation reports through the Idaho Natural Heritage Program. Other sources that were used to assess and evaluate the composition and condition of SSP habitats within the Bachelor Flat FFR allotment include RHAs, photographs, field notes, Plants database (USDA NRCS, 2013) literature search, and information summarized above in Standards in this document. Records show no reported special status plants in this allotment.

Wildlife

A number of species classified as Bureau of Land Management (BLM) "Sensitive Species" and/or State of Idaho "Species of Special Concern" are known or likely to occur within the allotment. A summary of these species, their legal status, and their key habitat associations are included in Appendix C.

Riparian Habitat

All 1.6 miles of assessed stream riparian habitat in this allotment are Functioning-At Risk high and high/mid with no trend indicated. Structural diversity, composition (including the presence of leafy spurge and Canada thistle) and vigor of hydric vegetation are at least partially lacking in these stream reaches resulting in habitat that is generally not adequately providing for the needs of dependant special status animals.

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Riparian Habitat

Big Boulder, Old Man, and Rail Creeks are three perennial streams that flow within this allotment and have been assessed as properly functioning (see Standards 2 and 3). Because these streams are identified as properly functioning, an assumption is being made that adequate riparian vegetation diversity, composition, and structure are adequate to provide at least

minimum riparian habitat conditions for terrestrial, avian, and aquatic wildlife species.

Evaluation of Standard 7 identified streams on the IDEQ's 303(d) list of impaired steams and that water quality parameters are not being met for the watershed's beneficial uses. The list of beneficial uses includes water quality standards for cold-water aquatic life. However, not meeting water quality parameters is not due to livestock grazing practices (see Standard 7).

Redband trout

Redband trout are known to occupy Big Boulder Creek and Rail Creek. Habitat was unsatisfactory due to riparian condition and high water temperatures. In 2004, BLM found temperatures exceeding SS and CWAL criterion on the three creeks in the allotment.

General Upland Habitat Assessment

Most of the uplands of the allotment were not near reference conditions, with departures being in the "Slight to Moderate" and "Moderate" categories. The evaluation site in Pasture 1 was in a recent burn area and only represented that limited area. Soils and hydric conditions remained stable. Plant succession was occurring as expected. Annuals occupied the site immediately following the fire and provided soil protection. Perennial bunchgrasses were re-establishing. The functional and structural groups were generally less than what is expected for the site and were not providing habitat that was adequate for the needs of most dependant special status and other wildlife species. The localized lack of large bunchgrasses, reduced shrub cover, presence of exotic annual grasses and encroaching juniper was limiting cover structure and forage for sage grouse, numerous songbirds, pygmy rabbits and others including a diversity of insects, rodents, birds and others that are critical prey for most raptors including prairie falcons, northern harriers and ferruginous hawks. Site stability was provided by ground cover, litter and biological soil crusts.

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Upland Habitat

Pasture 1
Pasture 1 in the Bachelor Flat FFR allotment is managed as native plant community. Plant community information in Standard 4 recorded an extreme departure in abundance of bluebunch wheatgrass from reference site conditions to an herbaceous community dominated by shallow-rooted bunchgrasses and annual invasive species. The transition in the plant community composition is favoring more grazing-tolerant grass species. These understory species do not have the robust growth form or stature such as bluebunch wheatgrass and do not provide the plant composition, structure, and function for sagebrush steppe-dependent species. The 2010 Flint Creek wildfire has impacted the plant community and wildlife habitat in this pasture.

Pasture 2
Pasture 2 in the Bachelor Flat FFR allotment is managed as a native plant community. Plant community information is providing adequate proper nutrient cycling, hydrologic cycling, and energy flow. However, further review of sage-grouse habitat assessment information at two sites collected in 2012 indicate that perennial grasses are not adequately represented within the plant

community, which does differs with the determination of Standard 4. Because a productive and abundant understory of perennial grasses is a critical component in overall sagebrush/grass community structure and function, this pasture does not provide adequate upland habitat conditions for wildlife.

Big Game and other vertebrates

The allotment is spring/summer/fall range for pronghorn antelope, elk and mule deer (1999 Owyhee Resource Management Plan). The native perennial grasses, forbs and shrubs have departed from the reference conditions to such an extent that they are not providing adequate habitat to support forage and cover needs for these large ungulates and other smaller vertebrates.

Sage grouse

This allotment has been identified as including key habitat for sage grouse, however, no sage grouse habitat evaluations have been conducted to date. Active leks were present on the allotment based on surveys from 1994 though 2003.

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Focal Species

Sage-grouse
On March 5, 2010, the USFWS (USDI USFWS, 2010) published a finding in the Federal Register that found 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 BLM Type 2 sensitive species to a candidate species under the ESA.

This allotment lies within the regional Snake River Plain Management Zone for sage-grouse. In 2012, preliminary priority habitat (PPH) and general priority habitat (GPH) were modeled to identify lands in Idaho important to sage-grouse sustainability. PPH includes breeding, late brood-rearing, and winter concentration areas. General priority habitat are lands that may serve as important corridors between PPH and habitat islands within corridors, or occupied habitats characterized by low lek densities (Makela & Major, 2012). The BLM collaborated with respective state wildlife agencies to identify these areas. Modeling results indicate that all of the Bachelor Flat allotment (100 percent) lies within PPH (Table WDLF-16, Map WDLF-1E). No active leks are known to occur within this allotment. Leks are recorded within adjacent allotments. This allotment provides seasonal breeding, upland summer, riparian, and winter habitat for sage-grouse.

Table WDLF-16: Acres[1] and portions of preliminary priority and general priority habitat within the Bachelor Flat FFR allotment (Map WDLF-1E)

Allotment/Pasture Name	Acres of PPH Sagebrush Habitat in Allotment[2]	Acres of PPH Perennial Grassland in Allotment	Acres of PPH Juniper Encroachment in Allotment	Acres of PGH in Allotment	Portion of Allotment in PPH/PGH

Pasture 1	235 (18%)	84 (6%)	993 (76%)	0	1,313 (100%)
Pasture 2	865 (99%)	0 (0%)	11(1%)	0	876 (100%)
Allotment Total	1,100 (50%)	84 (4%)	1,005 (46%)	0	2,189 (100%)

[1]PPH/PGH habitat acreage totals include public lands, state lands, and private property.
[2]PPH sagebrush can also include small amounts of perennial grasslands, conifer encroachment, and non-habitat

Pasture 1
No sage-grouse habitat assessment information is available for pasture 1.

Pasture 2
Two sage-grouse upland summer habitat assessments were conducted in pasture 2 on August 13, 2012. Both assessments was collected on a Shallow Claypan 12-16" Low sagebrush / Idaho fescue ecological site, and one was conducted within a Wyoming sagebrush / bluebunch wheat grass – Idaho fescue inclusion. This pasture is managed as a native plant community.

<u>Shallow Claypan 12-16" Low sagebrush / Idaho Fescue</u>

Breeding Habitat Assessment
This information was collected as part of an upland summer habitat assessment conducted on August 13, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months and the data collection protocols are the same, this information can provide insight into breeding habitat conditions earlier in the spring, although the forb information is not used because of the time year the data was collected.

The sagebrush overstory is characterized by a marginal canopy cover (32 percent) and suitable height (41.3 cm) with a marginal mixed (spreading/columnar) shape. The understory is characterized by an unsuitable canopy cover of perennial grasses (2 percent) (Table WDLF-17). Overall, this site is not providing adequate (unsuitable) understory story conditions for nesting and hiding sage-grouse due to the absence of perennial grasses.

Upland Summer Habitat Assessment
The sagebrush overstory is characterized by a marginal canopy cover (32 percent) and suitable height (41.3 cm). The understory is characterized by a combined unsuitable canopy cover of perennial grasses and forbs (2 percent) (Table WDLF-17). Overall, this site is not providing adequate (unsuitable) understory hiding and escape cover and the rarity of forb diversity do not provide favorable habitat structure and function for late brood-rearing sage-grouse.

Winter Habitat Assessment
This information was collected as part of a breeding habitat assessment conducted on August 13, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a marginal canopy cover (32 percent) and suitable height (41.3 cm). Overall, sagebrush occurrence and height are providing suitable winter cover and forage conditions for sage-grouse and is not a limiting factor in this pasture (Table WDLF-17).

Table WDLF-17: Sage-grouse habitat indicators and pasture ratings (Refer to Appendix B and Figure WDLF-1E for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	[1]Breeding	Upland Summer	[1]Winter
Sagebrush Canopy Cover (%)	32.0	marginal	marginal	suitable
Sagebrush Height (cm)	41.3	suitable	suitable	suitable
Sagebrush Form	mixed	marginal		
Perennial Grass and Forb Height (cm)	11.0	marginal		
[2]Perennial Grass Canopy Cover (%)	2.0	unsuitable		
Combined Grass/Forb Canopy Cover (%)	10.0		unsuitable	
Preferred Forb Availability (#)	5		marginal	
Overall Pasture Evaluation Rating		**unsuitable**	**unsuitable**	**suitable**

[1]Breeding and winter habitat ratings extrapolated from upland habitat assessment information collected on 8/13/2012.
[2]Perennial grass canopy cover does not include Poa species.

Wyoming sagebrush / bluebunch wheat grass – Idaho Fescue inclusion

Breeding Habitat Assessment
This information was collected as part of an upland summer habitat assessment conducted on August 13, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months and the data collection protocols are the same, this information can provide insight into breeding habitat conditions earlier in the spring, although the forb information is not used because of the time year the data was collected.

The sagebrush overstory is characterized by a marginal canopy cover (38 percent) and marginal height (125.9 cm) with a marginal mixed (spreading/columnar) shape. The understory is characterized by an unsuitable canopy cover of perennial grasses (2 percent) (Table WDLF-18). Overall, this site is not providing adequate (unsuitable) understory story conditions for nesting and hiding sage-grouse due to the absence of perennial grasses required for adequate nesting and hiding cover.

Upland summer Habitat Assessment
The sagebrush overstory is characterized by a marginal canopy cover (38 percent) and suitable height (125.9 cm). The understory is characterized by a combined unsuitable canopy cover of perennial grasses and forbs (2 percent) (Table WDLF-18). Overall, unsuitable understory hiding and escape cover and the rarity of forb diversity do not provide favorable habitat structure /function and forage for late brood-rearing sage-grouse.

Winter Habitat Assessment
This information was collected as part of a upland summer habitat assessment conducted on

August 13, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a marginal canopy cover (38 percent) and suitable height (125.9 cm). Overall, sagebrush occurrence and height are providing suitable winter cover and forage conditions for sage-grouse and is not a limiting factor in this pasture (Table WDLF-18).

Table WDLF-18: Sage-grouse habitat indicators and pasture ratings (Refer to Appendix B and Figure WDLF-1D for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	[1]Breeding	Upland Summer	[1]Winter
Sagebrush Canopy Cover (%)	38.0	marginal	marginal	suitable
Sagebrush Height (cm)	125.9	marginal	marginal	suitable
Sagebrush Form	mixed	marginal		
Perennial Grass and Forb Height (cm)	20.3	suitable		
[2]Perennial Grass Canopy Cover (%)	2.0	unsuitable		
Perennial Forb Canopy Cover (%)				
Combined Grass/Forb Canopy Cover (%)	6.0		unsuitable	
Preferred Forb Availability (#)	4		marginal	
Overall Pasture Evaluation Rating		**unsuitable**	**unsuitable**	**suitable**

[1]Breeding and winter habitat ratings extrapolated from upland habitat assessment information collected on 8/13/2012.
[2]Perennial grass canopy cover does not include Poa species.

Columbia spotted frog

A Columbia spotted frog survey has found Columbia spotted frog on Rail Creek and Old Man Creek; recorded locations from the 1996 survey are not within the allotment.

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Columbia Spotted Frog

Both pastures 1 and 2 are within the mapped distribution of the Columbia spotted frog. Potential habitat exists along stream corridors and springs (Map WDLF-2E).

F. Boulder Flat Allotment (526)

Physiography

The Boulder Flat allotment is approximately 12 miles southwest of Silver City, Idaho in Owyhee County. The allotment is in USDA Natural Resource Conservation Service Major Land Resource Area 25, Owyhee High Plateau (USDA, NRCS 2004). The allotment encompasses public, State and private lands totaling approximately 4,357 acres (Table F-1).

The allotment elevations range between 4,600 and 5,180 feet. The annual precipitation ranges from 11 to18 inches and the frost-free period ranges from 60 to 105 days. The major landforms in the allotment are categorized as Tablelands and Canyons. The soils are Rubbleland, Rock Outcrop, Pachic Argixerolls in the Canyons and stony loams on the Tablelands. Slopes range from 3 to 50 percent. The water erosion hazard is slight to high. The wind erosion hazard is slight to moderate. Common vegetation includes mountain big sagebrush, bluebunch wheatgrass, Idaho fescue, and an occasional western juniper.

Land Status

Table F-1: Land Status (in acres)*

	Public	State	Private	Total
Pasture 1	1,790	431	20	2,241
Pasture 2	2,091	11	14	2,116
Total	3,881	442	34	4,357

*Acreages represent best available estimates.

In the Owyhee Resource Management Plan (1999), the Boulder Flat Allotment was placed in Selective Management Category "Maintain." Maintain allotments are managed with the objective to manage the public lands with minimal expenditure of appropriated funds and maintain current satisfactory resource conditions. They must also meet or make progress in meeting the Idaho Standards for Rangeland Health. The RMP identified 344 animal unit months (AUMs) of active preference for livestock grazing.

Livestock grazing is authorized by a term grazing permit issued to Tom Quintana. Current permitted use for this allotment is presented in Table F-2.

Table F-2. Permitted Use Summary – Boulder Flat Allotment.

Operator Name & No.	Livestock Kind & No.	Season of Use	% PL	AUMs		
				Active	Suspended	Permitted
Tom Quintana (1101451)	193 cattle	4/16-6/15	89	344	0	344

The allotment is divided into two pastures. Livestock grazing is managed as a Two-Pasture Rest Rotation Grazing System. Each year, one pasture is grazed and one is rested. In accordance

with the grazing permit Terms and Conditions, the grazing permittee is required to submit Actual Use Reports at the conclusion of each grazing season annually. Table F-3 summarizes the total AUMs used and Table F-4 displays the period of use as reported each year on Actual Use Reports.

Table F-3. Actual Use in AUMs

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Pasture 1	Rest	270	Rest	263	Rest	336	Rest	319	286	Rest	321	Rest	342
Pasture 2	256	Rest	257	Rest	309	Rest	327	Rest	Rest	332	Rest	319	Rest
Total	256	270	257	263	309	336	327	319	286	332	321	319	342

* Actual Use Reports are submitted at the end of each grazing year by the Authorized Grazing Permittee. These reports are required for each allotment, in accordance with Terms and Conditions found on the grazing permit.

Table F -4. Season of Use from Actual Grazing Use Reports

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Pasture 1	Rest	5/3, 6/30	Rest	4/23, 6/15	Rest	4/18, 6/25	Rest	4/18, 6/18	4/22, 6/23	Rest	4/16, 6/12	Rest	4/16, 6/14
Pasture 2	4/19, 6/25	Rest	4/29, 7/9	Rest	4/20, 6/22	Rest	5/14, 7/14	Rest	Rest	4/17, 6/15	Rest	4/16, 611	Rest

Note: No actual use was submitted for grazing years 1990-1992

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Actual Use

Actual use for the allotment has ranged from 214 to 344 AUMs between 1997 and 2012, with an average of 305 AUMs for the allotment (Table LVST-6). Calculations for AUMs were re-configured in 2013 and AUMs differ slightly from 2006 data interpretation.

Table LVST-6: Boulder Flat allotment actual use 1997-2012

	Pasture 1		Pasture 2		Allotment AUMs
Year	**Date**	**AUMs**	**Date**	**AUMs**	
2012	5/7-10/15 303 AUMs				303
2010	5/7-6/19 214 AUMS				214
2009	4/29-6/12 251 AUMS				251
2008	5/1-8/1	321	Rest	Rest	321
2007	4/16-6/15	344	Rest	Rest	344
2006	Rest	Rest	4/16-6/13	312	312
2005	4/16-6/14	337	Rest	Rest	337
2004	Rest	Rest	4/16-6/11	315	315
2003	4/16-6/12	321	Rest	Rest	321

2002	4/17-6/15 332 AUMs				332
2001	4/22-6/23	286	Rest	Rest	286
2000	4/18-6/18	319	Rest	Rest	319
1999	5/14-5/21	41	5/22-7/14	286	327
1998	4/18-6/25	336	Rest	Rest	286
1997	Rest	Rest	4/20-6/22	309	309
AVE		288		306	292

1. Watersheds

Rangeland Health Evaluations

Five (5) rangeland health evaluations were completed on the Boulder Flat Allotment during the 2001 field season by an interdisciplinary team. The evaluations were conducted in accordance with the procedure described in BLM-Technical Reference 1734-6, "Interpreting Indicators of Rangeland Health-Version 3." Evaluation methods are discussed in Appendix B. Twelve (12) of the 17 rangeland health indicators included in the standard matrix are related to Standard 1. Table F1-1 summarizes all indicator ratings related to Standard 1, by pasture. For example, 2 sites were evaluated in Pasture 1, for a total of 24 indicator ratings related to watersheds. Of these, 15 were rated as having a "none to slight" degree of departure from reference site conditions. Indicator ratings by site are included in Appendix E. See Map 6 for rangeland health evaluation locations.

Table F1-1. Summary of Watershed related indicator ratings

Standard 1	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme
Pasture 1[1]	15	7	2	0	0
Pasture 2[2]	24	7	4	1	0

[1]Summarizes: 2 Shallow Claypan 12-16" ecological sites
[2]Summarizes: 3 Shallow Claypan 12-16" ecological sites

Pasture 1

At RH1A in Pasture 1, indicators for pedestals/terracettes and soil surface resistance to erosion were rated as showing a 'moderate' departure from reference conditions. At this site, pedestals were common in interspaces, but appeared to be historic, and currently stable. Soil surface resistance to erosion appeared to be reduced due to poor soil surface structure and physical crusting. Water flow patterns were short and stable, patches of bare ground were slightly higher than expected and some evidence of historic soil loss was noted. Litter amount and distribution were appropriate to the site, and plant community composition and distribution were appropriate for facilitation of infiltration and runoff processes.

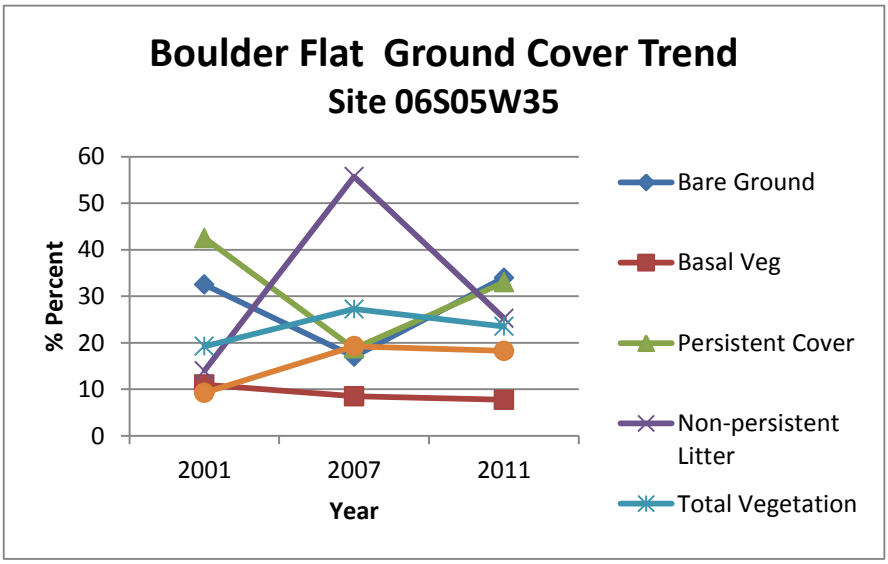
At RH1B, all indicators related to Standard 1 were rated as showing a 'none to slight' or 'slight to moderate' degree of departure from reference conditions. Water flow patterns were short and unconnected; some pedestals were noted, though most were stabilized by biocrusts. Patches of

bare ground were small and rarely connected, and litter amount and distribution were as expected. Soil surface resistance to erosion was slightly reduced due to physical crusting of the soil surface in small patches. Plant community composition and distribution were appropriate for facilitation of infiltration and runoff processes.

Ground Cover Trend

Ground cover trend data were collected in pasture 1 at the nested plot frequency transect 06S05W35 in 2001, 2007, and 2011 (Figure Soil-7). A long-term static trend is observed for basal vegetation and bare ground. Persistent cover is significantly (Student's t-test; p-value <0.1) decreasing while non-persistent litter, total vegetation, and canopy cover are increasing, with the latter being significant. Over the short term, basal vegetation and canopy cover are static, while total vegetation and non-persistent litter are significantly decreasing, with the latter being significant. Bare ground and persistent cover show a significant increase.

Figure Soil-7: Ground cover data from trend site for pasture 1 of the Boulder Flat allotment (2001, 2007, 2011)



The variable ground cover results make it difficult to determine a concrete trend. In general, the site appears to have been maintained over the long term between 2001 and 2011; over the shorter term, a slight downward trend has taken place. In particular, bare ground has increased over the most recent years after decreasing between 2001 and 2007 and, although still within expected levels for Shallow Claypan 12-16", can be considered high. This matches observations for some of the ground cover values that show increases during the earlier years and no further improvements since 2007. Shrub frequency and density for sagebrush match canopy cover and has been static while shrub density and sagebrush seedlings are increasing. The greatest fluctuations can be observed in non-persistent litter, though no concrete relationships with other trend can be associated with this reading except for an inverse relationship with bare soils.

Grass frequency data show that Sandberg bluegrass dominates, and that deep-rooted perennial bunchgrasses are on a steady and heavy decline. However, invasive annuals are currently not an

issue at this site. Overall interpretations of ground cover trend show no recent progress after displaying some improvements during the earlier years and may coincide with frequency trend data that suggest that biotic conditions are deteriorating.

2013 Field Observations

A field visit in the spring of 2013 (see Owyhee Field Office project file) showed conditions at the trend site and rangeland health assessment site RH1A to contain increased amounts of bare soil, pedestaling, and variable water flow patterns that are often connected. Surface sealing is common within bare interspaces with some areas showing increased degradation from past soil loss and the removal of the surface horizon within pedestals. Biologic soils crusts were present but much less than expected. Livestock was present at the time of visit.

Pasture 2

Three (3) rangeland health evaluations were completed in Pasture 2, all in Shallow-Claypan 12-16" ecological sites. At RH2A and RH2B, the majority of indicators related to Standard 1 were rated as showing a 'none to slight' degree of departure from reference conditions. At RH2A, water flow patterns and soil loss/degradation were rated as showing a 'slight to moderate' degree of departure. Water flow patterns were short, discontinuous, and weakly defined. Some evidence of historic soil loss was observed, but overall the site appeared to be stable. Plant pedestals appeared to be the result of frost heave. Bare ground, litter amount, and surface structure were as expected. Plant community composition and distribution were appropriate for facilitation of infiltration and runoff processes.

At RH2B, pedestals were mostly historic, and stabilized by biotic soil crusts, but some were active. Some evidence of historic soil loss was observed, but overall the site appeared to be stable. All other conditions relative to standard 1 were similar to RH1A.

At RH2C, several indicators, including bare ground, soil surface loss/degradation, compaction layer, and litter amount were rated as showing a 'moderate' degree of departure from reference conditions. In addition, the indicator pedestals/terracettes was rated as 'moderate to extreme.' Pedestals were very common throughout the site on perennial bunchgrasses. Bare ground was significantly higher than expected, historic soil loss was apparent, and litter amount was less than expected. The plant community composition and distribution were similar to expected conditions, though low sagebrush cover was slightly higher than expected, and Idaho fescue cover was somewhat lower.

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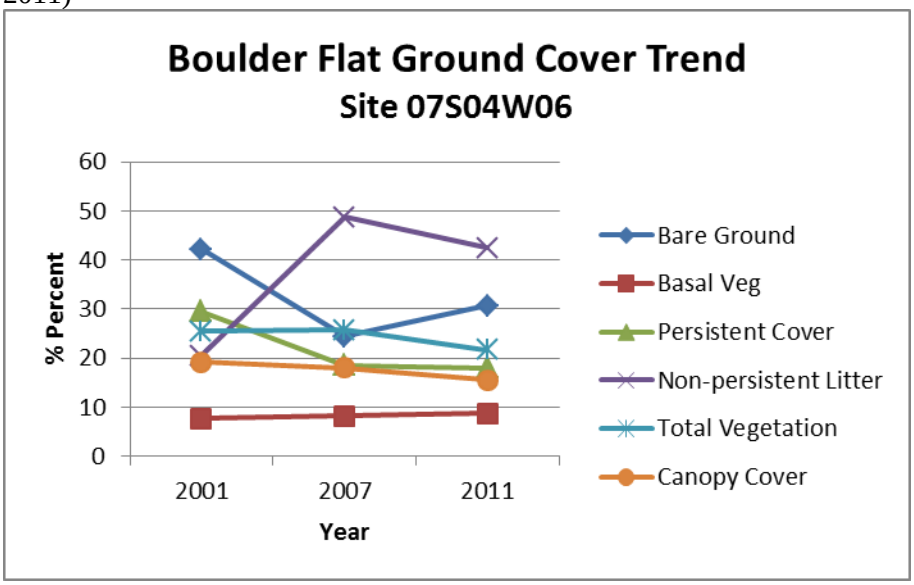
Ground Cover Trend

Ground cover trend data were collected in pasture 2 at the nested plot frequency transect 07S04W06 in 2001, 2007, and 2011 (Figure Soil-8). Basal vegetation, total vegetation, and canopy cover are static over the long and short term. Decreases in persistent cover and bare ground are apparent over the long term, while non-persistent litter is significantly (Student's t-test; p-value <0.1) increasing. Over the short term, bare ground is increasing, non-persistent litter is decreasing, and basal vegetation remained static.

Table Soil-8: Ground Cover data from trend site for pasture 2 of the Boulder Flat allotment (2001, 2007, 2011)



Ground cover trend appears static, with non-persistent litter showing the greatest variability and overall increase between 2001 and 2011. This may have influenced bare ground, which decreased during earlier years but has been increasing since 2007. An inverse relationship with non-persistent cover is apparent. Ground cover as a whole is not showing any recent improvement.

Grass frequency data show that shallow-rooted bunchgrasses dominate, though some increases in deep-rooted native species, such as Idaho fescue, are on the rise. Invasive annuals currently do not appear to have a major presence at this site. Shrub frequency and density data reflect a downward trend for low sagebrush but still provide for fairly static canopy cover readings. Overall interpretations of ground cover trend show no recent progress after displaying some improvements during the earlier years, while frequency trend data show that biotic conditions are slightly improving due to an increase in Idaho fescue.

2013 Field Observations

A field visit in the spring of 2013 (see Owyhee Field Office project file) at the trend site and rangeland health assessment site RH2C confirmed increased bare soil associated with water flow patterns between common pedestals. Removal of the surface horizon is common and appears to be mainly historic, though roots on pedestals suggest ongoing active erosion along with widespread surface sealing. Bulbous bluegrass, Sandberg bluegrass, and Idaho fescue dominate and provide limited organic matter and litter. Low sagebrush shows increased mortality across the landscape and contributes to a lack of organic material.

2. Riparian Areas and Wetlands

Streams on the Boulder Flat Allotment include: Jordan Creek; Rail Creek; Old Man Creek; South Mountain Creek; and Big Boulder Creek. The 1999 Owyhee Resource Management Plan Table RIPN-1 identified 0.56 mile of Jordan Creek and 3.66 mile of Big Boulder Creek as having

unsatisfactory riparian conditions. Riparian conditions on Rail Creek, Old Man Creek, and South Mountain Creek were not mentioned in the plan. Streams and riparian areas were assessed and inventoried in 2000 through 2001. Table F2-0 summarizes the functioning condition of streams in the allotment.

Table F2-0: Summary of Riparian Proper Functioning Condition (miles) by Pasture.

Pasture	PFC	FAR Upward Trend	FAR Static Trend or Not Apparent
1	0.5	0	2.3
2	0	1.2	5.2
Allotment Total	0.5	1.2	7.5

*PFC – Proper Functioning Condition; FAR – Functional-At Risk; NF - Nonfunctional

Jordan Creek

Jordan Creek forms approximately 0.5 miles of the allotment boundary for Pasture 1. This segment of the creek occurs on public land.

Riparian Inventories and Assessments

Jordan Creek was inventoried in September 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Proper Functioning Condition assessment rated the stream as Functional-At Risk high. The apparent trend was not identified (Table F2-1).

The vegetation was classified as Redosier Dogwood Community Type, Sandbar Community Type, or Yellow Willow Community Type. The composition of the three types was primarily shrubs and forbs. The Yellow Willow Community Type had the greatest variety in shrubs. The most common shrubs for all segments were redosier dogwood, sandbar willow and yellow willow. Redtop, Kentucky bluegrass, and cheatgrass were the most common graminoids. Leafy spurge and sweet clover were the most common forbs. The noxious weeds identified were leafy spurge, Canada thistle and Scotch thistle.

Table F2-1: Riparian Indicators and Functioning Condition Rating by Stream Segment – Jordan Creek

Stream Segment	**JOR-003**
Stream miles	*0.5*
Date of data collection	*9/9/2001*
Pasture Number	*1*
Riparian/Wetland Indicators:	Indicator Rating[1]
Diverse age class/structure of hydric vegetation (6)[2]	Y
Diverse composition of hydric vegetation (7)	Y
Vegetation reflects maintenance of soil moisture (8)	Y

Stream Segment	JOR-003
Plant community comprised of bank stabilizing species (9)	Y/N
Hydric vegetation exhibits high vigor (10)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N
Adequate large woody material (12)	Y
Point bars revegetating with hydric species (14)	Y/N
Noxious weeds are not increasing[3]	N
Overall functioning condition[4]	FAR+
Apparent trend[5]	NA

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] Leafy spurge, Canada thistle and Scotch thistle all were identified on the segment.
[4]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[5]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

Rail Creek

Rail Creek, an ephemeral or intermittent stream, crosses public land in Pasture 1. A portion of the stream traverses the border of the pasture. In total there are approximately 1.8 miles of Rail Creek associated with the allotment.

Riparian Inventories and Assessments

Rail Creek was inventoried in October 2000 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The inventory divided the stream in the allotment into two segments, RAI-001 and RAI-002. Both of the Proper Functioning Condition assessments rated the stream as Functional-At Risk high/mid. The apparent trend was not identified (Table F2-2).

The vegetation was classified as Lanceleaf Cottonwood, Yellow Willow, Lanceleaf Cottonwood/willow, Sandbar Willow Community, or Baltic Rush Community Types. The riparian vegetation conditions varied along the stream. Portions had a balanced cover between trees, shrubs, graminoids, and forbs. However, some locations were dominated by trees, shrubs, or graminoids.

Redosier dogwood, Whiplash willow, yellow willow, sandbar willow, and Wood's rose were the dominant shrubs. Mat muhly, common spikerush, Baltic rush, Kentucky bluegrass, redtop and bulrush were common graminoids. Canada thistle was the only noxious weed found along the creek.

Table F2-2: Riparian Indicators and Functioning Condition Rating by Stream Segment – Rail Creek

Stream Segment	RAI-001	RAI-002

Stream Segment	**RAI-001**	**RAI-002**
Stream miles	*0.74*	*1.09*
Date of data collection	*10/16/2000*	*10/16/2000*
Pasture Number	*1*	*1*
Riparian/Wetland Indicators:	Indicator Rating[1]	
Diverse age class/structure of hydric vegetation (6)[2]	Y	Y/N
Diverse composition of hydric vegetation (7)	Y	Y/N
Vegetation reflects maintenance of soil moisture (8)	Y/N	Y/N
Plant community comprised of bank stabilizing species (9)	Y	Y/N
Hydric vegetation exhibits high vigor (10)	Y/N	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y	Y/N
Adequate large woody material (12)	Y	Y/N
Point bars revegetating with hydric species (14)	Y	Y
Noxious weeds are not increasing[3]	N	Y
Overall functioning condition[4]	FAR+	FAR+
Apparent trend[5]	NA	NA

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] Canada thistle was found on 15-25 percent of the segment.
[4]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[5]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

Portions of Rail Creek were assessed for Proper Functioning Condition in May 2001 and August 2004. Both assessments rated the stream segment as Functional-At Risk. The 2004 assessment characterized the apparent trend as downward.

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The upstream reach of Rail Creek that was assessed FAR in 2000 was re-assessed in 2004. It was again rated FAR with a downward trend because the channel was braided and over-wide, the floodplain was not developed, and there was an inadequate composition and age class of hydric species present to stabilize and protect stream banks during times of high flows. In 2011, the longer reach that traverses pasture 1 was re-assessed in PFC. The assessment stated that the stream was geologically confined and approximately 50 percent is armored with boulders and woody species that do not allow livestock access to the stream. The condition of the stream had improved and was functioning to maintain hydric soils and dissipate energy during high flows.

Old Man Creek

Old Man Creek crosses Pasture 1. Approximately 0.5 mile of Old Man Creek is on public land.

Riparian Inventories and Assessments

A portion of Old Man Creek was assessed for Proper Functioning Condition in May 2000 utilizing the Standard Checklist (Lotic) (Appendix B). The Proper Functioning Condition assessment rated the segment as Proper Functioning Condition. The apparent trend was not identified (Table F2-3).

Table F2-3: Riparian Indicators and Functioning Condition Rating by Stream Segment – Old Man Creek

Stream Segment	**OMC-2000**
Stream miles	*0.5*
Date of data collection	*5/10/2001*
Pasture Number	*1*
Riparian/Wetland Indicators:	Indicator Rating[1]
Diverse age class/structure of hydric vegetation (6)[2]	N
Diverse composition of hydric vegetation (7)	Y
Vegetation reflects maintenance of soil moisture (8)	Y
Plant community comprised of bank stabilizing species (9)	Y
Hydric vegetation exhibits high vigor (10)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	NR
Adequate large woody material (12)	Y
Point bars revegetating with hydric species (14)	N/A
Overall functioning condition[3]	PFC
Apparent trend[4]	NA

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[4]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent; NR = not recorded.

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In 2011, the 0.5 mile reach of Old Man Creek was re-visited. Photos were taken and the observers noted that the stream was ephemeral and well protected with large boulders; thus, the PFC protocol was not applied.

South Mountain Creek

Approximately 1.7 miles of South Mountain Creek are associated with public land in Pasture 2 of the allotment. A portion of the stream is along the border of the pasture and a portion is within the pasture.

Riparian Inventories and Assessments

South Mountain Creek was inventoried in October 2000 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Proper Functioning Condition assessment rated the stream as Functional-At Risk mid/high. An apparent trend was not identified (Table F2-4).

The vegetation was classified as Baltic Rush, Whiplash Willow, or Sandbar Willow Community Types. Shrubs and graminoids dominated the communities. Whiplash willow and sandbar willow were the most dominant shrubs. Baltic rush, redtop, and Kentucky bluegrass were the most common graminoids. Common yarrow was the most common forb. Total canopy cover of vegetation was 55 to 65 percent. Vegetation on the lower 40 percent of the stream was in the best condition. Noxious weeds were not identified on the stream.

Table F2-4: Riparian Indicators and Functioning Condition Rating by Stream Segment –South Mountain Creek

Stream Segment	**SMC-001**
Stream miles	*1.7*
Date of data collection	*10/17/2000*
Pasture Number	*2*
Riparian/Wetland Indicators:	Indicator Rating[1]
Diverse age class/structure of hydric vegetation (6)[2]	Y/N
Diverse composition of hydric vegetation (7)	Y/N
Vegetation reflects maintenance of soil moisture (8)	Y/N
Plant community comprised of bank stabilizing species (9)	Y/N
Hydric vegetation exhibits high vigor (10)	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N
Adequate large woody material (12)	Y
Point bars revegetating with hydric species (14)	Y/N
Noxious weeds are not increasing	Y
Overall functioning condition[3]	**FAR+**
Apparent trend[4]	**NA**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist

[3]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[4]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

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A MMIM site was established in 2001 on the same reach of South Mountain Creek that traverses pasture 2. The metrics collected showed that the mean stubble height was 4.4 inches, the woody use was 26 percent, and the stream bank alterations were 19 percent, indicating that the stream condition continues to be functioning below the minimal standard.

Big Boulder Creek

Big Boulder Creek runs along the east boundary of Pasture 2. Approximately 4.69 miles occur on public land. Portions of the stream have been altered by dredging, channelization, dam, rip-rap, vegetation removal and water diversion.

Riparian Inventories and Assessments

Big Boulder Creek was inventoried in September and October of 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). For Big Boulder Creek in Pasture 2, **3.5 miles was assessed as in Functional at Risk Condition** (generally at the high end of the rating), with trend not apparent. Another **1.2 miles was assessed as Functional at Risk** with a likely upward trend in condition (Table F2-5).

The vegetation was classified as Yellow Willow, Sandbar Willow, or Whiplash Willow Community Types. The vegetation was generally dominated by shrubs and graminoids. The total canopy cover ranged from 35 to 95 percent. Yellow willow, Whiplash willow, sandbar willow and redosier dogwood were the dominant shrubs. Redtop, cheatgrass, and Kentucky bluegrass were the most common graminoids. Noxious weeds were common to abundant on Big Boulder Creek and included: Canada thistle, musk thistle, yellow toadflax, and leafy spurge.

Table F2-5. Riparian Indicators and Functioning Condition Rating by Stream Segment – Big Boulder Creek

Stream Segment	**BIG-002**	**BIG-003**	**BIG-004**	**BIG-005**
Stream miles	*0.8*	*1.41*	*1.28*	*1.2*
Date of data collection	*10/81*	*9/701*	*9/701*	*9/701*
Pasture Number	*2*	*2*	*2*	*2*
Riparian/Wetland Indicators:	Indicator Ratings[1]			
Diverse age class/structure of hydric vegetation (6)[2]	Y/N	N	Y/N	Y
Diverse composition of hydric vegetation (7)	Y	Y/N	Y/N	Y
Vegetation reflects maintenance of soil moisture (8)	Y	Y/N	Y/N	Y/N
Plant community comprised of bank stabilizing species (9)	Y/N	Y/N	Y/N	Y/N

Stream Segment	BIG-002	BIG-003	BIG-004	BIG-005
Hydric vegetation exhibits high vigor (10)	N	N	Y/N	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	Y/N	Y/N	Y/N
Adequate large woody material (12)	Y	Y/N	Y/N	Y
Point bars revegetating with hydric species (14)	Y/N	Y/N	Y	Y/N
Noxious weeds are not increasing[3]	N[3(a)]	N[3(b)]	N[3(c)]	N[3(d)]
Overall functioning condition[4]	**FAR+**	**FAR+**	**FAR+**	**FAR+**
Apparent trend[5]	**NA**	**NA**	**NA**	**UP**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] (a) Leafy spurge on 75-85 percent and Canada thistle on 65-75 percent.
(b) Leafy spurge on 55-65 percent and Canada thistle on less than 1 percent.
(c) Leafy spurge on 15-25 percent and Canada thistle on less than 1 percent.
(d) Yellow toadflax on 25-35 percent, Musk thistle and Canada thistle on less than 1 percent.
[4]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[5]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

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The downstream and the middle segments of Big Boulder Creek (BIG002 and BIG004) were re-visited in 2011. The PFC protocol was not applied to BIG002. Photos were taken and the stream appears to be in functioning condition; however, there are alterations occurring on adjacent private land. BIG004 was assessed as PFC in 2011. The observers noted that the stream reach was armored with large boulders and that cows were present in trespass. The livestock access points were not confirmed.

Riparian Inventories and Assessments

Table F2-6. Riparian Indicators and Functioning Condition Rating by Stream Segment –Rail Creek Tributary

Stream Segment	Rail Creek Trib
Stream miles	*0.3*
Date of data collection	*8/18/2004*
Pasture Number	*1*
Riparian/Wetland Indicators:	
Diverse age class/structure of hydric vegetation (6)[2]	Y
Diverse composition of hydric vegetation (7)	Y/N
Vegetation reflects maintenance of soil moisture (8)	Y/N

Stream Segment	Rail Creek Trib
Plant community comprised of bank stabilizing species (9)	Y/N
Hydric vegetation exhibits high vigor (10)	N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	N
Adequate large woody material (12)	NA
Point bars revegetating with hydric species (14)	Y
Overall functioning condition[4]	**FAR**
Apparent trend[5]	**NA**

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Rail Creek Tributary A tributary to Rail Creek that occurs in pasture 1 was assessed FAR in 2004. The reach had inadequate stabilizing species present, the stream banks were eroding, upland species were encroaching, and the channel was over-wide.

Riparian Utilization

Stubble height measurements are a simple and effective tool to monitor rangeland use in key areas. Individual plant measurements are collected from herbaceous vegetation such as grasses, sedges, and rushes. Generally, stubble heights of 4 to 6 inches are an acceptable standard for effective streambank protection, prevention of sedimentation, and maintenance of plant communities (USDI, BLM 1999). In addition, percent utilization of current year's growth has been estimated for riparian shrubs along streams in the allotment. Table F2-6 displays livestock use data collected in the allotment's riparian areas.

Table F2-7. Riparian Stubble Heights and Percent Shrub Use

Location	Pasture	Date	Stubble Height in Inches	Percent Shrub use	Comments
JOR-003	1	9/9/2001	6-12	26-50	NA
RAI-001	1	10/16/2000	4-6	>51	NA
RAI-002	1	10/16/2000	3-4	>51	NA
SMC*	2	7/28/1999	5	91	NA
SMC-001	2	10/17/2000	2-4	>51	NA
BIG*	2	9/16/1999	9	0	NA
BIG-002	2	10/8/2001	4-15	26-50	Heavy use on young shrubs
BIG-003	2	9/7/01	5-8	0-25	NA
BIG-004	2	9/7/01	3-8	0-25	NA

Location	Pasture	Date	Stubble Height in Inches	Percent Shrub use	Comments
BIG-005	2	9/7/01	4-7	0-25	NA

*Location on reach not identified

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The information below is a summary of all the riparian assessment information for the allotment- both previously assessed as well as the supplemental information (also see Map RNGE-1F).

Table RIPN-10: Riparian assessment information for the Boulder Flat allotment

	Allotment & Pasture Name			
Stream Name	**Boulder Flat-01**	**Boulder Flat- 02**	**Assessment Issues/ Impacts Identified**	**Total Miles *Assessed***
Jordan Creek	0.5 (FAR-2001)		lack of bank stabilizing species to protect stream banks/ point bars are not revegetating/ noxious weeks present	0.5
Old Man Creek	0.5 (PFC- 2000 pictures only/ ephemeral- 2011)		2000- inadequate age class 2011- ephemeral/ armored with boulders	0.5
Rail Creek	1.8 (FARS- 2000/ FAR- 2001/ FARD- 2004/ PFC- 2011)		2000- vegetation does not reflect maintenance of riparian soils/ vegetation was in low vigor/ noxious weeds present 2004- overwide channel/ inadequate composition and age class of hydric vegetation to stabilize stream banks/ channel was braided/ flood plain not developed 2011- 50% protected by boulders and woody vegetation/ improved condition	1.8
Rail Creek Trib	0.3 (FAR- 2004)		eroded banks/ upland species encroaching/ overwide channel/ inadequate stabilizing species present	0.3
Big Boulder Creek		4.7 (FARS- 2001)	noxious weeds present/ inadequate bank stabilizing species/ lack of plant vigor on upstream reach/	4.7
South Mountain Creek		1.7 (FARS- 2000)	portions of the reach had inadequate composition and age class of hydric species to stabilize and protect stream banks/ plants had low vigor/ point bars were not revegetating	1.7

MIM Metrics

Stream Name	**Pasture/ Assessment Year**	**Mean Stubble Height (inches)**	**Woody Use (%)**	**Streambank Alteration (%)**	**Stable Bank (%)**	**Covered Bank (%)**
South Mountain Creek	2/ 2011	4.4	25.9	19	70	94

3. Stream Channel/Floodplain

The stream channel and floodplain resources of the Boulder Flat Allotment are associated with the following creeks: Jordan Creek; Rail Creek; Old Man Creek; South Mountain Creek; and Big Boulder Creek.

Jordan Creek

Jordan Creek forms approximately 0.5 miles of allotment boundary for Pasture 1. This segment of the creek is on public land.

Stream Channel/Floodplain Inventories and Assessments

Jordan Creek was inventoried in September 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Proper Functioning Condition assessment rated the stream as Functional-At Risk high. The apparent trend was not identified (Table F3-1).

The stream was primarily classified as F4 and B4 Rosgen stream types. The F4 stream types are gravel dominated, entrenched, meandering channel, deeply incised in gentle terrain. Streambank erosion may be high where adequate vegetation isn't established on the entire slope face of the channel banks (Rosgen 1996). The B4 stream types are moderately entrenched systems. These stream types are considered relatively stable and are not high sediment supply stream channels (Rosgen 1996).

Deep binding root mass plants were found on 35-64 percent of the streambanks. Fifty to seventy percent of the streambanks were stable. The stream was not downcutting but had lateral erosion on 1 to 5 percent of the streambanks.

Table F3-1: Stream Channel/Floodplain Indicators and Functioning Condition Rating by Segment – Jordan Creek

Stream Segment	**JOR-003**
Date of data collection	*9/9/2001*
Stream miles	*0.5*
Pasture	*1*
Stream Channel/Floodplain Indicator	Indicator Rating[1]
Floodplain inundated frequently (1)[2]	Y/N
Beaver dams are active and stable (2)	N/A
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N
Upland watershed not contributing to riparian degradation (5)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N
Adequate large woody material (12)	Y
Floodplain and channel characteristics dissipate energy (13)	Y/N
Point bars revegetating with hydric species (14)	Y/N

Stream Segment	JOR-003
Lateral stream movement associated with natural sinuosity (15)	Y
System is vertically stable (16)	Y
No excessive erosion or deposition (17)	Y
Overall functioning condition[3]	FAR+
Apparent trend[4]	NA

[1](Y=yes, N=no, Y/N = A portion meets and a portions does not meet)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3]PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

Rail Creek

Rail Creek, an ephemeral to intermittent stream, crosses public land in Pasture 1. A portion of the stream is along the border of the pasture. In total there are approximately 1.8 miles of Rail Creek associated with the allotment.

Stream Channel/Floodplain Inventories and Assessments

Rail Creek was inventoried in October 2000 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The inventory divided the stream in the allotment into two segments, RAI-001 and RAI-002. Both of the Proper Functioning Condition assessments rated the stream as Functional-At Risk high/mid. The apparent trend was not identified (Table F3-2).

The most common Rosgen stream types were identified as B3 and B4. The B3 stream types are moderately entrenched systems with gradients from 2 to 4 percent. The bed and bank materials of the B3 stream types are stable and contribute only small quantities of sediment during runoff events. The B4 stream types are moderately entrenched systems. These stream types are considered relatively stable and are not high sediment supply stream channels (Rosgen 1996).

The stream had deep binding root mass plants on 65-84 percent of the streambanks. Seventy to ninety percent of the streambanks were stable. The stream was vertically stable and had active bank erosion on less than one percent. Banks and channels were largely stable due to the rockiness of the floodplain and presence of shrub and tree plant communities. However, channels were overwidened, particularly in segment RAI-002.

Table F3-2: Stream Channel/Floodplain Indicators and Functioning Condition Rating– Rail Creek

Stream Segment	RAI-001	RAI-002
Date of data collection	10/16/2000	10/16/2000
Stream miles	0.74	1.09
Pasture	1	1
Stream Channel/Floodplain Indicator	Indicator Rating[1]	

Stream Segment	RAI-001	RAI-002
Floodplain inundated frequently (1)[2]	Y	Y/N
Beaver dams are active and stable (2)	N	N/A
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N	N
Upland watershed not contributing to riparian degradation (5)	Y	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y	Y/N
Adequate large woody material (12)	Y	Y/N
Floodplain and channel characteristics dissipate energy (13)	Y	Y
Point bars revegetating with hydric species (14)	Y	Y
Lateral stream movement associated with natural sinuosity (15)	Y	Y
System is vertically stable (16)	Y	Y
No excessive erosion or deposition (17)	Y	Y
Overall functioning condition[3]	**FAR+**	**FAR+**
Apparent trend[4]	**NA**	**NA**

[1](Y=yes, N=no, Y/N = A portion meets and a portions does not meet; N/A = Not Applicable)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3]PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or not identified

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The upstream reach of Rail Creek that was assessed FAR in 2000 was re-assessed in 2004. It was again rated FAR with a downward trend because the channel was braided and over-wide, the floodplain was not developed, and there was an inadequate composition and age class of hydric species present to stabilize and protect stream banks during times of high flows. In 2011, the longer reach that traverses pasture 1 was re-assessed in PFC. The assessment stated that the stream was geologically confined and approximately 50 percent is armored with boulders and woody species that do not allow livestock access to the stream. The condition of the stream appears to have improved and is functioning to maintain hydric soils and dissipate energy during high flows.

Old Man Creek

Old Man Creek crosses Pasture 1. Approximately 0.5 mile is on public land.

Stream Channel/Floodplain Inventories and Assessments

A portion of Old Man Creek was assessed for Proper Functioning Condition in May 2001 utilizing the Standard Checklist (Lotic) (Appendix B). This segment is in a bedrock controlled

stream channel. The Proper Functioning Condition assessment rated the segment as Proper Functioning Condition (Table F3-3).

Table F3-3: Stream Channel/Floodplain Indicators and Functioning Condition Rating– Old Man Creek

	Old Man
Stream Miles	*0.5*
Pasture	*1*
Date of data collection	*5/10/2001*
Stream Channel/Floodplain Indicator	Indicator Rating[1]
Floodplain inundated frequently (1)	Y
Beaver dams are active and stable (2)	N/A
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y
Upland watershed not contributing to riparian degradation (5)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	N/A
Adequate large woody material (12)	Y
Floodplain and channel characteristics dissipate energy (13)	Y
Point bars revegetating with hydric species (14)	N/A
Lateral stream movement associated with natural sinuosity (15)	Y
System is vertically stable (16)	Y
No excessive erosion or deposition (17)	Y
Overall functioning condition[3]	**PFC**
Apparent trend[3]	**N/A**

[1](Y=yes, N=no, Y/N = A portion meets and a portions does not meet; N/A = Not Applicable)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3]PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

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In 2011, the 0.5 mile reach of Old Man Creek was re-visited. Photos were taken and the observers noted that the stream was ephemeral and well protected with large boulders; thus, the PFC protocol was not applied.

South Mountain Creek

Approximately 1.7 miles of South Mountain Creek are associated with public land in Pasture 2 of the allotment. A portion of the stream is along the border of the pasture and a portion is within the pasture.

Stream Channel/Floodplain Inventories and Assessments

South Mountain Creek was inventoried in October 2000 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Proper Functioning Condition assessment rated the stream as Functional-At Risk mid/high. An apparent trend was not identified (Table F3-4).

The Rosgen F2b was the most common stream type on the segment. Rosgen F2 streams have entrenched, meandering, high width/depth ratio channels that are structurally controlled with boulder materials. These stream types are considered very stable due to the resistant nature of their channel materials (Rosgen 1996).

The inventory identified vegetation with deep binding root mass plants on 35-64 percent of the segment. Seventy to ninety percent of the streambanks are stable. The stream was not downcutting but had lateral cutting on less than one percent of the segment.

Table F3-4: Stream Channel/Floodplain Indicator Ratings – South Mountain Creek

Stream Segment	**SMC-001**
Date of data collection	*10/17/2000*
Stream miles	*1.7*
Pasture	*2*
Stream Channel/Floodplain Indicator	**Indicator Rating[1]**
Floodplain inundated frequently (1)[2]	Y/N
Beaver dams are active and stable (2)	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N
Upland watershed not contributing to riparian degradation (5)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N
Adequate large woody material (12)	Y
Floodplain and channel characteristics dissipate energy (13)	Y
Point bars revegetating with hydric species (14)	Y/N
Lateral stream movement associated with natural sinuosity (15)	Y
System is vertically stable (16)	Y
No excessive erosion or deposition (17)	Y
Overall functioning condition[3]	**FAR+**
Apparent trend[4]	**NA**

[1](Y=yes, N=no, Y/N = A portion meets and a portions does not meet)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3]PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

A MMIM site was established on the same reach of South Mountain Creek that traverses pasture 2 in 2001. The metrics collected showed that the mean stubble height was 4.4 inches, the woody use was 26 percent, and the stream bank alterations were 19 percent, indicating that the stream condition continues to be functioning below a minimal standard.

Big Boulder Creek

Big Boulder Creek runs along the east boundary of Pasture 2. Approximately 4.69 miles is on public land. Portions of the stream have been altered by dredging, channelization, dam, rip-rap, vegetation removal and water diversion.

Stream Channel/Floodplain Inventories and Assessments

Big Boulder Creek was inventoried in September and October of 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The inventory classified most of the stream as Rosgen F4 and B4c stream types. The F4 stream types are gravel dominated, entrenched, meandering channels, deeply incised in gentle terrain. Streambank erosion may be high where adequate vegetation isn't established on the entire slope face of the channel banks. The B4c stream types are moderately entrenched systems with gradients of less than 2 percent. These stream types are considered relatively stable and are not high sediment supply stream channels (Rosgen 1996). All 4 stream segments were assessed as high Functional-at Risk (Table F3-5).

Deep binding root mass plants were growing on 35-84 percent of the segment. Sixty-five to eighty-five percent of the streambanks are stable. The stream was not downcutting and had active bank erosion on less than one percent of the length.

Table F3-5: Stream Channel/Floodplain Indicators and Functioning Condition Rating by Segment – Big Boulder Creek

	BIG-002	**BIG-003**	**BIG-004**	**BIG-005**
Date of data collection	*10/8/01*	*9/7/01*	*9/7/01*	*9/7/01*
Stream miles	*0.8*	*1.41*	*1.28*	*1.2*
Pasture	*2*	*2*	*2*	*2*
Stream Channel/Floodplain Indicator	**Indicator Ratings[1]**			
Floodplain inundated frequently (1)[2]	Y/N	Y	Y	Y
Beaver dams are active and stable (2)	N	N	Y	Y
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N	Y/N	Y/N	Y
Upland watershed not contributing to riparian degradation (5)	Y	Y/N	Y	Y

	BIG-002	BIG-003	BIG-004	BIG-005
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	Y/N	Y/N	Y/N
Adequate large woody material (12)	Y	Y/N	Y/N	Y
Floodplain and channel characteristics dissipate energy (13)	Y/N	Y/N	Y/N	Y
Point bars revegetating with hydric species (14)	Y/N	Y/N	Y	Y/N
Lateral stream movement associated with natural sinuosity (15)	Y	Y	Y	Y
System is vertically stable (16)	Y	Y	Y	Y
No excessive erosion or deposition (17)	Y	Y	Y	Y
Overall functioning condition[3]	FAR+	FAR+	FAR+	FAR+
Apparent trend[4]	NA	NA	NA	UP

[1](Y=yes, N=no, Y/N = A portion meets and a portions does not meet)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3]PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

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The downstream and the middle segments of Big Boulder Creek (BIG002 and BIG004) were re-visited in 2011. The PFC protocol was not applied to BIG002. Photos were taken and the stream appears to be in functioning condition; however, there are alterations occurring on adjacent private land.

BIG004 was assessed in PFC in 2011. The observers noted that the stream reach was armored with large boulders and that cows were present in trespass. The livestock access points were not confirmed.

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Rail Creek Tributary
A tributary to Rail Creek that occurs in pasture 1 was assessed FAR in 2004. The reach had inadequate stabilizing species present, the stream banks were eroding, upland species were encroaching, and the channel was over-wide.

Riparian Inventories and Assessments

Table RIPN-11: Stream channel/floodplain indicator ratings – South Mountain Creek

Stream Segment	**Rail Creek Tributary**
Date of data collection	*8/18/2004*

Stream miles	*0.3*
Pasture	*1*
Stream Channel/Floodplain Indicator	**Indicator Rating[1]**
Floodplain inundated frequently (1)[2]	Y
Beaver dams are active and stable (2)	NA
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	N
Upland watershed not contributing to riparian degradation (5)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	N
Adequate large woody material (12)	NA
Floodplain and channel characteristics dissipate energy (13)	N
Point bars revegetating with hydric species (14)	Y
Lateral stream movement associated with natural sinuosity (15)	N
System is vertically stable (16)	Y
No excessive erosion or deposition (17)	Y
Overall functioning condition[3]	**FAR**
Apparent trend[4]	**NA**

[1](Y=yes, N=no, Y/N = A portion meets and a portions does not meet)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3]PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

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The information below is a summary of all the riparian assessment information for the allotment- both previously assessed as well as the supplemental information (also see Map RNGE-1F).

Table RIPN-12: Riparian assessment information for the Boulder Flat allotment

	Allotment, Pasture Name, and Miles Assessed			
Stream Name	**Boulder Flat- 01**	**Boulder Flat- 02**	**Assessment Issues/ Impacts Identified**	**Total Miles *Assessed***
Jordan Creek	0.5 (FAR-2001)		lack of bank stabilizing species to protect stream banks/ point bars are not revegetating/ noxious weeks present	0.5
Old Man Creek	0.5 (PFC-2000 pictures only/ ephemeral-2011)		2000- inadequate age class 2011- ephemeral/ armored with boulders	0.5
Rail Creek	1.8 (FARS-		2000- vegetation does not reflect	1.8

	2000/ FAR-2001/ FARD-2004/ PFC-2011)		maintenance of riparian soils/ vegetation was in low vigor/ noxious weeds present 2004- overwide channel/ inadequate composition and age class of hydric vegetation to stabilize stream banks/ channel was braided/ flood plain not developed 2011- 50% protected by boulders and woody vegetation/ improved condition	
Rail Creek Trib	0.3 (FAR-2004)		eroded banks/ upland species encroaching/ overwide channel/ inadequate stabilizing species present	0.3
Big Boulder Creek		4.7 (FARS- 2001)	noxious weeds present/ inadequate bank stabilizing species/ lack of plant vigor on upstream reach/	4.7
South Mountain Creek		1.7 (FARS- 2000)	portions of the reach had inadequate composition and age class of hydric species to stabilize and protect stream banks/ plants had low vigor/ point bars were not revegetating	1.7

MIM Metrics

Stream Name	**Pasture/ Assessment Year**	**Mean Stubble Height (inches)**	**Woody Use (%)**	**Streambank Alteration (%)**	**Stable Bank (%)**	**Covered Bank (%)**
South Mountain Creek	2/ 2011	4.4	25.9	19	70	94

4. Native Plant Communities

Rangeland Health Evaluations

Five (5) rangeland health evaluations were completed on the Boulder Flat Allotment during the 2001 field season by an interdisciplinary team. The evaluations were conducted in accordance with the procedure described in BLM-Technical Reference 1734-6, "Interpreting Indicators of Rangeland Health-Version 3." Evaluation methods are discussed in Appendix B. Nine (9) of the 17 rangeland health indicators included in the standard matrix are related to Standard 1. Table F4-1 summarizes all indicator ratings related to Standard 1, by pasture. For example, 2 sites were evaluated in Pasture 1, for a total of 18 indicator ratings related to native plant communities. Of these, 11 were rated as having a "none to slight" degree of departure from reference site conditions. Indicator ratings by site are included in Appendix E. Refer to Appendix H, Map 6 for rangeland health evaluation locations.

Table F4-1. Summary of Native Plant Community-related indicator ratings

	None to Slight	**Slight to Moderate**	**Moderate**	**Moderate to Extreme**	**Extreme**
Pasture 1[1]	11	5	2	0	0
Pasture 2[2]	15	7	5	0	0

[1]Summarizes: 2 Shallow Claypan 12-16" ecological sites
[2]Summarizes: 3 Shallow Claypan 12-16" ecological sites

Pasture 1

Indicators related to native plant communities were very similar at both RH1A and RH1B. At RH1A in Pasture 1, the indicator for soil surface resistance to erosion was rated as showing a 'moderate' degree of departure from reference conditions due to poor soil surface structure and

physical crusting. These same conditions were observed, but to a lesser degree, at RH1B. At both sites, some historic soil loss was apparent. Functional/structural groups were all present at both sites, though at RH1B, Sandberg bluegrass was more common than expected, while large perennial bunchgrasses were slightly below potential. Western juniper and bur buttercup were noted in trace amounts at both sites. Plant vigor and reproductive capability appeared to be adequate for maintenance of the plant community. Annual production and litter amounts were as expected.

Pasture 2

At RH2A and RH2B in Pasture 2, indicators related to native plant communities were near expected conditions. Soil surface loss or degradation was rated as 'slight to moderate' at both sites, as was the indicator for invasive plants. Soil loss appeared to be historic, due to the presence of stabilized plant pedestals in shrub interspaces. Bur buttercup was scattered at both sites, and western juniper were present in trace amounts. Both sites are dominated by low sagebrush, Sandberg bluegrass, and Idaho fescue, which appear vigorous and reproductively capable. Litter and annual production are within the expected range.

At RH2C, several indicators were rated as showing a 'moderate' departure from reference conditions. Soil surface loss and degradation were apparent, and resistance to erosion appeared to be compromised by amounts of bare ground; however soil surface roughness limits the potential for erosion. All functional/structural groups were present on site, but density of low sagebrush was somewhat higher than expected, while cover of Idaho fescue was below potential. Litter amount was lower than expected, and reproductive capability of perennial plants appeared to be reduced due to lack of seedheads on perennial bunchgrasses. Some crown die-out was noted on Idaho fescue plants, and annual production was slightly less than expected.

Long-term Vegetation Studies (Trend)

Two nested plot frequency transect (NPFT) trend sites are established in the Boulder Flat allotment. TR1A at T06S, R05W, Section 35 (06S05W35) in pasture 1, and TR2A at T07S, R04W, Section 06 (07S04W06) in Pasture 2 were established in 1990 and re-visited in 2001. At TR1A, low sagebrush frequency increased, while Idaho fescue and squirreltail decreased. Sandberg bluegrass remained unchanged at 100% frequency, and bluebunch wheatgrass was not detected in either monitoring year.

At TR2A, bluebunch wheatgrass frequency was low in 1990 (6%), but appeared to have declined in 2001. Idaho fescue frequency increased from 50% to 68%, but low sagebrush, Sandberg bluegrass, and squirreltail frequency all decreased during the monitoring period (Table F4-2). Graphs of these data are included in Appendix G.

Table F4-2. Key species frequency summary – Boulder Flat.

Species	1990	2001	1990	2001
	06S05W35 (Pasture 1)		07S04W06 (Pasture 2)	
Bluebunch WG	--	--	6	1
Low sagebrush	24	40	71	62
Idaho fescue	98	84	50	68

Species	1990	2001	1990	2001
	06S05W35 (Pasture 1)		07S04W06 (Pasture 2)	
Sandberg BG	100	100	42	25
Squirreltail	58	25	54	34

--Not detected in frequency sampling.
Numbers reflected as percentages.

Trend Data

Pasture 1

Grass frequency trend data were collected in pasture 1 at the nested plot frequency transect 06S, 05, W35 in 2001, 2007, and 2011 (Table VEG-15 and Figure VEG-9). Long-term and short-term significant downward trends are observed for Idaho fescue and squirreltail. Sandberg bluegrass dominates the site. Low sagebrush is static in frequency and increasing in density; however, seedings show increases in both frequency and density. (Short-term compares the two most recent years, long-term the first against the last year.)

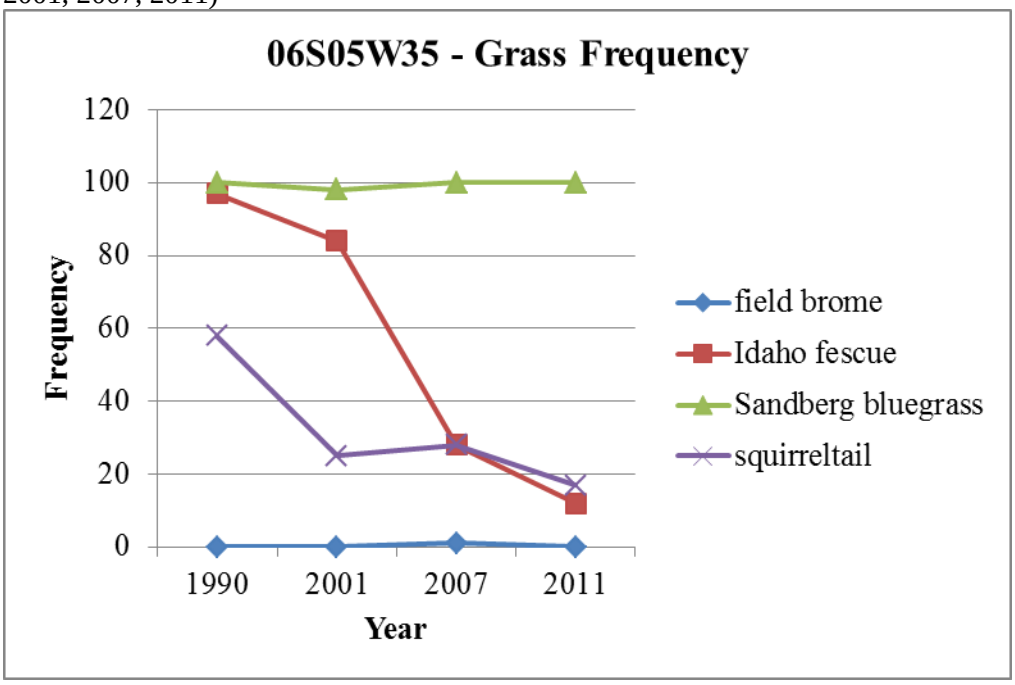
Sandberg bluegrass dominates the site deep-rooted perennial bunchgrasses are decreasing. However, invasive annuals are currently not an issue at this site. Overall interpretations of grass frequency trend show Idaho fescue decreasing on the site concluding that biotic integrity of the community has been compromised.

Table VEG-15: Grass frequency data from trend site for pasture 1 of the Boulder Flat allotment (1990, 2001, 2007, and 2011)

Grasses		Percentage			
Species		**1990**	**2001**	**2007**	**2011**
BRJA	field brome	No Data	No Data	1	0
FEID	Idaho fescue	97	84	28	12[s]
POSE	Sandberg bluegrass	100	98	100	100
SIHY	squirreltail	58	25	28	17[s]

[s]values are statistically significant (p-value <0.1)

Figure VEG-9: Grass frequency data from trend site for pasture 1 of the Boulder Flat allotment (1990, 2001, 2007, 2011)



Pasture 2

Grass frequency trend data were collected in pasture 2 at the nested plot frequency transect 07S04W06 in 2001, 2007, and 2011 (Table VEG-16 and Figure VEG-10). Idaho fescue is significantly increasing on the site. Bluebunch wheatgrass was not recorded on the site, and squirreltail is decreasing on the site. Invasive annuals are increasing on the site, field brome significantly. Shrub frequency of low sagebrush is showing an increase in density and decrease in frequency suggesting maturing plants.

Grass frequency data show that Idaho fescue and Sandberg bluegrass dominate the site. Invasive annuals are increasing on the site. Shrubs are maturing on the site. Overall interpretations of grass frequency trend show significant increases in deep-rooted bunchgrass, with a possible misidentification of bluebunch wheatgrass in 2011, leading to a conclusion that the biotic community is being maintained on this site.

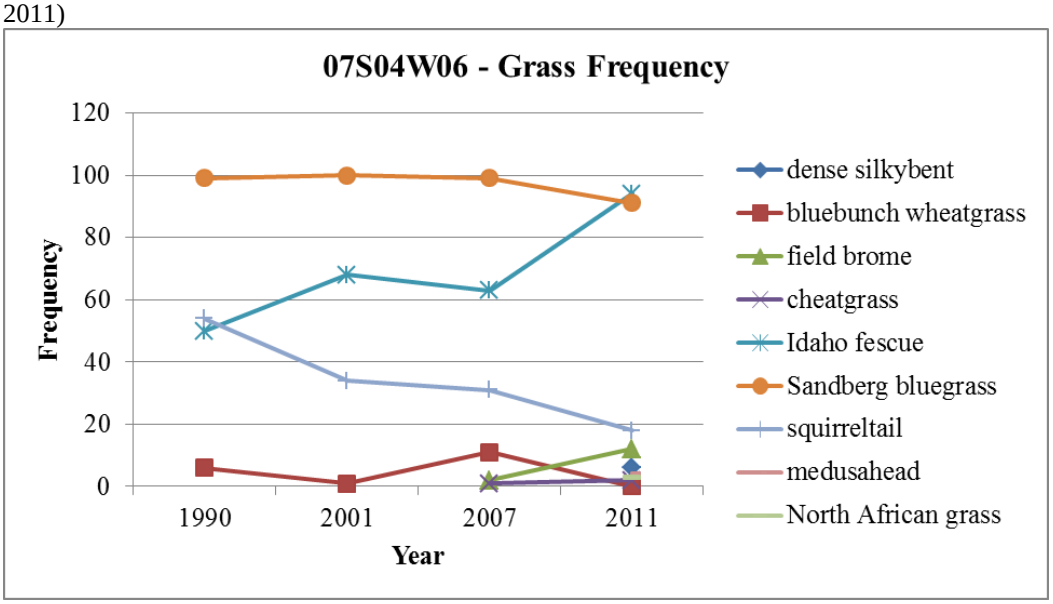
Table VEG-16: Grass frequency data from trend site for pasture 2 of the Boulder Flat allotment (2001, 2007, and 2011)

Grasses		**Percentage**			
Species		**1990**	**2001**	**2007**	**2011**
APIN	dense silkybent				6
AGSP	bluebunch wheatgrass	6	1	11	0^{s}
BRJA	field brome			2	12^{s}
BRTE	cheatgrass			1	2
FEID	Idaho fescue	50	68	63	94^{s}
POSE	Sandberg bluegrass	99	100	99	91^{s}
SIHY	squirreltail	54	34	31	18

TAAS	medusahead				4
VEDU	North African grass				3

[s]values are statistically significant (p-value <0.1)

Figure VEG-10: Grass frequency data from trend site for pasture 2 of the Boulder Flat allotment (2001, 2007, and 2011)



Utilization

Pasture 1

Data collected in 2008 and 2009 were incomplete for analysis. Utilization data collected ranged from slight to heavy use from 1975 to 2012 (Table VEG-17).

Table VEG-17: Utilization data from trend site for pasture 1 of the Boulder Flat allotment (1975-2012)

DATE	FEID	AGSP	SIHY	PUTR
11/18/1975	17	64	56	29
6/30/1982	16	12	14	
6/21/1983	34		32	
9/14/1984	23			
6/23/1987	41			
1993				
6/23/1994	38			
7/12/1996	27			
7/31/2008	12			
6/28/2010	26			
5/24/2011	31	22		
7/18/2012	7	3		

Pasture 2

Utilization data collected ranged from slight to heavy use from 1975 to 2012 (Table F4-7).

Table VEG-18: Utilization data from trend site for pasture 2 of the Boulder Flat allotment (1975-2012)

DATE	FEID	AGSP	POSE	SIHY
11/18/1975	60			63
7/29/1976	83	90		81
9/14/1984	30			
8/26/1986	26			
11/19/1987	24			
6/15/1988	48			
7/19/1990	52			
6/28/1993	46			
6/27/1995	56			
7/21/1997	53			
7/22/1999	59			
6/12/2001	54		46	
7/3/2007	29			
7/31/2008	3			
6/28/2010	36	4		
9/1/2011	35			
7/10/2012	20			
7/10/2012	24			

5. Rangeland Seeding

This Standard does not apply to the Boulder Flat Allotment.

6. Exotic Plant Communities

This Standard does not apply to the Boulder Flat Allotment.

7. Surface and Ground Water Quality

This assessment includes a review of data collected and water quality standards established by the Idaho Department of Environmental Quality (IDEQ). The State is divided into basins and sub-basins and assessment units. The new 2005 Integrated Report (303(d)/305(b)) uses "assessment units" within the sub-basin. Assessment units are groups of similar streams within a sub-basin that have similar land use practices, ownership, or land management. Assessment units are assessed for pollutants and assigned Beneficial Uses with associated Water Quality Standards. The Beneficial Use Reconnaissance Program (BURP) is a field assessment of stream

segments (all IDEQ data and standards mentioned here are available on the IDEQ web site- see references listed in section IV of this document).

Bureau of Land Management (BLM) also collects data that can include riparian inventories, riparian Proper Functioning Condition (PFC) assessments, riparian habitat evaluation forms, stream survey forms, riparian aquatic data sheets, thermograph data and water quality monitoring data (BLM data are available at the Owyhee Field Office in Marsing, Idaho).

Pasture 1

Jordan Creek flows 0.5 mile along the north boundary and Rail Creek flows 1.8 miles through the center of the allotment. Rail Creek is part of the Jordan Creek 1st and 2nd order Assessment Units. Beneficial uses assigned are Cold-water aquatic life (CWAL), Salmonid Spawning (SS), and Primary Contact Recreation (PCR). This Assessment Unit is not supporting CWAL and PCR uses. SS has not been assessed. Pollutants identified by IDEQ include: bacteria, mercury, oil and grease, pesticides and siltation.

Jordan Creek met standards for PCR in June 2004 with an *Escherichia coli (E. coli)* sample with a count of 50 per 100 milliliters. The criterion for Primary Recreation Contact is that the bacteria *(E.coli)* will be below the standard of 406 per 100 milliliters. Rail Creek had elevated levels of *E. coli* when sampled June 2004. Instantaneous water temperature on Rail Creek was 19.1° C in May, 2004. The State of Idaho criterion for CWAL beneficial use requires water temperatures of 22° C or less with a maximum daily average of less than 19° C.

The Jordan Creek riparian area rated high Functional-At Risk (FAR) in 2001 for the full reach; the vegetation age structure and diversity were adequate, but not all banks were adequately vegetated with hydric species to protect banks and dissipate stream energy, such that portions of the channel are over-widened. Wide and shallow channels are exposed to more solar radiation, increasing stream temperatures. The Rail Creek riparian area was rated mid/high FAR in 2000; the vegetation was in generally good condition, with the lower section in better condition. Erosion and sediment deposition was not excessive, but the channel was also over-widened, exposing it to greater heating from solar insolation. Subsequent assessments in 2001 and 2004 were conducted in specific areas that were mentioned in the 2000 assessment as being too wide and entrenched or with unprotected banks. One was FAR stable and one FAR downward trend.

Old Man Creek flows 0.5 mile through the center of the pasture. The Idaho Department of Environmental Quality has not assigned beneficial uses and has not assessed the assessment unit of lower Big Boulder Creek Assessment Unit and its tributaries including Old Man Creek. *E. coli* levels were elevated when sampled in June 2004. Riparian assessment in 2001 found the area to be in Proper Functioning Condition (PFC).

Pasture 2

Big Boulder Creek flows 4.69 miles along the east boundary of the pasture and South Mountain Creek flows 1.7 miles through the middle of the pasture. The Idaho Department of

Environmental Quality has not assigned beneficial uses and has not assessed the assessment unit of lower Big Boulder Creek and its tributaries including South Mountain Creek.

The BLM temperature and bacteria monitoring in 2001 and 2004 indicated Big Boulder Creek did not meet criteria for CWAL and SS, but did meet *E. coli* criteria for PCR. Water temperatures in South Mountain Creek were sampled in 2001 at the creek confluence and met CWAL criteria for water temperature. In 2004, it did not meet CWAL criteria upstream at the allotment boundary.

Portions of Boulder Creek had historic dredging, channelization, a dam, water diversion, rip-rap, and vegetation removal that limit the present potential. In 2001, the creek was assessed as high FAR. All segments of Big Boulder Creek and South Mountain Creek were assessed as having portions of the stream were not adequately vegetated to protect stream banks and dissipate stream energy. Also not all plant communities were composed of bank stabilizing species. As a result channels are not as narrow, resulting in greater stream surface area exposed to heating by solar insolation.

No excessive erosion or deposition of sediment was observed on South Mountain and Big Boulder Creeks. Thus, these streams are likely not contributing excessive sediment to the Jordan Creek Assessment Unit.

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The Boulder Flat allotment falls within the Jordan sub-basin. There are 2.9 miles of stream that are not supporting one or more of the sub-basin's beneficial uses, and 5.0 miles that have not been assessed. The sub-basin's beneficial uses that are not being met include cold-water aquatic life and secondary contact recreation. The pollutants of concern include mercury and temperature (IDEQ, 2010). Pastures 1 and 2 of the allotment contains segments of stream that occur in AUs ID17050108SW004_02 and ID17050108SW004_05 and that are on the 303(d) list of impaired waters. The AUs have been de-listed for temperature because a TMDL has been developed and approved, but remain listed for mercury.

8. Threatened and Endangered Plants and Animals

Botany

No federally listed plant species are known to occur in the Boulder Flat Allotment, although the U.S. Fish and Wildlife Service (USFWS) considers all of Idaho to be within the potential range of Ute ladies'-tresses (*Spiranthes diluvialis*), a federally threatened orchid species. This plant occurs in spring, seep, and riparian habitats. Due to the difficulty in narrowly defining potential habitat for this species, USFWS has chosen to apply a loose definition and requires Section 7 consultation only in three counties of southeast Idaho or in areas where the plant is actually

found (USFWS 2002). Surveys specifically for this plant are recommended prior to authorizing federal actions in southwest Idaho, but they are not required.

No BLM special status plant species are known to occur on the Boulder Flat Allotment. Site-specific plant surveys are conducted prior to construction of range projects.

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Botany No populations of special status plant species are known to occur in this allotment. There is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment. Records show no reported special status plants in this allotment, so this standard is not applicable. **Information sources** Elemental Occurrences (EOs) for special status plant (SSP) populations is recorded in the Idaho Fish and Wildlife Information System (IFWIS) Species Diversity database (IDFG, 2011). EOs are derived by completion and review of Idaho rare plant observation reports through the Idaho Natural Heritage Program. Other sources that were used to assess and evaluate the composition and condition of SSP habitats within the Boulder Flat allotment include RHAs, photographs, field notes, Plants database (USDA NRCS, 2013) literature search, and information summarized above in Standards in this document. Records show no reported special status plants in this allotment.

Wildlife

A number of species classified as Bureau of Land Management (BLM) "Sensitive Species" and/or State of Idaho "Species of Special Concern" are known or likely to occur within the allotment. A summary of these species, their legal status, and their key habitat associations are included in Appendix C.

Riparian Habitat

All 9.2 miles of assessed stream riparian habitat in this allotment are high Functional-At Risk (FAR) or Proper Functioning Condition (PFC). The riparian vegetation was generally in good condition. Composition, age class and structural diversity of riparian/wetland vegetation were close to appropriate with only few exceptions within the individual stream segments. The stream channels were not entrenching. Stream width/depth ratio, gradient, access to floodplain and sinuosity were appropriate with only a few exceptions. The 4 inch stubble height has normally been met on the riparian areas in the allotment. Riparian habitat was generally providing for the needs of dependant special status animals.

Redband trout are known to occupy Jordan and Big Boulder Creeks. Inventories are dated back into early the 1990s and late 1970s. Nearly all water temperatures recorded for all creeks were excessive. Only one creek was PFC (0.8 mile) and thus, supporting needs of redband trout other than water temperature. The remaining 8.4 miles of stream, even though high FAR, were not providing all the habitat needs of cover, shading and food source for redband trout. The 1999

Owyhee Resource Management Plan, Table RIPN-1 lists Jordan Creek (0.23 mile) as unsatisfactory fish habitat and Big Boulder Creek 3.73 miles as unsatisfactory fish habitat.

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Riparian Habitat

Pastures 1 and 2
On Big Boulder, Jordan, Old Man, Rail Creek and tributaries, and South Mountain Creeks, 7.2 miles out of 9.5 miles of assessed streams are functioning-at-risk (see Standard 2 and 3). Issues identified include low vigor of the plant community, active erosion, inadequate amount of hydric vegetation to stabilize and protect banks during high flows, and the increase noxious weed occurrence.

Evaluation of Standard 7 identified streams on the IDEQ's 303(d) list of impaired steams and that water quality parameters are not being met for the watershed's beneficial uses. The list of beneficial uses includes water quality standards for cold-water aquatic life. However, the reason for water quality parameters not being met was due to mercury pollutants and not livestock grazing practices (see Standard 7).

Columbia Spotted Frog

Both pastures 1 and 2 are within the mapped distribution of the Columbia spotted frog. Potential habitat exists along stream corridors and springs (Map WDLF-2E).

General Upland Habitat Assessment

Most of the uplands of the allotment were not near reference conditions, departure being "Slight to Moderate". The functional and structural condition was less than expected for the site and was not providing habitat that was adequate for the needs of most dependant special status and other wildlife species. The localized lack of large bunchgrasses, reduced shrub cover and increased juniper were limiting cover structure and forage for sage grouse, numerous songbirds, pygmy rabbits and others including a diversity of insects, rodents, birds and others that are critical prey for most raptors including prairie falcons, northern harriers and ferruginous hawks. Site stability was being provided by ground cover, litter and biological soil crusts.

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Upland Habitat

Pasture 1, 2, and 3
Pastures 1, 2, and 3 in the Boulder Flat FFR allotment are managed as native plant communities. Plant community information in Standard 4 recorded the herbaceous component is transitioning from a bluebunch wheatgrass reference community to a Sandberg bluegrass-dominated understory (see Standard 4). The downward trend and shift in the plant community composition is favoring more grazing-tolerant, shallow-rooted grass species and an increase in annual invasive species. These dominant species do not have the robust growth form or stature such as bluebunch wheatgrass and do not provide the plant composition, structure, and function for sagebrush steppe-dependent species.

Big Game and Other Vertebrates

The allotment provides spring/summer/fall habitat for pronghorn antelope, Rocky Mountain elk and mule deer (1999 Owyhee Resource Management Plan). Native perennial grass and forbs were reduced in abundance and were replaced by exotic annual grasses and encroachment of western juniper. The habitat of desirable native perennial grasses, forbs and shrubs were reduced in ability to support forage and cover needs for these large ungulates and other smaller vertebrates. Surveys from 2002 to 2005 did not find occupied Columbia spotted frog habitat.

Sage grouse

The allotment provides key habitat for sage grouse and surveys from 1994 through 2003 found active leks. Breeding Habitat and Late Brood-Rearing assessments have not been conducted to date.

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Focal Species

Sage-grouse
On March 5, 2010, the USFWS (USDI USFWS, 2010) published a finding in 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 BLM Type 2 sensitive species to a candidate species under the ESA.

This allotment lies within the regional Snake River Plain Management Zone for sage-grouse. In 2012, preliminary priority habitat (PPH) and general priority habitat (GPH) were modeled to identify lands in Idaho important to sage-grouse sustainability. PPH includes breeding, late brood-rearing, and winter concentration areas. General priority habitat are lands that may serve as important corridors between PPH and habitat islands within corridors, or occupied habitats characterized by low lek densities (Makela & Major, 2012). The BLM collaborated with respective state wildlife agencies to identify these areas. Modeling results indicate that 98 percent of the Boulder Flat FFR allotment lies within PPH (Table WDLF-19, Map WDLF-1F). Four active leks are known to occur within this allotment. This allotment provides seasonal breeding, upland summer, riparian, and winter habitat for sage-grouse.

Table WDLF-19: Acres[1] and portions of preliminary priority and general priority habitat within the Boulder Flat allotment (Map WDLF-1F)

Allotment/Pasture Name	Acres of PPH Sagebrush Habitat in Allotment[2]	Acres of PPH Perennial Grassland in Allotment	Acres of PPH Juniper Encroachment in Allotment	Acres of PGH in Allotment	Portion of Allotment in PPH/PGH
Pasture 1	1,956 (88%)	0	266 (12%)	0	2,221 (100%)
Pasture 2	1,089 (49%)	0	1,010 (46%)	97	2,099 (95%)

Allotment Total	3,044 (69%)	0	1276 (29%)	97	4,417 (98%)

[1]PPH/PGH habitat acreage totals include public lands, state lands, and private property.
[2]PPH sagebrush can also include small amounts of perennial grasslands, conifer encroachment, and non-habitat.

Pasture 1
Two sage-grouse upland summer habitat assessments were conducted on August 13 and 15, 2012 in this pasture. The assessments were located on a Shallow Claypan 12-16" Low sagebrush / Idaho fescue ecological site and a Wyoming big sagebrush / bluebunch wheatgrass inclusion. This pasture is managed as a native plant community.

Low sagebrush / Idaho Fescue Ecological Site

Breeding Habitat Assessment
This information was collected as part of an upland summer habitat assessment conducted on August 15, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months and the data collection protocols are the same, this information can provide insight into breeding habitat conditions earlier in the spring, although the forb information is not used because of the time year the data was collected.

The sagebrush overstory is characterized by a suitable canopy cover (16 percent) and marginal height (37.9 cm; close to being suitable) with a suitable predominantly spreading shape. The understory is characterized by a marginal canopy cover of perennial grasses (8 percent) (Table WDLF-20). Overall, this ecological site within this pasture is supporting suitable overstory conditions. Although the canopy cover of perennial grasses is less than desirable, sagebrush occurrence and predominately spreading shape is providing adequate overstory/understory cover for nesting and hiding, therefore this site is providing adequate (suitable) breeding habitat for sage-grouse.

Upland Summer Habitat Assessment
The sagebrush overstory is characterized by a suitable canopy cover (16 percent) and marginal height (37.9 cm; close to being suitable). The understory is characterized by a combined marginal canopy cover of perennial grasses and forbs (10 percent) (Table WDLF-20). Preferred forb species diversity and availability are not well represented. Overall, the combination of the sagebrush overstory and the perennial grass/forb understory are providing adequate hiding and escape cover; however, because the availability of forbs are less-than-favorable and a critical component during the late brood-rearing period, this ecological site is providing less-than-adequate (marginal) upland summer habitat for sage-grouse.

Winter Habitat Assessment
This information was collected as part of an upland summer habitat assessment conducted on August 15, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a suitable canopy cover (16 percent) and marginal height (37.9 cm; close to being suitable). Overall, sagebrush occurrence and height are providing adequate winter cover and forage conditions for sage-grouse and is not a limiting factor in this pasture (Table WDLF-20).

Table WDLF-20: Sage-grouse habitat indicators and pasture ratings (Refer to Appendix B and Figure WDLF-1F for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	[1]Breeding	Upland Summer	[1]Winter
Sagebrush Canopy Cover (%)	16.0	suitable	suitable	suitable
Sagebrush Height (cm)	37.9	marginal	marginal	marginal
Sagebrush Form	spreading	suitable		
[2]Perennial Grass Canopy Cover (%)	8.0	marginal		
Combined Grass/Forb Canopy Cover (%)	10.0		marginal	
Preferred Forb Availability (#)	5		marginal	
Overall Pasture Evaluation Rating		**marginal**	**marginal**	**suitable**

[1]Breeding and winter habitat ratings extrapolated from upland summer habitat assessment information collected on 8/15/2012.
[2]Perennial grass canopy cover does not include Poa species.

Wyoming Big Sagebrush / Bluebunch Wheatgrass Inclusion

Breeding Habitat Assessment
This information was collected as part of a upland summer habitat assessment conducted on August 13, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months and the data collection protocols are the same, this information can provide insight into breeding habitat conditions earlier in the spring, although the forb information is not used because of the time year the data was collected.

The sagebrush overstory is characterized by a marginal canopy cover (36 percent) and marginal height (119.5 cm) with a marginal mixed (spreading/columnar) shape. The understory is characterized by a marginal canopy cover of perennial grasses (8 percent) (Table WDLF-21). Overall, the pasture showed marginal overstory/understory conditions, indicating that the required nesting and hiding cover are not fully being provided. Overall, because of the mixed structure of the sagebrush overstory and the reduced abundance of perennial grasses in the understory, conditions are providing less-than-adequate (marginal) hiding and nesting cover for sage-grouse.

Upland Summer Habitat Assessment
The sagebrush overstory is characterized by a marginal canopy cover (36 percent) and marginal height (119.5 cm). The understory is characterized by a combined marginal canopy cover of perennial grasses and forbs (10 percent) (Table WDLF-21). Preferred forb species diversity and availability are desirable. Overall, although the number of preferred forbs species identified is adequate, their occurrence is not favorable; and because of the combined shape of the sagebrush overstory and the less than desirable herbaceous understory component, this site is providing less than adequate (marginal) hiding and escape cover for late brood-rearing sage-grouse.

Winter Habitat Assessment
This information was collected as part of a upland summer habitat assessment conducted on August 13, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a suitable canopy cover (36 percent) and suitable height (119.5 cm). Overall, sagebrush occurrence and height are providing adequate winter cover and forage conditions for sage-grouse and is not a limiting factor in this pasture (Table WDLF-21).

Table WDLF-21: Sage-grouse habitat indicators and pasture ratings (Refer to Appendix B and Figure WDLF-1F for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	[1]Breeding	Upland Summer	[1]Winter
Sagebrush Canopy Cover (%)	36.0	marginal	marginal	suitable
Sagebrush Height (cm)	119.5	marginal	marginal	suitable
Sagebrush Form	mixed	marginal		
[2]Perennial Grass Canopy Cover (%)	8.0	marginal		
Combined Grass/Forb Canopy Cover (%)	10.0		marginal	
Preferred Forb Availability (#)	7		suitable	
Overall Pasture Evaluation Rating		**marginal**	**marginal**	**suitable**

[1]Breeding and winter habitat ratings extrapolated from upland summer habitat assessment information collected on 8/13/2012.
[2]Perennial grass canopy cover does not include Poa species.

Pasture 2
One sage-grouse upland summer habitat assessment was conducted in pasture 2 on August 15, 2012. The assessment was conducted on a Shallow Claypan 12-16" Low sagebrush / Idaho fescue ecological site. This pasture is managed as a native plant community.

Breeding Habitat Assessment
This information was collected as part of an upland summer habitat assessment conducted on August 15, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months and the data collection protocols are the same, this information can provide insight into breeding habitat conditions earlier in the spring, although the forb information is not used because of the time year the data was collected.

The sagebrush overstory is characterized by a suitable canopy cover (16 percent) and marginal height (33.1 cm) with a marginal mixed (spreading/columnar) shape. The understory is characterized by an unsuitable canopy cover of perennial grasses (2 percent) (Table WDLF-22). Overall, although sagebrush occurrence is favorable, the height and mixed shape of the sagebrush overstory component and the substantially reduced occurrence of perennial grasses and forbs in

the understory is not providing adequate (unsuitable) nesting and hiding cover conditions for breeding and early brood-rearing sage-grouse.

Upland Summer Habitat Assessment
The sagebrush overstory is characterized by a suitable canopy cover (16 percent) and marginal height (33.1 cm). The understory is characterized by a combined unsuitable canopy cover of perennial grasses and forbs (2 percent) (Table WDLF-22). Preferred forb species (5) diversity is marginal and their occurrence is unsuitable. Overall, although the sagebrush occurrence is favorable, the combination of the spreading/columnar shape of the sagebrush and the substantially reduced occurrence of combined perennial grasses and forbs is not providing adequate (unsuitable) hiding cover and forage for late brood-rearing sage-grouse.

Winter Habitat Assessment
This information was collected as part of an upland summer habitat assessment conducted on August 15, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a suitable canopy cover (16 percent) and marginal height (33.1 cm). Overall, suitable sagebrush occurrence and marginal height are providing marginal winter cover and forage conditions for sage-grouse. Because the average height of the sagebrush is limiting the amount of sagebrush forage above 15cm annual snow fall, this pasture is therefore providing less than desirable winter habitat conditions for sage-grouse. (Table WDLF-22).

Table WDLF-22: Sage-grouse habitat indicators and pasture ratings (Refer to Appendix B and Figure WDLF-1F for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	[1]Breeding	Upland Summer	[1]Winter
Sagebrush Canopy Cover (%)	16.0	suitable	suitable	suitable
Sagebrush Height (cm)	33.1	marginal	marginal	marginal
Sagebrush Form	mixed	marginal		
[2]Perennial Grass Canopy Cover (%)	2.0	unsuitable		
Combined Grass/Forb Canopy Cover (%)	2.0		unsuitable	
Preferred Forb Availability (#)	5		marginal	
Overall Pasture Evaluation Rating		**unsuitable**	**unsuitable**	**marginal**

[1]Breeding and winter habitat ratings extrapolated from upland summer habitat assessment information collected on 8/15/2012.
[2]Perennial grass canopy cover does not include Poa species.

G. Walt's Pond FFR Allotment (659)

Physiography

The Walt's Pond FFR Allotment is approximately 15 miles southwest of Silver City, Idaho in Owyhee County. The elevation of the allotment is between 4,500 and 5,600 feet. The allotment is in USDA Natural Resource Conservation Service Major Land Resource Area 25, Owyhee High Plateau (USDA, NRCS 2004). The annual precipitation ranges from 13-17 inches and the frost-free periods range from 70-95 days. The major landforms in the area are categorized as canyons in Pasture 1 and foothills in Pasture 2. The soils in Pasture 1 are moderately deep to very deep and are Rubbleland, Rock Outcrop, and Pachic Argixerolls. Pasture 2 soils are moderately deep, to deep loams, stony loam, gravelly loam, and sandy loam. Soil slopes range from 5 to 50 percent. The water erosion hazard is slight to high. The wind erosion hazard is moderate. Low sagebrush and Idaho fescue are dominant species in plant communities found on the more shallow soils. Basin big sagebrush, Idaho fescue, bluebunch wheatgrass, and an occasional juniper are found on deeper soils.

Land Status

The Walt's Pond allotment consists of approximately 3,610 acres of public, State and private land in 2 pastures (Table G-1).

Table G-1: Land Status (in acres)*

	Public	State	Private	Total
Pasture 1	962	0	553	1,515
Pasture 2	448	11	1,636	2095
Total	**1,410**	**11**	**2,189**	**3,610**

*Acreages represent best available estimates

Livestock Grazing Management

In the Owyhee Resource Management Plan (1999), the Walt's Pond FFR Allotment was placed in Selective Management Category "Custodial." Custodial allotments are managed with the objective to manage the public lands with minimal expenditure of appropriated funds and continue protecting existing resource values. They must also meet or make progress in meeting the Idaho Standards for Rangeland Health. The RMP identified 76 animal unit months (AUMs) of active preference for livestock grazing. Livestock grazing is authorized by a term grazing permit issued to Morgan Properties LP DBA Morgan Ranches. Current permitted use for this allotment is summarized in Table G-2.

Table G-2. Permitted Use Summary - Walt's Pond FFR Allotment

Operator Name & No.	Livestock Kind & No.	Season of Use	% PL	AUMs		
				Active	Suspended	Permitted
Morgan Properties LP DBA (1101510)	75 cattle	12/01-12/31	100	76	0	76

Although the allotment is divided into two separate pastures, the allotment is treated as one. In accordance with the grazing permit Terms and Conditions; the grazing permittee is required to submit Actual Use Reports at the conclusion of each grazing season annually. Table G-3 summarizes the total AUMs and displays the period of use as reported each year on Actual Use Reports. Actual Use was not reported during the period from 1992-2002, and 2004.

Table G-3. Actual Use Reports

Actual Use	1990	1991	2003	2005
Start - End	4/15 - 6/1	4/5 - 6/1	4/1 - 5/30	4/4 - 5/31
AUMs	58	76	74	76

* Actual Use Reports are submitted at the end of each grazing year by the Authorized Grazing Permittee. These reports are required for each allotment, in accordance with Terms and Conditions found on the grazing permit

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Livestock Grazing Management

Although the allotment is divided into two separate pastures, the allotment is managed as one pasture. The BLM land associated with the Walt's Pond FFR allotment is 20 percent of the allotment and is managed in conjunction with the private land.

Actual Use

Actual use for the allotment has ranged from 52 to 77 AUMs between 2003 and 2012, with an average of 72 AUMs for the allotment (Table LVST-7). Calculations for AUMs were re-configured in 2013 and AUMs differ slightly from 2006 data interpretation. No actual use was reported from 1997 to 2002 or 2004.

Table LVST-7: Actual use for the Walt's Pond FFR allotment 2003-2012

	Date	AUMs
2012	4/15-5/15	76
2011	4/1-5/1	77
2010	4/10-6/5	71
2009	4/1-4/30	75
2008	4/1-5/1	77
2007	4/3-5/15	52
2006	4/1-5/30	75
2005	4/1-5/31	76
2003	4/1-5/30	73

1. Watersheds

Two (2) rangeland health evaluations were completed on the Walt's Pond FFR Allotment during the 2001 field season by an interdisciplinary team. The evaluations were conducted in accordance with the procedure described in BLM-Technical Reference 1734-6, "Interpreting Indicators of Rangeland Health-Version 3." Evaluation methods are discussed in Appendix B.

Twelve (12) of the 17 rangeland health indicators included in the standard matrix are related to Standard 1. Table G1-1 summarizes all indicator ratings related to Standard 1, by pasture. For example, 1 site was evaluated in Pasture 1, for a total of 12 indicator ratings related to watersheds. Of these, 4 were rated as having a "none to slight" degree of departure from reference site conditions. Indicator ratings by site are included in Appendix E. See Map 7 for rangeland health evaluation locations.

Table G1-1. Summary of Watershed related indicator ratings

Standard 1	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme
Pasture 1[1]	4	1	5	1	0
Pasture 2[2]	5	1	5	1	0

[1]Summarizes: 1 Shallow Claypan 12-16" ecological site
[2]Summarizes: 1 Shallow Claypan 12-16" ecological site

Pasture 1

At RH1A, the indicator for pedestals/terracettes was rated as showing a 'moderate to extreme' departure from reference conditions. In addition, the indicators for water flow patterns, bare ground, plant community composition/distribution, soil surface loss/degradation, and litter amount were all rated as showing a 'moderate' departure from reference conditions. Water flow paths were short, often connected and more common than expected. Cut areas were common with some areas of ponding observed. Both historic and active pedestals were present and common around Sandberg bluegrass. Pedestals were deep and defined, with common root exposure and shrub mounding (soil and litter accumulation under shrub canopies). Bare ground was in small patches, sometimes connected and associated with flow paths. Resistance to erosion had a slight departure in amount of biological crust, organic matter and vegetation in interspaces. Historic and active soil loss was observed with some surface sealing, platy structure and vesicular pores present. Large perennial bunchgrasses were absent from the plant community with a shift to increaser grasses. Litter amount was significantly reduced both in interspaces and under shrub canopy.

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2013 Field Observations

A field visit in the spring of 2013 (see Owyhee Field Office project file) showed conditions in the vicinity of rangeland health assessment site RH1A to be similar to previous observations. A network of trails within sagebrush cuts through a blanket of invasive annuals, such as medusahead and cheatgrass. Soils are churned within interspaces where mechanical impacts are common and, based on hoof prints and waste, can be associated with cattle and horses. A gully is partially vegetated, along with a small ephemeral stream nearby.

Pasture 2

At RH2A, indicator ratings related to watershed function were similar to those at RH1A. Water flow paths were frequent, short and often connected; some were longer and significantly wider than expected. Ponding and cut areas were common around grasses and shrubs. Multiple species were commonly pedestaled, even beneath shrubs. Exposed roots and mechanical

damage were common. Resistance to erosion was somewhat provided by rock/gravel armor, but was moderately reduced by reduced vegetation, biological crust, organic matter and increased bare ground. Mechanical damage was contributing to historic and active soil loss and degradation. There was a significant reduction in interspatial perennial grasses with a shift from decreaser grasses to increaser grasses. Change in vegetation composition was reflected in a reduction in litter amount.

2. Riparian Areas and Wetlands

The riparian resources on public land in the Walt's Pond FFR Allotment are associated with Jordan Creek, Glass Gulch and Williams Creek. The 1999 Owyhee Resource Management Plan Table RIPN-1 identifies 0.3 mile of Jordan Creek and 0.07 mile of Williams Creek as having unsatisfactory riparian conditions.

Jordan Creek

Jordan Creek crosses the allotment in Pasture 1. The majority of the stream is on private land. Approximately, 0.6 mile occurs on public land. The public land section has been modified by a dam, dikes, channelization and road construction.

Riparian Inventories and Assessments

Jordan Creek was inventoried in May 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). Proper Functioning Condition assessments rated a 0.1 mile segment as Functional-At Risk high and a 0.5 mile segment as Functional-At Risk. The apparent trends were not identified (Table G2-1).

The vegetation was classified as Yellow Willow Community Type. The vegetation was missing trees, but it had a balance in cover between shrubs, graminoids and forbs. Graminoid cover was the most abundant (75 to 85 percent). Meadow foxtail, smooth brome, common spikerush, Kentucky bluegrass and bulbous bluegrass were the most common graminoids. Shrub cover was 45 to 65 percent. Yellow willow, Whiplash willow and sandbar willow were the most common shrubs. The noxious weed Canada thistle was the most common forb on the western segment.

Table G2-1: Riparian Indicators and Functioning Condition Rating by Stream Segment – Jordan Creek

	JOR-001	**JOR-002**
Stream miles	*0.1*	*0.5*
Date of data collection	*5/29/2001*	*5/31/2001*
Pasture Number	*1*	*1*
Riparian/Wetland Indicators:	Indicator Ratings[1]	
Diverse age class/structure of hydric vegetation (6)[2]	Y	N

	JOR-001	JOR-002
Diverse composition of hydric vegetation (7)	Y	N
Vegetation reflects maintenance of soil moisture (8)	Y	Y/N
Plant community comprised of bank stabilizing species (9)	Y	Y/N
Hydric vegetation exhibits high vigor (10)	Y/N	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	N
Adequate large woody material (12)	Y	*
Point bars revegetating with hydric species (14)	Y	N
Noxious weeds are not increasing[3]	N	Y
Overall functioning condition[4]	**FAR+**	**FAR**
Apparent trend[5]	**NA**	**NA**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] Canada thistle on 45-55 percent of segment JOR-001.
[4]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[5]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

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The 0.5-mile reach of Jordan Creek was re-visited in 2011. Photos were taken and the observers noted that the stream was well armored with rocks and dense willow cover, and that access to the stream by livestock was limited. Additionally, there was a diversion dam and a private water right; thus, the PFC protocol was not applied. Based on the photos, there is adequate vegetation present to stabilize and protect stream banks and the stream appears to be in PFC.

Glass Gulch

Glass Gulch is a seasonal or intermittent stream that crosses public land in Pasture 1 for approximately 0.4 miles and Pasture 2 for approximately 0.7 miles. Portions are non-riparian, and considered ephemeral in nature.

Riparian Inventories and Assessments

Glass Gulch in Pasture 1 was inventoried in May 2001 and Glass Gulch in Pasture 2 was inventoried in June 2000. Both inventories were conducted following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Pasture 1 Proper Functioning Condition assessment rated the stream as Functional-At Risk high/mid. The apparent trend was not identified. The Pasture 2 Proper Functioning Condition assessment rated the stream as Functional-At Risk mid with an upward trend (Table G2-2).

The Pasture 1 segment was a Yellow Willow/Beaked Sedge Community Type. This community was missing trees, but had a balanced cover of shrubs, graminoids and forbs. The most common shrubs were Whiplash willow, sandbar willow, yellow willow and Wood's rose. The most

common graminoids were meadow foxtail, smooth brome, common spikerush, and bulbous bluegrass. Canada thistle was the most common forb.

The Pasture 2 segment was Baltic Rush Community Type, Kentucky Bluegrass Community Type or Sandbar Willow Community Type. The third community was balanced with shrubs, graminoids and forbs. The dominant shrubs were redosier dogwood, yellow willow and Whiplash willow. The most common graminoid was Kentucky bluegrass.

Pasture 1 had Canada thistle on approximately 65-75 percent of the segment and whitetop on 1-5 percent. Pasture 2 had Canada thistle on approximately 45-55 percent of the segment.

Table G2-2: Riparian Indicators and Functioning Condition Rating by Stream Segment - Glass Gulch

Stream Segments	**GLA-002**	**GLA-002**
Stream miles	*0.4*	*0.7*
Date of data collection	*6/8/2000*	*6/8/2000*
Pasture Number	*1*	*2*
Riparian/Wetland Indicators:	Indicator Ratings[1]	
Diverse age class/structure of hydric vegetation (6)[2]	Y/N	Y/N
Diverse composition of hydric vegetation (7)	Y	Y
Vegetation reflects maintenance of soil moisture (8)	Y	Y/N
Plant community comprised of bank stabilizing species (9)	Y/N	Y
Hydric vegetation exhibits high vigor (10)	Y/N	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	N
Adequate large woody material (12)	Y	N
Point bars revegetating with hydric species (14)	Y	Y/N
Noxious weeds are not increasing[3]	N[3(a)]	N[3(b)]
Overall functioning condition[4]	**FAR+**	**FAR**
Apparent trend[5]	**NA**	**UP**

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3] (a)Canada thistle on 65-75 percent of the segment and whitetop on 1-5 percent of the segment.
(b)Canada thistle on 45-55 percent of the segment.
[4]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[5]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

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The downstream reach of Glass Gulch that traverses pasture 1 was re-visited in 2012. Photos were taken and the observers noted that the stream was well armored with rocks and dense

willow cover, and that access to the stream by livestock was limited. A wet meadow complex of approximately 2 acres that contributes flow to the reach was also noted. However, the PFC protocol was not applied. Based on the photos, on the downstream half of the reach, there are adequate boulders and vegetation present to stabilize and protect stream banks, and the stream appears to be in PFC. The upstream portion does not have surface water, and banks appear to be eroding; where livestock have access to the stream, it is mechanically damaged, and there appear to be very few hydric species present.

The upstream reach that traverses pasture 2 was also assessed in 2003. The stream was FAR with an upward trend because there was willow regeneration occurring and the functional condition of the stream banks and riparian areas was improving. Issues noted in the assessment include mechanical damage of the herbaceous understory intermittently where cattle access the stream, and that the channel had previously been deeply incised.

Williams Creek

Approximately 0.6 miles of Williams Creek crosses public land in Pasture 2.

Riparian Inventories and Assessments

Williams Creek was inventoried in September 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Proper Functioning Condition assessment rated the segment as Functional-At Risk high. The apparent trend was not identified (Table G2-3).

The vegetation was classified as Arroyo Willow Community Type. There were no trees, but the cover of shrubs was 85-95 percent. Common shrubs were Whiplash willow and water birch. Graminoid cover was 65-75 percent. Common graminoids were redtop and Kentucky bluegrass. Forbs had 35-45 percent cover. Canada thistle was the most common forb. It occurred on 15-25 percent of the segment.

Table G2-3: Riparian Indicators and Functioning Condition Rating by Stream Segment – Williams Creek

Stream Segments	**WIL-002**
Stream miles	*0.6*
Date of data collection	*9/21/2001*
Pasture Number	*2*
Riparian/Wetland Indicators:	Indicator Ratings
Diverse age class/structure of hydric vegetation (6)[2]	Y
Diverse composition of hydric vegetation (7)	Y
Vegetation reflects maintenance of soil moisture (8)	Y
Plant community comprised of bank stabilizing species (9)	Y

Stream Segments	WIL-002
Hydric vegetation exhibits high vigor (10)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y
Adequate large woody material (12)	Y
Point bars revegetating with hydric species (14)	Y
Noxious weeds are not increasing[3]	N
Overall functioning condition[4]	FAR+
Apparent trend[5]	NA

[1] Y=yes; N=no; Y/N=both attributes; NA=non applicable
[2]( ) – indicator # on Lotic Standard Checklist
[3]Canada thistle on 15-25 percent of the segment.
[4]PFC- proper functioning condition; FAR- functional-at risk; NF- nonfunctional
[5]UP = apparent upward trend; DN = apparent downward trend; S = apparent static trend; NA = trend not apparent

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The reach of Williams Creek that traverses pasture 2 was re-assessed in PFC in 2012. The reach of stream is well armored with large boulders and dense willows. There was intermittent mechanical damage of the herbaceous understory where livestock have access to the stream.

Riparian Use Monitoring

Livestock use in the riparian zone is typically measured by the stubble heights of graminoid species and the percent utilization of woody species. Stubble height measurements are a simple and effective tool to monitor rangeland use in key areas. Individual plant measurements are collected from herbaceous vegetation such as grasses, sedges, and rushes. Generally stubble heights of 4 to 6 inches are an acceptable standard for effective streambank, protection, prevention of sedimentation, and maintenance of plant communities (USDI, BLM 1999). Table G2-4 displays data available on stubble heights and shrub use.

Table G2-4: Riparian Stubble Heights and Percent Shrub Use

Location	Pasture	Date	Stubble Height in Inches	Percent Shrub use	Comments
JOR-001	1	5/29/2001	16	26-50	Higher on young shrubs
JOR-002	1	5/31/2001	12	26-50	Higher on young shrubs
GLA-001	1	5/29/2001	8	26-50	NA
GLA-002	2	6/8/2000	8-18	>51	NA
WIL-002	2	9/21/2001	8	26-50	NA

The information below is a summary of all the riparian assessment information for the allotment- both previously assessed as well as the supplemental information (also see Map RNGE-1G).

Table RIPN-13: Riparian assessment information for the Walt's Pond FFR allotment

	Allotment, Pasture Name, and Miles Assessed			
Stream Name	**Walt's Pond FFR-01**	**Walt's Pond FFR- 02**	**Assessment Issues/ Impacts Identified**	**Total Miles *Assessed***
Glass Gulch	0.4 (FAR- 2000/ pictures only- 2012)		2000- inadequate hydric vegetation to protect stream banks during high flows/ lack of vegetation age class and large woody debris/ presence of noxious weeds 2012- upstream portion lacked hydric species/ bank mechanically damaged/ banks eroding	0.4
		0.7 (FARS- 2000) 0.7 (FARU- 2003)	2000- 2003- old incised channel/ intermittent mechanical damage of herbaceous understory	1.4
Jordan Creek	0.5 (FARS- 2001) (pictures only- 2011)		2001- inadequate composition and age class of hydric species to protect steam banks/ point bars are not revegetating 2011- ephemeral stream- PFC protocol not applicable	0.4
Williams Creek		0.6 (FARS- 2001/ PFC- 2012)	2001- noxious weeds present/ unstable beaver dams/ inadequate floodplain development to dissipate energy during high flows 2012- well armored with boulders and willows	0.4

3. Stream Channel/Floodplain

The stream channel and floodplain resources on public land in the Walt's Pond FFR Allotment are associated with Jordan Creek, Glass Gulch and Williams Creek.

<u>Jordan Creek</u>

Jordan Creek crosses the allotment in Pasture 1. The majority of the stream is on private land. Approximately, 0.6 miles is on public land. The public land section has been modified by a dam, dikes, channelization and road construction.

Stream Channel/Floodplain Inventories and Assessments

Jordan Creek was inventoried in May 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). Proper Functioning Condition assessments rated a 0.1 mile segment as Functional-At Risk high and a 0.5 mile segment as Functional-At Risk. The apparent trends were not identified (Table G3-1).

The most common Rosgen stream type on both inventory segments was F4. The F4 stream types are gravel dominated, entrenched, meandering channels, deeply incised in gentle terrain. Streambank erosion may be high where adequate vegetation isn't established on the entire slope face of the channel banks (Rosgen 1996).

The inventory found deep binding root mass plants on 65-84 percent of the streambanks on the shorter segment and 35-64 percent on the longer segment. Eighty-five to ninety-five percent of the shorter segment was stable. Forty-six to sixty percent of the longer segment was stable. Neither segment was downcutting. One to five percent of the longer segment had active lateral cutting. Canada thistle was on 45 to 55 percent of the shorter segment.

Table G3-1: Stream Channel/Floodplain Indicators and Functioning Condition Rating by Segment – Jordan Creek

	JOR-001	**JOR-002**
Date of data collection	*5/29/2001*	*5/31/2001*
Stream miles	*0.1*	*0.5*
Pasture	*1*	*1*
Stream Channel/Floodplain Indicator	Indicator Rating[1]	
Floodplain inundated frequently (1)[2]	N	Y/N
Beaver dams are active and stable (2)	N	Y
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	N	Y/N
Upland watershed not contributing to riparian degradation (5)	Y	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	N
Adequate large woody material (12)	Y	N/A
Floodplain and channel characteristics dissipate energy (13)	Y/N	Y/N
Point bars revegetating with hydric species (14)	Y	N
Lateral stream movement associated with natural sinuosity (15)	Y/N	Y/N
System is vertically stable (16)	Y	Y
No excessive erosion or deposition (17)	Y	Y/N
Overall functioning condition[3]	**FAR+**	**FAR**
Apparent trend[4]	**NA**	**NA**

[1] (Y=yes, N=no, Y/N = A portion meets and a portions does not meet)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3]PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)

[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

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The 0.5 mile reach of Jordan Creek was re-visited in 2011. Photos were taken and the observers noted that the stream was well armored with rocks and dense willow cover, and that access to the stream by livestock was limited. Additionally, there was a diversion dam and a private water right; thus, the PFC protocol was not applied. Based on the photos, there is adequate vegetation present to stabilize and protect stream banks and the stream appears to be in PFC.

Glass Gulch

Glass Gulch is a seasonal or intermittent stream that crosses public land in Pasture 1 for approximately 0.4 miles and Pasture 2 for approximately 0.7 miles. Portions are non-riparian.

Stream Channel/Floodplain Inventories and Assessments

Glass Gulch in Pasture 1 was inventoried in May 2001 and Glass Gulch in Pasture 2 was inventoried in June 2000. Both inventories were conducted following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Pasture 1 Proper Functioning Condition assessment rated the stream as Functional-At Risk high/mid. The apparent trend was not identified. The Pasture 2 Proper Functioning Condition assessment rated the stream as Functional-At Risk mid with an upward trend (Table G3-2).

The segment in Pasture 1 was composed primarily of E6 and E4 Rosgen stream types. Rosgen E6 streams are channel systems with moderate to high sinuosity, gentle to moderately steep channel gradients, and very low channel width-depth ratios. Rosgen E4 streams are channel systems with low to moderate sinuosity, gentle to moderately steep channel gradients with very low channel width/depth ratios. E6 and E4 stream channels are very stable unless the stream banks are disturbed, and significant changes in sediment supply and /or streamflow occur (Rosgen 1996).

The segment in Pasture 2 was composed of E6 along with F6, B4, and B4a equally. The F6 streams are entrenched, meandering, gentle gradient streams deeply incised in cohesive sediments, silt and clay. These stream types are very sensitive to disturbance and adjust rapidly to changes in flow regime and sediment supply from the watershed (Rosgen 1996). The B4 stream types are moderately entrenched systems. These stream types are considered relatively stable and are not high sediment supply stream channels (Rosgen 1996).

On the Pasture 1 segment, there was deep binding root mass plants on 65-84 percent of the segment. Sixty-five to seventy-five percent of the streambanks were stable. The stream was vertically stable. Active bank erosion was occurring on less than one percent of the segment. Pugging was evident on 1-5 percent of the segment.

On the Pasture 2 segment, there was deep binding root mass plants on 65-84 percent of the segment. Sixty-six to seventy percent of the streambanks were stable. Downcutting and active

bank erosion were occurring on 1-5 percent of the segment. There was no evidence of pugging. A road construction culvert was acting as grade control.

Pasture 1 had Canada thistle on approximately 65-75 percent of the segment and whitetop on 1-5 percent. Pasture 2 had Canada thistle on approximately 45-55 percent of the segment.

Table G3-2: Stream Channel/Floodplain Indicators and Functioning Condition Rating by Segment – Glass Gulch

Stream Segment	**GLA-001**	**GLA-002**
Date of data collection	*5/29/2001*	*6/8/2000*
Pasture	*1*	*2*
Stream miles	*0.4*	*0.7*
Stream Channel/Floodplain Indicator	Indicator Rating[1]	
Floodplain inundated frequently (1)[2]	Y/N	Y/N
Beaver dams are active and stable (2)	N	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y	Y/N
Upland watershed not contributing to riparian degradation (5)	Y	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	N
Adequate large woody material (12)	Y	N
Floodplain and channel characteristics dissipate energy (13)	Y	Y/N
Point bars revegetating with hydric species (14)	Y	Y/N
Lateral stream movement associated with natural sinuosity (15)	Y	Y
System is vertically stable (16)	Y	Y/N
No excessive erosion or deposition (17)	Y	Y/N
Overall functioning condition[3]	**FAR+**	**FAR**
Apparent trend[4]	**NA**	**UP**

[1] (Y=yes, N=no, Y/N = A portion meets and a portions does not meet)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3]PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

2013 Supplement to the Walt's Pond FFR Allotment Rangeland Health Standards and Guidelines Assessment
The downstream reach of Glass Gulch that traverses pasture 1 was re-visited in 2012. Photos were taken and the observers noted that the stream was well armored with rocks and dense willow cover, and that access to the stream by livestock was limited. A wet meadow complex of approximately 2 acres that contributes flow to the reach was also noted. However, the PFC protocol was not applied. Based on the photos, on the downstream half of the reach, there are adequate boulders and vegetation present to stabilize and protect stream banks and the stream

appears to be in PFC. The upstream portion does not have surface water and banks appear to be eroding; where livestock have access to the stream, it is mechanically damaged, and there appear to be very few hydric species present.

The upstream reach that traverses pasture 2 was also assessed in 2003. The stream was FAR with an upward trend because there was willow regeneration occurring and the functional condition of the stream banks and riparian areas was improving. Issues noted in the assessment included mechanical damage of the herbaceous understory intermittently where cattle access the stream, and that the channel had previously been deeply incised.

Williams Creek

Approximately 0.6 miles of Williams Creek crosses public land in Pasture 2.

Stream Channel/Floodplain Inventories and Assessments

Williams Creek was inventoried in September 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The Proper Functioning Condition assessment rated the segment as Functional-At Risk high. The apparent trend was not identified (Table G3-3).

The vegetation was classified as Arroyo Willow Community Type. There were no trees, but the cover of shrubs was 85-95 percent. Graminoid cover was 65-75 percent. Forbs had 35-45 percent cover. Disturbance induced vegetation occurred on approximately 1-5 percent of the segment. Canada thistle was the most common forb. It occurred on 15-35 percent of the segment.

The majority of the stream was rated as a Rosgen F4b stream type. The F4 stream types are gravel dominated, entrenched, meandering channels that are deeply incised in gentle terrain. The slope ranges from 2 to 3.9 percent. Streambank erosion may be high where adequate vegetation isn't established on the entire slope face of the channel banks (Rosgen 1996).

There were deep binding root mass plants on 35 to 64 percent of the segment. Seventy to ninety percent of the streambanks were stable. The stream was not downcutting. Active bank erosion was occurring on 5 to 15 percent of the segment. Canada thistle was on 15 to 25 percent of the segment.

Table G3-3: Stream Channel/Floodplain Indicators and Functioning Condition Rating by Segment – Williams Creek

Stream Channel/Floodplain Indicator	**WIL-002**
Date of data collection	*9/21/2001*
Stream miles	*0.6*
Pasture	*2*
Stream Channel/Floodplain Indicator	Indicator Rating[1]

Stream Channel/Floodplain Indicator	WIL-002
Floodplain inundated frequently (1)[2]	Y/N
Beaver dams are active and stable (2)	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N
Upland watershed not contributing to riparian degradation (5)	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y
Adequate large woody material (12)	Y
Floodplain and channel characteristics dissipate energy (13)	Y/N
Point bars revegetating with hydric species (14)	Y
Lateral stream movement associated with natural sinuosity (15)	Y/N
System is vertically stable (16)	Y/N
No excessive erosion or deposition (17)	Y
Overall functioning condition[3]	FAR+
Apparent trend[4]	NA

[1] (Y=yes, N=no, Y/N = A portion meets and a portions does not meet)
[2]( ) - item # on the Inventory write-up or Proper Functioning Condition Assessment
[3]PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
[4]UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

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The reach of Williams Creek that traverses pasture 2 was re-assessed in PFC in 2012. The reach of stream is well armored with large boulders and dense willows. There was intermittent mechanical damage of the herbaceous understory where livestock have access to the stream.

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The information below is a summary of all the riparian assessment information for the allotment- both previously assessed as well as the supplemental information (also see Map RNGE-1G).

Table RIPN-14: Riparian assessment information for the Walt's Pond FFR allotment

	Allotment, Pasture Name, and Miles Assessed			
Stream Name	**Walt's Pond FFR- 01**	**Walt's Pond FFR- 02**	**Assessment Issues/ Impacts Identified**	**Total Miles *Assessed***
Glass Gulch	0.4 (FAR- 2000/ pictures only- 2012)		2000- inadequate hydric vegetation to protect stream banks during high flows/ lack of vegetation age class and large woody debris/ presence of noxious weeds 2012- upstream portion lacked hydric species/ bank mechanically	0.4

			damaged/ banks eroding	
		0.7 (FARS- 2000) 0.7 (FARU- 2003)	2000- 2003- old incised channel/ intermittent mechanical damage of herbaceous understory	1.4
Jordan Creek	0.5 (FARS- 2001) (pictures only- 2011)		2001- inadequate composition and age class of hydric species to protect steam banks/ point bars are not revegetating 2011- ephemeral stream- PFC protocol not applicable	0.5
Williams Creek		0.6 (FARS- 2001/ PFC- 2012)	2001- noxious weeds present/ unstable beaver dams/ inadequate floodplain development to dissipate energy during high flows 2012- well armored with boulders and willows	0.6

4. Native Plant Communities

Two (2) rangeland health evaluations were completed on the Walt's Pond FFR Allotment during the 2001 field season by an interdisciplinary team. The evaluations were conducted in accordance with the procedure described in BLM-Technical Reference 1734-6, "Interpreting Indicators of Rangeland Health-Version 3." Evaluation methods are discussed in Appendix B. Nine (9) of the 17 rangeland health indicators included in the standard matrix are related to Standard 1. Table G4-1 summarizes all indicator ratings related to Standard 4, by pasture. For example, 1 site was evaluated in Pasture 1, for a total of 9 indicator ratings related to native plant communities. Of these, 1 was rated as having a "none to slight" degree of departure from reference site conditions. Indicator ratings by site are included in Appendix E. Refer to Appendix H, Map 7 for rangeland health evaluation locations.

Table G4-1. Summary of Native Plant Community indicator ratings

Standard 4	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme
Pasture 1[1]	1	2	4	2	0
Pasture 2[2]	2	2	5	0	0

[1]Summarizes: 1 Shallow Claypan 12-16" ecological site (RHE 1)
[2]Summarizes: 1 Shallow Claypan 12-16" ecological site (RHE 2)

Pasture 1

At RH1A, all functional/structural groups were present, but bluebunch wheatgrass and Idaho fescue were very sparse and generally found in protected areas. Small perennial bunchgrasses including Sandberg bluegrass made up a larger than expected proportion of the understory component. Cover of low sagebrush was higher than expected. The amount of litter was significantly reduced throughout the site. Mortality was observed on pedestaled perennial grasses. Medusahead and western juniper were scattered on the site and cheatgrass was common. Seedheads were limited to bluebunch wheatgrass plants occupying protected sites. Vigor was low on all interspatial bunchgrasses. Plant recruitment was not observed on the site.

Pasture 2

At RH2A, all functional/structural groups were present, but bluebunch wheatgrass and Idaho fescue were below potential based on ecological site descriptions. Small perennial bunchgrasses including Sandberg bluegrass made up a larger than expected proportion of the understory component. Cover of low sagebrush was as expected. The amount of litter was significantly reduced throughout the site. Crown die-out was observed on pedestaled perennial grasses. Cheatgrass and soft brome were present in trace amounts. Bunchgrasses occupying protected sites displayed good vigor and reproductive capability, but vigor was lower than expected for interspatial bunchgrasses.

No trend or utilization monitoring data are available for this allotment.

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Background Information

The Horse Creek Fire started on October 5, 1999, and burned 290 acres of the 3,505-acre Walt's Pond FFR allotment (8 percent). Pasture 2 was rested from grazing for two full growing seasons. No rehabilitation seedings were administered. Some annual invasives are scattered throughout the pasture.

Utilization

Pasture 1

Utilization data collected ranged from slight to light use from 2011 to 2012 (Table VEG-19).

Table VEG-19: Utilization data for pasture 1 Walt's Pond FFR allotment 2011 and 2012

Date	PSSP	FEID	SIHY	BRJA	POSA
7/12/2011			13	21	18
5/8/2012	6	7		3	7

Pasture 2

Utilization in May 2009 for bluebunch wheatgrass was 3 percent and Idaho fescue was 3 percent. In 2011, utilization for bluebunch wheatgrass was 12 percent; no other utilization data have been collected on the Walt's Pond FFR allotment pasture 2.

5. Rangeland Seeding

Standard does not apply.

6. Exotic Plant Communities

Standard does not apply.

7. Surface and Ground Water Quality

This assessment includes a review of data collected and water quality standards established by Idaho Department of Environmental Quality (IDEQ). The State is divided into basins and sub-basins and assessment units. The new 2005 Integrated Report (303(d)/305(b)) uses "assessment

units" within the sub-basin. Assessment units are groups of similar streams within a sub-basin that have similar land use practices, ownership, or land management. Assessment units are assessed for pollutants and assigned Beneficial Uses with associated Water Quality Standards. The Beneficial Use Reconnaissance Program (BURP) is a field assessment of stream segments (all IDEQ data and standards mentioned here are available on the IDEQ web site- see references listed in section IV of this document).

The Bureau of Land Management (BLM) also collects data that can include riparian inventories, riparian Proper Functioning Condition (PFC) assessments, riparian habitat evaluation forms, stream survey forms, riparian aquatic data sheets, thermograph data and water quality monitoring data (BLM data are available at the Owyhee Field Office).

Jordan Creek flows 0.6 miles on public land within Pasture 1. The Idaho Department of Environmental Quality (IDEQ) has assigned water quality standards for beneficial uses Jordan Creek Assessment Unit. The Assessment Unit does not support Cold-water aquatic life (CWAL) and Primary Contact Recreation (PCR) criteria. Other beneficial uses are Salmonid Spawning (SS), agriculture, industrial water supply, wildlife habitats, and aesthetics which have not been assessed. Pollutants are bacteria, mercury, oil and grease, pesticides, and sediments. Activities affecting the Assessment Unit are agriculture, grazing, and roads. BLM data found Jordan Creek was not meeting CWAL criteria in 2004. The State of Idaho criteria for CWAL beneficial use requires water temperatures of 22º C or less with a maximum daily average of less than 19º C. Riparian assessment in 2000 found the reach to be Functional-At Risk (FAR) with static trend on one reach and improving on another reach.

Glass Gulch is a seasonal or intermittent stream that crosses public land in Pasture 1 for approximately 0.4 miles and Pasture 2 for approximately 0.7 miles. Portions are non-riparian. It is part of the Jordan Creek 1st and 2nd Order Assessment Unit. IDEQ has assigned CWAL and PCR Water Quality Standards which are not supported. Other beneficial uses have not been assessed. Pollutants are bacteria, mercury, oil and grease, pesticides and siltation. The Pasture 1 Proper Functioning Condition assessment rated the stream as Functional-At Risk high/mid. The apparent trend was not identified. The Pasture 2 Proper Functioning Condition assessment rated the stream as Functional-At Risk mid with an upward trend.

Williams Creek flows 0.6 miles through Pasture 2. Williams Creek fully supports CWAL criteria. Other beneficial uses not assessed are PCR, agriculture, industrial water supply, wildlife habitats and aesthetics. No pollutants are listed. Grazing, recreation and roads are identified as activities affecting the Assessment Unit. The BLM water monitoring in 2004 found temperatures were not supporting SS criteria. The riparian assessment in 2001 found the reach to be Functional-At Risk (FAR) with static trend. However, the vegetation generally was in good condition, controlling erosion, stabilizing streambanks and shading the water.

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The Walt's Pond allotment falls within the Jordan sub-basin. There are 1.1 miles of stream that are not supporting one or more of the sub-basin's beneficial uses, 0.5 mile that is fully supporting the beneficial uses, and 2.5 miles that have not been assessed. The sub-basin's beneficial uses that are not being met include cold-water aquatic life, and the pollutants of concern include flow

alteration and temperature (IDEQ, 2010).

Pasture 1 of the allotment contain segments of an stream that occur in AU ID17050108SW001_05 and that are on the 303(d) list of impaired waters. The AU has been de-listed for temperature because a TMDL has been developed and approved, but remains listed for mercury.

8. Threatened and Endangered Plants and Animals

Botany

No federally listed plant species are known to occur in the Walt's Pond FFR Allotment, although the U.S. Fish and Wildlife Service (USFWS) considers all of Idaho to be within the potential range of Ute ladies'-tresses (*Spiranthes diluvialis*), a federally threatened orchid species. This plant occurs in spring, seep, and riparian habitats. Due to the difficulty in narrowly defining potential habitat for this species, USFWS has chosen to apply a loose definition and requires Section 7 consultation only in three counties of southeast Idaho or in areas where the plant is actually found (USFWS 2002). Surveys specifically for this plant are recommended prior to authorizing Federal actions in southwest Idaho, but not required.

No BLM special status plant species are known to occur on the Walts Pond FFR Allotment. Site-specific plant surveys are conducted prior to construction of range projects.

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Botany

No populations of special status plant species are known to occur in this allotment. There is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment. Records show no reported special status plants in this allotment, so this standard is not applicable.

Information sources

Elemental Occurrences (EOs) for special status plant (SSP) populations is recorded in the Idaho Fish and Wildlife Information System (IFWIS) Species Diversity database (IDFG, 2011). EOs are derived by completion and review of Idaho rare plant observation reports through the Idaho Natural Heritage Program. Other sources that were used to assess and evaluate the composition and condition of SSP habitats within the Walt's Pond FFR allotment include RHAs, photographs, field notes, Plants database (USDA NRCS, 2013) literature search, and information summarized above in Standards in this document. Records show no reported special status plants in this allotment.

Wildlife

A number of species classified as Bureau of Land Management (BLM) "Sensitive Species" and/or State of Idaho "Species of Special Concern" are known or likely to occur within the

allotment. A summary of these species, their legal status, and their key habitat associations are included in Appendix C.

Riparian Habitat
Jordan Creek flows 0.6 miles on public land within Pasture 1. Jordan Creek does not support Cold-water aquatic life (CWAL). Glass Gulch is a seasonal or intermittent stream that crosses public land in Pasture 1 for approximately 0.4 miles and Pasture 2 for approximately 0.7 miles. Portions are non-riparian and ephemeral. Williams Creek flows 0.6 miles through Pasture 2. Williams Creek fully supports CWAL criteria. Much of the stream riparian habitat in this allotment is high Functional-At Risk (FAR), with upward trend and generally providing for the needs of dependant special status species. Other segments are FAR and static. These segments are lacking in structural diversity, composition and vigor of riparian vegetation and generally not providing suitable habitat for these species. They are also lacking adequate hydric vegetation to adequately protect streambanks, leaving them vulnerable to loss of habitat during high flow events.

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Riparian Habitat *Pastures 1 and 2* Riparian conditions were noted to be improving in pasture 1 but that the stream was still functioning at risk due to intermittent mechanical damage to vegetation where livestock access the channel. Standard 2 and 3 also noted Glass Gulch Creek was functioning-at-risk in pasture 2 because of mechanical damage of the herbaceous understory, an incised channel, and inadequate residual vegetation to maintain or improve inadequate riparian function (see Standards 2 and 3). Evaluation of Standard 7 identified streams on the IDEQ's 303(d) list of impaired steams and that water quality parameters are not being met for the watershed's beneficial uses. The list of beneficial uses includes water quality standards for cold-water aquatic life (See Standard 7). However, not meeting water quality parameters was due to flow alteration and not livestock grazing practices.

<u>Redband Trout</u>

Redband trout are known to occupy Jordan Creek and Williams Creek. Water temperatures are too high in both creeks for Salmonid Spawning. Riparian conditions are not providing high quality habitat to fully support redband trout needs.

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Columbia Spotted Frog Inventory/target survey information in 2008 near Williams Creek did not record any occurrence of spotted frogs in pasture 2.

General Upland Habitat Assessment
Most of the uplands of the allotment have departed from reference conditions, deviation being the "Slight to Moderate" and "Moderate" category. The lack of large bunchgrasses was limiting

cover structure and forage for sage grouse, numerous songbirds, pygmy rabbits and others including a diversity of insects, rodents, birds and others that are critical prey for most raptors including prairie falcons, northern harriers and ferruginous hawks. Site stability was being provided by ground cover, litter and biological soil crusts.

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Upland Habitat *Pastures 1 and 2* Pastures 1 and 2 are managed as native plant communities. Plant community information in Standard 4 recorded the reduced composition of deep-rooted native perennial bunchgrasses (e.g., bluebunch wheatgrass and Idaho fescue) from reference site conditions and a greater dominance by increaser species (e.g., Sandberg bluegrass and squirreltail). These conditions signal a transition in plant community composition and structure that is not favorable for sagebrush steppe-dependent species and does not meet Standard 8.

Big Game and other Vertebrates

The allotment provides habitat for antelope, elk and mule deer either seasonally or yearlong. The allotment is spring/summer/fall range for pronghorn antelope and elk. The allotment includes crucial winter range for mule deer in the north half of Pasture 1 and winter/yearlong range for mule deer in the remainder of Pasture 1 and all of Pasture 2 (1999 Owyhee Resource Management Plan). The native perennial grasses, forbs and shrubs have departed from the reference conditions to such an extent that they were not providing good habitat to support forage and cover needs for these large ungulates and other smaller vertebrates. Surveys from 2002 to 2005 did not find occupied pygmy rabbit habitat.

Sage grouse

The allotment has key habitat for sage grouse. Active leks occur in the allotment and vicinity.

Late Brood-rearing habitat

Late Brood-rearing habitat has been assessed in accordance with methodologies described in "A Framework to Assist in Making Sensitive Species Habitat Assessments for BLM-Administered Public Lands in Idaho" (as revised in May, 2001). Refer to Appendix C for sage grouse habitat assessment worksheets that include specific rating criteria for each habitat indicator.

A late brood-rearing assessment conducted in 2003 found habitat along a riparian area/intermittent stream (T6S, R5W, Section 29 SWSW). Table G8-1 displays habitat suitability by indicators. The riparian area is adjacent to a Loamy 12-16" inch ecological site supporting basin big sagebrush, basin wildrye, cheatgrass, Sandberg bluegrass and bottlebrush squirreltail. Erosion and trailing is common along the drainage with sparse willows and sagebrush and antelope bitterbrush invading from the uplands. Where erosion is absent or minor, willows and wetland grasses dominate the riparian area. Forb diversity and abundance is low for sage grouse preferred species. Overall marginal brood rearing habitat is being provided for in this allotment.

Table G8-1: Sage Grouse Late Brood-Rearing Habitat Assessment

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Riparian and wet meadow communities:			
Riparian and Wet Meadow Plant Community		√	
Riparian and Wet Meadow Stability	√		
Forb Availability		√	
Proximity of Sagebrush Cover	√		
Overall Late Brood-rearing Habitat Assessment		√	

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Sage-grouse

On March 5, 2010, the USFWS (USDI USFWS, 2010) published a finding in 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 BLM Type 2 sensitive species to a candidate species under the ESA.

This allotment lies within the regional Snake River Plain Management Zone for sage-grouse. In 2012, preliminary priority habitat (PPH) and general priority habitat (GPH) were modeled to identify lands in Idaho important to sage-grouse sustainability. PPH includes breeding, late brood-rearing and winter concentration areas. General priority habitat are lands that may serve as important corridors between PPH and habitat islands within corridors, or occupied habitats characterized by low lek densities (Makela & Major, 2012). The BLM collaborated with respective state wildlife agencies to identify these areas. Modeling results indicate that all (100 percent) of the Morgan allotment lies within PPH (Table WDLF-23, Map WDLF-1G). No active leks are known to occur within this allotment. This allotment provides seasonal breeding, upland summer, riparian, and winter habitat for sage-grouse.

Table WDLF-23: Acres[1] and portions of preliminary priority and general priority habitat within the Walt's Pond allotment (Map WDLF-1G)

Allotment/Pasture Name	Acres of PPH Sagebrush Habitat in Allotment[2]	Acres of PPH Perennial Grassland in Allotment	Acres of PPH Juniper Encroachment in Allotment	Acres of PGH in Allotment	Portion of Allotment in PPH/PGH
Pasture 1	1,416 (100%)	0	0	0	1,416 (100%)
Pasture 2	1,914 (92%)	0	174 (8%)	0	2,089 (100%)
Allotment Total	3,331 (95%)	0	174 (5%)	0	3,505 (100%)

[1]PPH/PGH habitat acreage totals include public lands, state lands, and private property.
[2]PPH sagebrush can also include small amounts of perennial grasslands, conifer encroachment, and non-habitat.

Pasture 1

Two sage-grouse breeding assessments have been collected on two different reference sites. One was collected in a Loamy 10-13" Wyoming big sagebrush / bluebunch wheatgrass site, and one site was located in Loamy 12-16" Wyoming big sagebrush / bluebunch wheatgrass site. The pasture is managed as a native plant community (Standard 4).

Loamy 10-13" Wyoming big sagebrush / bluebunch wheatgrass site

Breeding Habitat Assessment
This information was collected as part of a upland summer habitat assessment conducted on August 20, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months and the data collection protocols are the same, this information can provide insight into breeding habitat conditions earlier in the spring, although the forb information is not used because of the time year the data was collected would influence their numbers and abundance.

The sagebrush overstory is characterized by a marginal canopy cover (28 percent) and marginal height (133.8 cm) with an unsuitable columnar shape. The understory is characterized by a marginal canopy cover of perennial grasses (10 percent) (Table WDLF-24). Overall, less-than-adequate (marginal) overstory/understory story conditions for nesting and hiding sage-grouse are shown to be occurring in this pasture due to less-than-desirable sagebrush occurrence and physical shape combined with reduced perennial grass occurrence.

Upland Summer Habitat Assessment
The sagebrush overstory is characterized by a marginal canopy cover (28 percent) and suitable height (133.8 cm). The understory is characterized by a marginal combined canopy cover of perennial grasses and forbs (10 percent) (Table WDLF-24). The number of preferred forb species (5) recorded is marginal; however, their canopy cover (0 percent) along the transect line is unsuitable. Overall, less-than-adequate (marginal) occurrence, height, and columnar shape of the sagebrush overstory and marginal perennial grass/forb understory conditions are not providing favorable structure and composition for hiding/escape cover for late brood-rearing sage-grouse.

Winter Habitat Assessment
This information was collected as part of a breeding habitat assessment conducted on August 20, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a suitable canopy cover (28 percent) and suitable height (133.8 cm). Overall, sagebrush occurrence and height are providing suitable winter cover and forage conditions for sage-grouse and is not a limiting factor in this pasture (Table WDLF-24).

Table WDLF-24: Sage-grouse habitat indicators and pasture (Refer to Appendix B and Figure WDLF-1G for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	[1]Breeding	Upland Summer	[1]Winter
Sagebrush Canopy Cover (%)	28.0	marginal	marginal	suitable
Sagebrush Height (cm)	133.8	marginal	marginal	suitable

Sagebrush Form	columnar	unsuitable		
[2]Perennial Grass Canopy Cover (%)	10.0	marginal		
Combined Grass/Forb Canopy Cover (%)	10.0		marginal	
Preferred Forb Availability (#)	5		marginal	
Overall Pasture Evaluation Rating		**marginal**	**marginal**	**suitable**

[1]Breeding and winter habitat ratings extrapolated from upland habitat assessment information collected on 8/8/2012.
[2]Perennial grass canopy cover does not include Poa species.

Loamy 12-16" Wyoming big sagebrush / bluebunch wheatgrass site

Breeding Habitat Assessment
This information was collected as part of an upland summer habitat assessment conducted on August 20, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months and the data collection protocols are the same, this information can provide insight into breeding habitat conditions earlier in the spring, although the forb information is not used because of the time year the data was collected would influence their numbers and abundance.

The sagebrush overstory is characterized by a marginal canopy cover (34 percent) and suitable height (69.5 cm) with a marginal mixed (spreading/columnar) shape. The understory is characterized by an unsuitable canopy cover of perennial grasses (2 percent) (Table WDLF-25). Overall, unsuitable occurrence of perennial grasses does not provide understory nesting and hiding cover conditions for nesting and hiding sage-grouse.

Upland Summer Habitat Assessment
The sagebrush overstory is characterized by a marginal canopy cover (34 percent) and suitable height (69.5 cm). The understory is characterized by an unsuitable combined canopy cover of perennial grasses and forbs (2 percent) (Table WDLF-25). The number of preferred forb species (3) recorded is unsuitable their canopy cover (0 percent) along the transect line is unsuitable. Overall, unsuitable occurrence of perennial grasses does not provide understory hiding/escape cover and forage conditions for late brood-rearing sage-grouse.

Winter Habitat Assessment
This information was collected as part of a breeding habitat assessment conducted on August 20, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a marginal canopy cover (34 percent) and marginal height (69.5 cm). Overall, sagebrush occurrence and height are providing suitable winter cover and forage conditions for sage-grouse and is not a limiting factor in this pasture (Table WDLF-25).

Table WDLF-25: Sage-grouse habitat indicators and pasture ratings (Refer to Appendix B and Figure WDLF-1G for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	Data	[1]Breeding	Upland Summer	[1]Winter
Sagebrush Canopy Cover (%)	34.0	marginal	marginal	suitable
Sagebrush Height (cm)	69.5	suitable	suitable	suitable
Sagebrush Form	mixed	marginal		
[2]Perennial Grass Canopy Cover (%)	2.0	unsuitable		
Combined Grass/Forb Canopy Cover (%)	2.0		unsuitable	
Preferred Forb Availability (#)	3		unsuitable	
Overall Pasture Evaluation Rating		**unsuitable**	**unsuitable**	**suitable**

[1]Breeding and winter habitat ratings extrapolated from upland habitat assessment information collected on 8/8/2012.
[2]Perennial grass canopy cover does not include Poa species.

Pasture 2
Two sage-grouse upland summer habitat assessments have been collected in this pasture. Both were conducted on Loamy 12-16" Wyoming big sagebrush / bluebunch wheatgrass sites. The pasture is managed as a native plant community (Standard 4).

This information was collected as part of an upland summer habitat assessment conducted on August 20, 2012. Because the sagebrush community is not expected to change substantially over the course of a few months and the data collection protocols are the same, this information can provide insight into breeding habitat conditions earlier in the spring, although the forb information is not used because of the time year the data was collected would influence their numbers and abundance.

The sagebrush overstory is characterized by a marginal canopy cover (34 percent) and suitable height (120.4 cm) with a marginal mixed (spreading/columnar) shape. The understory is characterized by an unsuitable canopy cover of perennial grasses (4 percent) (Table WDLF-26). Overall, unsuitable occurrence of perennial grasses does not provide adequate understory nesting and hiding cover conditions for sage-grouse.

Upland Summer Habitat Assessment
The sagebrush overstory is characterized by a marginal canopy cover (34 percent) and suitable height (120.4 cm). The understory is characterized by an unsuitable combined canopy cover of perennial grasses and forbs (5 percent) (Table WDLF-26). The number of preferred forb species (3) recorded is unsuitable their canopy cover (1 percent) along the transect line is unsuitable. Overall, unsuitable occurrence of perennial grasses and forbs does not provide adequate understory hiding/escape cover and forage conditions for late brood-rearing sage-grouse.

Winter Habitat Assessment
This information was collected as part of a breeding habitat assessment conducted on August 20,

2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight into winter habitat conditions later in the year. The sagebrush overstory is characterized by a marginal canopy cover (34 percent) and marginal height (120.4 cm). Overall, sagebrush occurrence and height are providing suitable winter cover and forage conditions for sage-grouse and is not a limiting factor in this pasture (Table WDLF-26).

Table WDLF-26: Sage-grouse habitat indicators and pasture ratings (Refer to Appendix B and Figure WDLF-1G for full assessment summaries and habitat indicator value ranges)

Habitat Indicator	**Data**	**[1]Breeding**	**Upland Summer**	**[1]Winter**
Sagebrush Canopy Cover (%)	34.0	marginal	marginal	suitable
Sagebrush Height (cm)	120.4	suitable	marginal	suitable
Sagebrush Form	mixed	marginal		
[2]Perennial Grass Canopy Cover (%)	4.0	unsuitable		
Combined Grass/Forb Canopy Cover (%)	5.0		marginal	
Preferred Forb Availability (#)	3		unsuitable	
Overall Pasture Evaluation Rating		**unsuitable**	**unsuitable**	**suitable**

[1]Breeding and winter habitat ratings extrapolated from upland habitat assessment information collected on 8/20/2012.
[2]Perennial grass canopy cover does not include Poa species.

III. Interdisciplinary Team Members

The assessment was drafted by Ecosystem Management, Inc under contract with the Owyhee Field Office, BLM. Owyhee Field Office provided Interdisciplinary Team (ID Team) support and review through various levels of development, and edited the final document.

Name	Title	Roles and Responsibilities
Dominika Lepak	Range Management Specialist	ID Team lead, native plant communities, livestock management
Kathi Kershaw	Ecologist/Botanist	T & E plants, native plant communities, RHAs
John Doremus	Wildlife Biologist	T&E wildlife
Paul Seronko	Environmental Protection Specialist	Watersheds
Bruce Zoellick	Fisheries Biologist	Riparian, stream channel/ floodplain, water quality
Jake Vialpando	Supervisory Rangeland Management Specialist	Range Program Review and Oversight

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Name	**Title**
Jake Vialpando	Project Manager
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Gina Rone	Soils
Susan Filkins	Botanist
Jessica Gottlieb	Writer-Editor

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VI. APPENDICES AND MAPS

APPENDIX A – Idaho Standards and Guidelines

Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management

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

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

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

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

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

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

5. Streambanks are within an appropriate range of stability according to site potential.
6. Noxious weeds are not increasing.

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

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

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

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

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

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

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

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

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

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

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

Guidelines:

1. Use grazing management practices and/or facilities to maintain or promote significant progress toward adequate amounts of ground cover to support infiltration, maintain soil moisture storage and stabilize soils.
2. Locate livestock management facilities away from riparian areas wherever they conflict with achieving or maintaining riparian-wetland functions.
3. Use grazing management practices and/or facilities to maintain or promote soil conditions that support water infiltration, plant vigor, and permeability rates and minimize soil compaction appropriate to site potential.
4. Implement grazing management practices that provide periodic rest or deferment during critical growth stages to allow sufficient regrowth to achieve and maintain healthy, properly functioning conditions, including good plant vigor and adequate vegetative cover appropriate to site potential.
5. Maintain or promote grazing management practices that provide sufficient residual vegetation to improve, restore, or maintain healthy riparian-wetland functions and structure for energy dissipation, sediment capture, ground water recharge, streambank stability, and wildlife habitat appropriate to site potential.
6. The development of springs, seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions, wildlife habitat, and significant cultural and historical/ archaeological/ paleontological values associated with the water source.
7. Apply grazing management practices to maintain, promote, or progress toward appropriate stream channel and streambank morphology and functions. Adverse impacts due to livestock grazing will be addressed.
8. Apply grazing management practices that maintain or promote the interaction of the hydrologic cycle, nutrient cycle, and energy flow that will support the appropriate types

and amounts of soil organisms, plants and animals appropriate to soil type, climate and landform.

9. Apply grazing management practices to maintain adequate plant vigor for seed production, seed dispersal, and seedling survival of desired species relative to soil type, climate and landform.
10. Implement grazing management practices and/or facilities that provide for complying with the Idaho Water Quality Standards.
11. Use grazing management practices developed in recovery plans, conservation agreements, and Endangered Species Act, Section 7 consultations to maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals.
12. Apply grazing management practices and/or facilities that maintain or promote the physical and biological conditions necessary to sustain native plant populations and wildlife habitats in native plant communities.
13. On areas seeded predominantly with non-native plants, use grazing management practices to maintain or promote the physical and biological conditions to achieve healthy rangelands.
14. Where native communities exist, the conversion to exotic communities after disturbance will be minimized.
15. Use non-native plant species for rehabilitation only in those situations where:
    a. native species are not readily available in sufficient quantities;
    b. native plant species cannot maintain or achieve the standards; or
    c. non-native plant species provide for management and protection of native rangelands

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

APPENDIX B – Methods Used to Evaluate Rangeland Health

This section describes methods used to collect data for this assessment. Resources of interest as identified by the Idaho Rangeland Health Standards and Guidelines are assessed to determine whether the pasture or allotment is meeting or making significant progress toward meeting the applicable 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 Evaluations

Rangeland Health Evaluations as 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 familiarity of the area and incorporating the best professional judgment of the evaluators.

The 17 indicators from the summary worksheet are compiled into categories relating to upland areas by Standards 1, 4, and 5. The preponderance of evidence determines the condition of the site.

Nested Plot Frequency Transects and Photo Plots (Trend)

Trend data provides information pertaining to changes in the plant community, such as changes in plant occurrence, vigor, and/or health. Vegetation trend data are collected at permanently located nested plot frequency transect (NPFT) monitoring sites. Frequency and cover data are collected, 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 illustrate changes in occurrences of plants and provides information on reproductive capabilities. Cover data describes the percent of ground covered by plant material, biological soil crusts, gravel, rock, and litter (the uppermost layer of organic debris on the soil surface, essentially the freshly fallen or slightly decomposed vegetative material).

Photographs are taken at NPFT sites and at other sites permanently marked for photo plots. At NPFT and photo plot sites, a minimum of three photographs are taken, two general view photos and one close-up photo of the photo plot. The photo plot is sketched to help illustrate species composition, size, and vigor, and is used to verify the photograph.

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

Utilization
Utilization data is important in evaluating the effects of grazing and browsing on specific areas of rangeland. Utilization refers to the percentage of annual production (current year's growth) of forage that has been removed by animals throughout the grazing season. It is expressed as a percentage and is used to characterize the total use of vegetation in an area or of individual plant species.

Generally, utilization transects are located at pre-determined key use areas (permanent NPFT locations); however utilization information may be collected anywhere 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.

Special Status Animals

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

Upland
The assessment of upland habitats for other special status animal species were conducted primarily using the same data that was obtained from the upland methods described above, which includes Rangeland Health Evaluation Worksheets, trend data (ground cover, species diversity, noxious and invasive plants) and utilization (vigor, production) data. Sage grouse breeding and brood-rearing habitat evaluations were conducted using methodology described in the draft document entitled *"A Framework to Assist in Making Sensitive Species Habitat Assessments for BLM-Administered Public Lands in Idaho"* (as revised in May, 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.

2013 Supplement to Rangeland Health Standards and Guidelines Assessment
Sage-grouse breeding and upland summer habitat assessments were conducted using the BLM Sage-grouse Habitat Assessment Framework, Multi-scale Habitat Assessment Tool, August 2010

(Stiver, Rinkes, & Naugle, 2010). This assessment tool has been going through slight modifications since 2001 to present as information and findings come forward to better capture and characterize sage-grouse habitat indicators.

The sage-grouse assessment information collected in 2012 can be reviewed below. Assessment teams collected breeding habitat and upland summer habitat assessment information during the spring and summer of 2012.

In interpreting the breeding and upland summer habitat information, where it is applicable, because the composition and structure of the sagebrush-steppe community is not expected to change significantly over the course of a few weeks to a couple of months, except in situations affected by wildfire or mechanical manipulation, the information can provide insight into habitat conditions during other times of the year.

For example, the breeding habitat assessment can provide sagebrush canopy cover and height to assess winter habitat potential and conditions. However, an assessment of upland summer habitat conditions could not be clearly made because the forb information was not representative of the time of year the data was collected and removing the forb information eliminated two critical habitat indicators in making a clear assessment of potential habitat conditions later in the year. Therefore, upland summer habitat was not evaluated using breeding habitat assessment information.

However, because the data collection methods are the same, upland summer habitat assessment information could provide insight into breeding habitat conditions earlier in the year. Largely due to the collection of information specific to sagebrush physical shape and perennial grass canopy cover. Consistent with the discussion above, forb information was not used because it did not represent any other assessment except for the time of year it was collected. Upland summer habitat conditions also provided insight into winter habitat conditions. Therefore, upland summer habitat assessment and supplemental information collected in the summer season were used to assess and evaluate breeding and winter conditions earlier and later in the year.

Figure WDLF-1A: Morgan sage-grouse assessment summaries 2012

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	0505-1-07S05W06b-2	Morgan		
Date:	7/2/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	Schroeder, Roseman, Evans					**Home Range Name:**	Pleasant Valley
Legal Description:	T-7SR05WS06QSWQQNE					**Associated Leks:**	0498, 20459, 20711, 2057
Land Cover Type:	ARTRW-PUTR/BRTE					**Ecological Site:**	my 13-16" ARTRV/PSSPS-F
Number of Transects:	1	**Area Sampled (ha):**	12			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	501942E	4743166N					
Ending (NAD 83)	4743216N	501948E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	x	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**14.0**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**87.0**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Mixed**	Spreading		Mix of Spreading and Columnar	X	Columnar	
Perennial Grass and Forb Height (mean)	**17.5**	≥18 cm		10-18 cm	X	<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**4.0**	≥15% ≥10%		5-<15% 5-<10%		<5% <5%	X
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)	**4.0**	≥10% ≥5%		5-<10% 3-<5%		<5% <3%	X
Preferred Forb Availability (relative to site potential)	**Rare**	Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	X
Number of Preferred Forb Species (*n*)	**3.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	x	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**46.0**	Marginal	PUTR and CHVI are co-dominant shrubs on this site.
Other Shrub Height (mean)	**97.3**	Marginal	Height of PUTR and CHVI contribute to the overall overstory cover.
Sagebrush and Other Shrub Canopy Cover (mean)	**60.0**	Marginal	Overstory shrub component is diversified and heavily stocked.
Sagebrush and Other Shrub Height (mean)	**94.9**	Marginal	Overstory shrub component is diversified and heavily stocked.
Perennial Grass Height (excluding Poa spp.) (mean)	**26.5**	Suitable	Perennial grass height is >18cm but is only created by 4.0% canopy cover (unsuitable) perennial grasses.
Poa Spp. Canopy Cover (mean)	**0.0**	Suitable	POSE is a co-dominant species on this site but is not well distributed.
Annual Grass Canopy Cover (mean)	**58.0**	Unsuitable	BRTE is a dominant grass species on this site.
Annual Forb Canopy Cover (mean)	**10.0**	Suitable	Appropriate for reference site description.
Bare Ground Canopy Cover (relative to site potential) (mean)	**22.0**	Suitable	Bareground for this reference site ranges from 25-45%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

The overstory characterized by a marginal canopy cover (14%) and height (87.0cm) of sagebrush with a predominantly mixed spreading/columnar shape (marginal). PUTR and CHVI are co-dominant shrub species on this site and improve overstory cover and structure. The understory is characterized by an unsuitable canopy cover of perennial grasses (4.0%) and unsuitable canopy cover of perennial forbs (4.0%) with a combined marginal height (17.5cm). However, the height is generated primarily by the 4.0% canopy cover of perennial grasses. Forbs are rare and not well represented. Notable in this assessment is the canopy cover of annual grasses (58%) such as BRTE and BRJA that are dominant species within this community. Overall, because understory conditions are deficient of perennial grasses and forbs that round out the cover and structure needed for successful nesting and hiding conditions, this site is not providing adequate cover and structure and is therefore is providing unsuitable breeding habitat. The unsuitable occurrence and dominance of annual grasses suggest that plant community composition is transitioning away from large perennial grasses to smaller species such as BRTE and BRJA.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability			**X**

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	0505-1-07S05W06b-2	Morgan		
Date:	7/2/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	Schroeder, Roseman, Evans					**Home Range Name:**	Pleasant Valley
Legal Description:	T-7SR05WS06QSWQQNE					**Associated Leks:**	0498, 2O459, 2O711, 2O57
Land Cover Type:	ARTRW-PUTR/BRTE					**Ecological Site:**	my 13-16" ARTRV/PSSPS-F
Number of Transects:	1	**Area Sampled (ha):**	12			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	501942E	4743166N					
Ending (NAD 83)	4743216N	501948E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	**X**	**Suitable**	✓	**Marginal**	✓	**Unsuitable**	✓
Sagebrush Canopy Cover (mean)	**14.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**87.0**	 >25 cm >40 cm >55 cm	X	 10-25 cm 25-40 cm 40-55 cm		 <10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	**X**	**Suitability**	**Rationale**
Predominant Sagebrush Shape (mode)	**Mixed**	Marginal	A mixed spreading/columnar shape tends to open up the overstory and expose the understory. Other occurrence of other shrubs will contribute to the overall structure of the overstory and improve cover conditions.
Other Shrub Canopy Cover (mean)	**46.0**	Marginal	PUTR and CHVI are co-dominant shrubs on this site.
Other Shrub Height (mean)	**97.3**	Marginal	Height of PUTR and CHVI contribute to the overall overstory cover.
Sagebrush and Other Shrub Canopy Cover (mean)	**60.0**	Marginal	Overstory shrub component is diversified and heavily stocked.
Sagebrush and Other Shrub Height (mean)	**94.9**	Marginal	Overstory shrub component is diversified and heavily stocked.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

This information was collected as part of a breeding habitat assessment conducted on 7/2/2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight to winter habitat conditions for sage-grouse. The sagebrush component is characterized by a suitable canopy cover (14%) and height (87.0cm). Overall, the distribution and height of sagebrush is providing suitable winter habitat conditions for sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	**X**		

Form H-3	Sage-grouse Habitat Suitability Worksheet –	BREEDING	R025XY010ID			
Allotment-Pasture Names:	Morgan	**Allotment-Pasture Number:**	0505-01	**Number of Transects:**	2	**Subpopulation:** NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY010ID	**Ecological Site Name:**	Shallow claypan 12-16" ARAR/FEID			**Home Range Name:** Pleasant Valley
Site IDs:	**Land Cover Type/s:**	**Area Sampled (ha):**	**Date:**			**Associated Leks:** 2O498, 2O459, 2O711, 2O5
0505-1-06s05w30a-2012	ARAR-ATRTW/BRTE-POSE	0.8	7/2/2012			
0505-1-06s06w25c-2012	ATRTW/BRTE-PSSPS	6	7/2/2012			**Site Info:** Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**36.0**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**98.8**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Columnar**	Spreading		Mix of Spreading and Columnar		Columnar	X
Perennial Grass and Forb Height (mean)	**17.0**	≥18 cm		10-18 cm	X	<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**13.0**	≥15% ≥10%		5-<15% 5-<10%	X	<5% <5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)	**0.0**	≥10% ≥5%		5-<10% 3-<5%		<5% 3%	X
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**7.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site description.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site description.
Sagebrush and Other Shrub Canopy Cover (mean)	**36.0**	Marginal	See the above habitat indicator.
Sagebrush and Other Shrub Height (mean)	**98.8**	Marginal	See the above habitat indicator.
Perennial Grass Height (excluding Poa spp.) (mean)	**17.0**	Marginal	Perennial grass height is between 10-18cm.
Poa Spp. Canopy Cover (mean)	**9.0**	Suitable	POSE spp. are sub-dominant species on this reference site.
Annual Grass Canopy Cover (mean)	**66.0**	Unsuitable	Annual grasses are a co-dominate species.
Annual Forb Canopy Cover (mean)	**7.0**	Suitable	Appropriate for reference site description.
Bare Ground Canopy Cover (relative to site potential) (mean)	**7.0**	Unsuitable	Bareground for this ESD ranges from 40-50. Low bareground value is usually indicative of increased smaller grazing tolerant species occupying the inner spaces. The combined canopy cover of POSE and annual grasses is 75%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Possible sighting of juveniles
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

The overstory characterized by a marginal canopy cover (36%) and height (98.8cm) of sagebrush with a predominantly unsuitable columnar shape. The understory is characterized by a marginal canopy cover of perennial grasses (13%) and unsuitable canopy cover of perennial forbs (0.0%) with a combined marginal height (17.0cm). However, preferred forbs counted in the area of the transect are common with several species represented. Notable in this assessment is the canopy cover of annual grasses such as BRTE and BRJA that are dominant species within this community. Overall, because of combined overstory and understory conditions created by the less than desirable height and columnar shape of the sagebrush component and the less than desirable canopy cover and height of perennial grasses, breeding conditions are marginal because of the reduced nesting and hiding structure. The unsuitable occurrence and dominance of annual grasses suggest that plant community composition is transitioning away from large perennial grasses to smaller species such as BRTE and BRJA.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		**X**	

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	R025XY010ID			
Allotment-Pasture Names:	Morgan	**Allotment-Pasture Number:**	0505-01	**Number of Transects:**	2	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY010ID	**Ecological Site Name:**	Shallow claypan 12-16" ARAR/FEID			**Home Range Name:**	Pleasant Valley
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	2O498, 2O459, 2O711, 2O5
0505-1-06s05w30a-2012	ARAR-ATRTW/BRTE-POSE		0.8	7/2/2012			
0505-1-06s06w25c-2012	ATRTW/BRTE-PSSPS		6	7/2/2012		**Site Info:**	Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	**x**	**Suitable**	✓	**Marginal**	✓	**Unsuitable**	✓
Sagebrush Canopy Cover (mean)	**36.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**98.8**	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	**x**	**Suitability**	**Rationale**
Predominant Sagebrush Shape (mode)	**Columnar**	Unsuitable	Columnar sagebrush shape opens up the overstory and exposes the understory.
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site description.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site description.
Sagebrush and Other Shrub Canopy Cover (mean)	**36.0**	Marginal	Sagebrush is the only shrub species recorded. See the above habitat indicator.
Sagebrush and Other Shrub Height (mean)	**98.8**	Marginal	Sagebrush is the only shrub species recorded. See the above habitat indicator.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Possible sighting of juveniles
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

This information was collected as part of a breeding habitat assessment conducted on 7/2/2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight to winter habitat conditions for sage-grouse. The sagebrush component is characterized by a marginal canopy cover (36%) and height (98.8cm). Overall, the distribution and height of sagebrush is providing suitable winter habitat conditions for sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	**X**		

Form H-3	Sage-grouse Habitat Suitability Worksheet –	BREEDING	R025XY003ID			
Allotment-Pasture Names:	Morgan	**Allotment-Pasture Number:**	0505-01	**Number of Transects:**	2	**Subpopulation:** NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY003ID	**Ecological Site Name:**	ARTRW8/PSSPS			**Home Range Name:** Pleasant Valley
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:** 2O498, 2O459, 2O711, 2O5
0505-1-06S05W31a-2012	ARTRW8-PUTR/BRTE-POSE		5.3	8/13/2012		
0505-1-06s05w31b-2012	ARTRW8-PUTR/BRTE-POSE		10	8/13/2012		**Site Info:** Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**37.0**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**128.8**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**columnar**	Spreading		Mix of Spreading and Columnar		Columnar	X
Perennial Grass and Forb Height (mean)		≥18 cm		10-18 cm		<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**6.0**	≥15% ≥10%		5-<15% 5-<10%	X	<5% <5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)		≥10% ≥5%		5-<10% 3-<5%		<5% <3%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*mean)*							

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**32.0**	Marginal	PUTR and CHVI occur on these sites and contribute to overall shrub canopy cover.
Other Shrub Height (mean)	**63.3**	Marginal	PUTR and CHVI occur on these sites and contribute to overall shrub canopy cover.
Sagebrush and Other Shrub Canopy Cover (mean)	**69.0**	Marginal	Sites are well stocked with a diversity of shrubs.
Sagebrush and Other Shrub Height (mean)	**94.5**	Marginal	Sites are well stocked with a diversity of shrubs.
Perennial Grass Height (excluding Poa spp.) (mean)	**17.3**	Marginal	Perennial grass height is between 10-18cm.
Poa Spp. Canopy Cover (mean)	**19.0**	Marginal	POSE is a sub-dominant on this reference site and appears to be increasing.
Annual Grass Canopy Cover (mean)	**58.0**	Unsuitable	Annual grasses are a dominant species on this site.
Annual Forb Canopy Cover (mean)			
Bare Ground Canopy Cover (relative to site potential) (mean)	**6.0**	Unsuitable	Bareground for this ESD ranges from 20-40%. A low bareground value is indicative of smaller grasses becoming dominant features and occupying the inner spaces. Combined canopy cover of BRTE and POSE is 76%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	
Evidence of recent livestock use?	

Rationale for Overall Suitability Rating:

This information was collected as part of a upland summer habitat assessemnt conducted on 8/13/2012. Because the the sagebrush steppe community is not expected to change significantly over the course of a few weeks, this information can provide insight to breeding habitat conditions earlier in the season; however, the forb information was not used because the timing of the assessment would not accuratley represent forb conditions ealier in the year during the breeding season. The overstory is charterized by a marginal canopy cover (37%) and height (128.8cm) of sagebrush with a predominantly unsuitable columnar shape. The understory is characterized by a marginal canopy cover of perennial grasses (6.0%) and an unsuitable canopy cover of perennial forbs (0%) with a combined marginal height (17.0cm). However, preferred forbs counted in the area of the transect are common with several species represented. Notable in the assessment in this assessement is the canopy cover of annual grassess such as BRTE and BRJA that are dominant species within this community. Overall, because of combined overstory conditions created by bth4e less than desirable height and columnar shape of the sagebrush component and the less than desirable canopy cover and height of the perennial grasses, breeding conditions are marginal because of the reduced nesting and hiding structure. The unsuitable occurrence and dominance of annual grasses suggest that plant community composition is transitioning away from large perennial grasses.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		X	

Form H-4	Sage-grouse Habitat Suitability Worksheet –	UPLAND SUMMER	R025XY003ID			
Allotment-Pasture Names	Morgan	**Allotment-Pasture Number:**	0505-01	**Number of Transects:**	2	**Subpopulation:** NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY003ID	**Ecological Site Name:**	ARTRW8/PSSPS			**Home Range Name:** Pleasant Valley
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:** 2O498, 2O459, 2O711, 2O5
0505-1-06S05W31a-2012	ARTRW8-PUTR/BRTE-POSE		5.3	8/13/2012		
0505-1-06s05w31b-2012	ARTRW8-PUTR/BRTE-POSE		10	8/13/2012		**Site Info:** Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**37.0**	10-25%		5-<10% or >25%	X	<5%	
Sagebrush Height (mean)	**128.8**	40-80 cm		20-<40 cm or >80 cm	X	<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**14.0**	≥15%		5-15%	X	<5%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**8.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Columnar**	Unsuitable	A columnar sagebrush opens up the overstory and exposes the understory.
Perennial Grass and Forb Height (mean)	**24.7**	Suitable	Perennial grass and forb height >18cm but is generated by only 14% canopy cover (marginal) of perennial grasses and forbs.
Perennial Grass Canopy Cover (mean)	**8.0**	Marginal	Perennial grasses are between 5<15%.
Perennial Forb Canopy Cover (mean)	**6.0**	Marginal	Perennial forbs are between 5<10%
Other Shrub Canopy Cover (mean)	**32.0**	Marginal	PUTR and CHVI occur on these sites and contribute to overall shrub canopy cover.
Other Shrub Height (mean)	**63.3**	Marginal	PUTR and CHVI occur on these sites and contribute to overall shrub canopy cover.
Sagebrush and Other Shrub Canopy Cover (mean)	**69.0**	Marginal	Sites are well stocked with a diversity of shrubs.
Sagebrush and Other Shrub Height (mean)	**94.5**	Marginal	Sites are well stocked with a diversity of shrubs.
Perennial Grass Height (excluding Poa spp.) (mean)	**17.3**	Marginal	Perennial grass height is between 10-18cm.
Poa Spp. Canopy Cover (mean)	**19.0**	Marginal	POSE is a sub-dominant on this reference site and appears to be increasing.
Annual Grass Canopy Cover (mean)	**58.0**	Unsuitable	Annual grasses are a dominant species on this site.
Annual Forb Canopy Cover (mean)	**11.0**	Suitable	Appropriate for reference site description.
Bare Ground Canopy Cover (relative to site potential) (mean)	**6.0**	Unsuitable	Bareground for this ESD ranges from 20-40%. A low bareground value is indicative of smaller grasses becoming dominant features and occupying the inner spaces. Combined canopy cover of BRTE and POSE is 76%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	
Evidence of recent livestock use?	

Rationale for Overall Suitability Rating: The overstory characterized by a marginal canopy cover (37%) and height (128.8cm) of sagebrush. The understory is characterized by a marginal combined canopy cover (14%) of perennial grasses and forbs. Preferred forbs counted in the area of the transect are common with several species represented. Notable in this assessment is the canopy cover (58%) of annual grasses such as BRTE and BRJA that are dominant species within this community. Overall, overstory/understory conditions are marginal and preferred forbs are well represented. Therefore marginal summer upland conditions are being provided in this pasture. The unsuitable occurrence and dominance of annual grasses suggest that plant community composition is transitioning away from large perennial grasses to smaller species such as BRTE and BRJA.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		X	

Sage-grouse Habitat Suitability Worksheet –		WINTER	R025XY003ID			
Morgan	**Allotment-Pasture Number:**	0505-01	**Number of Transects:**	2	**Subpopulation:**	NC NV/ SE OR/ SW ID
R025XY003ID	**Ecological Site Name:**	ARTRW8/PSSPS			**Home Range Name:**	Pleasant Valley
Land Cover Type/s:		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	2O498, 2O459, 2O711, 2O5
ARTRW8-PUTR/BRTE-POSE		5.3	8/13/2012			
ARTRW8-PUTR/BRTE-POSE		10	8/13/2012		**Site Info:**	Mesic

Habitat Indicator Suitability Range (Primary)

X	Suitable	✓	Marginal	✓	Unsuitable	✓
37.0	>10%	X	5-10%		<5%	
128.8	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

X	Suitability	Rationale
Columnar	Unsuitable	A columnar sagebrush opens up the overstory and exposes the understory.
32.0	Marginal	PUTR and CHVI occur on these sites and contribute to overall shrub canopy cover.
63.3	Marginal	PUTR and CHVI occur on these sites and contribute to overall shrub canopy cover.
69.0	Marginal	Sites are well stocked with a diversity of shrubs.
94.5	Marginal	Sites are well stocked with a diversity of shrubs.

mit suitability potential?	YES	NO
		X

Extreme Drought	Severe Drought	Moderate Drought	Mid-Range	Moderately Moist	Very Moist	Extremely Moist
		X				

	None noted
?	None noted

Rating: This information was collected as part of a summer upland habitat assessment conducted on 8/13/2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight to winter habitat conditions for sage-grouse. The sagebrush component is characterized by a marginal canopy cover (37%) and height (128.8cm). Overall, the distribution and height of sagebrush is providing suitable winter habitat conditions for sage-grouse.

Suitable	Marginal	Unsuitable
X		

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	0505-2-06S05W32a-2 Morgan			
Date:	7/3/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	Evans, Roseman, Schroeder					**Home Range Name:**	Pleasant Valley
Legal Description:	T06SR05WS32QNWQQSE					**Associated Leks:**	2O577, 2O5778, 2O502
Land Cover Type:	PUTR-ARAR8/POSE-BRTE-PSSPS					**Ecological Site:**	ow claypan 11-13" ARAR/F
Number of Transects:	1	**Area Sampled (ha):**	13			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	503461E	4745313N					
Ending (NAD 83)	4745262N	503467E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**2.0**	15-25%		5-<15% or >25%		<5%	X
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**56.0**	40-80 cm 30-80 cm	X	20-<40 cm or >80 cm 20-<30 cm or >80 cm		<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Spreading**	Spreading	X	Mix of Spreading and Columnar		Columnar	
Perennial Grass and Forb Height (mean)	**15.2**	≥18 cm		10-18 cm	X	<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**10.0**	≥15% ≥10%		5-<15% 5-<10%	X	<5% <5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)	**0.0**	≥10% ≥5%		5-<10% 3-<5%		<5% <3%	X
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**8.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**18.0**	Suitable	PUTR is the dominant shrub.
Other Shrub Height (mean)	**85.9**	Marginal	Mature PUTR is the dominant shrub.
Sagebrush and Other Shrub Canopy Cover (mean)	**20.0**	Suitable	PUTR is the dominant shrub.
Sagebrush and Other Shrub Height (mean)	**82.9**	Marginal	Mature PUTR is the dominant shrub.
Perennial Grass Height (excluding Poa spp.) (mean)	**15.2**	Marginal	Perennial grass height is between 10-18cm.
Poa Spp. Canopy Cover (mean)	**40.0**	Unsuitable	POSE is a dominant understory species on this site.
Annual Grass Canopy Cover (mean)	**28.0**	Unsuitable	BRTE and TACA are dominant understory species on this site.
Annual Forb Canopy Cover (mean)	**12.0**	Suitable	Appropriate for reference site description.
Bare Ground Canopy Cover (relative to site potential) (mean)	**22.0**	Marginal	Bareground for this reference site ranges from 40-50%. Low bareground is indicative of smaller grazing tollerant grasses occupying the inner spaces.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use? None noted

Evidence of recent livestock use? Site had been utilized

Rationale for Overall Suitability Rating:

The overstory characterized by a unsuitable canopy cover (2.0%) of sagebrush. The site is dominated but PUTR and is characterized by marginal canopy cover (18.0) and height (85.9cm). The understory is characterized by a marginal canopy cover of perennial grasses (10%) and unsuitable canopy cover of perennial forbs (0.0%) with a combined marginal height (15.2cm). However, preferred forbs counted in the area of the transect are common with several species represented. Notable in this assessment is the canopy cover of POSE (40%) and annual grasses (28%) such as BRTE and TACA that are dominant species within this community. Overall, the distribution and structure of PUTR may provide overstory structure for nesting sage-grouse, however, the absence of sagebrush reduces the low sagebrush nesting structure and combined with the less than desirable occurrence and height of perennial grasses reduces the effective herbaceous component needed for successful nesting. At best, therefore this site is providing only marginal nesting and hiding cover for breeding sage-grouse. The unsuitable occurrence and dominance of POSE and annual grasses suggest that plant community composition is transitioning away from large perennial grasses to smaller more grazing tolerant species.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		**X**	

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	0505-2-06S05W32a-2	Morgan		
Date:	7/3/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	Evans, Roseman, Schroeder					**Home Range Name:**	Pleasant Valley
Legal Description:	T06SR05WS32QNWQQSE					**Associated Leks:**	2O577, 2O5778, 2O502
Land Cover Type:	PUTR-ARAR8/POSE-BRTE-PSSPS					**Ecological Site:**	Shallow claypan 11-13" A
Number of Transects:	1	**Area Sampled (ha):**	13			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	503461E	4745313N					
Ending (NAD 83)	4745262N	503467E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	**X**	**Suitable**	✓	**Marginal**	✓	**Unsuitable**	✓
Sagebrush Canopy Cover (mean)	**2.0**	>10%		5-10%		<5%	X
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**56.0**	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	**X**	**Suitability**	**Rationale**
Predominant Sagebrush Shape (mode)	**Spreading**	Suitable	Suitable based on 2.0% canopy cover of sagebrush.
Other Shrub Canopy Cover (mean)	**18.0**	Suitable	PUTR is the dominant shrub.
Other Shrub Height (mean)	**85.9**	Marginal	Mature PUTR is the dominant shrub.
Sagebrush and Other Shrub Canopy Cover (mean)	**20.0**	Suitable	PUTR is the dominant shrub.
Sagebrush and Other Shrub Height (mean)	**82.9**	Marginal	Mature PUTR is the dominant shrub.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		x

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	15
Evidence of recent livestock use?	4705

Rationale for Overall Suitability Rating:

This information was collected as part of a breeding habitat assessment conducted on 7/3/2012. Because the sagebrush community is not expected to change substantially over the course of a few month, this information can provide insight to winter habitat conditions for this site. The overstory is characterized by an unsuitable canopy cover (2.0%) of sagebrush. The site is dominated but PUTR and is characterized by marginal canopy cover (18.0) and height (85.9cm). Because sagebrush is absent from much of this site, this area does not provide adequate availability of sagebrush cover or forage and there for unsuitable as sage-grouse winter habitat

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability			X

Figure WDLF-1C: Boulder sage-grouse assessment summaries 2012

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	0509-01-07s05w03A-:	BOULDER		
Date:	6/14/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	NE,BR,RS					**Home Range Name:**	Pleasant Valley
Legal Description:	T07S05W3QSEQQ SW					**Associated Leks:**	2O578
Land Cover Type:	ARAR8/POSE-FEID					**Ecological Site:**	ow claypan 12-16" ARAR8/
Number of Transects:	1	**Area Sampled (ha):**	11			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	507333E	4742737N					
Ending (NAD 83)	N	E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	x	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**32.0**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**33.1**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Mixed**	Spreading		Mix of Spreading and Columnar	X	Columnar	
Perennial Grass and Forb Height (mean)	**11.7**	≥18 cm		10-18 cm	X	<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**10.0**	≥15% ≥10%		5-<15% 5-<10%	X	<5% <5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)	**4.0**	≥10% ≥5%		5-<10% 3-<5%		<5% <3%	X
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**8.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	x	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Sagebrush and Other Shrub Canopy Cover (mean)	**32.0**	Marginal	Low sagebrush is the only shrub identified. See habitat indicators above.
Sagebrush and Other Shrub Height (mean)	**33.1**	Marginal	Low sagebrush is the only shrub identified. See habitat indicators above.
Perennial Grass Height (excluding Poa spp.) (mean)	**12.2**	Marginal	Perennial grasses between 5<15%.
Poa Spp. Canopy Cover (mean)	**24.0**	Suitable	Sandberg bluegrass is a sub-dominant species on this reference site.
Annual Grass Canopy Cover (mean)	**0.0**	Suitable	None identified on the transect. However, field evaluators observed and noted the end of the transect was dominated by annual grasses (no species was identified although TACA and BRTE are known to occur in these
Annual Forb Canopy Cover (mean)	**16.0**	Suitable	This value may be slightly higher than recorded but is appropriate for this reference site.
Bare Ground Canopy Cover (relative to site potential) (mean)	**36.0**	Marginal	Suitable bareground for this ESD is identified in the range of 40-50%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating: Sage-grouse breeding habitat for this low sagebrush community is characterized by a marginal canopy cover (32%), height (33cm), and mixed (predominantly spreading/columnar) sagebrush in the overstory and the understory is characterized by a marginal canopy cover (10%) and height (12.2) of perennial grasses. Although the availability of eight preferred forbs appeared to be somewhat common, the transect noted that the canopy cover of of perennial forbs was unsuitable. Overall, because of marginal overstory/understory conditions, sage-grouse breeding habitat in this pasture is considered to be mariginal.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		**X**	

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	0509-01-07s05w03A-	BOULDER		
Date:	6/14/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	NE,BR,RS					**Home Range Name:**	Pleasant Valley
Legal Description:	T07S05W3QSEQQ SW					**Associated Leks:**	2O578
Land Cover Type:	ARAR8/POSE-FEID					**Ecological Site:**	ow claypan 12-16" ARAR8/
Number of Transects:	1	**Area Sampled (ha):**	11			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	507333E	4742737N					
Ending (NAD 83)	N	E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	x	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**32.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**33.1**	 >25 cm >40 cm >55 cm		 10-25 cm 25-40 cm 40-55 cm	X	 <10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	x	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Mixed**	Marginal	A predominantly mixed shape (spreading/columnar) of sagebrush tends to open the overstory and expose the understory.
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Sagebrush and Other Shrub Canopy Cover (mean)	**32.0**	Suitable	Appropriate for reference site conditions.
Sagebrush and Other Shrub Height (mean)	**33.1**	Suitable	Appropriate for reference site conditions.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

Although the above sagebrush community information was collected during the breeding habitat assessment and because sagebrush composition and structure does not readily change in a short period of time, the information can provide an insight into what winter habitat conditions may be. Winter habitat for this site is characterized by suitable canopy cover (32%) and marginal height (33.1cm) with a predominantly mixed shape of low sagebrush. Although the sagebrush canopy cover is favorable, the combination of less that desirable height and the mixed shape reduces thermal cover values and the availability of forage, therefore this site is considered to be providing marginal winter habitat for sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		**X**	

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	0509-01-07s05w01a-2	BOULDER		
Date:	8/9/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	EVANS,SCHROEDER					**Home Range Name:**	Pleasant Valley
Legal Description:	T07SR05WS01QSWQQSE					**Associated Leks:**	20578
Land Cover Type:	ARAR8/VEDU-TACA					**Ecological Site:**	ow claypan 12-16" ARAR8/
Number of Transects:	1	**Area Sampled (ha):**	1.3			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	506963E	4742584N					
Ending (NAD 83)	4742584N	507011E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**18.0**	15-25%	X	5-<15% or >25%		<5%	(X)
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**35.7**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	(X)
Predominant Sagebrush Shape (mode)	**Spreading**	Spreading	X	Mix of Spreading and Columnar		Columnar	(X)
Perennial Grass and Forb Height (mean)		≥18 cm		10-18 cm		<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**2.0**	≥15% ≥10%		5-<15% 5-<10%		<5% <5%	X
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)		≥10% ≥5%		5-<10% 3-<5%		<5% <3%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)							

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for ecological reference site description.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for ecological reference site description.
Sagebrush and Other Shrub Canopy Cover (mean)	**18.0**	Suitable	Appropriate for ecological reference site description.
Sagebrush and Other Shrub Height (mean)	**35.7**	Suitable	Appropriate for ecological reference site description.
Perennial Grass Height (excluding Poa spp.) (mean)	**11.0**	Marginal	The usuitable rating above for perennial/forb canopy cover is influenecd by the height of forbs. Perennial grass height is marginal but is only created by 2% (unsuitable) canopy cover of perennial grasses.
Poa Spp. Canopy Cover (mean)	**6.0**	Suitable	Appropriate for ecological reference site description.
Annual Grass Canopy Cover (mean)	**62.0**	Unsuitable	VEDU (might be misidentified) and TECA are the dominant grasses.
Annual Forb Canopy Cover (mean)			
Bare Ground Canopy Cover (relative to site potential) (mean)	**24.0**		Bareground for this ecological site ranges from 40-50%. Low bareground values are indicative of an increase of annual grasses in the inner spaces.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None noted

Rationale for Overall Suitablity Rating: This information was colloected for a summer upland habitat assessment. Because the protocols and the information are the same as that collected for the breeding habitat assessment and that community composition does not change very quickly in these habitat types as well as this landscape having breeding value for sage-grouse, the information can provide an insight to what breeding habitat conditions may have been earlier in the year, however, forb information was not used because of the time of year the assessment was conducted that would influence forb distribution. The above data is misleading in that the low sagebrush community has been significantly defoliated by the Aroga moth, eliminating the occurrence of sagebrush (X) and any overstory value. In addition, the substantially reduced occurrence of perennial grasses and the dominance of annual grass species suggest that the community is shifting away from a desirable

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability			X

Form H-4	Sage-grouse Habitat Suitability Worksheet –	UPLAND SUMMER	0509-01-07s05w01a-; BOULDER			
Date:	8/9/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	EVANS,SCHROEDER					**Home Range Name:**	Pleasant Valley
Legal Description:	T07SR05WS01QSWQQSE					**Associated Leks:**	2O578
Land Cover Type:	ARAR8/VEDU-TACA					**Ecological Site:**	ow claypan 12-16" ARAR8/
Number of Transects:	1	**Area Sampled (ha):**	1.3			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	506963E	4742584N					
Ending (NAD 83)	4742584N	507011E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	x	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**18.0**	10-25%	X	5-<10% or >25%		<5%	
Sagebrush Height (mean)	**35.7**	40-80 cm		20-<40 cm or >80 cm	X	<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**10.0**	≥15%		5-15%	X	<5%	
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**8.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	x	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Spreading**	Unsuitable	The Aroga moth has defolited all the low sagebrush.
Perennial Grass and Forb Height (mean)	**5.4**	Unsuitable	The combination of perennial grass/forb height is >10%.
Perennial Grass Canopy Cover (mean)	**2.0**	Unsuitable	Perennial grass canopy cover > 5%.
Perennial Forb Canopy Cover (mean)	**8.0**	Marginal	Perennial forb canopy cover is between 5<10%
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for ecological reference site conditions.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for ecological reference site conditions.
Sagebrush and Other Shrub Canopy Cover (mean)	**18.0**	Suitable	Appropriate for ecological reference site conditions.
Sagebrush and Other Shrub Height (mean)	**35.7**	Marginal	Height of only sagebrush is between 20<40cm.
Perennial Grass Height (excluding Poa spp.) (mean)	**11.0**	Marginal	The usuitable rating above for perennial/forb canopy cover is influenecd by the height of forbs. Perennial grass height is marginal but is only created by 2% (unsuitable) canopy cover of perennial grasses.
Poa Spp. Canopy Cover (mean)	**6.0**	Suitable	Appropriate for ecological reference site description.
Annual Grass Canopy Cover (mean)	**62.0**	Unsuitable	VEDU (might be misidentified) and TECA are the dominant grasses.
Annual Forb Canopy Cover (mean)	**16.0**	Suitable	Appropriate for ecological reference site description.
Bare Ground Canopy Cover (relative to site potential) (mean)	**24.0**		Bareground for this ecological site ranges from 40-50%. Low bareground values are indicative of an increase of annual grasses in the inner spaces.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None noted

Rationale for Overall Suitablity Rating: The above data is misleading in that the low sagebrush community has been significantly defoliated by the Aroga moth, basically eliminating any overstory value. In addition, the substantially reduced occurrence of perennial grasses and the dominance of annual grass species suggest that the community is shifting away from a desirable native composition, structure, and function; although forbs are common, the sagebrush overstory is absent and therefore this site is unsuitable as sage-grouse breeding habitat.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability			**X**

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	0509-01-07s05w01a-:	BOULDER		
Date:	8/9/2012	County:	Owyhee	State:	Idaho	Subpopulation:	NC NV/ SE OR/ SW ID
Evaluators:	EVANS,SCHROEDER					Home Range Name:	Pleasant Valley
Legal Description:	T07SR05WS01QSWQQSE					Associated Leks:	2O578
Land Cover Type:	ARAR8/VEDU-TACA					Ecological Site:	ow claypan 12-16" ARAR8/
Number of Transects:	1	Area Sampled (ha):	1.3			Site Info:	Mesic
List UTM Coordinates:							
Starting (NAD83)	506963E	4742584N					
Ending (NAD 83)	4742584N	507011E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**18.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**35.7**	>25 cm >40 cm >55 cm		10-25 cm 25-40 cm 40-55 cm	X	<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Spreading**		
Other Shrub Canopy Cover (mean)	**0.0**		
Other Shrub Height (mean)	**0.0**		
Sagebrush and Other Shrub Canopy Cover (mean)	**18.0**		
Sagebrush and Other Shrub Height (mean)	**35.7**		

Does ecological site potential limit suitability potential?	YES	NO
		X

Drought Condition:	Extreme Drought	Severe Drought	Moderate Drought	Mid-Range	Moderately Moist	Very Moist	Extremely Moist
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None noted

Rationale for Overall Suitablity Rating:

This information was collected for a summer upland habitat assessment. Because the protocols and the information are the same as that collected for the breeding/ summer upland habitat assessment and that community composition does not change very quickly in these habitat types as well as this landscape having winter value for sage-grouse, the information can provide an insight to what winter habitat conditions may occur. The above data is misleading in that the low sagebrush community has been significantly defoliated by the Aroga moth, eliminating the occurrence of sagebrush (X) and any overstory value. In addition, the substantially reduced occurrence of perennial grasses and the dominance of annual grass species suggest that the community is shifting away from a desirable native composition, structure, and function; and therefore this site is unsuitable as sage-grouse winter habitat.

	Suitable	Marginal	Unsuitable
Site-Scale Suitability			X

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	0509-1-07S05W01b-2	Boulder		
Date:	8/9/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	Evans, Schroeder					**Home Range Name:**	Pleasant Valley
Legal Description:	T 07SR 05WS 01Q SWQQ SE					**Associated Leks:**	2O578
Land Cover Type:	ARART-CHIVI/TACA-BRJA-FEID					**Ecological Site:**	ARAR/FEID
Number of Transects:	1	**Area Sampled (ha):**	6.5			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	506870E	4742731N					
Ending (NAD 83)	4742741N	506918E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**22.0**	15-25%	X	5-<15% or >25%		<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**91.8**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Columnar**	Spreading		Mix of Spreading and Columnar		Columnar	X
Perennial Grass and Forb Height (mean)		≥18 cm		10-18 cm		<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**4.0**	≥15% ≥10%		5-<15% 5-<10%		<5% <5%	X
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)		≥10% ≥5%		5-<10% 3-<5%		<5% <3%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)							

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**8.0**	Suitable	CHVI is the other shrub identified on the site. Occurrs as tall and mature.
Other Shrub Height (mean)	**50.3**	Marginal	CHVI tall and mature comparable to sagebrush height.
Sagebrush and Other Shrub Canopy Cover (mean)	**30.0**	Marginal	Consitent with the above habitat indicator.
Sagebrush and Other Shrub Height (mean)	**80.7**	Marginal	Consitent with the above habitat indicator.
Perennial Grass Height (excluding Poa spp.) (mean)	**11.0**	Marginal	Perennial grass height is between 10-18cm unsuitable occurrence of grasses.
Poa Spp. Canopy Cover (mean)	**0.0**	Suitable	Appropriate for refence site conditions although Poa is a lesser component of this ESD.
Annual Grass Canopy Cover (mean)	**62.0**	Unsuitable	TACA and BRJA are dominant grass species on this site. Usually an indicator of a community shift from desirable native species to more grazing tolerant species.
Annual Forb Canopy Cover (mean)			
Bare Ground Canopy Cover (relative to site potential) (mean)	**8.0**	Unsuitable	Bareground ranges from 40-50% for this ESD. Low barground value usually indicative of annual species occupying the interspaces.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None noted

Rationale for Overall Suitablity Rating: This information was collected during a scheduled summer upland habit assessment. Because shrub and perennial grass composition would remain fairly consitent through the year, because the pasture lies within the breeding range for sage-grouse, and the information is collected in the same manner as the summer upland assessment, the information can provide an insight to what breeding habitat conditions might be in the spring, however, forb information was not used because of the time of year the assessment was conducted that would influence forb distribution. The overstory can be characterized by a suitable canopy cover of sagebrush (22%) with marginal height (91.8cm) and unsuitable physical form (prediminantly columnar). The understory can be characterized by the substantially reduced occurrence (4.0%) and marginal height (11%) of perennial grasses. Most is the unsuitable canopy cover and dominance of annual grasses

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability			**X**

Form H-4	Sage-grouse Habitat Suitability Worksheet –		UPLAND SUMMER	0509-1-07S05W01b-2 Boulder			
Date:	8/9/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	Evans, Schroeder					**Home Range Name:**	Pleasant Valley
Legal Description:	T 07SR 05WS 01Q SWQQ SE					**Associated Leks:**	2O578
Land Cover Type:	ARART-CHIVI/TACA-BRJA-FEID					**Ecological Site:**	ARAR/FEID
Number of Transects:	1	**Area Sampled (ha):**	6.5			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	506870E	4742731N					
Ending (NAD 83)	4742741N	506918E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	**x**	**Suitable**	**✓**	**Marginal**	**✓**	**Unsuitable**	**✓**
Sagebrush Canopy Cover (mean)	**22.0**	10-25%	X	5-<10% or >25%		<5%	
Sagebrush Height (mean)	**91.8**	40-80 cm		20-<40 cm or >80 cm	X	<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**6.0**	≥15%		5-15%	X	<5%	
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**6.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	**x**	**Suitability**	**Rationale**
Predominant Sagebrush Shape (mode)	**Columnar**	Unsuitable	Columnar sagebrush exposes the understory increases the risk of predation.
Perennial Grass and Forb Height (mean)	**12.3**	Marginal	Perennial grass and forb height is between 10-18cm.
Perennial Grass Canopy Cover (mean)	**4.0**	Unsuitable	Perennial grass canopy cover is <5%.
Perennial Forb Canopy Cover (mean)	**2.0**	Unsuitable	Perennial forb canopy cover is <5%.
Other Shrub Canopy Cover (mean)	**8.0**	Suitable	CHVI is the other shrub identified on the site. Occurs as tall and mature.
Other Shrub Height (mean)	**50.3**	Marginal	CHVI tall and mature comparable to sagebrush height.
Sagebrush and Other Shrub Canopy Cover (mean)	**30.0**	Suitable	Consistent with the above habitat indicator.
Sagebrush and Other Shrub Height (mean)	**80.7**	Marginal	Consistent with the above habitat indicator.
Perennial Grass Height (excluding Poa spp.) (mean)	**11.0**	Marginal	Perennial grass height is between 10-18cm and created by an unsuitable occurrence of grasses..
Poa Spp. Canopy Cover (mean)	**0.0**	Suitable	Poa is usually a sub-component on this ESD but may be falling out due to the dominance of annual species.
Annual Grass Canopy Cover (mean)	**62.0**	Unsuitable	TACA and BRJA are dominant grass species on this site. This an indicator of a community shift from desirable native species to more grazing tolerant species.
Annual Forb Canopy Cover (mean)	**26.0**	Suitable	Canopy cover of annual forbs is high but may be more indicative of patchiness of distribution and site conditions.
Bare Ground Canopy Cover (relative to site potential) (mean)	**8.0**	Unsuitable	Bareground ranges from 40-50% for this ESD. Low barground value usually indicative of annual species occupying the interspaces.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating: The overstory is characterized by a suitable canopy cover (22%) and tall, marginal height (>80%) sagebrush with a predominantly columnar physical form. The understory is characterized by marginal perennial grass/forb canopy cover with a fairly diversified occurrence and availability of forbs. However, the understory is dominated by annual grasses which does not provide the understory composition and structure to provide adequate hiding and escape cover from predators. Overall, although a community shift has occurred or is occurring and this pasture is trending downward because of the dominance of annual species, currently this pasture is providing marginal (albeit poorly) summer upland habitat conditions for sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		**X**	

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	0509-1-07S05W01b-2	Boulder		
Date:	8/9/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	Evans, Schroeder					**Home Range Name:**	Pleasant Valley
Legal Description:	T 07SR 05WS 01Q SWQQ SE					**Associated Leks:**	2O578
Land Cover Type:	ARART-CHIVI/TACA-BRJA-FEID					**Ecological Site:**	ARAR/FEID
Number of Transects:	1	**Area Sampled (ha):**	6.5			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	506870E	4742731N					
Ending (NAD 83)	4742741N	506918E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	**X**	**Suitable**	✓	**Marginal**	✓	**Unsuitable**	✓
Sagebrush Canopy Cover (mean)	**22.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**91.8**	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	**X**	**Suitability**	**Rationale**
Predominant Sagebrush Shape (mode)	**Columnar**	Unsuitable	Columnar sagebrush exposes the understory increases the risk of predation.
Other Shrub Canopy Cover (mean)	**8.0**	**8.0**	Suitable	CHVI is the other shrub identified on the site. Occurs as tall and mature.
Other Shrub Height (mean)	**50.3**	**50.3**	Marginal	CHVI tall and mature comparable to sagebrush height.
Sagebrush and Other Shrub Canopy Cover (mean)	**30.0**	**30.0**	Suitable	Consistent with the above habitat indicator.
Sagebrush and Other Shrub Height (mean)	**80.7**	**80.7**	Marginal	Consistent with the above habitat indicator.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None noted

Rationale for Overall Suitablity Rating: This information was collected during a scheduled summer upland habit assessment. Because shrub and perennial grass composition would remain fairly consitent through the year, because the pasture lies within the breeding range for sage-grouse, and the information is collected in the same manner as the summer upland assessment, the information can provide an insight to what breeding habitat conditions might be in the spring. The site is characterized by suitable canopy cover (22%) and height (91.8cm) of sagebrush, however the columnar physical shape will reduce the effectiveness of the overstory to provide hiding cover, thermal cover, and may reduce the availabilty of sagebrush forage. Overall, although supportive information suggests that conditions may not be providing a full complement of functional cover, this site is suitable because it meets the criteria if the above habitat indicators.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	**X**		

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	0509-2-07s05w02b-2	Boulder Pasture 2-1		
Date:	6/14/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	Roseman, Evans, Schroeder					**Home Range Name:**	Pleasant Valley
Legal Description:	T07SR05WS02QSWQQSE					**Associated Leks:**	2O578, 2O300, 579
Land Cover Type:	ARRA8/POSE-BRTE-FEID					**Ecological Site:**	ow-claypan 12-16" ARAR8/
Number of Transects:	1	**Area Sampled (ha):**	11.5			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	508561E	4743519N					
Ending (NAD 83)	4743544N	508521E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**30.0**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**38.0**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Spreading and Mixed**	Spreading	X	Mix of Spreading and Columnar		Columnar	
Perennial Grass and Forb Height (mean)	**17.9**	≥18 cm		10-18 cm	X	<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**18.0**	≥15% ≥10%	X	5-<15% 5-<10%		<5% <5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)	**2.0**	≥10% ≥5%		5-<10% 3-<5%		<5% <3%	X
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**9.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Sagebrush and Other Shrub Canopy Cover (mean)	**30.0**	Marginal	See above habitat indicator.
Sagebrush and Other Shrub Height (mean)	**38.0**	Marginal	See above habitat indicator.
Perennial Grass Height (excluding Poa spp.) (mean)	**18.0**	Suitable	Perennial grass height >18cm.
Poa Spp. Canopy Cover (mean)	**24.0**	Marginal	Poa is increasing. Reference site description identify Poa as a sub-dominant species.
Annual Grass Canopy Cover (mean)	**24.0**	Unsuitable	BRTE and BRJA appear to be increasing.
Annual Forb Canopy Cover (mean)	**30.0**	Suitable	Appropriate for reference site site description.
Bare Ground Canopy Cover (relative to site potential) (mean)	**12.0**	Unsuitable	Bareground for this ESD ranges from 40-50%. Low bareground value is indicative of increased Poa and annual grasses increasing in the interspaces.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None noted

Rationale for Overall Suitablity Rating:

The overstory is characterized by marginal canopy cover and height of sagebrush with a predominantly spreading (suitable) form. The understory is characterized by suitable canopy cover and height of perennial grasses. Forbs within the vicinity of the transect line appear to be common with several preferred species represented. However, the canopy of perennial forbs is unsuitable. This difference is forb occurrence is probably due to the growth characteristics and distribution of the forb community. Overall, because overstory/understory conditions are present to create adequate nesting and hiding cover and preferred forbs occur and available, this pasture therefore is providing suitable nesting, hiding, and forage conditions for sage-grouse during the breeding season.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	**X**		

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	0509-2-07s05w02b-2	Boulder Pasture 2-1		
Date:	6/14/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	Roseman, Evans, Schroeder					**Home Range Name:**	Pleasant Valley
Legal Description:	T07SR05WS02QSWQQSE					**Associated Leks:**	2O578, 2O300, 579
Land Cover Type:	ARRA8/POSE-BRTE-FEID					**Ecological Site:**	ow-claypan 12-16" ARAR8/
Number of Transects:	1	**Area Sampled (ha):**	11.5			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	508561E	4743519N					
Ending (NAD 83)	4743544N	508521E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**30.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**38.0**	>25 cm >40 cm >55 cm		10-25 cm 25-40 cm 40-55 cm	X	<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Spreading and Mixed**	Suitable	Sagebrush form is predominantly spreading.
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site description.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site description.
Sagebrush and Other Shrub Canopy Cover (mean)	**30.0**	Suitable	No other shrubs were identified along the transect. See habitat indicator above.
Sagebrush and Other Shrub Height (mean)	**38.0**	Suitable	No other shrubs were identified along the transect. See habitat indicator above.

Does ecological site potential limit suitability potential?	YES	NO
		X

Drought Condition:	Extreme Drought	Severe Drought	Moderate Drought	Mid-Range	Moderately Moist	Very Moist	Extremely Moist
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

This site is within the winter habitat range of sage-grouse. Although the information is gleaned from a breeding habitat assessment in the spring, sagebrush occurrence and distribution are not anticipated to change over the course of a few months and the information can provide an insight to winter habitat conditions. The site is characterized by a suitable canopy cover of low sagebrush but is marginal in height. Overall, because of the reduced height and the availability of sagebrush above mean snow levels, this pasture is providing marginal cover and forage for sage-grouse winter habitat.

	Suitable	Marginal	Unsuitable
Site-Scale Suitability		X	

Form H-3	Sage-grouse Habitat Suitability Worksheet –	BREEDING	25XY010ID (Associated)			
Allotment-Pasture Names:	BOULDER	**Allotment-Pasture Number:**	0509-03	**Number of Transects:** 2	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY010ID (Associate	**Ecological Site Name:**	Shallow claypan 12-16" ARAR8/FEID (Associated with Loamy 13-1		**Home Range Name:**	Pleasant Valley
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**	**Associated Leks:**	2O557
0509-03-07S05W18a-2012	ARAR8-PUTR/POSE-BRTE-AGSP		7	7/2/2012		
0509-03-07S05W18B-2012	ARAR8/POSE		11	6/12/2012	**Site Info:**	Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**27.0**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**43.6**	40-80 cm 30-80 cm	X	20-<40 cm or >80 cm 20-<30 cm or >80 cm		<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Mixed**	Spreading		Mix of Spreading and Columnar	X	Columnar	
Perennial Grass and Forb Height (mean)	**6.0**	≥18 cm		10-18 cm		<10 cm	X
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**4.0**	≥15% ≥10%		5-<15% 5-<10%		<5% <5%	X
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)	**1.0**	≥10% ≥5%		5-<10% 3-<5%		<5% <3%	X
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present	X	Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**9.5**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**13.0**	Suitable	Appropriate for reference site description.
Other Shrub Height (mean)	**49.5**	Suitable	Appropriate for reference site description.
Sagebrush and Other Shrub Canopy Cover (mean)	**40.0**	Suitable	Appropriate for reference site description.
Sagebrush and Other Shrub Height (mean)	**56.8**	Suitable	PUTR occurs on one of the transects and increases the overall height of shrubs.
Perennial Grass Height (excluding Poa spp.) (mean)	**6.9**	Unsuitable	Height is less than <10cm.
Poa Spp. Canopy Cover (mean)	**28.0**	Unsuitable	Poa is a dominant species in this community. Departs from reference site description.
Annual Grass Canopy Cover (mean)	**9.0**	Marginal	BRTE is becoming a co-dominat species.
Annual Forb Canopy Cover (mean)	**3.0**	Suitable	Appropriate for reference site description.
Bare Ground Canopy Cover (relative to site potential) (mean)	**27.0**	Marginal	Bareground for this reference site ranges from 40-50%. Low bareground is indicative of smaller more grazing tollerent grass species occuppying the inner spaces.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Scat observed
Evidence of recent livestock use?	Heavily used trail patterns noted.

Rationale for Overall Suitability Rating:

The overstory is characterized by suitable height (43.6cm) of sagebrush with marginal canopy cover (27%) and shape (mixed spreading/columnar). The understory is charcterized by unsuitable canopy cover of perennial grasses (4.0%) and forbs (1.0%) with an unsuitable combined height (6.0cm). Forbs species identified in the area are fairly common (9 species) but numbers are not well represented. Overall, although the shrub component is providing adequate overstory cover, the understory is substantially lacking in perennial grasses that create effective nesting and concealment cover for nesting and hiding and therefore, breeding habitat in this pasture is unsuitable for sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability			X

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	25XY010ID (Associated)			
Allotment-Pasture Names:	BOULDER	**Allotment-Pasture Number:**	0509-03	**Number of Transects:**	2	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY010ID (Associate	**Ecological Site Name:**	Shallow claypan 12-16" ARAR8/FEID (Associated with Loamy 13-16" A			**Home Range Name:**	Pleasant Valley
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	2O557
0509-03-07S05W18a-2012	ARAR8-PUTR/POSE-BRTE-AGSP		7	7/2/2012			
0509-03-07S05W18B-2012	ARAR8/POSE		11	6/12/2012		**Site Info:**	Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	x	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**27.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**43.6**	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	x	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Mixed**	Marginal	Spreading/columnar shape exposes the understory and may make some plants less accessible.
Other Shrub Canopy Cover (mean)	**13.0**	Suitable	Appropriate for reference site description.
Other Shrub Height (mean)	**49.5**	Suitable	Appropriate for reference site description.
Sagebrush and Other Shrub Canopy Cover (mean)	**40.0**	Suitable	Appropriate for reference site description.
Sagebrush and Other Shrub Height (mean)	**56.8**	Suitable	Appropriate for reference site description.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Scat was observed
Evidence of recent livestock use?	Heavy trail patterns noted.

Rationale for Overall Suitability Rating:

This information was gleaned form the sage-grouse breeding habitat assessment. Because the sagebrush community is not anticipated to change compositionally over the course of a few months, this information can provide some insight into winter habitat conditions. Winter habitat within this pasture is characterized by suitable canopy cover and height of sagebrush and therefor is providing adequate conditions for sage-grouse during the winter.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	**X**		

Form H-3	Sage-grouse Habitat Suitability Worksheet –	BREEDING	R025XY003ID			
Allotment-Pasture Names:	Boulder	**Allotment-Pasture Number:**	0509-03	**Number of Transects:**	2	**Subpopulation:** NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY003ID	**Ecological Site Name:**	Loamy 12-16" ARTRW8/PSSP			**Home Range Name:** Pleasant Valley
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:** 0
0509-3-07S06W18a-2012	ARTRW8-PUTR-SYAL/POSE-BRTE		4	8/14/2012		
0509-3-07S06W18b-2012	ARTRW8-CHVI-PUTR/PSSPS-POSE		1	8/14/2012		**Site Info:** Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**41.0**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**107.9**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Mixed**	Spreading		Mix of Spreading and Columnar	X	Columnar	
Perennial Grass and Forb Height (mean)		≥18 cm		10-18 cm		<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**8.0**	≥15% ≥10%		5-<15% 5-<10%	X	<5% <5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)		≥10% ≥5%		5-<10% 3-<5%		<5% <3%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)							

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**28.0**	Suitable	Appropriate for this reference site description.
Other Shrub Height (mean)	**55.4**	Marginal	Other shrubs are well represented and will increase the height.
Sagebrush and Other Shrub Canopy Cover (mean)	**69.0**	Marginal	Other shrubs are well represented and possibly greater than the ESD.
Sagebrush and Other Shrub Height (mean)	**86.8**	Marginal	Other shrubs are well represented and contribute to the overall height of the overstory component.
Perennial Grass Height (excluding Poa spp.) (mean)	**4.8**	Unsuitable	Perennial grass height is <10cm.
Poa Spp. Canopy Cover (mean)	**21.0**	Marginal	Poa is a sub-dominant species on the reference site.
Annual Grass Canopy Cover (mean)	**17.0**	Marginal	Annual grasses are established in the community.
Annual Forb Canopy Cover (mean)			
Bare Ground Canopy Cover (relative to site potential) (mean)	**16.0**	Suitable	Bareground for this ESD is around 20-40%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	Extreme Drought	Severe Drought	Moderate Drought	Mid-Range	Moderately Moist	Very Moist	Extremely Moist
			X				

Evidence of sage-grouse use?	Scat observed
Evidence of recent livestock use?	Evidence of cattle grazing and trailing.

Rationale for Overall Suitability Rating:

This information was collected during a summer upland habitat assessment on 8-14-2012. Because the shrub steppe composition and structure is not anticipated to change significantly over the course of a few months and because the data collections protocols are the same, this information can provide some insight into breeding habitat conditions on this ESD within this pasture, however the forb information was not used due to the time of year the assessment was collected which would have influenced forb occurrence and productivity. The overstory is characterized by marginal canopy cover (41%), height (107.9cm), and a mixed (spreading/columnar) shape of the sagebrush component. Applicable herbaceous information is a marginal canopy cover of perennial grasses (8%) in the understory. Overall, because of marginal overstory/understory conditions of sagebrush and perennial grasses, nesting cover compositions is less than adequate and therefore this pasture is providing only marginal nesting and hiding conditions for sage-grouse.

	Suitable	Marginal	Unsuitable
Site-Scale Suitability		X	

Form H-4	Sage-grouse Habitat Suitability Worksheet –		UPLAND SUMMER	R025XY003ID			
Allotment-Pasture Names	Boulder	**Allotment-Pasture Number:**	0509-03	**Number of Transects:**	2	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY003ID	**Ecological Site Name:**	Loamy 12-16" ARTRW8/PSSP			**Home Range Name:**	Pleasant Valley
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	0
0509-3-07S06W18a-2012	ARTRW8-PUTR-SYAL/POSE-BRTE		4	8/14/2012			
0509-3-07S06W18b-2012	ARTRW8-CHVI-PUTR/PSSPS-POSE		1	8/14/2012		**Site Info:**	Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**41.0**	10-25%		5-<10% or >25%	X	<5%	
Sagebrush Height (mean)	**107.9**	40-80 cm		20-<40 cm or >80 cm	X	<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**17.0**	≥15%	X	5-15%		<5%	
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**9.5**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Mixed**	Marginal	A mix of spreading/columnar sagebrush tends to reduce the effectiveness of the overstory cover component.
Perennial Grass and Forb Height (mean)	**15.1**	Marginal	Perennial grass/forb height is between 10-18cm.
Perennial Grass Canopy Cover (mean)	**8.0**	Marginal	Perennial grass canopy cover is between 5<15%.
Perennial Forb Canopy Cover (mean)	**9.0**	Marginal	Perennial forb canopy cover is between 5<10%.
Other Shrub Canopy Cover (mean)	**28.0**	Suitable	Appropriate for this reference site description.
Other Shrub Height (mean)	**55.4**	Marginal	Other shrubs are well represented and will increase the height.
Sagebrush and Other Shrub Canopy Cover (mean)	**69.0**	Marginal	Other shrubs are well represented and possibly greater than the ESD.
Sagebrush and Other Shrub Height (mean)	**86.8**	Marginal	Other shrubs are well represented and contribute to the overall height of the overstory component.
Perennial Grass Height (excluding Poa spp.) (mean)	**4.8**	Unsuitable	Perennial grass height is <10cm.
Poa Spp. Canopy Cover (mean)	**21.0**	Marginal	Poa is a sub-dominant species on the reference site.
Annual Grass Canopy Cover (mean)	**17.0**	Marginal	Annual grasses are established in the community.
Annual Forb Canopy Cover (mean)	**0.0**	Unsuitable	No annual forbs identified along the transect line. Maybe influenced by the time of year.
Bare Ground Canopy Cover (relative to site potential) (mean)	**16.0**	Suitable	Bareground for this ESD is around 20-40%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Scat observed
Evidence of recent livestock use?	Evidence grazing and trailing

Rationale for Overall Suitability Rating: The overstory is characterized by marginal canopy cover (41%), height (107.9cm), and a mixed (spreading/columnar) shape of the sagebrush component. The understory is characterized by suitable perennial grass/forb canopy cover (17%). However, canopy cover perennial grasses is only is 8% (marginal) and is derived only from site 0509-03-07S05W18b; site 0509-03-07S05W18a-2012 showed a 0% canopy cover of perennial grasses. Forbs are suitable with adequate representation. Overall, the summer upland habitat indicators suggest that summer upland habitat conditions may be providing adequate overstory/understory conditions for late brood rearing sage-grouse, how because of the significant difference of conditions (largely perennial grass canopy cover) between the two sites, this pasture is considered to be providing only marginal late season summer upland habitat conditions.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		X	

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	R025XY003ID			
Allotment-Pasture Names:	Boulder	**Allotment-Pasture Number:**	0509-03	**Number of Transects:**	2	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY003ID	**Ecological Site Name:**	Loamy 12-16" ARTRW8/PSSP			**Home Range Name:**	Pleasant Valley
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	0
0509-3-07S06W18a-2012	ARTRW8-PUTR-SYAL/POSE-BRTE		4	8/14/2012			
0509-3-07S06W18b-2012	ARTRW8-CHVI-PUTR/PSSPS-POSE		1	8/14/2012		**Site Info:**	Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	x	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**41.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**107.9**	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	x	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Mixed**	Marginal	A mix of spreading/columnar sagebrush tends to reduce the effectiveness of the overstory cover component.
Other Shrub Canopy Cover (mean)	**28.0**	Suitable	Appropriate for this reference site description.
Other Shrub Height (mean)	**55.4**	Marginal	Other shrubs are well represented and will increase the height.
Sagebrush and Other Shrub Canopy Cover (mean)	**69.0**	Marginal	Other shrubs are well represented and possibly greater than the ESD.
Sagebrush and Other Shrub Height (mean)	**86.8**	Marginal	Other shrubs are well represented and contribute to the overall height of the overstory component.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Scat was observed
Evidence of recent livestock use?	Evidence of cattle grazing and trailing

Rationale for Overall Suitability Rating:

This information was collected during a summer upland habitat assessment on 8-14-2012. Because the shrub steppe composition and structure is not anticipated to change significantly over the course of a few months, this information can provide some insight into winter habitat conditions on this ESD within this pasture. The overstory is characterized by suitable canopy cover (41%), height (107.9cm) of the the sagebrush component. Overall, this pasture is providing suitable winter habitat conditions to meet wintering sage-grouse cover and foraging needs.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	**X**		

Figure WDLF-1D: South Mountain Ind. sage-grouse assessment summaries 2012

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	RO25XY003ID			
Allotment-Pasture Names:	South Mountain Individ	**Allotment-Pasture Number:**	0600-01	**Number of Transects:**	3	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	RO25XY003ID	**Ecological Site Name:**	Loamy 12-16" ARTRW8/PSSPS			**Home Range Name:**	Pleasant Valley
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	0
0600-01-07S05W11A-2012	ARTRW/BRTE		2.5	8/14/2012			
0600-01-07S05W12B-2012	ARTRW/POSE-SIHY		0.3	8/14/2012		**Site Info:**	Mesic
0600-01-07S05W12C-2012	ARTRW/BRTE-POSE		2.4	8/14/2012			

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**34.7**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**112.7**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Mixed**	Spreading		Mix of Spreading and Columnar	X	Columnar	
Perennial Grass and Forb Height (mean)		≥18 cm		10-18 cm		<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**8.0**	≥15% ≥10%		5-<15% 5-<10%	X	<5% < 5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)		≥10% ≥5%		5-<10% 3-<5%		<5% <3%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*mean)*							

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**10.0**	Suitable	Appropriate for reference site descriptions.
Other Shrub Height (mean)	**46.7**	Suitable	Appropriate for reference site descriptions.
Sagebrush and Other Shrub Canopy Cover (mean)	**44.7**	Marginal	PUTR contributes to overall shrub canopy cover.
Sagebrush and Other Shrub Height (mean)	**97.0**	Marginal	Height of all shrubs greater than desired.
Perennial Grass Height (excluding Poa spp.) (mean)	**13.7**	Marginal	Height of perennial grasses between 10-18cm.
Poa Spp. Canopy Cover (mean)	**10.7**	Suitable	POSE is a sub-dominant species in this community.
Annual Grass Canopy Cover (mean)	**32.0**	Unsuitable	BRTE is a dominant species in this community.
Annual Forb Canopy Cover (mean)			
Bare Ground Canopy Cover (relative to site potential) (mean)	**8.7**	Unsuitable	Bareground for this ESD ranges between 20-40%. A low bareground is indicative of smaller more grazing tolerant species occupying the inner spaces. Canopy cover of annual grasses (primarily BRTE) is 32%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		x

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			x				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	

Rationale for Overall Suitability Rating:

The information above was part of a summer upland assessment conducted in 8/14/2012. Because the sagebrush community is not expected to change substantially over the course of a few months and because the protocols for collecting information are the same, this information can provide some insight in breeding habitat conditions earlier in the spring; however, the forb information was used because it does not represent the breeding time of year. The overstory is characterized by a marginal canopy cover (34.7%) and height (112.7cm) of the sagebrush component with a marginal mixed (spreading/columnar) shape. PUTR contributes to the overall shrub canopy cover. The understory is characterized by marginal canopy cover of perennial grasses (8%). Annual grasses are a dominate species in much of this pasture. Overall, because of predominantly marginal overstory/understory conditions, this pasture is providing less than adequate (marginal) nesting and hiding cover for breeding sage-grouse. The increased dominance of annual grasses and reduced occurrence of perennial grasses suggest a transition in plant community composition is occurring.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		X	

Form H-4	Sage-grouse Habitat Suitability Worksheet –	UPLAND SUMMER	RO25XY003ID			
Allotment-Pasture Names	South Mountain Individ	**Allotment-Pasture Number:**	0600-01	**Number of Transects:**	3	**Subpopulation:** NC NV/ SE OR/ SW ID
Ecological Site ID:	RO25XY003ID	**Ecological Site Name:**	Loamy 12-16" ARTRW8/PSSPS			**Home Range Name:** Pleasant Valley
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:** 0
0600-01-07S05W11A-2012	ARTRW/BRTE		2.5	8/14/2012		
0600-01-07S05W12B-2012	ARTRW/POSE-SIHY		0.3	8/14/2012		**Site Info:** Mesic
0600-01-07S05W12C-2012	ARTRW/BRTE-POSE		2.4	8/14/2012		

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**34.7**	10-25%		5-<10% or >25%	X	<5%	
Sagebrush Height (mean)	**112.7**	40-80 cm		20-<40 cm or >80 cm	X	<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**9.3**	≥15%		5-15%	X	<5%	
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present	X	Preferred forbs are rare	
Number of Preferred Forb Species (*mean)*	**4.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Mixed**	Marginal	A mixed spreading/columnar overstory tends to open up the overstory and expose the understory.
Perennial Grass and Forb Height (mean)	**13.2**	Marginal	Perennial grass height is between 10-18cm.
Perennial Grass Canopy Cover (mean)	**8.0**	Marginal	Perennial grass canopy cover is between 5<15%.
Perennial Forb Canopy Cover (mean)	**1.3**	Unsuitable	Perennial forbs canopy cover is <3%.
Other Shrub Canopy Cover (mean)	**10.0**	Suitable	Appropriate for reference site descriptions.
Other Shrub Height (mean)	**46.7**	Suitable	Appropriate for reference site descriptions.
Sagebrush and Other Shrub Canopy Cover (mean)	**44.7**	Marginal	PUTR contributes to overall shrub canopy cover.
Sagebrush and Other Shrub Height (mean)	**97.0**	Marginal	Height of all shrubs greater than desired.
Perennial Grass Height (excluding Poa spp.) (mean)	**13.7**	Marginal	Height of perennial grasses between 10-18cm.
Poa Spp. Canopy Cover (mean)	**10.7**	Suitable	POSE is a sub-dominant species in this community.
Annual Grass Canopy Cover (mean)	**32.0**	Unsuitable	BRTE is a dominant species in this community.
Annual Forb Canopy Cover (mean)	**14.0**	Suitable	Appropriate for reference site descriptions.
Bare Ground Canopy Cover (relative to site potential) (mean)	**8.7**	Unsuitable	Bareground for this ESD ranges between 20-40%. A low bareground is indicative of smaller more grazing tolerant species occupying the inner spaces. Canopy cover of annual grasses (primarily BRTE) is 32%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	No recent livestock use

Rationale for Overall Suitability Rating:

The overstory is characterized by a marginal canopy cover (34.7%) and height (112.7cm) of the sagebrush component. PUTR contributes to the overall shrub canopy cover. The understory is characterized by a combined marginal canopy cover of perennial grasses/forbs (9.3%). Annual grasses are a dominate species in much of this pasture. Overall, because of predominantly marginal overstory/understory conditions, this pasture is providing less than adequate (marginal) summer habitat conditions for late brood-rearing sage-grouse. The increased dominance of annual grasses and reduced occurrence of perennial grasses suggest a transition in plant community composition is occurring.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		**X**	

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	RO25XY003ID			
Allotment-Pasture Names:	South Mountain Individ	**Allotment-Pasture Number:**	0600-01	**Number of Transects:**	3	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	RO25XY003ID	**Ecological Site Name:**	Loamy 12-16" ARTRW8/PSSPS			**Home Range Name:**	Pleasant Valley
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	0
0600-01-07S05W11A-2012	ARTRW/BRTE		2.5	8/14/2012			
0600-01-07S05W12B-2012	ARTRW/POSE-SIHY		0.3	8/14/2012		**Site Info:**	Mesic
0600-01-07S05W12C-2012	ARTRW/BRTE-POSE		2.4	8/14/2012			

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**34.7**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**112.7**	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Mixed**	Marginal	A mixed spreading/columnar overstory tends to open up the overstory and expose the understory.
Other Shrub Canopy Cover (mean)	**10.0**	Suitable	Appropriate for reference site descriptions.
Other Shrub Height (mean)	**46.7**	Suitable	Appropriate for reference site descriptions.
Sagebrush and Other Shrub Canopy Cover (mean)	**44.7**	Marginal	PUTR contributes to overall shrub canopy cover.
Sagebrush and Other Shrub Height (mean)	**97.0**	Marginal	Height of all shrubs greater than desired.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	No recent livestock use

Rationale for Overall Suitability Rating:

The information above was part of a summer upland assessment conducted in 8/14/2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide some insight in winter habitat conditions during the winter. The overstory is characterized by a marginal canopy cover (34.7%) and height (112.7cm) of the sagebrush component. PUTR contributes to the overall shrub canopy cover. Overall, occurrence and height of the sagebrush component is providing adequate (suitable) cover and forage for wintering sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	X		

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	R025XY010ID			
Allotment-Pasture Names:	South Mountain Individ	**Allotment-Pasture Number:**	0600-02	**Number of Transects:**	2	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY010ID	**Ecological Site Name:**	Shallow claypan 12-16" ARAR8/FEID			**Home Range Name:**	Pleasant Valley
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	2O032, 2O306, 2O307, 2O3
0600-02-07S04W08A-2012	ARAR8/POSE-FEID		10	8/15/2012			
0600-02-07S04W08B-2012	ARAR8/POSE-FEID		10	8/15/2012		**Site Info:**	Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**22.0**	15-25%	X	5-<15% or >25%		<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**38.5**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Mixed**	Spreading		Mix of Spreading and Columnar	X	Columnar	
Perennial Grass and Forb Height (mean)		≥18 cm		10-18 cm		<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**9.0**	≥15% ≥10%		5-<15% 5-<10%	X	<5% < 5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)		≥10% ≥5%		5-<10% 3-<5%		<5% <3%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)							

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site description.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site description.
Sagebrush and Other Shrub Canopy Cover (mean)	**22.0**	Suitable	Sagebrush is the only shrub species. See above habitat indicator.
Sagebrush and Other Shrub Height (mean)	**38.5**	Marginal	Sagebrush is the only shrub species. See above habitat indicator.
Perennial Grass Height (excluding Poa spp.) (mean)	**17.6**	Marginal	Perennial grass height is between 10-18cm.
Poa Spp. Canopy Cover (mean)	**27.0**	Marginal	POSE is expressing a dominant component in the community.
Annual Grass Canopy Cover (mean)	**5.0**	Suitable	Annual grasses are present as sub-dominants.
Annual Forb Canopy Cover (mean)			
Bare Ground Canopy Cover (relative to site potential) (mean)	**45.0**	Suitable	Bareground for this ESD ranges between 40-50%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Trace of sage-grouse scat
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

This information was collected as part of a summer upland habitat assessment in 8/15/2012. Because the sagebrush community is not expected to change substantially over the course of a few moths and because the data collection protocols are the same, this information can provide insight to breeding habitat conditions in the spring; hoever, the forb information was not used because it is not applicable due to the time of year the assessment information was collected. The overstory is characterized by suitable canopy cover (22.0%) and marginal height (38.5cm) of the sagebrush component with a marginal mixed (spreading/columnar) shape. The understory is characterized by marginal canopy cover of perennial grasses (9.0%). Overall, because of a mixed overstory shape combined with marginal canopy cover and height of herbaceous understory species, this pasture is providing less than adequate (marginal) nesting and hiding cover for breeding sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		X	

Form H-4	Sage-grouse Habitat Suitability Worksheet –	UPLAND SUMMER	R025XY010ID			
Allotment-Pasture Names	South Mountain Individ	**Allotment-Pasture Number:**	0600-02	**Number of Transects:**	2	**Subpopulation:** NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY010ID	**Ecological Site Name:**	Shallow claypan 12-16" ARAR8/FEID			**Home Range Name:** Pleasant Valley
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:** 2O032, 2O306, 2O307, 2O3
0600-02-07S04W08A-2012	ARAR8/POSE-FEID		10	8/15/2012		
0600-02-07S04W08B-2012	ARAR8/POSE-FEID		10	8/15/2012		**Site Info:** Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**22.0**	10-25%	X	5-<10% or >25%		<5%	
Sagebrush Height (mean)	**38.5**	40-80 cm		20-<40 cm or >80 cm	X	<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**10.0**	≥15%		5-15%	X	<5%	
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present	X	Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**5.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Mixed**	Marginal	A mix spreading/columnar shape tends to open up the overstory and expose the understory.
Perennial Grass and Forb Height (mean)	**16.4**	Marginal	Perennial grass and forb height is between 10-18cm.
Perennial Grass Canopy Cover (mean)	**9.0**	Marginal	Perennial grass canopy cover is between 5<15%.
Perennial Forb Canopy Cover (mean)	**1.0**	Unsuitable	Perennial forbs are <3%.
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site description.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site description.
Sagebrush and Other Shrub Canopy Cover (mean)	**22.0**	Suitable	Sagebrush is the only shrub species. See above habitat indicator.
Sagebrush and Other Shrub Height (mean)	**38.5**	Marginal	Sagebrush is the only shrub species. See above habitat indicator.
Perennial Grass Height (excluding Poa spp.) (mean)	**17.6**	Marginal	Perennial grass height is between 10-18cm.
Poa Spp. Canopy Cover (mean)	**27.0**	Marginal	POSE is expressing a dominant component in the community.
Annual Grass Canopy Cover (mean)	**5.0**	Suitable	Annual grasses are present as sub-dominants.
Annual Forb Canopy Cover (mean)	**2.0**	Suitable	Appropriate for reference site description.
Bare Ground Canopy Cover (relative to site potential) (mean)	**45.0**	Suitable	Bareground for this ESD ranges between 40-50%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Trace of sage-grouse scat
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

The overstory is characterized by suitable canopy cover (22.0%) and marginal height (38.5cm) of the sagebrush component. The understory is characterized by marginal combined canopy cover of perennial grasses and forbs (10.0%). Forbs are present but are not well represented. Overall, because of a marginal height of the sagebrush overstory combined with the marginal canopy cover and height of herbaceous understory species, this pasture is providing less than adequate (marginal) summer upland habitat conditions for late brood-rearing sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		X	

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	R025XY010ID			
Allotment-Pasture Names:	South Mountain Individ	**Allotment-Pasture Number:**	0600-02	**Number of Transects:**	2	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY010ID	**Ecological Site Name:**	Shallow claypan 12-16" ARAR8/FEID			**Home Range Name:**	Pleasant Valley
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	2O032, 2O306, 2O307, 2O3
0600-02-07S04W08A-2012	ARAR8/POSE-FEID		10	8/15/2012			
0600-02-07S04W08B-2012	ARAR8/POSE-FEID		10	8/15/2012		**Site Info:**	Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**22.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**38.5**	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Mixed**	Marginal	A mix spreading/columnar shape tends to open up the overstory and expose the understory.
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site description.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site description.
Sagebrush and Other Shrub Canopy Cover (mean)	**22.0**	Suitable	Sagebrush is the only shrub species. See above habitat indicator.
Sagebrush and Other Shrub Height (mean)	**38.5**	Marginal	Sagebrush is the only shrub species. See above habitat indicator.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Trace of sage-grouse scat
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

This information was collected as part of a summer upland habitat assessment in 8/15/2012. Because the sagebrush community is not expected to change substantially over the course of a few months this information can provide insight to winter habitat conditions later in the year. The overstory is characterized by suitable canopy cover (22.0%) and height (38.5cm) of the sagebrush component. Because sagebrush occurrence and availability are adequate, this pasture is providing suitable winter habitat for wintering sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	X		

Figure WDLF-1E: Bachelor Flat FFR sage-grouse assessment summaries 2012

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	0640-02-07S05W01a-	Bachelor Flat FFR		
Date:	8/13/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	n, V. Guglielmo, N. Evans, B. Carter					**Home Range Name:**	Pleasant Valley
Legal Description:	07SR05WS01QNWQQSW					**Associated Leks:**	O306, 2O300, 2O579, 2O57
Land Cover Type:	ARAR/POSE					**Ecological Site:**	R025XY010ID
Number of Transects:	1	**Area Sampled (ha):**	4			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	509674E	4743215N					
Ending (NAD 83)	4743251N	509706E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**32.0**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**41.3**	40-80 cm 30-80 cm	X	20-<40 cm or >80 cm 20-<30 cm or >80 cm		<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Mixed**	Spreading		Mix of Spreading and Columnar	X	Columnar	
Perennial Grass and Forb Height (mean)		≥18 cm		10-18 cm		<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**2.0**	≥15% ≥10%		5-<15% 5-<10%		<5% < 5%	X
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)		≥10% ≥5%		5-<10% 3-<5%		<5% <3%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)							

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**2.0**	Suitable	Presence of CHVI recorded on site. Occurrence consistent with reference site conditions.
Other Shrub Height (mean)	**27.0**	Marginal	Consistent with height of ARTRW for the site.
Sagebrush and Other Shrub Canopy Cover (mean)	**34.0**	Marginal	Overall shrub component greater than 25%.
Sagebrush and Other Shrub Height (mean)	**40.4**	Suitable	Shrub component within 40-80cm range.
Perennial Grass Height (excluding Poa spp.) (mean)	**11.0**	Marginal	Perennial grass height 10-18 cm for breeding habitat conditions. However, the height is only produced by a less than 5% (unsuitable) canopy cover of perennial grasses.
Poa Spp. Canopy Cover (mean)	**22.0**	Marginal	Occurrence of POA is greater than expected for reference site conditions and is an understory co-dominant species.
Annual Grass Canopy Cover (mean)	**4.0**	Marginal	Ventenada recorded on site.
Annual Forb Canopy Cover (mean)			
Bare Ground Canopy Cover (relative to site potential) (mean)	**12.0**		ESD identifies 40-50% bareground appropriate for this soil type. Low bareground suggests a high occurrence of herbaceous species (usually associated with occurrence of POA or invasive species) occupying the interspaces.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	No
Evidence of recent livestock use?	No

Rationale for Overall Suitablity Rating:

Information provided was collected during a scheduled sage-grouse summer riparian habitat assessment. However, because transect was conducted on an upland site, the assessment summary was changed to reflect the appropriate site. The site has applicability to assessing breeding habitat potential as well, however, forb information was not used because of the season the information was collected and the change in forb occurrence would have been anticipated to change. Marginal overstory conditions characterized by >25% canopy cover of sagebrush at 40-80cm in height with a predominantely mixed (spreading/columnar) physical shape. Unsuitable understory conditions characterized by <5% canopy cover of perennial grasses although height was >18cm. Greater than expected occurrence of POA and the <5% canopy cover of perennial grasses suggests that a phasal shift may be occurring. Field collectors noted the dominance of POA and Ventenata. The low bareground value also supports the occurrence of POA and annual grasses in the interspaces. This site is also within 50 ft. of a reservior. Overall, because of the open growth shape of the sagebrush in the overstory combined with the absence of perennial grasses in the understory, this site is rated unsuitable for sage-grouse breeding conditions.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability			**X**

Form H-4	Sage-grouse Habitat Suitability Worksheet –		UPLAND SUMMER	0640-02-07S05W01a- Bachelor Flat FFR			
Date:	8/13/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	n, V. Guglielmo, N. Evans, B. Carter					**Home Range Name:**	Pleasant Valley
Legal Description:	07SR05WS01QNWQQSW					**Associated Leks:**	O306, 2O300, 2O579, 2O57
Land Cover Type:	ARAR/POSE					**Ecological Site:**	R025XY010ID
Number of Transects:	1	**Area Sampled (ha):**	4			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	509674E	4743215N					
Ending (NAD 83)	4743251N	509706E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	**X**	**Suitable**	✓	**Marginal**	✓	**Unsuitable**	✓
Sagebrush Canopy Cover (mean)	**32.0**	10-25%		5-<10% or >25%	X	<5%	
Sagebrush Height (mean)	**41.3**	40-80 cm	X	20-<40 cm or >80 cm		<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**2.0**	≥15%		5-15%		<5%	X
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**5.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	**X**	**Suitability**	**Rationale**
Predominant Sagebrush Shape (mode)	**Mixed**	Suitable	Appropriate for reference site conditions
Perennial Grass and Forb Height (mean)	**11.0**	Marginal	Perennial grass height 10-18 cm for breeding habitat conditions. However, the height is only produced by a less than 5% (unsuitable) canopy cover of perennial grasses.
Perennial Grass Canopy Cover (mean)	**2.0**	Unsuitable	Below reference site conditions.
Perennial Forb Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site conditions
Other Shrub Canopy Cover (mean)	**2.0**	Suitable	Appropriate for reference site conditions
Other Shrub Height (mean)	**27.0**	Suitable	Appropriate for reference site conditions
Sagebrush and Other Shrub Canopy Cover (mean)	**34.0**	Suitable	Appropriate for reference site conditions
Sagebrush and Other Shrub Height (mean)	**40.4**	Suitable	Appropriate for reference site conditions
Perennial Grass Height (excluding Poa spp.) (mean)	**11.0**	Marginal	Perennial grass height 10-18 cm for breeding habitat conditions. However, the height is only produced by a less than 5% (unsuitable) canopy cover of perennial grasses.
Poa Spp. Canopy Cover (mean)	**22.0**	Marginal	Occurrence of POA is greater than expected for reference site conditions and is an understory co-dominant species.
Annual Grass Canopy Cover (mean)	**4.0**	Marginal	Ventenada recorded on site.
Annual Forb Canopy Cover (mean)	**28.0**	Suitable	Epilobium (preferred) only forb recorded.
Bare Ground Canopy Cover (relative to site potential) (mean)	**12.0**		ESD identifies 40-50% bareground appropriate for this soil type. Low bareground suggests a high occurrence of herbaceous species (usually associated with occurrence of POA or invasive species) occupying the interspaces.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	0
Evidence of recent livestock use?	Not noted in field write-up

Rationale for Overall Suitablity Rating:

Information provided was collected during a scheduled sage-grouse summer riparian habitat assessment. However, because transect was conducted on an upland site, the assessment summary was changed to reflect the appropriate site. Marginal overstory conditions characterized by >25% canopy cover of sagebrush at 40-80cm in height with a predominantely mixed (spreading/columnar) physical shape. Unsuitable understory conditions characterized by <5% canopy cover of perennial grasses and forbs height was marginal at 11cm. Canopy cover of forbs was suitable. Forb occurrence would be influenced by the timing of the transect in the late summer. Greater than expected occurrence of POA and the <5% canopy cover of perennial grasses suggests that a phasal shift may be occurring. Field collectors noted the dominance of POA and Ventenata. The low bareground value also supports the occurrence of POA and annual grasses in the interspaces. This site is also within 50 ft. of a reservior. Overall, because of the open growth shape (spreading/columnar) of the sagebrush overstory and the unsuitable occurrence of perennial grasses for hiding cover in the understory, this site is rated unsuitable for sage-grouse summer upland habitat conditions.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability			**X**

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	0640-02-07S05W01a-	Bachelor Flat FFR		
Date:	8/13/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	n, V. Guglielmo, N. Evans, B. Carter					**Home Range Name:**	Pleasant Valley
Legal Description:	07SR05WS01QNWQQSW					**Associated Leks:**	O306, 2O300, 2O579, 2O57
Land Cover Type:	ARAR/POSE					**Ecological Site:**	R025XY010ID
Number of Transects:	1	**Area Sampled (ha):**	4			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	509674E	4743215N					
Ending (NAD 83)	4743251N	509706E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	**X**	**Suitable**	✓	**Marginal**	✓	**Unsuitable**	✓
Sagebrush Canopy Cover (mean)	**32.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**41.3**	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	**X**	**Suitability**	**Rationale**
Predominant Sagebrush Shape (mode)	**Mixed**	Suitable	Appropriate for reference site conditions
Other Shrub Canopy Cover (mean)	**2.0**	Suitable	Appropriate for reference site conditions
Other Shrub Height (mean)	**27.0**	Suitable	Appropriate for reference site conditions
Sagebrush and Other Shrub Canopy Cover (mean)	**34.0**	Suitable	Appropriate for reference site conditions
Sagebrush and Other Shrub Height (mean)	**40.4**	Suitable	Appropriate for reference site conditions

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	0
Evidence of recent livestock use?	No

Rationale for Overall Suitablity Rating: This site is within 50 ft. of a reservior. Overall the pasture is rated as suitable winter habitat because of the amount of canopy cover and height of sagebrush that would provide forage above persistent snow.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	**X**		

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	0640-01-07S05W01b	Bachelor Flats-Pasture 2		
Date:	9/17/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	rmon, Ferguson, Ainsworth					**Home Range Name:**	Pleasant Valley
Legal Description:	T07SR05WS01QSWQQSW					**Associated Leks:**	O306, 2O300, 2O579, 2O57
Land Cover Type:	ARTRW/POSE					**Ecological Site:**	R025XY010ID
Number of Transects:	1	**Area Sampled (ha):**	0.3 ha			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	509880	4742907					
Ending (NAD 83)	4742941	509919					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**38.0**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**125.9**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Mixed**	Spreading		Mix of Spreading and Columnar	X	Columnar	
Perennial Grass and Forb Height (mean)		≥18 cm		10-18 cm		<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**2.0**	≥15% ≥10%		5-<15% 5-<10%		<5% < 5%	X
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)		≥10% ≥5%		5-<10% 3-<5%		<5% <3%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)							

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**2.0**	Suitable	Presence of CHVI recorded on site. Occurrence consistent with reference site conditions.
Other Shrub Height (mean)	**30.0**	Marginal	Consistent with height of ARTRW for the site.
Sagebrush and Other Shrub Canopy Cover (mean)	**40.0**	Marginal	Overall shrub component greater than 25%.
Sagebrush and Other Shrub Height (mean)	**121.1**	Marginal	Overall shrub component greater than 80cm in height.
Perennial Grass Height (excluding Poa spp.) (mean)	**30.0**	Suitable	Perennial grass height greater than 18cm is suitable for breeding habitat conditions. However, the height is only produced by a less than 5% (unsuitable) canopy cover of perennial grasses.
Poa Spp. Canopy Cover (mean)	**12.0**	Suitable	Suitable in respect to information collected along the transect. Evaluators in 2012 not POSE as a dominant grass species.
Annual Grass Canopy Cover (mean)	**0.0**	Suitable	There appears to be other species (cheatgrass and medusahead) in the site photos but were not recorded on the transect. Field evaluators noted BRTE on site in write-up.
Annual Forb Canopy Cover (mean)			
Bare Ground Canopy Cover (relative to site potential) (mean)	**12.0**		ESD identifies 40-50% bareground appropriate for this soil type. Low bareground suggests a high occurrence of herbaceous species (usually associated with occurrence of POA or invasive species) occupying the interspaces.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	No
Evidence of recent livestock use?	Sagebrush breakage suggest livestock impact.

Rationale for Overall Suitablity Rating:

Information provided was collected during a scheduled sage-grouse summer upland habitat assessment but has applicability to assessing breeding habitat potential. Because forb occurrence would be influenced by the timing of the transect in the late summer, that information was not used in the assessment. Marginal overstory conditions characterized by >25% canopy cover of sagebrush at greater than >80cm in height with a predominantely mixed (spreading/columnar) physical shape. Unsuitable understory conditions characterized by <5% canopy cover of perennial grasses. Greater than expected occurrence of POA and the <5% canopy cover of perennial grasses suggests that a phasal shift may be occurring. Field collectors noted the dominance of POA and BRTE, but did not record any annual grasses in the transect which would be expected. The low bareground value also supports the occurrence of POA and annual grasses in the interspaces. This site is also within 1000 ft. of a reservior that supports a the recording of high occurrence of sagebrush breakage due to livestock concentrating near a water source. Overall, because of the open growth shape of the sagebrush in the overstory combined with the absence of perennial grasses in the understory, this site is rated unsuitable for sage-grouse breeding conditions.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability			X

Form H-4	Sage-grouse Habitat Suitability Worksheet –	UPLAND SUMMER	0640-01-07S05W01b	Bachelor Flats-Pasture 2		
Date:	9/17/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	rmon, Ferguson, Ainsworth					**Home Range Name:**	Pleasant Valley
Legal Description:	T07SR05WS01QSWQQSW					**Associated Leks:**	O306, 2O300, 2O579, 2O57
Land Cover Type:	ARTRW/POSE					**Ecological Site:**	R025XY010ID
Number of Transects:	1	**Area Sampled (ha):**	0.3 ha			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	509880	4742907					
Ending (NAD 83)	4742941	509919					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**38.0**	10-25%		5-<10% or >25%	X	<5%	
Sagebrush Height (mean)	**125.9**	40-80 cm		20-<40 cm or >80 cm	X	<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**6.0**	≥15%		5-15%	X	<5%	
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present	X	Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**4.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Mixed**	Moderate	An predominantly mixed (combination of spreading/columnar) growth shape of sagebrush has reduced overstrory cover and concealment value and tends to expose the understory.
Perennial Grass and Forb Height (mean)	**20.3**	Suitable	Suitable upland summer habitat should have perennial herbaceous vegetation heights of at least 10 cm to provide some concealment cover
Perennial Grass Canopy Cover (mean)	**2.0**	Unsuitable	Lower than expected based on ESDs and in comparison to the breeding habitat guidelines.
Perennial Forb Canopy Cover (mean)	**4.0**	Suitable	Prefferd forbs are common for this late summer transect.
Other Shrub Canopy Cover (mean)	**2.0**	Suitable	Appropriate based on Ecological Site potential.
Other Shrub Height (mean)	**30.0**	Marginal	Consistent with the sagebrush height.
Sagebrush and Other Shrub Canopy Cover (mean)	**40.0**	Marginal	Appropriate based on Ecological Site potential
Sagebrush and Other Shrub Height (mean)	**121.1**	Marginal	Appropriate based on Ecological Site potential and consistent with sagebrush values.
Perennial Grass Height (excluding Poa spp.) (mean)	**30.0**	Suitable	Perennial grass height greater than 18cm is suitable for breeding habitat conditions. However, the height is only produced by a less than 5% (unsuitable) canopy cover of perennial grasses.
Poa Spp. Canopy Cover (mean)	**12.0**	Suitable	Suitable in respect to information collected along the transect. Evaluators in 2012 not POSE as a dominant grass species.
Annual Grass Canopy Cover (mean)	**0.0**	Suitable	There appears to be other species (cheatgrass and medusahead) in the site photos but were not recorded on the transect. Field evaluators noted BRTE on site in write-up.
Annual Forb Canopy Cover (mean)	**2.0**	Suitable	Appropriate based on Ecological Site Potential
Bare Ground Canopy Cover (relative to site potential) (mean)	**12.0**		ESD identifies 40-50% bareground appropriate for this soil type. Low bareground suggests a high occurrence of herbaceous species (usually associated with occurrence of POA or invasive species) occupying the interspaces.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	No
Evidence of recent livestock use?	Sagebrush breakage suggest livestock impact.

Rationale for Overall Suitablity Rating:

This site is an ARTRW/POSE inclusion within an ARAR/FIED refence site within 1000 ft. of a reservior. Marginal overstory conditions are characterized by >25% canopy cover of sagebrush at greater than >80cm in height with a predominantely mixed (spreading/columnar) physical shape. Marginal understory conditions are characterized by 6% canopy cover of perennial grasses and forbs. However, the 2% canopy cover of perennial grasses, although they are providing >18cm of height, and the dominance of POA and BRTE noted by the field collectors suggests that understory cover and hiding values are reduced. Canopy cover of forbs was <3% although preferred forbs (4) appeared common within the area. Greater than expected occurrence of POA and the 2% canopy cover of perennial grasses suggests that a phasal shift in the plant community may be occurring. Field collectors noted the dominance of POA and BRTE, but did not record any annual grasses in the transect which would be expected. The low bareground value also supports the occurrence of POA and annual grasses in the interspaces. Field collectors noted a high occurrence of sagebrush breakage due to livestock concentrating near a water source. Overall, due to marginal sagebrush overstory conditions and marginal understory conditions, this site is rated marginal for sage-grouse summer upland habitat at this time of year.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		**X**	

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	0640-01-07S05W01b	Bachelor Flats-Pasture 2		
Date:	9/17/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	mon, Ferguson, Ainsworth					**Home Range Name:**	Pleasant Valley
Legal Description:	T07SR05WS01QSWQQSW					**Associated Leks:**	O306, 2O300, 2O579, 2O57
Land Cover Type:	ARTRW/POSE					**Ecological Site:**	R025XY010ID
Number of Transects:	1	**Area Sampled (ha):**	0.3 ha			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	509880	4742907					
Ending (NAD 83)	4742941	509919					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	**X**	**Suitable**	✓	**Marginal**	✓	**Unsuitable**	✓
Sagebrush Canopy Cover (mean)	**38.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**125.9**	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	**X**	**Suitability**	**Rationale**
Predominant Sagebrush Shape (mode)	**Mixed**	Suitable	Although the majority of plants fell in mixed, most of the remaining were in spreading; therefore, shrub growth form is probably providing adequate concealment cover
Other Shrub Canopy Cover (mean)	**2.0**	Suitable	Appropriate based on Ecological Site potential
Other Shrub Height (mean)	**30.0**	Suitable	Other shrub heights are providing additional concealment and thermal cover
Sagebrush and Other Shrub Canopy Cover (mean)	**40.0**	Suitable	Appropriate based on Ecological Site potential
Sagebrush and Other Shrub Height (mean)	**121.1**	Suitable	Sagebrush height is providing available forage, and in combination with other shrub height is providing effective concealment cover

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	No
Evidence of recent livestock use?	Sagebrush breakage suggest livestock impact.

Rationale for Overall Suitablity Rating:

This site is an ARTRW/POSE inclusion within an ARAR/FIED refence site within 1000 ft. of a reservior. Overall the pasture is rated as suitable winter habitat because of the amount of canopy cover and height of sagebrush that would provide forage above persistent snow. However, noted sagebrush breakage would reduce concealment and thermal cover values.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	**X**		

Figure WDLF-1F: Boulder Flat FFR sage-grouse assessment summaries 2012

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	0526-1-06S05W35a-2 R025XY010ID			
Date:	8/13/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	n, N. Evans, B. Carter, V. Guglielmo					**Home Range Name:**	Pleasant Valley
Legal Description:	T06SR05WS35QNEQQNW		**Allotment-Pasture Names:**	Boulder Flat		**Associated Leks:**	2O578, 2O579, 2O300
Land Cover Type:	ARTRW/POSE-BRTE-SIHY	inclusion				**Ecological Site:**	ow claypan 12-16" ARAR8/
Number of Transects:	1	**Area Sampled (ha):**	5.4			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	508444E	4745523N					
Ending (NAD 83)	4745541N	508488E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**36.0**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**119.5**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Mixed**	Spreading		Mix of Spreading and Columnar	X	Columnar	
Perennial Grass and Forb Height (mean)		≥18 cm		10-18 cm		<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**8.0**	≥15% ≥10%		5-<15% 5-<10%	X	<5% <5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)		≥10% ≥5%		5-<10% 3-<5%		<5% <3%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species *(n)*							

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for this inclusion.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for this inclusion.
Sagebrush and Other Shrub Canopy Cover (mean)	**36.0**	Marginal	Sagebrush is the only species represented. See habitat indicator above.
Sagebrush and Other Shrub Height (mean)	**119.5**	Marginal	Sagebrush is the only species represented. See habitat indicator above.
Perennial Grass Height (excluding Poa spp.) (mean)	**16.0**	Marginal	Perennial grass height is between 5<18cm.
Poa Spp. Canopy Cover (mean)	**24.0**	Marginal	Poa is identified as a sub-dominant species on the site. Appears to increasing.
Annual Grass Canopy Cover (mean)	**28.0**	Unsuitable	BRTE is a co-dominant species on this site.
Annual Forb Canopy Cover (mean)			
Bare Ground Canopy Cover (relative to site potential) (mean)	**2.0**	Unsuitable	Bareground for a Loamy 12-16", ARTRW/FEID-PSSPS site is 20-40%. A low bareground value is indicative of smaller more grazing tolerant species occupying the inner spaces. Combined, canopy cover of POA and BRTE is 52%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Evidence of sage-grouse presence
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

This information was collected during a summer upland habitat assessment on 8/13/2012. Because the data collection protocols are the same and sagebrush community composition and structure are not anticipated to change significantly, this information can provide insight to sage-grouse breeding habitat conditions in the spring, however, forb information was not used due to the time the assessment was collected which would influence the occurrence of forb distribution and abundance. The overstory is characterized by marginal canopy cover (36%), height (119.5), and mixed (spreading/columnar) shape of the sagebrush component. The understory is characterized by marginal canopy cover of perennial grasses (8.0%) and unsuitable canopy cover of perennial forbs with a combined marginal height (14.2cm) of perennial grasses/forbs. Overall, because overstory/understory conditions are largely marginal, this pasture is only providing marginal nesting and hiding conditions for sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		**X**	

Form H-4	Sage-grouse Habitat Suitability Worksheet –		UPLAND SUMMER	0526-1-06S05W35a-2	R025XY010ID		
Date:	8/13/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	an, N. Evans, B. Carter, V. Guglielmo					**Home Range Name:**	Pleasant Valley
Legal Description:	T06SR05WS35QNEQQNW		**Allotment-Pasture Names:**	Boulder Flat		**Associated Leks:**	2O578, 2O579, 2O300
Land Cover Type:	ARTRW/POSE-BRTE-SIHY	inclusion				**Ecological Site:**	ow claypan 12-16" ARAR8/
Number of Transects:	1	**Area Sampled (ha):**	5.4			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	508444E	4745523N					
Ending (NAD 83)	4745541N	508488E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	x	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**36.0**	10-25%		5-<10% or >25%	X	<5%	
Sagebrush Height (mean)	**119.5**	40-80 cm		20-<40 cm or >80 cm	X	<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**10.0**	≥15%		5-15%	X	<5%	
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**7.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	x	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Mixed**	Marginal	Mixed sagebrush tend to expose the understory. Not unusual for mature stands of sagebrush.
Perennial Grass and Forb Height (mean)	**14.2**	Marginal	Perennial grass and forb heght is between 10<18cm.
Perennial Grass Canopy Cover (mean)	**8.0**	Marginal	Perrenial grass canopy cover is between 5<10%
Perennial Forb Canopy Cover (mean)	**2.0**	Unsuitable	Perrenial forb canopy cover is <3%.
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for this inclusion.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for this inclusion.
Sagebrush and Other Shrub Canopy Cover (mean)	**36.0**	Marginal	Sagebrush is the only species represented.
Sagebrush and Other Shrub Height (mean)	**119.5**	Marginal	Sagebrush is the only species represented.
Perennial Grass Height (excluding Poa spp.) (mean)	**16.0**	Marginal	Perennial grass height is between 5<18cm.
Poa Spp. Canopy Cover (mean)	**24.0**	Marginal	Poa is identified as a sub-dominant species on the site. Appears to increasing.
Annual Grass Canopy Cover (mean)	**28.0**	Unsuitable	BRTE is a co-dominant species on this site.
Annual Forb Canopy Cover (mean)	**22.0**	Suitable	Appropriate for this inclusion.
Bare Ground Canopy Cover (relative to site potential) (mean)	**2.0**	Unsuitable	Bareground for a Loamy 12-16", ARTRW/FEID-PSSPS site is 20-40%. A low bareground value is indicative of smaller more grazing tolerant species occupying the inner spaces. Combined, canopy cover of POA and BRTE is 52%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Evidence of sage-grouse presence
Evidence of recent livestock use?	None noted

Rationale for Overall Suitablity Rating:

The overstory is characterized by marginal canopy cover (36%), height (119.5), and mixed (spreading/columnar) shape of the sagebrush component. The understory is characterized by marginal canopy cover of perennial grasses (8.0%) and unsuitable canopy cover of perennial forbs with a combined marginal canopy cover of 10%. The number of prefferred forb species recorded is suitable in addition to their suiable abunce and availability along the transect line. Overall, because overstory/understory conditions are marginal, this pasture is only providing marginal summer upland habitat conditions for sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		X	

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	0526-1-06S05W35a-2	R025XY010ID		
Date:	8/13/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	n, N. Evans, B. Carter, V. Guglielmo					**Home Range Name:**	Pleasant Valley
Legal Description:	T06SR05WS35QNEQQNW		**Allotment-Pasture Names:**	Boulder Flat		**Associated Leks:**	2O578, 2O579, 2O300
Land Cover Type:	ARTRW/POSE-BRTE-SIHY	inclusion				**Ecological Site:**	ow claypan 12-16" ARAR8/
Number of Transects:	1	**Area Sampled (ha):**	5.4			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	508444E	4745523N					
Ending (NAD 83)	4745541N	508488E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	**x**	**Suitable**	✓	**Marginal**	✓	**Unsuitable**	✓
Sagebrush Canopy Cover (mean)	**36.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**119.5**	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	**x**	**Suitability**	**Rationale**
Predominant Sagebrush Shape (mode)	**Mixed**	Marginal	Mixed sagebrush tend to expose the understory. Not unusual for mature stands of sagebrush.
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for this inclusion.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for this inclusion.
Sagebrush and Other Shrub Canopy Cover (mean)	**36.0**	Marginal	Sagebrush is the only species represented.
Sagebrush and Other Shrub Height (mean)	**119.5**	Marginal	Sagebrush is the only species represented.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Evidence of sage-grouse presence
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

This information was collected during a summer upland habitat assessment on 8/13/2012. Because the data collection protocols are the same and sagebrush community composition and structure are not anticipated to change significantly, this information can provide insight to sage-grouse winter habitat conditions. The overstory is characterized by suitable canopy cover (36%) and height (119.5) of the sagebrush component. Therefore this pasture is providing suitable winter habit conditions to meet sage-grouse cover and forage needs.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	X		

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	0526-01-07S05W01b·ARAR8/BRTE-FEID-POSE			
Date:	8/15/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	, B. Roseman, V. Guglielmo, B. Carter					**Home Range Name:**	Pleasant Valley
Legal Description:	T07SR05WS01QNWQQSW		**Allotment-Pasture Names:**	Boulder Flat		**Associated Leks:**	2O578, 2O579, 2O300
Land Cover Type:	ARAR8/BRTE-FEID-POSE					**Ecological Site:**	ow claypan 12-16" ARAR8/
Number of Transects:	1	**Area Sampled (ha):**	1.5			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	509509E	4743439N					
Ending (NAD 83)	4743421N	509559E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**16.0**	15-25%	X	5-<15% or >25%		<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**37.9**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Spreading**	Spreading	X	Mix of Spreading and Columnar		Columnar	
Perennial Grass and Forb Height (mean)		≥18 cm		10-18 cm		<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**8.0**	≥15% ≥10%		5-<15% 5-<10%	X	<5% <5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)		≥10% ≥5%		5-<10% 3-<5%		<5% <3%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)							

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Sagebrush and Other Shrub Canopy Cover (mean)	**16.0**	Suitable	Sagebrush is the only shrub represented. See above habitat indicator.
Sagebrush and Other Shrub Height (mean)	**37.9**	Marginal	Sagebrush is the only shrub represented. See above habitat indicator.
Perennial Grass Height (excluding Poa spp.) (mean)	**22.5**	Suitable	Perennial grass height is >18cm but is created by a marginal canopy cover (8%) of perennial grass species.
Poa Spp. Canopy Cover (mean)	**6.0**	Suitable	Poa is a sub-dominant species for this reference site.
Annual Grass Canopy Cover (mean)	**40.0**	Unsuitable	VEDU and BRJA are a co-dominant species in this community.
Annual Forb Canopy Cover (mean)			
Bare Ground Canopy Cover (relative to site potential) (mean)	**2.0**	Unsuitable	Bareground for a shallow claypan ARAR8/FEID site is 40-50%. A low bareground value is indicative of smaller more grazing tolerant species occupying the inner spaces. Combined, canopy cover of POA and BRJA/VEDU is 46%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Trace of sage-grouse scat in area
Evidence of recent livestock use?	None noted

Rationale for Overall Suitablity Rating:

This information was collected during a summer upland habitat assessment on 8/13/2012. Because the data collection protocols are the same and sagebrush community composition and structure are not anticipated to change significantly over the course of a few months, this information can provide insight to sage-grouse breeding habitat conditions in the spring, however, forb inforimation was not used due to the time of year the assessment was collected which would influence forb occurrence and distribution. The overstory is characterized by suitable canopy cover (16%) and marginal height (37.9cm), and suitable spreading shape of the sagebrush component. The understory is characterized by marginal canopy cover of perennial grasses (8.0%). Overall, sagebrush occurrence is favorable, however, although the perennial grass height is >18cm, the height is created by a reduced occurrence of perennial grasses along with a co-dominnat occurrence of annual grasses which together reduce the effectiveness of the understory component; therefore this habitat type is providing less than adeqaute (marginal) nesting and hiding cover conditions for breeding sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		**X**	

Form H-4	Sage-grouse Habitat Suitability Worksheet –		UPLAND SUMMER	0526-01-07S05W01b	ARAR8/BRTE-FEID-POSE		
Date:	8/15/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	. Roseman, V. Guglielmo, B. Carter					**Home Range Name:**	Pleasant Valley
Legal Description:	07SR05WS01QNWQQSW		**Allotment-Pasture Names:**	Boulder Flat		**Associated Leks:**	2O578, 2O579, 2O300
Land Cover Type:	ARAR8/BRTE-FEID-POSE					**Ecological Site:**	ow claypan 12-16" ARAR8/
Number of Transects:	1	**Area Sampled (ha):**	1.5			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	509509E	4743439N					
Ending (NAD 83)	4743421N	509559E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**16.0**	10-25%	X	5-<10% or >25%		<5%	
Sagebrush Height (mean)	**37.9**	40-80 cm		20-<40 cm or >80 cm	X	<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**10.0**	≥15%		5-15%	X	<5%	
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present	X	Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**5.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Spreading and Mixed**	Mariginal	Spreading/columnar shape of sagebrush tends to open up the overstory and expose the understory.
Perennial Grass and Forb Height (mean)	**20.2**	Suitable	Combined height is >18cm. Created largely by marginal conopy cover (8.0%) perennial grasses.
Perennial Grass Canopy Cover (mean)	**8.0**	Marginal	Perennial grass canopy cover is between 5<15cm.
Perennial Forb Canopy Cover (mean)	**2.0**	Unsuitable	Forb canopy cover is <3%.
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Sagebrush and Other Shrub Canopy Cover (mean)	**16.0**	Suitable	Sagebrush is the only shrub represented.
Sagebrush and Other Shrub Height (mean)	**37.9**	Marginal	Sagebrush is the only shrub represented.
Perennial Grass Height (excluding Poa spp.) (mean)	**22.5**	Suitable	Perennial grass height is >18cm but is created by a marginal canopy cover (8%) of perennial grass species.
Poa Spp. Canopy Cover (mean)	**6.0**	Suitable	Poa is a sub-dominant species for this reference site.
Annual Grass Canopy Cover (mean)	**40.0**	Unsuitable	VEDU and BRJA are a co-dominant species in this community.
Annual Forb Canopy Cover (mean)	**28.0**	Suitable	Appropriate for reference site conditions.
Bare Ground Canopy Cover (relative to site potential) (mean)	**2.0**	Unsuitable	Bareground for a shallow claypan ARAR8/FEID site is 40-50%. A low bareground value is indicative of smaller more grazing tolerant species occupying the inner spaces. Combined canopy cover of POA and BRJA/VEDU is 46%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Trace of sage-grouse scat in area
Evidence of recent livestock use?	None noted

Rationale for Overall Suitablity Rating:

The overstory is characterized by suitable canopy cover (16%) and marginal height (37.9cm) of the sagebrush component. The understory is characterized by marginal canopy cover of perennial grasses/forbs (10.0%) and preferred forbs are common but are not well repsresented (marginal). Overall, although sagebrush occurrence is favorable, the marginal height of sagebrush and the marginal canopy cover of perennial grasses/forbs suggests that the overstory/understory structure and function is less than adeqaute and therefore is only providing marginal hiding/escape cover and forb availability for summer upland habitat conditions for late brood-rearing sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		**X**	

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	0526-01-07S05W01b-ARAR8/BRTE-FEID-POSE			
Date:	8/15/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	. Roseman, V. Guglielmo, B. Carter					**Home Range Name:**	Pleasant Valley
Legal Description:	07SR05WS01QNWQQSW		**Allotment-Pasture Names:**	Boulder Flat		**Associated Leks:**	2O578, 2O579, 2O300
Land Cover Type:	ARAR8/BRTE-FEID-POSE					**Ecological Site:**	ow claypan 12-16" ARAR8/
Number of Transects:	1	**Area Sampled (ha):**	1.5			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	509509E	4743439N					
Ending (NAD 83)	4743421N	509559E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	**x**	**Suitable**	✓	**Marginal**	✓	**Unsuitable**	✓
Sagebrush Canopy Cover (mean)	**16.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**37.9**	>25 cm >40 cm >55 cm		10-25 cm 25-40 cm 40-55 cm	X	<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	**x**	**Suitability**	**Rationale**
Predominant Sagebrush Shape (mode)	**Spreading and Mixed**	Marginal	Spreading/columnar shape of sagebrush tends to open up the overstory and expose the understory.
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Sagebrush and Other Shrub Canopy Cover (mean)	**16.0**	Suitable	Sagebrush is the only shrub represented.
Sagebrush and Other Shrub Height (mean)	**37.9**	Marginal	Sagebrush is the only shrub represented.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Trace of sage-grouse scat in area
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

This information was collected during a summer upland habitat assessment on 8/13/2012. Because sagebrush community composition and structure are not anticipated to change significantly over the course of a few months, this information can provide insight to sage-grouse winter habitat conditions in the spring. The overstory is characterized by suitable canopy cover (16%) and marginal height (37.9cm) of the sagebrush component. Overall, because of the height of the sagebrush, this site is only providing reduced winter habitat values; therefore because this site is not providing fully functional cover (thermal/hiding) and forage availability, this site is considered to be only providing marginal winter habitat conditions for sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		X	

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	0526-02-07S04W06A	ARAR8/POSE-FEID		
Date:	8/15/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	ıan, B. Carter, V. Guglielmo, N. Evans					**Home Range Name:**	Pleasant Valley
Legal Description:	T07SR05WS06QSWQQNE		**Allotment-Pasture Names:**	Boulder Flat		**Associated Leks:**	2O306
Land Cover Type:	ARAR8/POSE-FEID					**Ecological Site:**	ow claypan 12-16" ARAR8/
Number of Transects:	1	**Area Sampled (ha):**	18			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	512442E	4743158N					
Ending (NAD 83)	4743187N	512397E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	**X**	**Suitable**	✓	**Marginal**	✓	**Unsuitable**	✓
Sagebrush Canopy Cover (mean)	**16.0**	15-25%	X	5-<15% or >25%		<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**33.1**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Mixed**	Spreading		Mix of Spreading and Columnar	X	Columnar	
Perennial Grass and Forb Height (mean)		≥18 cm		10-18 cm		<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**2.0**	≥15% ≥10%		5-<15% 5-<10%		<5% < 5%	X
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)		≥10% ≥5%		5-<10% 3-<5%		<5% <3%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)							

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	**X**	**Suitability**	**Rationale**
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Sagebrush and Other Shrub Canopy Cover (mean)	**16.0**	Suitable	Sagebrush is the only shrub represented. See above habitat indicator.
Sagebrush and Other Shrub Height (mean)	**33.1**	Marginal	Sagebrush is the only shrub represented. See above habitat indicator.
Perennial Grass Height (excluding Poi spp.) (mean)	**10.0**	Marginal	Perennial grass height is between 10-18cm. Height is created by <5% (unsuitable) canopy cover of perennial grasses.
Poi Spp. Canopy Cover (mean)	**26.0**	Marginal	Poa species are a sub-dominant on this site.
Annual Grass Canopy Cover (mean)	**0.0**	Suitable	No annual grasses were recorded.
Annual Forb Canopy Cover (mean)			
Bare Ground Canopy Cover (relative to site potential) (mean)	**28.0**	Marginal	Bareground for this ESD ranges from 40-50%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Sage-grouse scat in area
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

This information was collected during a summer upland habitat assessment on 8/15/2012. Because the data collection protocols are the same and sagebrush community composition and structure are not anticipated to change significantly over the course of a few months, this information can provide insight to sage-grouse breeding habitat conditions in the spring, however, forb information was not used due to the time of year the assessment was collected which would influence the occurrence and distribution of forb species. The overstory is characterized by suitable canopy cover (16%) and marginal height (31.0cm), and mixed (spreading/columnar) shape of the sagebrush component. The understory is characterized by unsuitable canopy cover of perennial grasses (8.0%). Overall, although sagebrush occurrence is favorable, the height and mixed shape of the sagebrush overstory component and the substantially reduced occurrence of perennial grasses and forbs in the understory provides inadequate nesting and hiding cover and therefore breeding habitat conditions for sage-grouse unsuitable.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability			**X**

Form H-4	Sage-grouse Habitat Suitability Worksheet –		UPLAND SUMMER	0526-02-07S04W06A	ARAR8/POSE-FEID		
Date:	8/15/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	n, B. Carter, V. Guglielmo, N. Evans					**Home Range Name:**	Pleasant Valley
Legal Description:	T07SR05WS06QSWQQNE		**Allotment-Pasture Names:**	Boulder Flat		**Associated Leks:**	2O306
Land Cover Type:	ARAR8/POSE-FEID					**Ecological Site:**	ow claypan 12-16" ARAR8/
Number of Transects:	1	**Area Sampled (ha):**	18			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	512442E	4743158N					
Ending (NAD 83)	4743187N	512397E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	x	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**16.0**	10-25%	X	5-<10% or >25%		<5%	
Sagebrush Height (mean)	**33.1**	40-80 cm		20-<40 cm or >80 cm	X	<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**2.0**	≥15%		5-15%		<5%	X
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present	X	Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**5.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	x	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Mixed**	Mariginal	Spreading/columnar shape of sagebrush tends to open up the overstory and expose the understory.
Perennial Grass and Forb Height (mean)	**10.0**	Mareginal	Combined height is between 10-18cm. Created largely by unsuitable conopy cover (2.0%) perennial grasses.
Perennial Grass Canopy Cover (mean)	**2.0**	Unsuitable	Perennial grass canopy cover are <5%.
Perennial Forb Canopy Cover (mean)	**0.0**	Unsuitable	Forb canopy cover is <3%.
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Sagebrush and Other Shrub Canopy Cover (mean)	**16.0**	Suitable	Sagebrush is the only shrub represented.
Sagebrush and Other Shrub Height (mean)	**33.1**	Marginal	Sagebrush is the only shrub represented.
Perennial Grass Height (excluding Poa spp.) (mean)	**10.0**	Marginal	Perennial grass height is bewteen 10-18cm and is created by an unsuitable canopy cover (2%) of perennial grass species.
Poa Spp. Canopy Cover (mean)	**26.0**	Marginal	Poa is a sub-dominant species for this reference site and appears to be increasing.
Annual Grass Canopy Cover (mean)	**0.0**	Unsuitable	VEDU and BRJA are a co-dominant species in this community.
Annual Forb Canopy Cover (mean)	**10.0**	Suitable	Appropriate for reference site conditions.
Bare Ground Canopy Cover (relative to site potential) (mean)	**28.0**	Marginal	Bareground for a shallow claypan ARAR8/FEID site is 40-50%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Sage-grouse scat in area
Evidence of recent livestock use?	None noted

Rationale for Overall Suitablity Rating:

The overstory is characterized by suitable canopy cover (16%) and marginal height (33.1cm) of the sagebrush component. The understory is characterized by unsuitable canopy cover of perennial grasses/forbs (10.0%) and preferred forbs are common but are not well repsresented (marginal). Overall, although sagebrush occurrence is favorable, the marginal height/shape of the sagebrush and the unsuitable canopy cover of perennial grasses/forbs suggests that the overstory/understory structure and function is not adeqaute and therefore is only providing unsuitable hiding/escape cover and forb availability for summer upland habitat conditions for late brood-rearing sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability			**X**

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	0526-02-07S04W06A	ARAR8/POSE-FEID		
Date:	8/15/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	n, B. Carter, V. Guglielmo, N. Evans					**Home Range Name:**	Pleasant Valley
Legal Description:	T07SR05WS06QSWQQNE		**Allotment-Pasture Names:**	Boulder Flat		**Associated Leks:**	2O306
Land Cover Type:	ARAR8/POSE-FEID					**Ecological Site:**	ow claypan 12-16" ARAR8/
Number of Transects:	1	**Area Sampled (ha):**	18			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	512442E	4743158N					
Ending (NAD 83)	4743187N	512397E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	**X**	**Suitable**	✓	**Marginal**	✓	**Unsuitable**	✓
Sagebrush Canopy Cover (mean)	**16.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**33.1**	>25 cm >40 cm >55 cm		10-25 cm 25-40 cm 40-55 cm	X	<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	**X**	**Suitability**	**Rationale**
Predominant Sagebrush Shape (mode)	**Mixed**	Marginal	Spreading/columnar shape of sagebrush tends to open up the overstory and expose the understory.
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site conditions.
Sagebrush and Other Shrub Canopy Cover (mean)	**16.0**	Suitable	Sagebrush is the only shrub represented.
Sagebrush and Other Shrub Height (mean)	**33.1**	Marginal	Sagebrush is the only shrub represented.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Sage-grouse scat in area
Evidence of recent livestock use?	None noted

Rationale for Overall Suitablity Rating:

This information was collected during a summer upland habitat assessment on 8/13/2012. Because sagebrush community composition and structure are not anticipated to change significantly over the course of a few months, this information can provide insight to sage-grouse winter habitat conditions in the spring. The overstory is characterized by suitable canopy cover (16%) and marginal height (33.1cm) of the sagebrush component. Overall, because of the height of the sagebrush, this site is only providing reduced winter habitat values; therefore because this site is not providing fully functional cover (thermal/hiding) and forage availability, this site is considered to be only providing marginal winter habitat conditions for sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		X	

Figure WDLF-1F: Walt's Pond FFR sage-grouse assessment summaries 2012

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	0569-01-06S05W29A	Walt's Pond FFR		
Date:	8/20/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	V. Guglielmo, T. Harmon, B. Carter, A. Ferguson					**Home Range Name:**	Pleasant Valley
Legal Description:	T06SR05WS29QSWQQSE					**Associated Leks:**	2O501
Land Cover Type:	ARTRW8/BRTE-POSE-LECI					**Ecological Site:**	amy 12-16" ARTRW8/PSSF
Number of Transects:	1	**Area Sampled (ha):**	2.5			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	503440E	4745964N					
Ending (NAD 83)	4716015	503440E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**28.0**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**133.8**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Columnar**	Spreading		Mix of Spreading and Columnar		Columnar	X
Perennial Grass and Forb Height (mean)		≥18 cm		10-18 cm		<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**10.0**	≥15% ≥10%		5-<15% 5-<10%	X	<5% <5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)		≥10% ≥5%		5-<10% 3-<5%		<5% <3%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)							

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**2.0**	Suitable	Appropriate for reference site de3scription.
Other Shrub Height (mean)	**45.0**	Suitable	Appropriate for reference site de3scription.
Sagebrush and Other Shrub Canopy Cover (mean)	**30.0**	Marginal	CHVI is contributing to overall shrub canopy cover.
Sagebrush and Other Shrub Height (mean)	**127.9**	Marginal	CHVI is contributing to overall shrub canopy cover.
Perennial Grass Height (excluding Poa spp.) (mean)	**71.0**	Suitable	Perennial grass height >18cm. Created by LECI.
Poa Spp. Canopy Cover (mean)	**8.0**	Suitable	Appropriate for reference site description.
Annual Grass Canopy Cover (mean)	**58.0**	Unsuitable	Annual grass are a dominant species in this community.
Annual Forb Canopy Cover (mean)			
Bare Ground Canopy Cover (relative to site potential) (mean)	**8.0**	Unsuitable	Bareground for this ESD is 40-40%. Low bareground is indicative of high occurrence of annual grasses in the inner spaces. Canopy cover of annual grasses is 58%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		x

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			x				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None Noted

Rationale for Overall Suitability Rating:

This information is part of a summer upland habitat assessment conducted on 8/20/2012. Because the sagebrush community is not expected to change substantially over the course of a few months and because the data collection protocols are the same, this information can provide insight to breeding habitat conditions earlier in the spring; however, the forb information was not applicable due to the time of year it was collected and does not represent the breeding period. The overstory is characterized by marginal canopy cover (28%) and height (133.8cm) of the sagebrush component with an unsuitable columnar shape. The understory is characterized by marginal canopy cover of perennial grasses (10%) and unsuitable canopy cover of perennial forbs (0%) with a suitable combined height (71cm). This height is generated by LECI(Basin bigrye grass) which is a larger grass than bluebuch wheatgrass and Idaho fescue. Overall, the overstory is mature with a columnar shape that exposes the understory and the understory is dominated by annual grasses. Although the perennial grass height is suitable, because of the herbaceous composition change that has appeared to occur to smaller stature annual grasses, this site is unsuitable sage-grouse breeding habitat.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability			X

Form H-4	Sage-grouse Habitat Suitability Worksheet –	UPLAND SUMMER	0569-01-06S05W29A	Walt's Pond FFR		
Date:	8/20/2012	**County:** Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	V. Guglielmo, T. Harmon, B. Carter, A. Ferguson				**Home Range Name:**	Pleasant Valley
Legal Description:	T06SR05WS29QSWQQSE				**Associated Leks:**	2O501
Land Cover Type:	ARTRW8/BRTE-POSE-LECI				**Ecological Site:**	amy 12-16" ARTRW8/PSSF
Number of Transects:	1	**Area Sampled (ha):** 2.5			**Site Info:**	Mesic
List UTM Coordinates:						
Starting (NAD83)	503440E	4745964N				
Ending (NAD 83)	4716015	503440E				

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**28.0**	10-25%		5-<10% or >25%	X	<5%	
Sagebrush Height (mean)	**133.8**	40-80 cm		20-<40 cm or >80 cm	X	<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**10.0**	≥15%		5-15%	X	<5%	
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present	X	Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**5.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Columnar**	Unsuitable	Columnar sagebrush shape opens up the overstory and exposes the understory.
Perennial Grass and Forb Height (mean)	**71.0**	Suitable	Greater Than 18cm but is generated by basin big rye grass.
Perennial Grass Canopy Cover (mean)	**10.0**	Marginal	Canopy cover is between 5<15%.
Perennial Forb Canopy Cover (mean)	**0.0**	Unsuitable	Perennial forb canopy cover is <3%.
Other Shrub Canopy Cover (mean)	**2.0**	Suitable	Appropriate for reference site de3scription.
Other Shrub Height (mean)	**45.0**	Suitable	Appropriate for reference site de3scription.
Sagebrush and Other Shrub Canopy Cover (mean)	**30.0**	Marginal	CHVI is contributing to overall shrub canopy cover.
Sagebrush and Other Shrub Height (mean)	**127.9**	Marginal	CHVI is contributing to overall shrub canopy cover.
Perennial Grass Height (excluding Poa spp.) (mean)	**71.0**	Suitable	Perennial grass height >18cm. Created by LECI.
Poa Spp. Canopy Cover (mean)	**8.0**	Suitable	Appropriate for reference site description.
Annual Grass Canopy Cover (mean)	**58.0**	Unsuitable	Annual grass are a dominant species in this community.
Annual Forb Canopy Cover (mean)	**4.0**	Suitable	Appropriate for reference site de3scription.
Bare Ground Canopy Cover (relative to site potential) (mean)	**8.0**	Unsuitable	Bareground for this ESD is 40-40%. Low bareground is indicative of high occurrence of annual grasses in the inner spaces. Canopy cover of annual grasses is 58%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None Noted

Rationale for Overall Suitability Rating: The overstory is characterized by marginal canopy cover (28%) and height (133.8cm) of the sagebrush component. The understory is characterized by marginal combined canopy cover of perennial grasses and forbs (10%). Overall, the overstory is mature with a columnar shape that exposes the understory and the understory is dominated by annual grasses. Forbs are common but are not well represented. Because all the habitat indicators are marginal for this time of the year, this site is providing a less than adequate (marginal) composition and structure for cover Although the perennial grass height is suitable, because of the herbaceous composition change that has appeared to occur to smaller stature annual grasses, this site is unsuitable sage-grouse summer upland habitat conditions for late brood-rearing sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		**X**	

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	0569-01-06S05W29A	Walt's Pond FFR		
Date:	8/20/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	V. Guglielmo, T. Harmon, B. Carter, A. Ferguson					**Home Range Name:**	Pleasant Valley
Legal Description:	T06SR05WS29QSWQQSE					**Associated Leks:**	2O501
Land Cover Type:	ARTRW8/BRTE-POSE-LECI					**Ecological Site:**	amy 12-16" ARTRW8/PSSF
Number of Transects:	1	**Area Sampled (ha):**	2.5			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	503440E	4745964N					
Ending (NAD 83)	4716015	503440E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	**X**	**Suitable**	✓	**Marginal**	✓	**Unsuitable**	✓
Sagebrush Canopy Cover (mean)	**28.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**133.8**	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	**X**	**Suitability**	**Rationale**
Predominant Sagebrush Shape (mode)	**Columnar**		
Other Shrub Canopy Cover (mean)	**2.0**		
Other Shrub Height (mean)	**45.0**		
Sagebrush and Other Shrub Canopy Cover (mean)	**30.0**		
Sagebrush and Other Shrub Height (mean)	**127.9**		

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None Noted

Rationale for Overall Suitability Rating:

This information is part of a summer upland habitat assessment conducted on 8/20/2012. Because the sagebrush community is not expected to change substantially over the course of a few months , this information can provide insight to winter habitat conditions earlier in the spring. The overstory is characterized by suitable canopy cover (28%) and height (133.8cm) of the sagebrush component. Over sagebrush occurrence and availability are adequate (suitable) for sage-grouse winter habitat conditions.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	**X**		

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	0569-1-06S05W29B-2	Walt's Pond FFR		
Date:	8/20/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	D. Harmon, V. Guglielmo, A. Ferguson, B. Carter					**Home Range Name:**	Pleasant Valley
Legal Description:	T06SR05WS29QSWQQSW					**Associated Leks:**	2O501
Land Cover Type:	ARTRW8/BRJA-TACA-POSE					**Ecological Site:**	Loamy 10-13" ARTRW8/PS
Number of Transects:	1	**Area Sampled (ha):**	1			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	504677	4745823N					
Ending (NAD 83)	4745848N	504641E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**34.0**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**69.5**	40-80 cm 30-80 cm	X	20-<40 cm or >80 cm 20-<30 cm or >80 cm		<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Mixed**	Spreading		Mix of Spreading and Columnar	X	Columnar	
Perennial Grass and Forb Height (mean)		≥18 cm		10-18 cm		<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**2.0**	≥15% ≥10%		5-<15% 5-<10%		<5% <5%	X
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)		≥10% ≥5%		5-<10% 3-<5%		<5% <3%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)							

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site description.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site description.
Sagebrush and Other Shrub Canopy Cover (mean)	**34.0**	Marginal	See sagebrush habitat indicator rating above.
Sagebrush and Other Shrub Height (mean)	**69.5**	Suitable	See sagebrush habitat indicator rating above.
Perennial Grass Height (excluding Poa spp.) (mean)	**30.0**	Suitable	But, height is generated by only one perennial grass species.
Poa Spp. Canopy Cover (mean)	**6.0**	Suitable	Appropriate for reference site description.
Annual Grass Canopy Cover (mean)	**80.0**	Unsuitable	Annual grass species are dominate herbaceous species.
Annual Forb Canopy Cover (mean)			
Bare Ground Canopy Cover (relative to site potential) (mean)	**4.0**	Unsuitable	Bareground for this ESD ranges from 30-40%.

Does ecological site potential limit suitability potential?	YES	NO
		X

Drought Condition:	Extreme Drought	Severe Drought	Moderate Drought	Mid-Range	Moderately Moist	Very Moist	Extremely Moist
			X				

Evidence of sage-grouse use?	Sage-grouse tar
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

This information is part of a summer upland habitat assessment conducted on 8/20/2012. Because the sagebrush community is not expected to change substantially over the course of a few months and the data collection protocols are the same, this information can provide insight into breeding habitat conditions in the spring; however, the forb information was not used because it is not representive of this time of the year (i.e. breeding season) The transect location is approximately 10 meters from a small reservoir which will influence the site because cattle are known to concentrate near these area for long period s of time and impacts to the vegetation are known to occur. The overstory is characterized by marginal canopy cover (34%) and suitable height (69.5cm) of the sagebrush component with a marginal mixed (spreading/columnar) shape. The understory is characterized by an unsuitable canopy cover of perennial grasses (2.0%) and perennial forbs (0%) with a suitable combined height (30.0cm). However, the height is generated by one perennial grass species. The canopy cover of annual grasses is 80% (unsuitable). Overall, the desired overstory and understory conditions are not adequate (unsuitable) for nesting sage-grouse.

	Suitable	Marginal	Unsuitable
Site-Scale Suitability			X

**Site is located approx. 10 meters from a rese

Form H-4	Sage-grouse Habitat Suitability Worksheet –	UPLAND SUMMER	0569-1-06S05W29B-2	Walt's Pond FFR		
Date:	8/20/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	D. Harmon, V. Guglielmo, A. Ferguson, B. Carter					**Home Range Name:**	Pleasant Valley
Legal Description:	T06SR05WS29QSWQQSW					**Associated Leks:**	2O501
Land Cover Type:	ARTRW8/BRJA-TACA-POSE					**Ecological Site:**	amy 10-13" ARTRW8/PSSF
Number of Transects:	1	**Area Sampled (ha):**	1			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	504677	4745823N					
Ending (NAD 83)	4745848N	504641E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**34.0**	10-25%		5-<10% or >25%	X	<5%	
Sagebrush Height (mean)	**69.5**	40-80 cm	X	20-<40 cm or >80 cm		<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**2.0**	≥15%		5-15%		<5%	X
Preferred Forb Availability (relative to site potential)	**Rare**	Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	X
Number of Preferred Forb Species (*n*)	**3.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Mixed**	Marginal	A mix spreading and columnar shape tends to open the overstory and expose the understory.
Perennial Grass and Forb Height (mean)	**30.0**	Suitable	But, height is generated by only one perennial grass species.
Perennial Grass Canopy Cover (mean)	**2.0**	Unsuitable	Perennial grass canopy cover is <5%.
Perennial Forb Canopy Cover (mean)	**0.0**	Unsuitable	Perennial forb canopy cover is <3%.
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site description.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site description.
Sagebrush and Other Shrub Canopy Cover (mean)	**34.0**	Marginal	See sagebrush habitat indicator rating above.
Sagebrush and Other Shrub Height (mean)	**69.5**	Suitable	See sagebrush habitat indicator rating above.
Perennial Grass Height (excluding Poa spp.) (mean)	**30.0**	Suitable	But, height is generated by only one perennial grass species.
Poa Spp. Canopy Cover (mean)	**6.0**	Suitable	Appropriate for reference site description.
Annual Grass Canopy Cover (mean)	**80.0**	Unsuitable	Annual grass species are dominate herbaceous species.
Annual Forb Canopy Cover (mean)	**10.0**	Suitable	See sagebrush habitat indicator rating above.
Bare Ground Canopy Cover (relative to site potential) (mean)	**4.0**	Unsuitable	Bareground for this ESD ranges from 30-40%.

Does ecological site potential limit suitability potential?	YES	NO
		X

Drought Condition:	Extreme Drought	Severe Drought	Moderate Drought	Mid-Range	Moderately Moist	Very Moist	Extremely Moist
			X				

Evidence of sage-grouse use?	Sage-grouse tar
Evidence of recent livestock use?	None noted

Rationale for Overall Suitablity Rating: The transect location is approximately 10 meters from a small reservoir which will influence the site because cattle are known to concentrate near these area for long periods of time and impacts to the vegetation are known to occur. The overstory is characterized by marginal canopy cover (34%) and suitable height (69.5cm) of the sagebrush component. The understory is characterized by an unsuitable combined canopy cover of perennial grasses and forbs (2%) . Forbs are rare and not well represented. The canopy cover of annual grasses is 80% (unsuitable). Overall, understory perennial grasss and forb occurrence and avaiblility for hiding cover and forage is largely absent and therefore this site is not providing adequate summer upland habitat conditions for late brood-rearing sage-grouse.

	Suitable	Marginal	Unsuitable
Site-Scale Suitability			X

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	0569-1-06S05W29B-2	Walt's Pond FFR		
Date:	8/20/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	D. Harmon, V. Guglielmo, A. Ferguson, B. Carter					**Home Range Name:**	Pleasant Valley
Legal Description:	T06SR05WS29QSWQQSW					**Associated Leks:**	2O501
Land Cover Type:	ARTRW8/BRJA-TACA-POSE					**Ecological Site:**	Loamy 10-13" ARTRW8/PS
Number of Transects:	1	**Area Sampled (ha):**	1			**Site Info:**	Mesic
List UTM Coordinates:							
Starting (NAD83)	504677	4745823N					
Ending (NAD 83)	4745848N	504641E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	**X**	**Suitable**	✓	**Marginal**	✓	**Unsuitable**	✓
Sagebrush Canopy Cover (mean)	**34.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**69.5**	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	**X**	**Suitability**	**Rationale**
Predominant Sagebrush Shape (mode)	**Mixed**	Marginal	A mix spreading and columnar shape tends to open the overstory and expose the understory.
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate for reference site description.
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate for reference site description.
Sagebrush and Other Shrub Canopy Cover (mean)	**34.0**	Marginal	See sagebrush habitat indicator rating above.
Sagebrush and Other Shrub Height (mean)	**69.5**	Suitable	See sagebrush habitat indicator rating above.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Sage-grouse tar
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

This information is part of a summer upland habitat assessment conducted on 8/20/2012. Because the sagebrush community is not expected to change substantially over the course of a few months , this information can provide insight into winter habitat conditions later in the year. The transect location is approximately 10 meters from a small reservoir which will influence the site because cattle are known to concentrate near these area for long period s of time and impacts to the vegetation are known to occur. The overstory is characterized by suitable canopy cover (34%) and suitable height (69.5cm) of the sagebrush component. The canopy cover of annual grasses is 80% (unsuitable). Overall, the desired overstory and understory conditions are adequate for wintering sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	**X**		

Form H-3	Sage-grouse Habitat Suitability Worksheet –	BREEDING	R025XY003ID			
Allotment-Pasture Names:	Walt's Pond	**Allotment-Pasture Number:**	0569-02	**Number of Transects:** 2	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY003ID	**Ecological Site Name:**	Loamy 12-16" ARTRW8/PSSPS		**Home Range Name:**	Pleasant Valley
Site IDs:	**Land Cover Type/s:**	**Area Sampled (ha):**	**Date:**		**Associated Leks:**	0
0569-02-06S05W33A-2012	ARTRW8/POSE-BRJA-PSSPS	1.5	8/20/2012			
0569-02-07S05W04B-2012	ARTRW8/POSE-BRJA-PSSPS	0.3	8/20/2012		**Site Info:**	Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**34.0**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**120.4**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Mixed**	Spreading		Mix of Spreading and Columnar	X	Columnar	
Perennial Grass and Forb Height (mean)		≥18 cm		10-18 cm		<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**4.0**	≥15% ≥10%		5-<15% 5-<10%		<5% <5%	X
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)		≥10% ≥5%		5-<10% 3-<5%		<5% <3%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)							

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**3.0**	Suitable	Appropriate for reference site description.
Other Shrub Height (mean)	**85.0**	Suitable	Appropriate for reference site description.
Sagebrush and Other Shrub Canopy Cover (mean)	**37.0**	Marginal	PUTR and CHVI are contribute to overall shrub canopy cover.
Sagebrush and Other Shrub Height (mean)	**117.6**	Marginal	PUTR and CHVI are contribute to overall shrub height.
Perennial Grass Height (excluding Poa spp.) (mean)	**49.8**	Suitable	Perennial grass height is >18cm.
Poa Spp. Canopy Cover (mean)	**34.0**	Unsuitable	POSE is a dominate species in this community.
Annual Grass Canopy Cover (mean)	**47.0**	Unsuitable	POSE is a dominate species in this community.
Annual Forb Canopy Cover (mean)			
Bare Ground Canopy Cover (relative to site potential) (mean)	**9.0**	Unsuitable	Bareground for this ESD ranges from 20-40%. Low bareground is indicative of smaller grazing tolerant plants occupying the inner spaces. Combined canopy cover of POSE and annual grasses is 77%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		x

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			x				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

This information was collected as part of a summer upland habitat assessment conducted on 8/20/2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight to breeding habitat conditions earlier in the spring; however, the forb information was not used because it is not applicable to this time of year (i.e. breeding season). The overstory is characterized by marginal canopy cover (34.0%) and height (120.4cm) of the sagebrush component with a marginal mixed (spreading/columnar) shape. The understory is characterized by unsuitable canopy cover of perennial grasses (4.0%). POSE and annual grasses have a combined canopy cover of 77% and are dominant on this site. Overall, the absence of understory perennial grasses coupled with the dominance of POSE and annual grasses and mixed shape of the overstory is not providing adequate (unsuitable) nesting and hiding cover for sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability			X

Form H-4	Sage-grouse Habitat Suitability Worksheet –	UPLAND SUMMER	R025XY003ID			
Allotment-Pasture Names	Walt's Pond	**Allotment-Pasture Number:** 0569-02	**Number of Transects:**	2	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY003ID	**Ecological Site Name:** Loamy 12-16" ARTRW8/PSSPS			**Home Range Name:**	Pleasant Valley
Site IDs:	**Land Cover Type/s:**	**Area Sampled (ha):**	**Date:**		**Associated Leks:**	0
0569-02-06S05W33A-2012	ARTRW8/POSE-BRJA-PSSPS	1.5	8/20/2012			
0569-02-07S05W04B-2012	ARTRW8/POSE-BRJA-PSSPS	0.3	8/20/2012		**Site Info:**	Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**34.0**	10-25%		5-<10% or >25%	X	<5%	
Sagebrush Height (mean)	**120.4**	40-80 cm		20-<40 cm or >80 cm	X	<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**5.0**	≥15%		5-15%	X	<5%	
Preferred Forb Availability (relative to site potential)	**Rare**	Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present		Preferred forbs are rare	X
Number of Preferred Forb Species (*n*)	**3.0**						

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Mixed**	Marginal	Spreading/columnar shape tends to open up the overstory and expose the understory.
Perennial Grass and Forb Height (mean)	**51.1**	Suitable	Combined height is >18cm.
Perennial Grass Canopy Cover (mean)	**4.0**	Unsuitable	Canopy cover is <5%.
Perennial Forb Canopy Cover (mean)	**1.0**	Unsuitable	Canopy cover is <5%.
Other Shrub Canopy Cover (mean)	**3.0**	Suitable	Appropriate for reference site description.
Other Shrub Height (mean)	**85.0**	Suitable	Appropriate for reference site description.
Sagebrush and Other Shrub Canopy Cover (mean)	**37.0**	Marginal	PUTR and CHVI are contribute to overall shrub canopy cover.
Sagebrush and Other Shrub Height (mean)	**117.6**	Marginal	PUTR and CHVI are contribute to overall shrub height.
Perennial Grass Height (excluding Poa spp.) (mean)	**49.8**	Suitable	Perennial grass height is >18cm.
Poa Spp. Canopy Cover (mean)	**34.0**	Unsuitable	POSE is a dominate species in this community.
Annual Grass Canopy Cover (mean)	**47.0**	Unsuitable	POSE is a dominate species in this community.
Annual Forb Canopy Cover (mean)	**2.0**	Suitable	Appropriate for reference site description.
Bare Ground Canopy Cover (relative to site potential) (mean)	**9.0**	Unsuitable	Bareground for this ESD ranges from 20-40%. Low bareground is indicative of smaller grazing tolerant plants occupying the inner spaces. Combined canopy cover of POSE and annual grasses is 77%.

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating:

The overstory is characterized by marginal canopy cover (34.0%) and height (120.4cm) of the sagebrush component. The understory is characterized by marginal combined canopy cover of perennial grasses/forbs (5.0%). Forbs are rare and not well represented. POSE and annual grasses have a combined canopy cover of 77% and are dominant on this site. Overall, the absence of absence of forbs coupled with the marginal height of perennial grasses and forbs under a spreading/columnar overstory and the dominance of POSE and annual grasses, identifies that this site is not providing adequate (unsuitable) summer upland habitat conditions for late brood-rearing sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability			X

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	R025XY003ID			
Allotment-Pasture Names:	Walt's Pond	**Allotment-Pasture Number:**	0569-02	**Number of Transects:**	2	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY003ID	**Ecological Site Name:**	Loamy 12-16" ARTRW8/PSSPS			**Home Range Name:**	Pleasant Valley
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	0
0569-02-06S05W33A-2012	ARTRW8/POSE-BRJA-PSSPS		1.5	8/20/2012			
0569-02-07S05W04B-2012	ARTRW8/POSE-BRJA-PSSPS		0.3	8/20/2012		**Site Info:**	Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	x	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**34.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**120.4**	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	x	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Mixed**	Suitable	Appropriate for reference site description.
Other Shrub Canopy Cover (mean)	**3.0**	Suitable	Appropriate for reference site description.
Other Shrub Height (mean)	**85.0**	Marginal	PUTR and CHVI are contribute to overall shrub canopy cover.
Sagebrush and Other Shrub Canopy Cover (mean)	**37.0**	Marginal	PUTR and CHVI are contribute to overall shrub height.
Sagebrush and Other Shrub Height (mean)	**117.6**	Marginal	PUTR and CHVI are contribute to overall shrub height.

Does ecological site potential limit suitability potential?	YES	NO
		X

Drought Condition:	Extreme Drought	Severe Drought	Moderate Drought	Mid-Range	Moderately Moist	Very Moist	Extremely Moist
			X				

Evidence of sage-grouse use?	None noted
Evidence of recent livestock use?	None noted

Rationale for Overall Suitability Rating: This information was collected as part of a summer upland habitat assessment conducted on 8/20/2012. Because the sagebrush community is not expected to change substantially over the course of a few months, this information can provide insight to winter habitat conditions later in the year. The overstory is characterized by marginal canopy cover (34.0%) and height (120.4cm) of the sagebrush component. Overall, this site is providing adeqaute winter habitat conditions for sage-grouse.

	Suitable	Marginal	Unsuitable
Site-Scale Suitability	X		

Population Surveys and Other Monitoring

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

Sage Grouse - Sage grouse lek (breeding ground) surveys/counts have been conducted periodically by BLM and Idaho Department of Fish and Game biologists since the late 1970s.

Pygmy Rabbit – Surveys consisted of walking through tall, thick big sagebrush habitat looking for burrows and pellets.

Special Status Plants

Systematic inventories are conducted by BLM botanical staff for site specific projects; additionally databases maintained by the Conservation Data Center (CDC) are consulted for populations of special status plants.

APPENDIX C – Special Status Animal Species

Appendix C-3: Summary of Special Status Wildlife Species with Potential to Occur within the Morgan Group Allotments

A number of species classified as BLM "Sensitive Species" and/or State of Idaho "Species of Special Concern" are known or likely to occur within these allotments. The following table lists these species, their legal status, and their key habitat associations.

Species	Status	Key Habitat Associations
northern goshawk (*Accipiter gentilis*)	S,SC	Aspen, dense conifer woodland
prairie falcon (*Falco mexicanus*)	S	Cliff/canyon, big sagebrush, low sagebrush
ferruginous hawk (*Buteo regalis*)	S	Cliff, rock outcrop, open juniper, big sagebrush, low sagebrush
sage grouse (*Centrocercus urophasianus)*	S	Big sagebrush, low sagebrush, meadow, riparian

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sage grouse (*Centrocercus urophasianus)*	C	Big sagebrush, low sagebrush, meadow, riparian

calliope hummingbird (*Stellula calliope)*	S	Woody riparian, big sagebrush, mountain shrub
willow flycatcher (*Empidonax trailii)*	S	Woody riparian, mountain shrub, juniper, big sagebrush
loggerhead shrike (*Lanius ludovicianus)*	S, SC	Big sagebrush, open juniper
Brewer's sparrow (*Spizella breweri)*	S	Big sagebrush
sage sparrow (*Amphispiza belli*)	S	Big sagebrush
spotted bat (*Euderma maculatum)*	S, SC	Roosting/hibernation: Cliffs, canyons, rock outcrops Foraging: Juniper, sagebrush
fringed myotis (*Myotis thysanodes)*	S, SC	Roosting/hibernation: Caves, rock outcrops Foraging: Juniper, sagebrush, meadow
Townsend's big-eared bat (*Plecotus townsendii)*	S, SC	Roosting/hibernation: Caves, trees. Foraging: Juniper, sagebrush, canyon.
western pipestrelle (*Pipistrellus hesperus)*	SC	Roosting/hibernation: Caves, rock outcrops, burrows near water Foraging: Juniper, sagebrush, canyon
pygmy rabbit (*Brachylagus idahoensis)*	S, SC	Big sagebrush.

Species	Status	Key Habitat Associations
Piute ground squirrel *(Spermophilus mollis)*	S	Big sagebrush
common garter snake (*Thamnophis sirtalis*)	S	Aquatic/riparian
western toad (*Bufo boreas*)	S, SC	Wetland/riparian, all upland habitats
Columbia spotted frog (*Rana lutieventris*)	C, S, SC	Wetland/riparian
redband trout (*Oncorhynchus mykiss gibbsi)*	S, SC	Aquatic

C = Candidate Species for listing as threatened or endangered, S = BLM Sensitive Species, SC = State of Idaho Species of Special Concern

Sage Grouse Habitat Assessment Worksheet - Breeding Habitat (5/23/01)

Date:	**Project or Allotment Name/ #:**					
Pasture Name/#:			**Site #:**		**FO:**	
Legal Description: T. R. Section , 1/4, 1/4					**GPS File #:**	
Evaluator(s):			**Ecological Site:**			
Site Info. (circle one): Arid Site, Mesic Site			**UTM:**			
Landscape Site (circle one): Key Habitat , R1, R2, R3						
Cover Type (circle one): Sagebrush, Perennial Grassland (native, introduced), Annual Grassland with Sagebrush, Annual Grassland, Juniper Area						
Habitat Indicator	**Suitable Habitat**	✓	**Marginal Habitat**	✓	**Unsuitable Habitat**	✓
Average Sagebrush Canopy Cover	≥ 15% but ≤ 25%		10-<15% or >25%		<10%	
Average Sagebrush Height Mesic Site Arid Site	 15-30" 12-30"		 10-14" or > 30" 10-11" or >30"		 <10" <10"	
Sagebrush Growth Form	Spreading form, few, if any, dead branches for most plants		Mix of spreading and columnar growth forms present		Tall, columnar growth form with dead branches for most plants	
Average Grass and Forb Height	≥ 7"		5 - < 7"		< 5"	
Average Perennial Grass Canopy Cover Mesic Site Arid Site	 ≥ 15% ≥ 10%		 5 - <15% 5 - <10%		 <5% < 5%	
Average Forb Canopy Cover Mesic Site Arid Site	 ≥ 10% ≥ 5%		 5 - <10% 3 - <5%		 < 5% < 3%	
Preferred Forb Abundance and Diversity[1]	Forbs common with at least a few preferred species present		Forbs common but only 1 or 2 preferred species present		Forbs rare to sparsely present	
	Overall Site Evaluation					

Sage Grouse Habitat Assessment Worksheet - Late Brood-rearing (5/23/01)

Date:			**Project or Allotment Name/#:**			
Pasture Name/#:			**Site #:**		**FO:**	
Legal Description: T. R. Section , 1/4, 1/4					**GPS File #:**	
Evaluator(s):			**Ecological Site:**		**UTM #**	
Landscape Site (circle one): Key Habitat , R1, R2, R3						
Site Description (circle one): riparian area/perennial stream, riparian area/intermittent stream, wet meadow, lakebed, upland sagebrush site						
Habitat Indicator	**Suitable Habitat**	✓	**Marginal Habitat**	✓	**Unsuitable Habitat**	✓
Riparian and Wet Meadow Communities:						
Riparian and wet meadow plant community	Mesic or wetland plant species dominate wet meadow or riparian area		Xeric plant species invading wet meadow or riparian area		Xeric plant species along water's edge or near center of wet meadow	
Riparian and wet meadow stability	No erosion evident; some bare ground may be evident but vegetative cover dominates the site		Minor erosion occurring and bare ground may be evident but vegetative cover dominates the site		Major erosion evident; large patches of bare ground	
Forb availability	Succulent, green forbs are readily available in terms of distribution and plant structure		Succulent, green forbs are available though distribution is spotty or plant structure limits effective use		Succulent, green forbs are scarce or not available	
Proximity of sagebrush cover	Sagebrush cover is adjacent to brood-rearing area (<100 yards)		Sagebrush cover is in close proximity (> 100 yards but < 300 yards) of brood-rearing areas		Sagebrush cover is unavailable (> 300 yards)	
Overall Riparian/Wet Meadow Site Evaluation						
Upland Sagebrush Communities:						
Forb availability	Succulent, green forbs are readily available in terms of distribution and plant structure		Succulent, green forbs are available though distribution is spotty or plant structure limits effective use		Succulent, greeen forbs are scarce or not available despite favorable growing conditions	
Overall Upland Site Evaluation						
Comments:						

APPENDIX D – Riparian Assessment Methods

Streams were inventoried in accordance with the 1998 Owyhee and Bruneau Riparian Inventory Procedures. Information collected during stream inventories includes vegetation types, stream channel types, streambank cover, and proper functioning condition. Inventories and data collection methods are available at the BLM Owyhee Field Office in Marsing, Idaho.

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.

APPENDIX E – Rangeland Health Evaluations

Rangeland Health Indicator Ratings are presented below, by evaluation site, for each allotment. Indicators relating to Standard 1, and Standards 4 and 5, are also summarized by degree of departure from reference site conditions in these tables. Indicators are discussed under standards 1, 4, and 5 for each allotment in this document.

Allotment	Morgan	Morgan	Morgan	Morgan	Morgan	Morgan
Pasture	1	1	1	2	2	3
Assessment Site ID	RH1A	RH1B	RH1C	RH2A	RH2B	RH3A
Legal	6S5W30	6S6W25	7S5W7	6S6W33	7S5W5	6S5W33
	Shallow Claypan 12-16	Shallow Claypan 12-16	Shallow Claypan 12-16	Shallow Claypan 12-16	Shallow Claypan 12-16	Loamy 12-16
1-Rills	n-s	n-s	n-s	n-s	n-s	n-s
2-Water Flow Patterns	n-s	s-m	m	m	m-e	s-m
3-Pedestals /Terracettes	n-s	s-m	m	m-e	m	m
4-Bare Ground	n-s	n-s	n-s	m	m	s-m
5-Gullies	n-s	n-s	n-s	n-s	n-s	n-s
6-Wind-scoured blowouts /depositions	n-s	n-s	n-s	n-s	n-s	n-s
7-Litter Movement	n-s	n-s	n-s	s-m	s-m	n-s
8-Soil Surface Resistance to Erosion	n-s	n-s	n-s	m	s-m	s-m
9-Soil Surface Loss or Degradation	n-s	s-m	s-m	m	m	s-m
10-Plant Community comp/distrib	s-m	n-s	m	m	s-m	m
11-Compaction Layer	n-s	n-s	n-s	n-s	n-s	n-s
12-Functional /Structural Groups	n-s	n-s	m	s-m	s-m	s-m
13-Plant Mortality /Decadence	n-s	n-s	m	m	s-m	s-m
14-Litter Amount	n-s	s-m	m	s-m	s-m	s-m
15-Annual Production	n-s	n-s	s-m	s-m	s-m	s-m
16-Invasive Plants	n-s	m	m-e	m	m	m-e
17-Reproductive Capability of Perennial Plants	n-s	s-m	s-m	s-m	m	s-m
Standard 1						
n-s	11	8	7	4	4	5
s-m	1	4	1	2	4	5
m	0	0	4	5	3	2
m-e	0	0	0	1	1	0
e	0	0	0	0	0	0
Standard 4,5						
n-s	9	5	2	1	1	1
s-m	0	3	3	4	5	7
m	0	1	3	4	3	0
m-e	0	0	1	0	0	1
e	0	0	0	0	0	0

Allotment	Morgan	Morgan	Morgan	Morgan
Pasture	3	4	4	4
Assessment Site ID	RH3B	RH4B	RH4A	RH4D
Legal	6S5W27	6S5W22	6S5W21	6S5W22
	Shallow Claypan 12-16	Shallow Claypan 12-16	Shallow Claypan 12-16	Shallow Claypan 11-13
1-Rills	n-s	n-s	n-s	n-s
2-Water Flow Patterns	m	n-s	s-m	s-m
3-Pedestals /Terracettes	m	s-m	s-m	s-m
4-Bare Ground	n-s	n-s	n-s	n-s
5-Gullies	n-s	n-s	n-s	n-s
6-Wind-scoured blowouts /depositions	n-s	n-s	n-s	n-s
7-Litter Movement	n-s	n-s	n-s	n-s
8-Soil Surface Resistance to Erosion	n-s	n-s	n-s	n-s
9-Soil Surface Loss or Degradation	s-m	s-m	n-s	s-m
10-Plant Community comp/distrib	m	n-s	n-s	n-s
11-Compaction Layer	n-s	n-s	n-s	n-s
12-Functional /Structural Groups	s-m	s-m	s-m	s-m
13-Plant Mortality /Decadence	m-e	n-s	n-s	s-m
14-Litter Amount	n-s	n-s	n-s	n-s
15-Annual Production	s-m	n-s	n-s	n-s
16-Invasive Plants	m-e	m-e	m-e	m-e
17-Reproductive Capability of Perennial Plants	s-m	n-s	n-s	n-s
Standard 1				
n-s	8	10	10	9
s-m	1	2	2	3
m	3	0	0	0
m-e	0	0	0	0
e	0	0	0	0
Standard 4,5				
n-s	3	6	7	5
s-m	4	2	1	3
m	0	0	0	0
m-e	2	1	1	1
e	0	0	0	0

Allotment	Boulder Bridge	Boulder Bridge	Boulder Bridge	Boulder Bridge	Boulder Bridge
Assessment Site	RH1A	RH1B	RH2A	RH2B	RH2C
Pasture	1	1	2	2	2
Legal	7S5W3	7S5W3	7S5W2	7S5W2	7S5W2
	Shallow Claypan 12-16	Shallow Claypan 12-16	Loamy 13-16	Shallow Claypan 12-16	Shallow Claypan 12-16
1-Rills	n-s	n-s	n-s	n-s	n-s
2-Water Flow Patterns	s-m	m	n-s	m	m-e
3-Pedestals /Terracettes	m	m	s-m	s-m	m-e
4-Bare Ground	n-s	s-m	n-s	n-s	s-m
5-Gullies	n-s	n-s	n-s	n-s	n-s
6-Wind-scoured blowouts /depositions	n-s	n-s	n-s	n-s	n-s
7-Litter Movement	n-s	n-s	n-s	n-s	n-s
8-Soil Surface Resistance to Erosion	n-s	s-m	s-m	n-s	s-m
9-Soil Surface Loss or Degradation	s-m	s-m	s-m	s-m	m
10-Plant Community comp/distrib	n-s	s-m	s-m	n-s	m
11-Compaction Layer	n-s	n-s	s-m	n-s	n-s
12-Functional /Structural Groups	s-m	s-m	m	m	m
13-Plant Mortality /Decadence	n-s	s-m	m	s-m	s-m
14-Litter Amount	n-s	s-m	m	n-s	s-m
15-Annual Production	n-s	s-m	n-s	n-s	s-m
16-Invasive Plants	s-m	n-s	e	m	n-s
17-Reproductive Capability of Perennial Plants	n-s	m	s-m	n-s	m
Standard 1					
n-s	9	5	6	9	5
s-m	3	5	5	2	3
m	0	2	1	1	2
m-e	0	0	0	0	2
e	0	0	0	0	0
Standard 4,5					
n-s	6	2	1	5	2
s-m	3	6	4	2	4
m	0	1	3	2	3
m-e	0	0	0	0	0
e	0	0	1	0	0

Allotment	Boulder Bridge	Boulder Bridge	Boulder Bridge
Assessment Site ID	RH3A	RH3B	RH3C
Pasture	3	3	3
Legal	7S5W18	7S5W18	7S5W18
	Shallow Claypan 12-16	Loamy 13-16	Shallow Claypan 12-16
1-Rills	n-s	n-s	n-s
2-Water Flow Patterns	s-m	n-s	m
3-Pedestals /Terracettes	m	n-s	m
4-Bare Ground	n-s	n-s	s-m
5-Gullies	n-s	n-s	n-s
6-Wind-scoured blowouts /depositions	n-s	n-s	n-s
7-Litter Movement	n-s	n-s	n-s
8-Soil Surface Resistance to Erosion	s-m	n-s	s-m
9-Soil Surface Loss or Degradation	s-m	n-s	s-m
10-Plant Community comp/distrib	s-m	n-s	s-m
11-Compaction Layer	n-s	n-s	n-s
12-Functional /Structural Groups	n-s	s-m	s-m
13-Plant Mortality /Decadence	n-s	n-s	m
14-Litter Amount	n-s	n-s	s-m
15-Annual Production	n-s	n-s	n-s
16-Invasive Plants	m	s-m	m
17-Reproductive Capability of Perennial Plants	n-s	n-s	m
Standard 1			
n-s	7	12	5
s-m	4	0	5
m	1	0	2
m-e	0	0	0
e	0	0	0
Standard 4,5			
n-s	6	7	2
s-m	2	2	4
m	1	0	3
m-e	0	0	0
e	0	0	0

Allotment	Combination Creek	Combination Creek	Combination Creek
Assessment Site ID	RH1C	RH1B	RH1A
Pasture	1	1	1
Legal	7S4W22	7S4W35	7S4W27
	Shallow Claypan 12-16	Loamy 13-16	Shallow Claypan 12-16
1-Rills	n-s	n-s	n-s
2-Water Flow Patterns	m	m	m
3-Pedestals /Terracettes	s-m	s-m	s-m
4-Bare Ground	n-s	m	s-m
5-Gullies	n-s	n-s	n-s
6-Wind-scoured blowouts /depositions	n-s	n-s	n-s
7-Litter Movement	n-s	s-m	n-s
8-Soil Surface Resistance to Erosion	n-s	m	n-s
9-Soil Surface Loss or Degradation	m	m	s-m
10-Plant Community comp/distrib	s-m	s-m	n-s
11-Compaction Layer	n-s	n-s	n-s
12-Functional /Structural Groups	s-m	s-m	s-m
13-Plant Mortality /Decadence	m	s-m	s-m
14-Litter Amount	m	m	s-m
15-Annual Production	s-m	s-m	n-s
16-Invasive Plants	n-s	n-s	s-m
17-Reproductive Capability of Perennial Plants	s-m	m	s-m
Standard 1			
n-s	7	5	7
s-m	2	2	4
m	3	5	1
m-e	0	0	0
e	0	0	0
Standard 4,5			
n-s	3	2	3
s-m	3	3	6
m	3	4	0
m-e	0	0	0
e	0	0	0

Allotment	South Mtn Ind	South Mtn Ind	South Mtn Ind	South Mtn Ind	South Mtn Ind
Pasture	1	1	2	2	2
Assessment Site ID	RH1A	RH1B	RH2A	RH2B	RH2C
Legal	7S5W12	7S5W12	7S4W8	7S4W8	7S4W20
Ecological site	Shallow claypan 12-16	Shallow Claypan 12-16	Shallow Claypan 12-16	Shallow Claypan 12-16	Shallow Claypan 12-16
1-Rills	n-s	n-s	n-s	n-s	n-s
2-Water Flow Patterns	m-e	m-e	m-e	m-e	m-e
3-Pedestals /Terracettes	m-e	m-e	m-e	m-e	m-e
4-Bare Ground	s-m	s-m	s-m	s-m	s-m
5-Gullies	n-s	n-s	n-s	n-s	n-s
6-Wind-scoured blowouts /depositions	n-s	n-s	n-s	n-s	n-s
7-Litter Movement	n-s	n-s	s-m	s-m	n-s
8-Soil Surface Resistance to Erosion	s-m	s-m	s-m	s-m	s-m
9-Soil Surface Loss or Degradation	m	m	m	m	m
10-Plant Com. comp/distrib rel. to infilt.and runoff	s-m	s-m	s-m	s-m	s-m
11-Compaction Layer	n-s	n-s	n-s	n-s	n-s
12-Functional /Structural Groups	s-m	s-m	s-m	s-m	s-m
13-Plant Mortality /Decadence	e	m-e	m	m	m
14-Litter Amount	s-m	s-m	s-m	s-m	s-m
15-Annual Production	s-m	s-m	n-s	s-m	n-s
16-Invasive Plants	s-m	s-m	n-s	m	m
17-Reproductive Capability of Perennial Plants	m	m	s-m	m	s-m
Standard 1					
n-s	5	5	4	4	5
s-m	4	4	5	5	4
m	1	1	1	1	1
m-e	2	2	2	2	2
e	0	0	0	0	0
Standard 4,5					
n-s	1	1	3	1	2
s-m	5	5	4	4	4
m	2	2	2	4	3
m-e	0	1	0	0	0
e	1	0	0	0	0

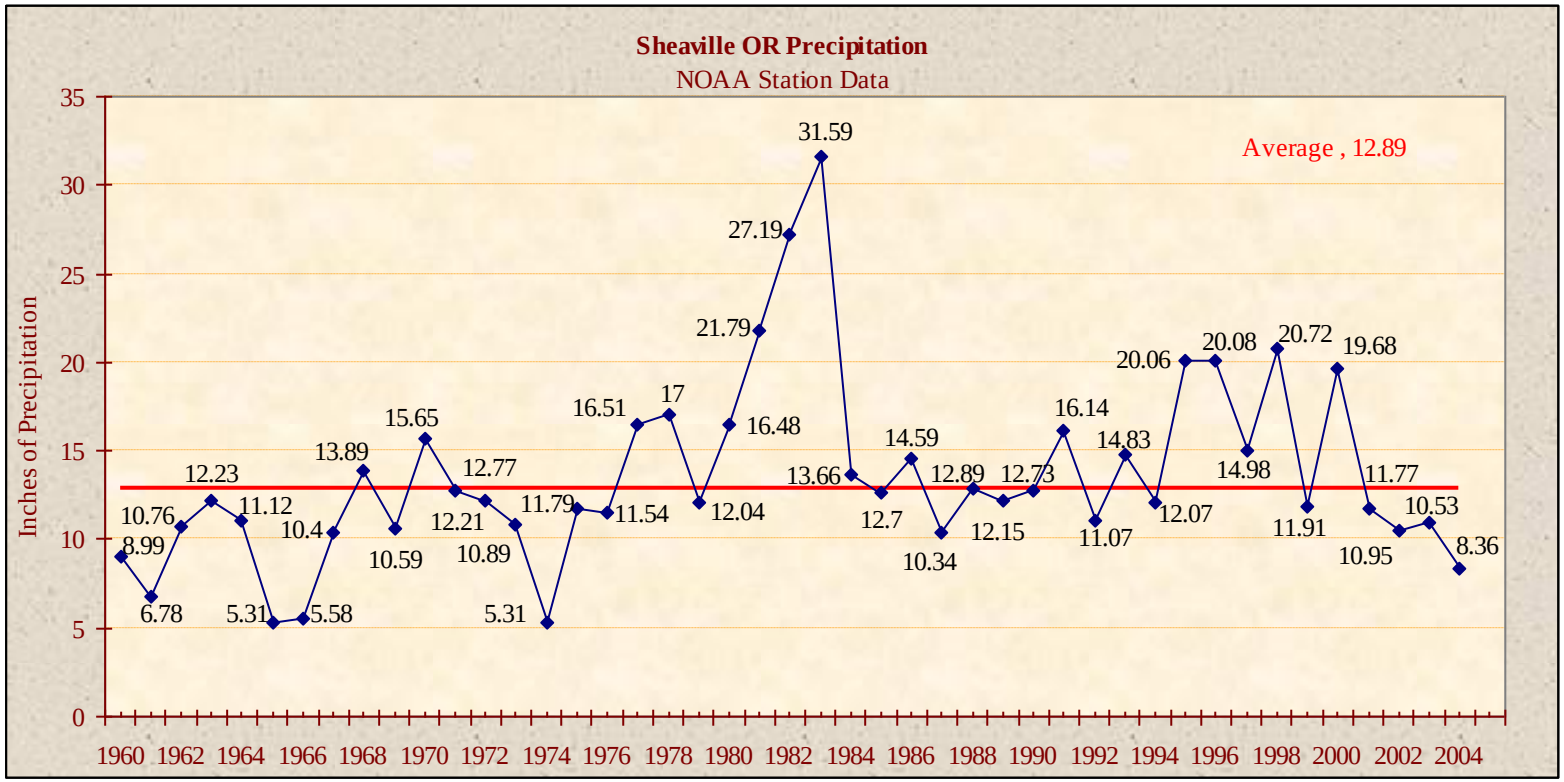
Allotment	Bachelor Flat	Bachelor Flat	Walt Pond FFR	Walt Pond FFR
Pasture	1	2	1	2
Assessment Site ID	RH1A	RH2A	RH1A	RH2A
Legal	06S04W30	07S05W01	6S5W29	7S5W4
Ecological site	Shallow Claypan 12-16	Shallow Claypan 12-16	Shallow Claypan 12-16	Shallow Claypan 12-16
1-Rills	n-s	n-s	n-s	n-s
2-Water Flow Patterns	n-s	s-m	m	m
3-Pedestals /Terracettes	n-s	m	m-e	m-e
4-Bare Ground	n-s	s-m	m	s-m
5-Gullies	n-s	n-s	n-s	n-s
6-Wind-scoured blowouts /depositions	n-s	n-s	n-s	n-s
7-Litter Movement	n-s	n-s	s-m	n-s
8-Soil Surface Resistance to Erosion	n-s	n-s	s-m	m
9-Soil Surface Loss or Degradation	n-s	s-m	m	m
10-Plant Community comp/distrib relative to infiltration and runoff	m	s-m	m	m
11-Compaction Layer	n-s	s-m	n-s	n-s
12-Functional /Structural Groups	e	s-m	m	s-m
13-Plant Mortality /Decadence	n-s	n-s	m-e	m
14-Litter Amount	m	n-s	m	m
15-Annual Production	n-s	n-s	s-m	s-m
16-Invasive Plants	e	s-m	m-e	n-s
17-Reproductive Capability of Perennial Plants	n-s	n-s	m	m
Standard 1				
n-s	9	5	4	5
s-m	0	5	2	1
m	2	1	5	5
m-e	0	0	1	1
e	0	0	0	0
Standard 4,5				
n-s	6	5	1	2
s-m	0	4	2	2
m	1	0	4	5
m-e	0	0	2	0
e	2	0	0	0

2013 Rangeland Health Evaluation Summary Worksheets

Allotment	Bachelor Flat
Pasture	1
Assessment Site ID	060613
Legal	06S04W30
Ecological site	Shallow Claypan 12-16
1-Rills	n-s
2-Water Flow Patterns	n-s
3-Pedestals /Terracettes	m
4-Bare Ground	n-s
5-Gullies	n-s
6-Wind-scoured blowouts /depositions	n-s
7-Litter Movement	n-s
8-Soil Surface Resistance to Erosion	s-m
9-Soil Surface Loss or Degradation	s-m
10-Plant Community comp/distrib relative to infiltration and runoff	m
11-Compaction Layer	n-s
12-Functional /Structural Groups	m-e
13-Plant Mortality /Decadence	n-s
14-Litter Amount	m
15-Annual Production	n-s
16-Invasive Plants	m-e
17-Reproductive Capability of Perennial Plants	s-m
Standard 1	
n-s	7
s-m	2
m	3
m-e	0
e	0
Standard 4,5	
n-s	2
s-m	4
m	1
m-e	2
e	0

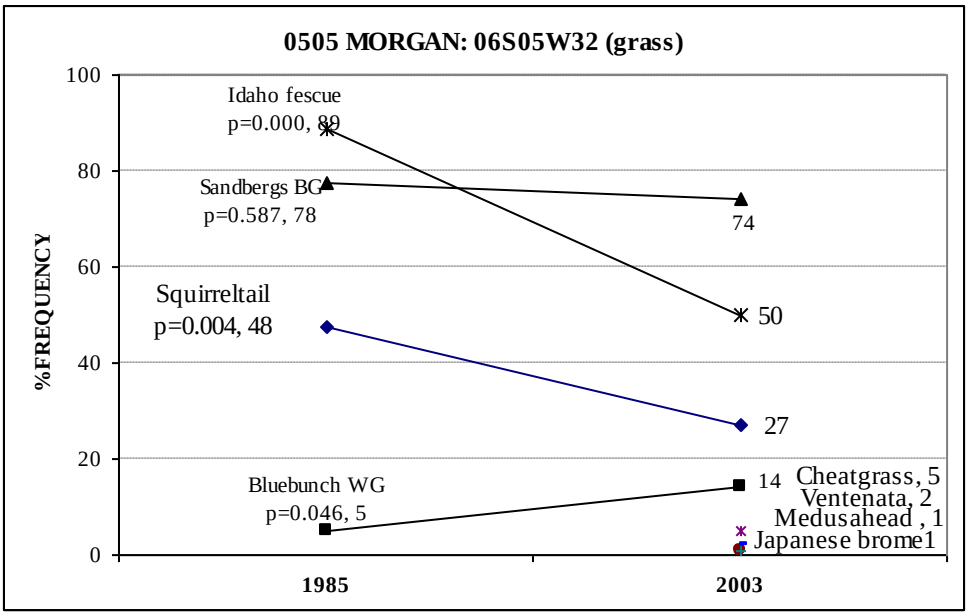
Allotment	Boulder Flat	Boulder Flat	Boulder Flat	Boulder Flat	Boulder Flat
Pasture	1	1	2	2	2
Assessment Site ID	RH1A	RH1B	RH2A	RH2B	RH2C
Legal	6S5W35	7S5W6	6S4W31	7S4W6	7S4W6
Ecological site	Shallow claypan 12-16	Shallow claypan 12-16	Shallow claypan 12-16	Shallow claypan 12-16	Shallow claypan 12-16
1-Rills	n-s	n-s	n-s	n-s	n-s
2-Water Flow Patterns	n-s	s-m	s-m	n-s	s-m
3-Pedestals /Terracettes	m	s-m	n-s	s-m	m-e
4-Bare Ground	s-m	s-m	n-s	n-s	m
5-Gullies	n-s	n-s	n-s	n-s	n-s
6-Wind-scoured blowouts /depositions	n-s	n-s	n-s	n-s	n-s
7-Litter Movement	n-s	n-s	n-s	n-s	n-s
8-Soil Surface Resistance to Erosion	m	s-m	n-s	n-s	s-m
9-Soil Surface Loss or Degradation	s-m	s-m	s-m	s-m	m
10-Plant Community comp/distrib rel.to infiltration and runoff	n-s	n-s	n-s	n-s	s-m
11-Compaction Layer	n-s	n-s	n-s	n-s	m
12-Functional /Structural Groups	n-s	s-m	n-s	n-s	m
13-Plant Mortality /Decadence	n-s	n-s	n-s	n-s	s-m
14-Litter Amount	n-s	n-s	n-s	n-s	m
15-Annual Production	n-s	n-s	n-s	n-s	s-m
16-Invasive Plants	m	s-m	s-m	s-m	n-s
17-Reproductive Capability of Perennial Plants	n-s	n-s	n-s	n-s	m
Standard 1					
n-s	8	7	10	10	4
s-m	2	5	2	2	3
m	2	0	0	0	4
m-e	0	0	0	0	1
e	0	0	0	0	0
Standard 4,5					
n-s	6	5	7	7	1
s-m	1	4	2	2	3
m	2	0	0	0	5
m-e	0	0	0	0	0
e	0	0	0	0	0

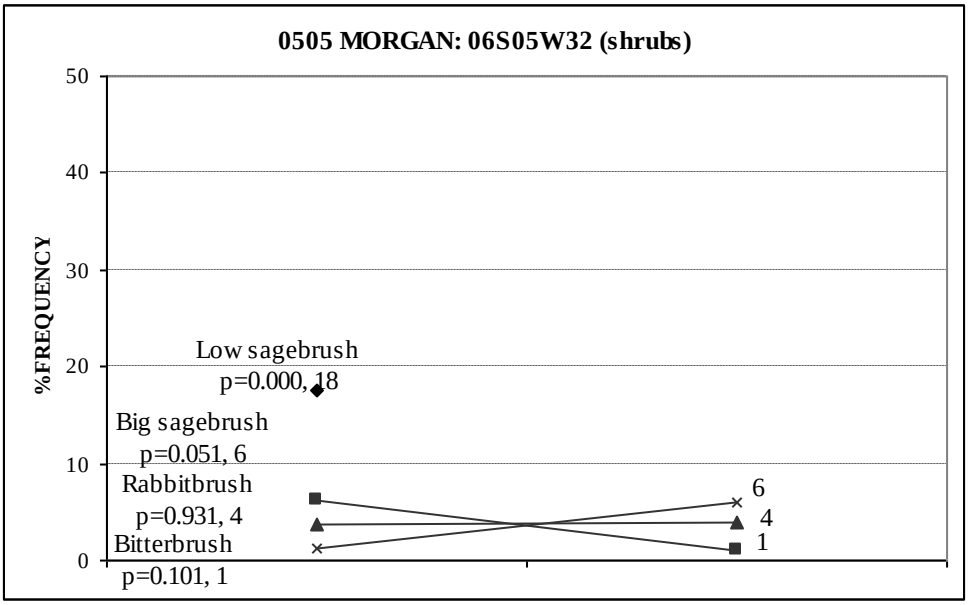
APPENDIX F – Precipitation Data



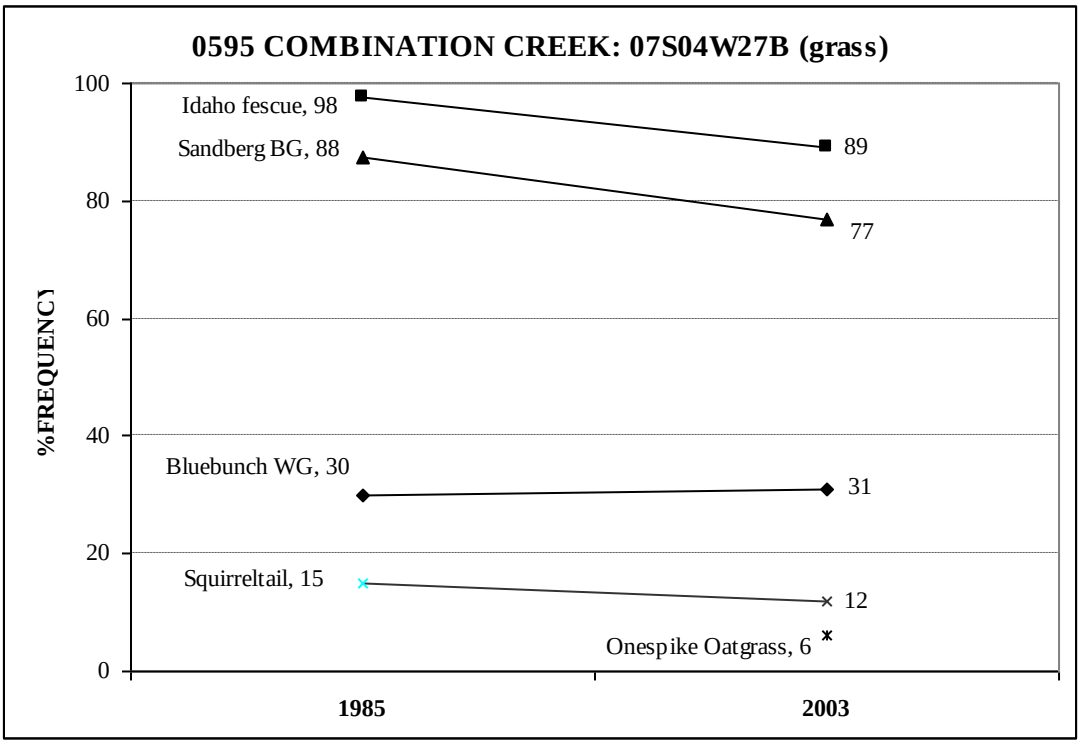
APPENDIX G – Nested Plot Frequency Data

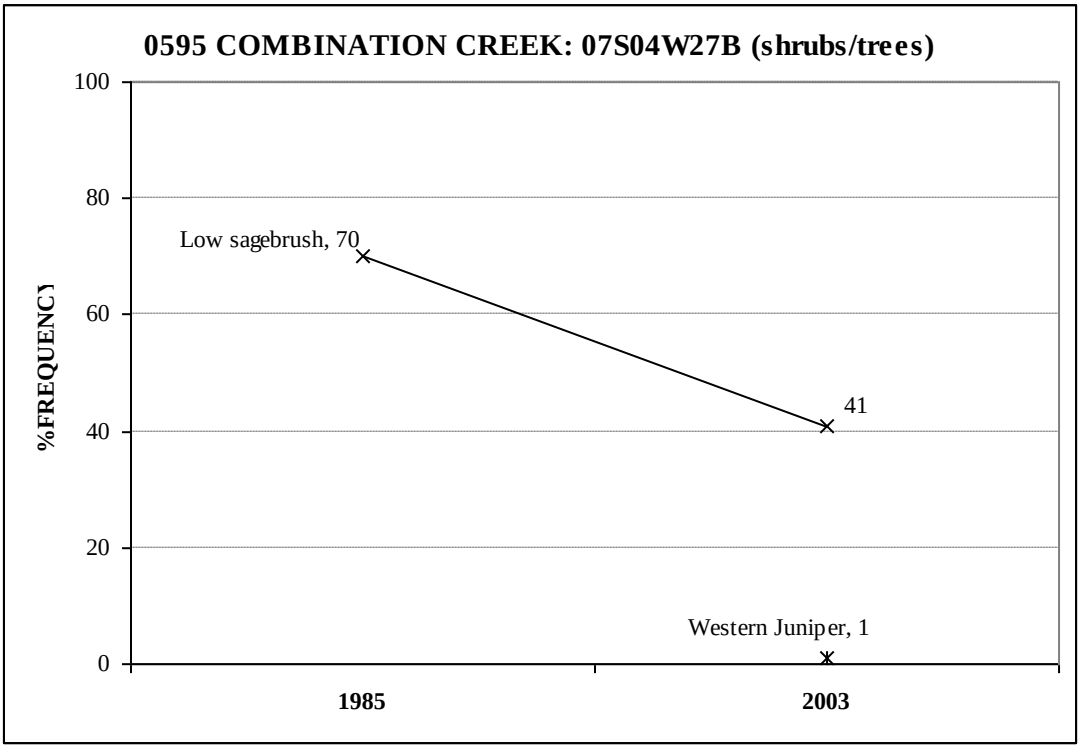
Morgan



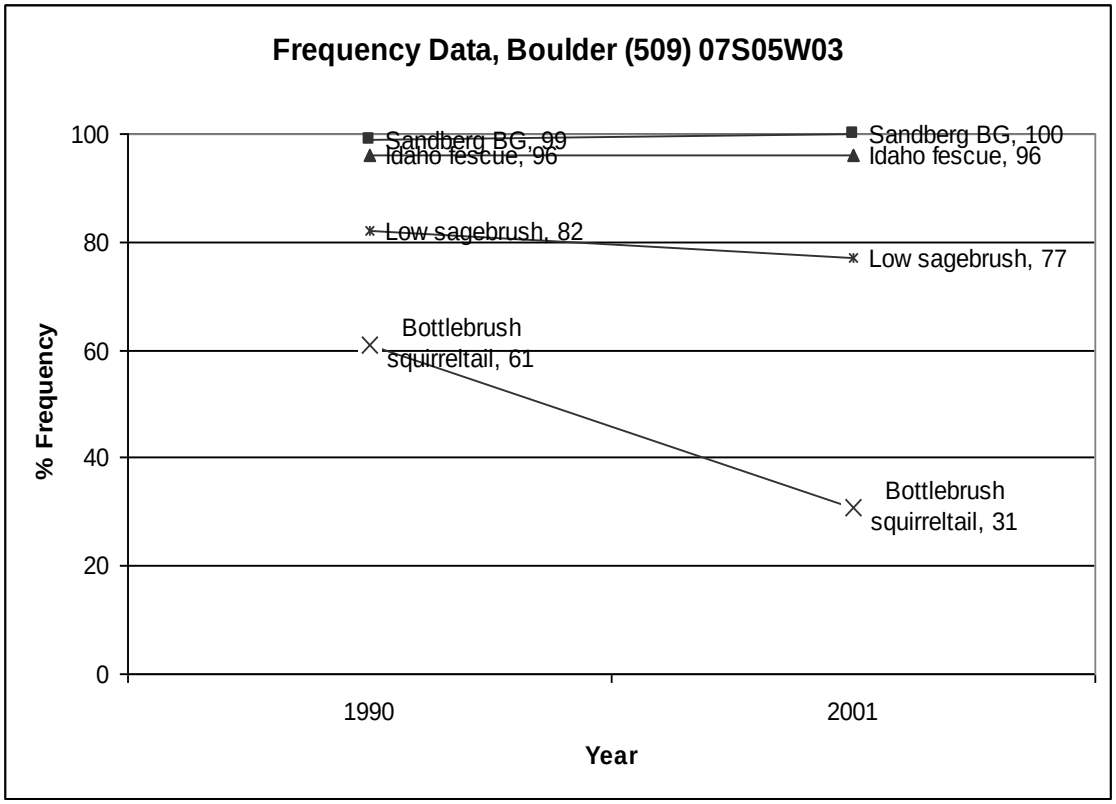


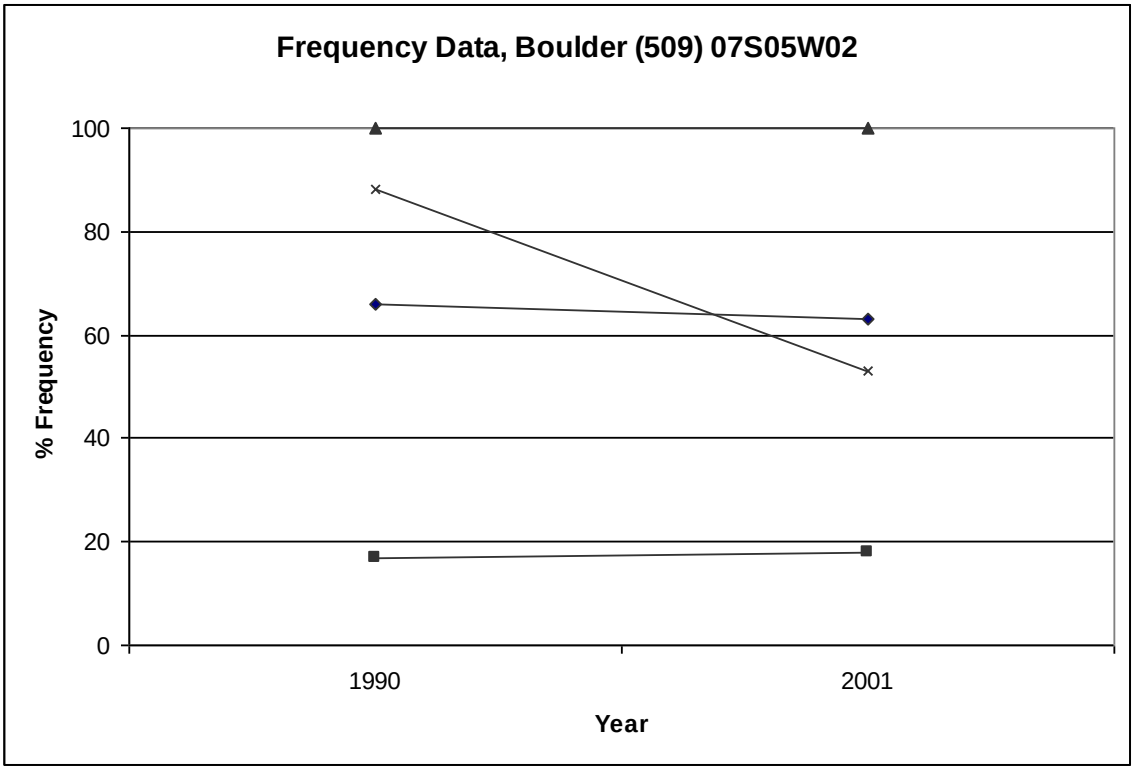
Combination Creek



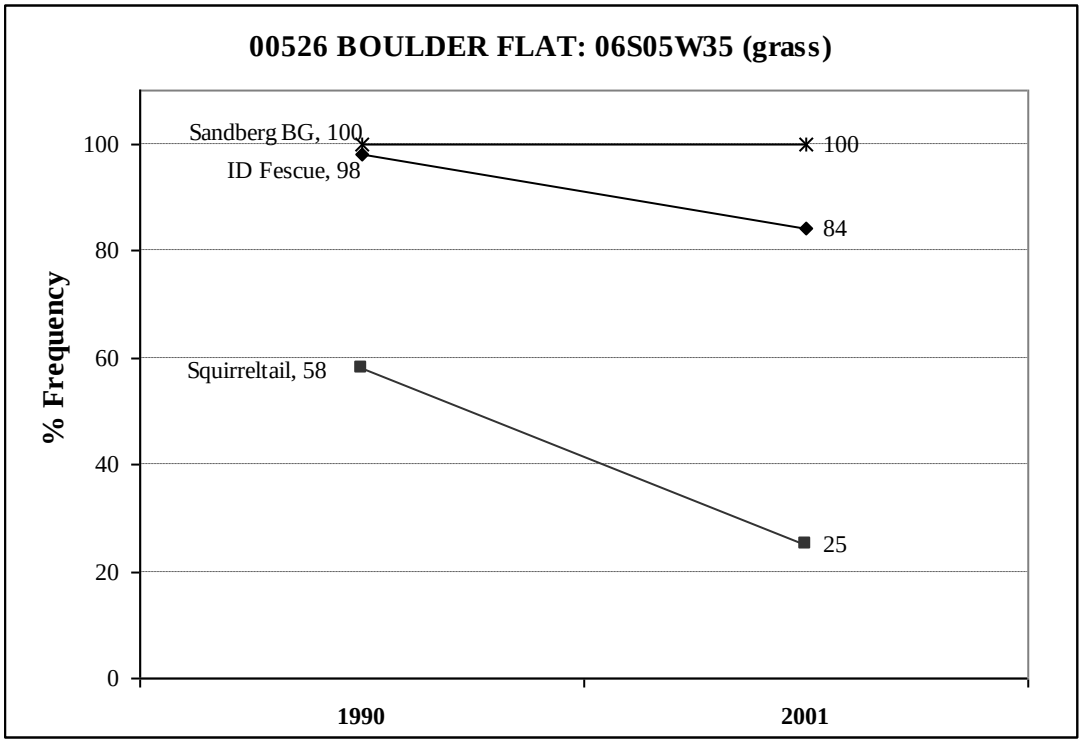


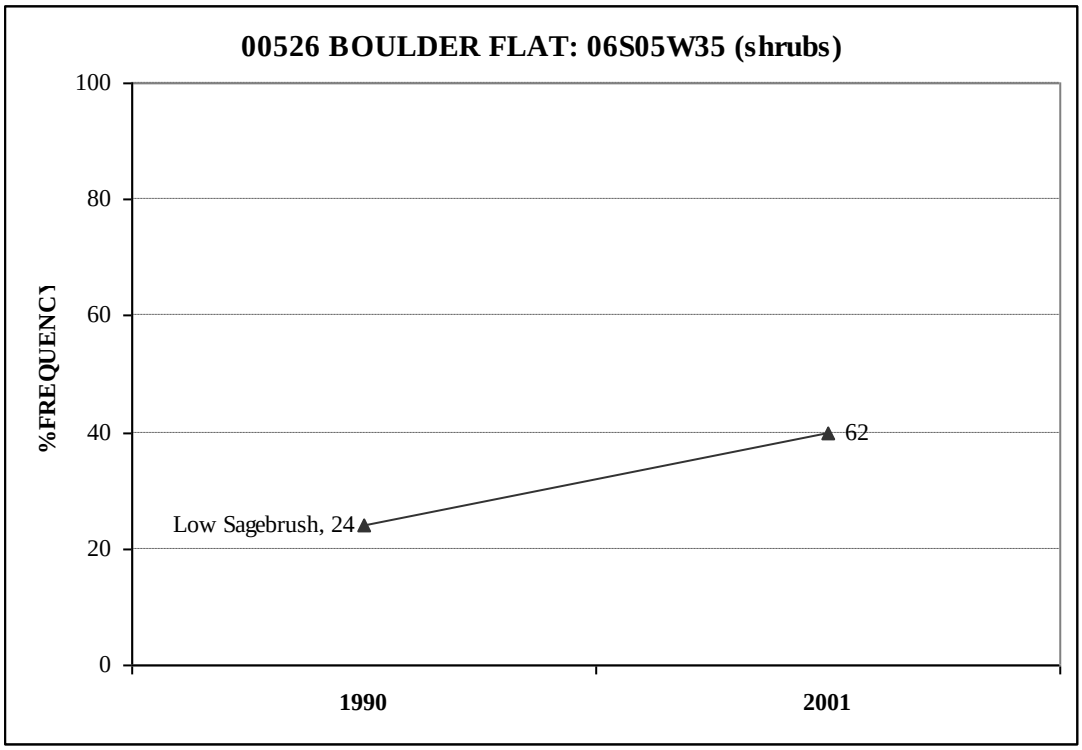
Boulder (0509)

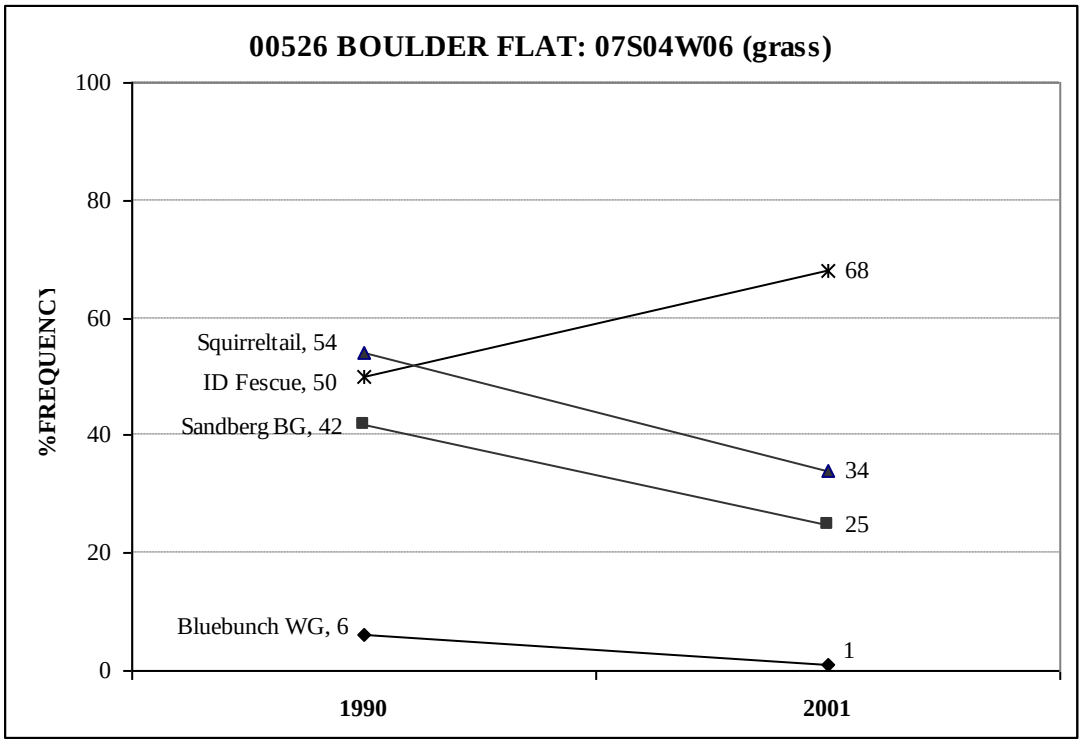


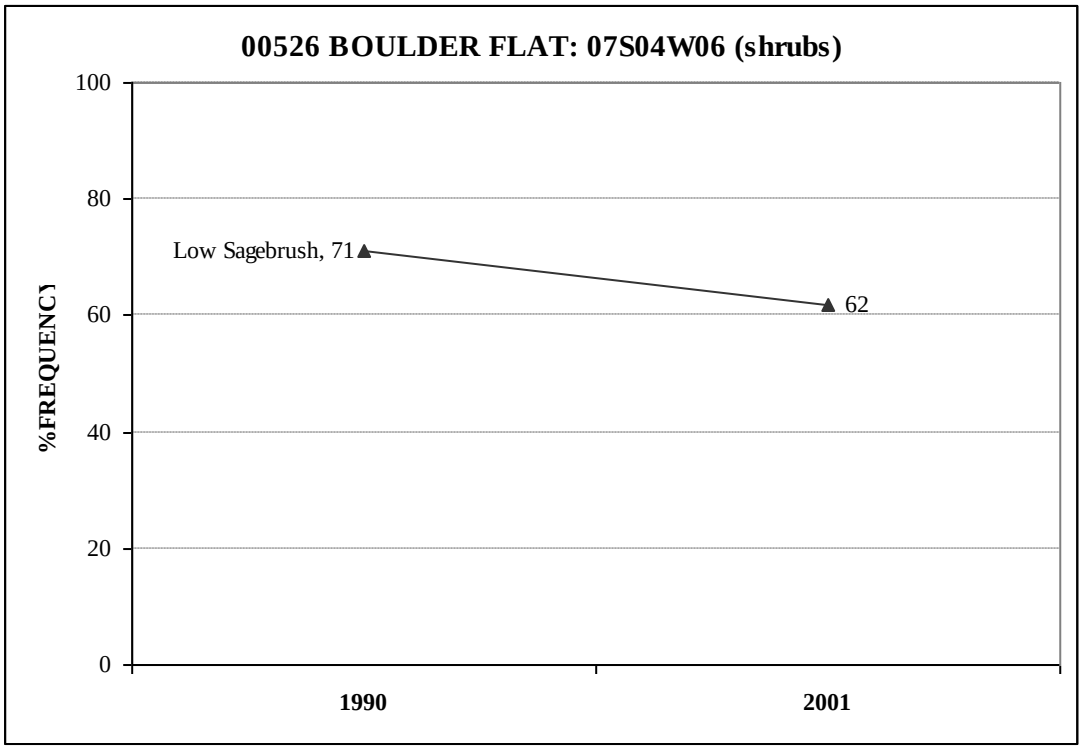


Boulder Flat



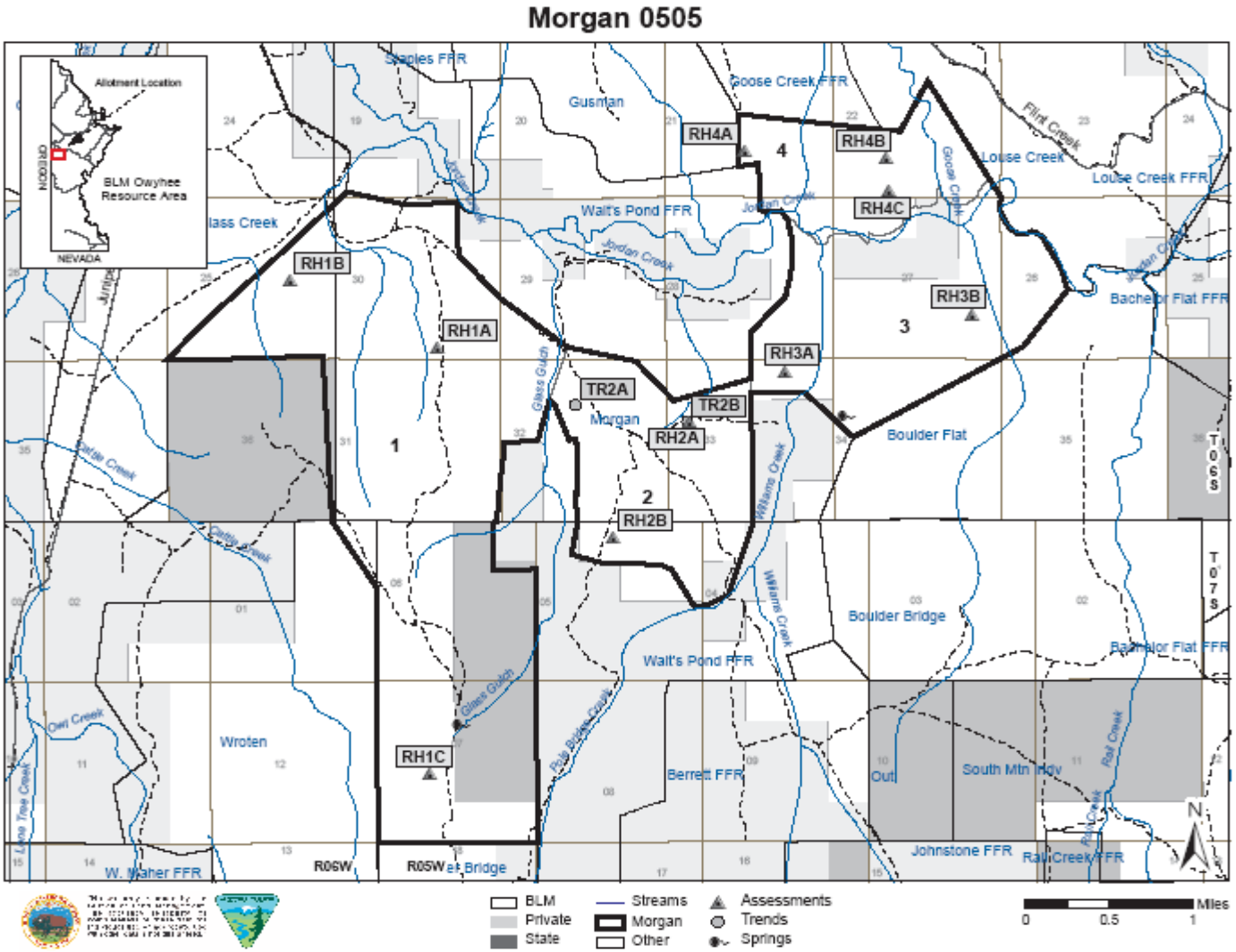



00526 BOULDER FLAT: 07S04W06 (grass)
%FREQUENCY
100
80
60
40
20
0
Squirreltail, 54
ID Fescue, 50
Sandberg BG, 42
Bluebunch WG, 6
68
34
25
1
1990
2001

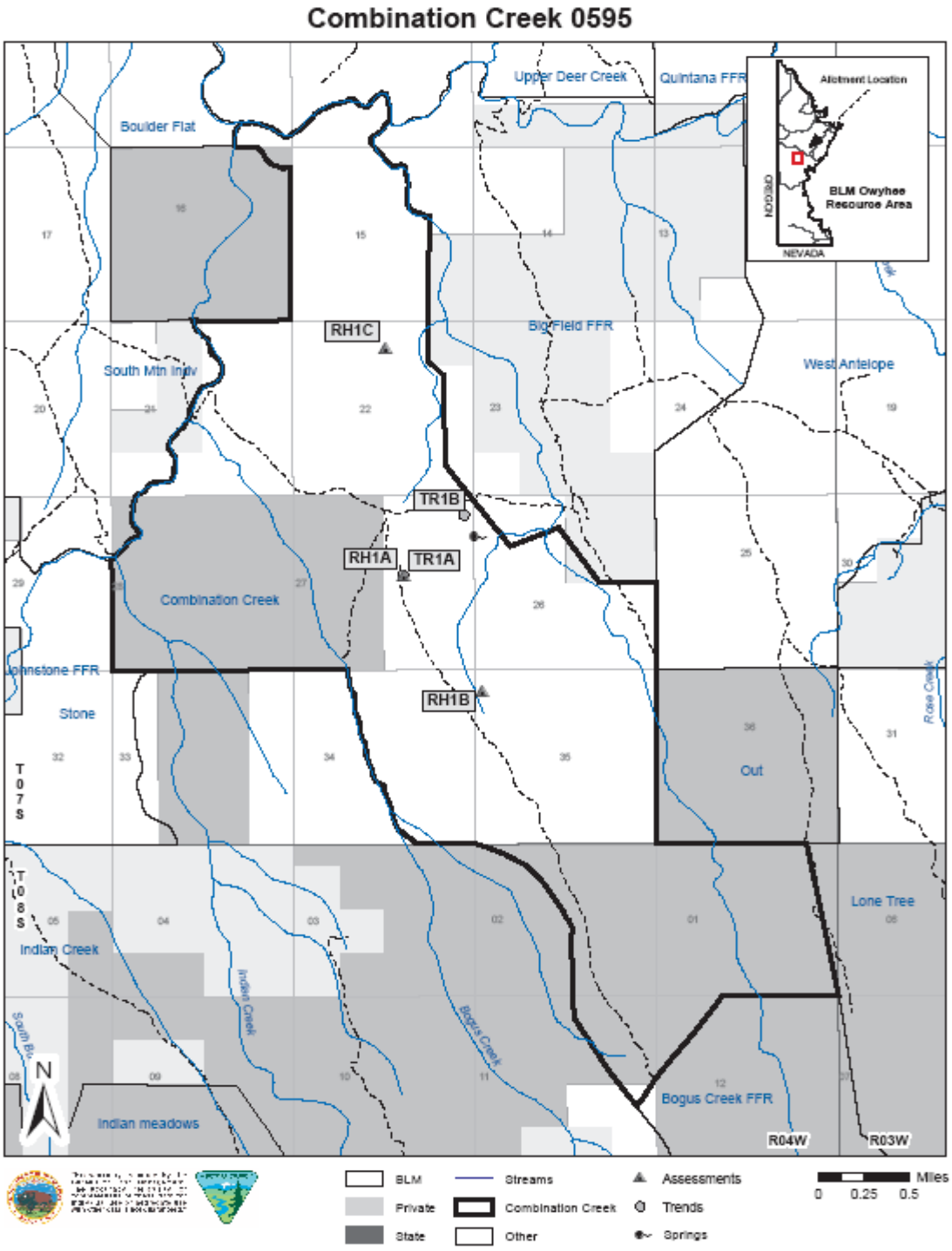

00526 BOULDER FLAT: 07S04W06 (shrubs)
%FREQUENCY
100
80
60
40
20
0
Low Sagebrush, 71
62
1990
2001

APPENDIX H – Maps

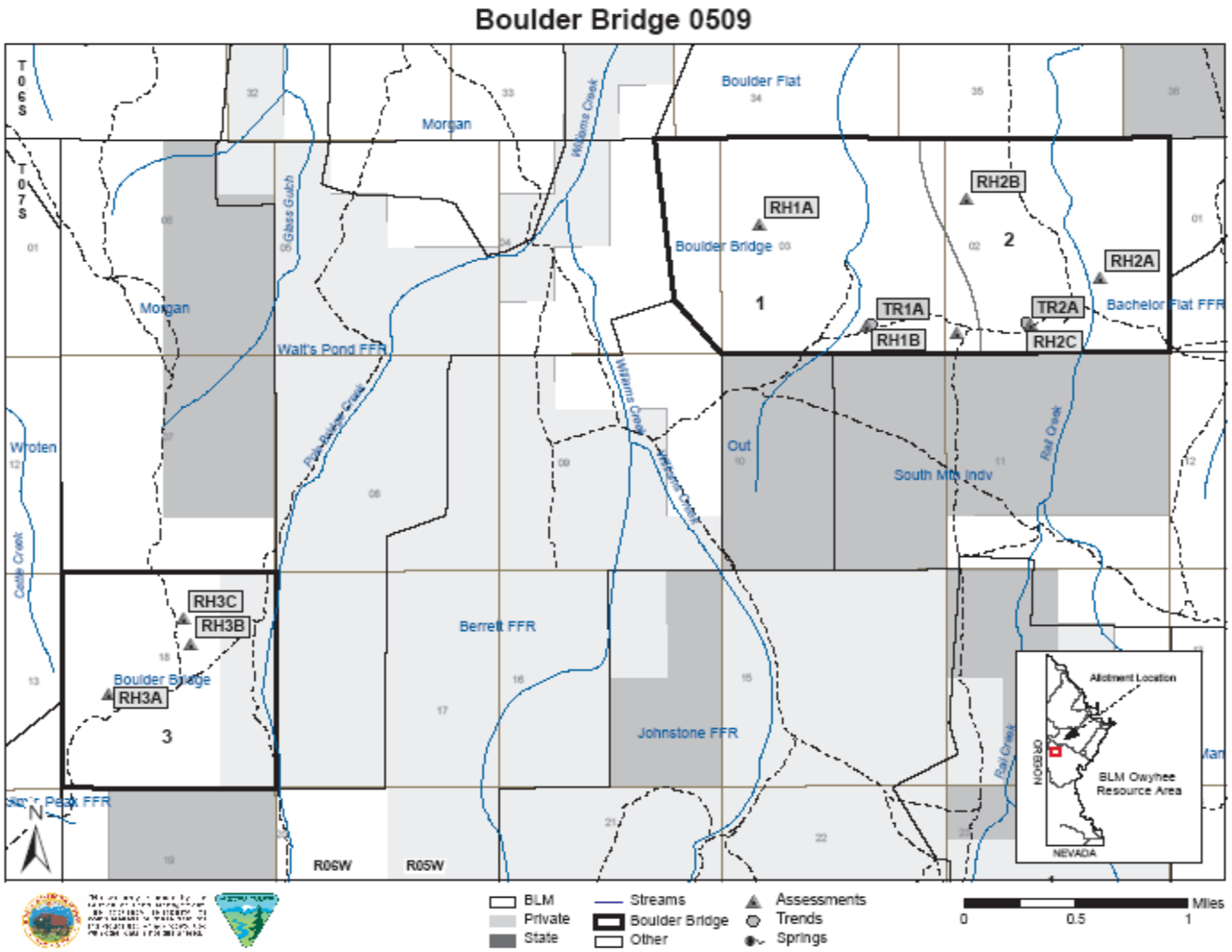
1. Morgan Allotment Map



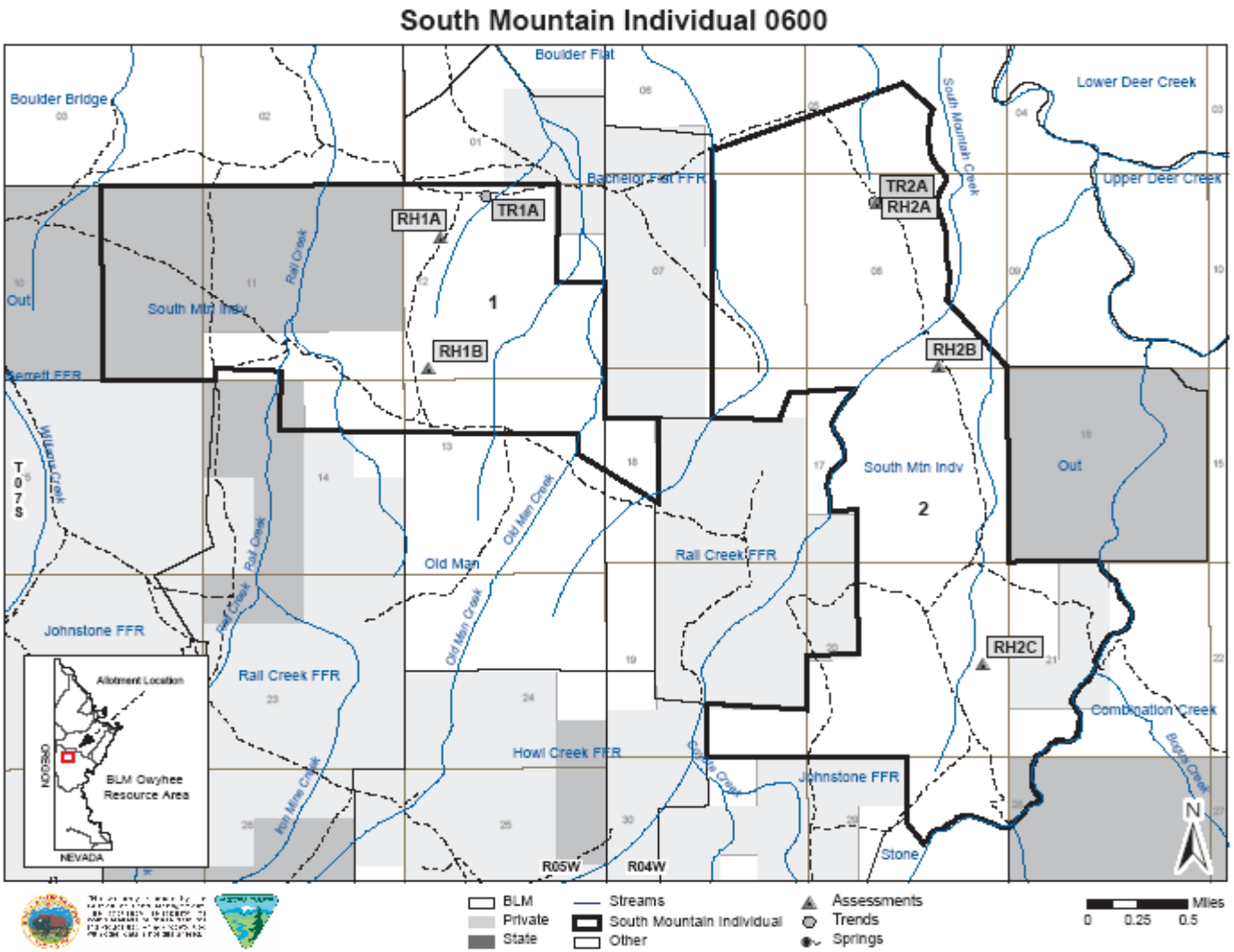
2. Combination Creek Allotment Map



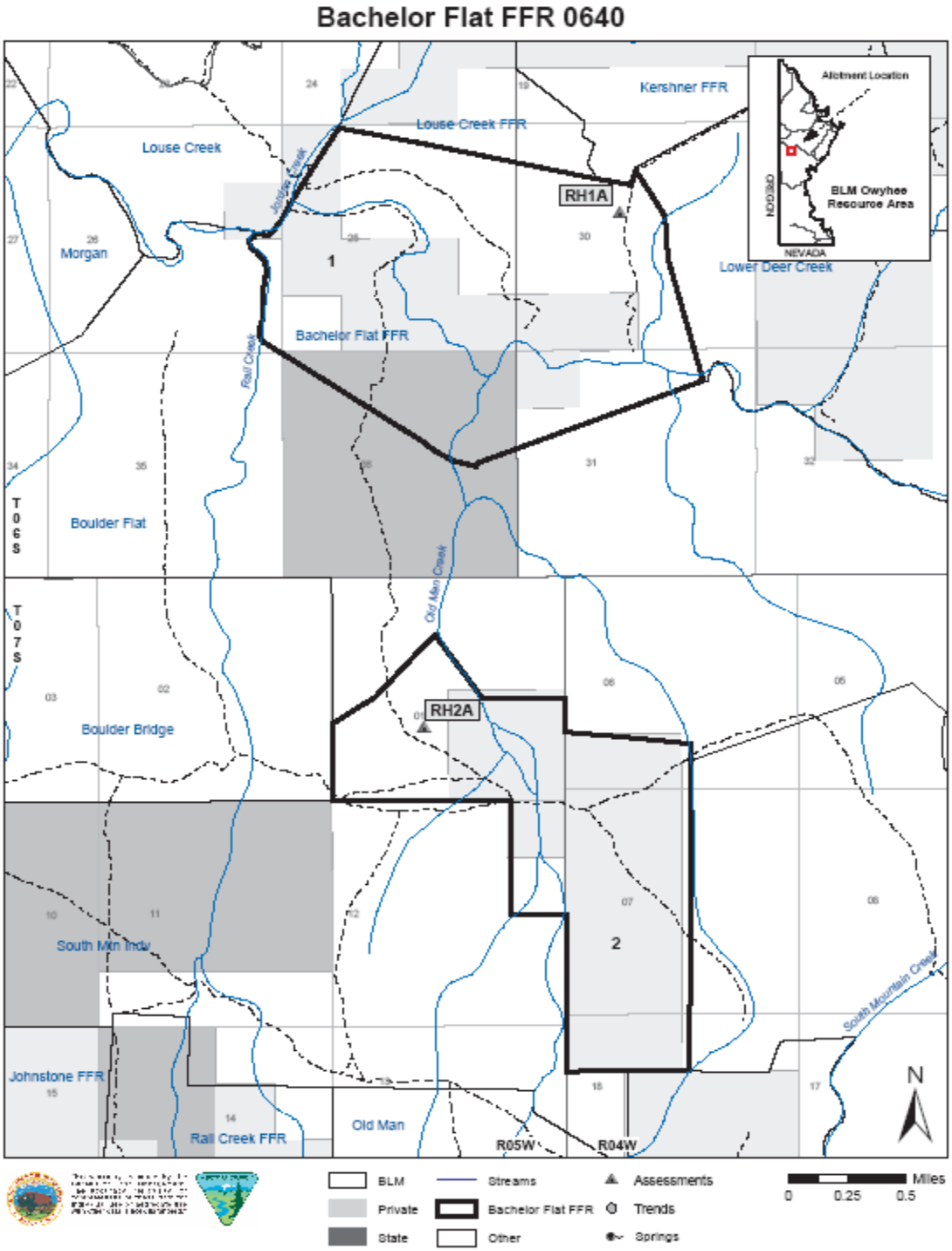
3. Boulder Allotment Map



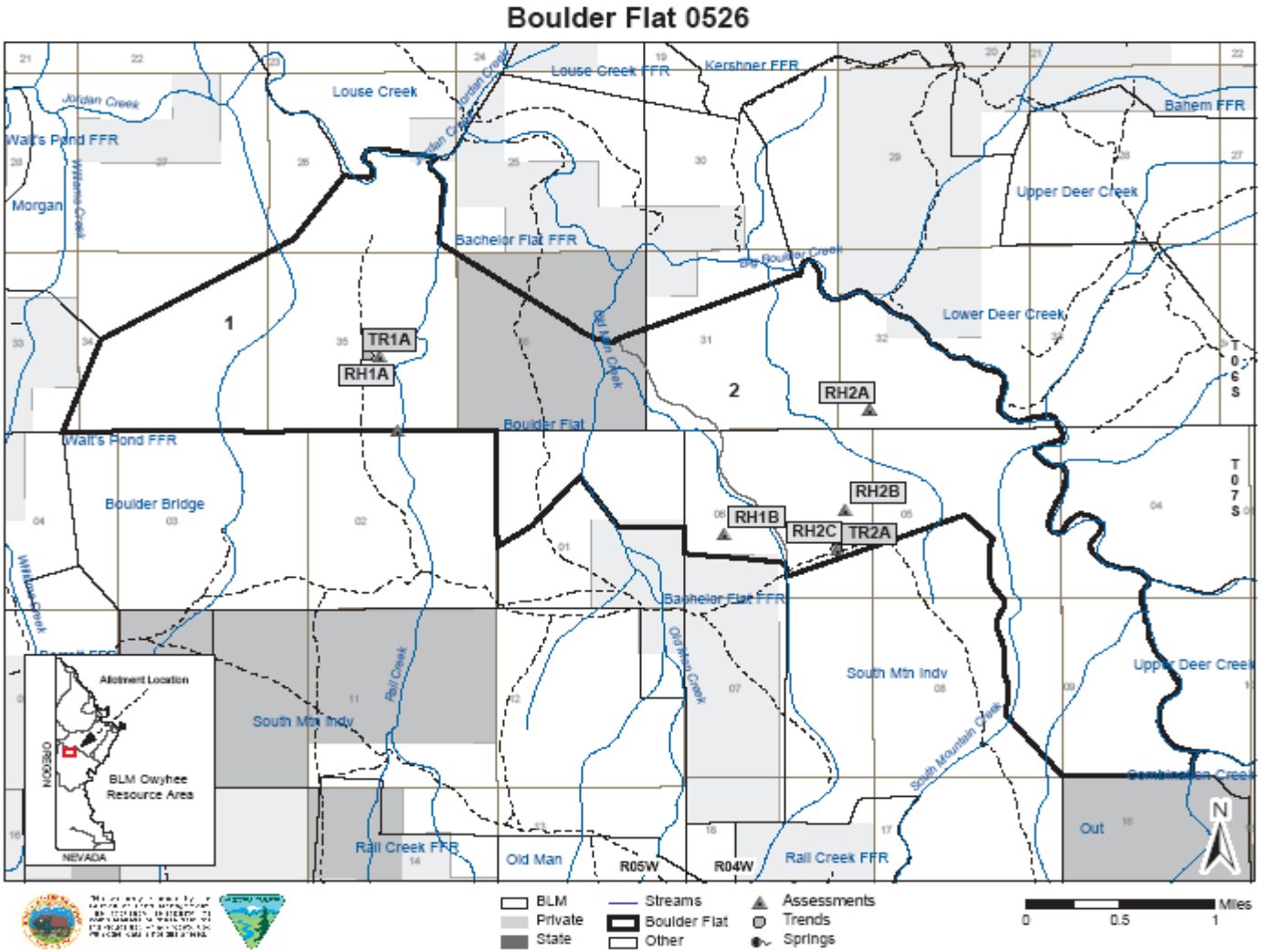
4. South Mountain Individual Allotment Map



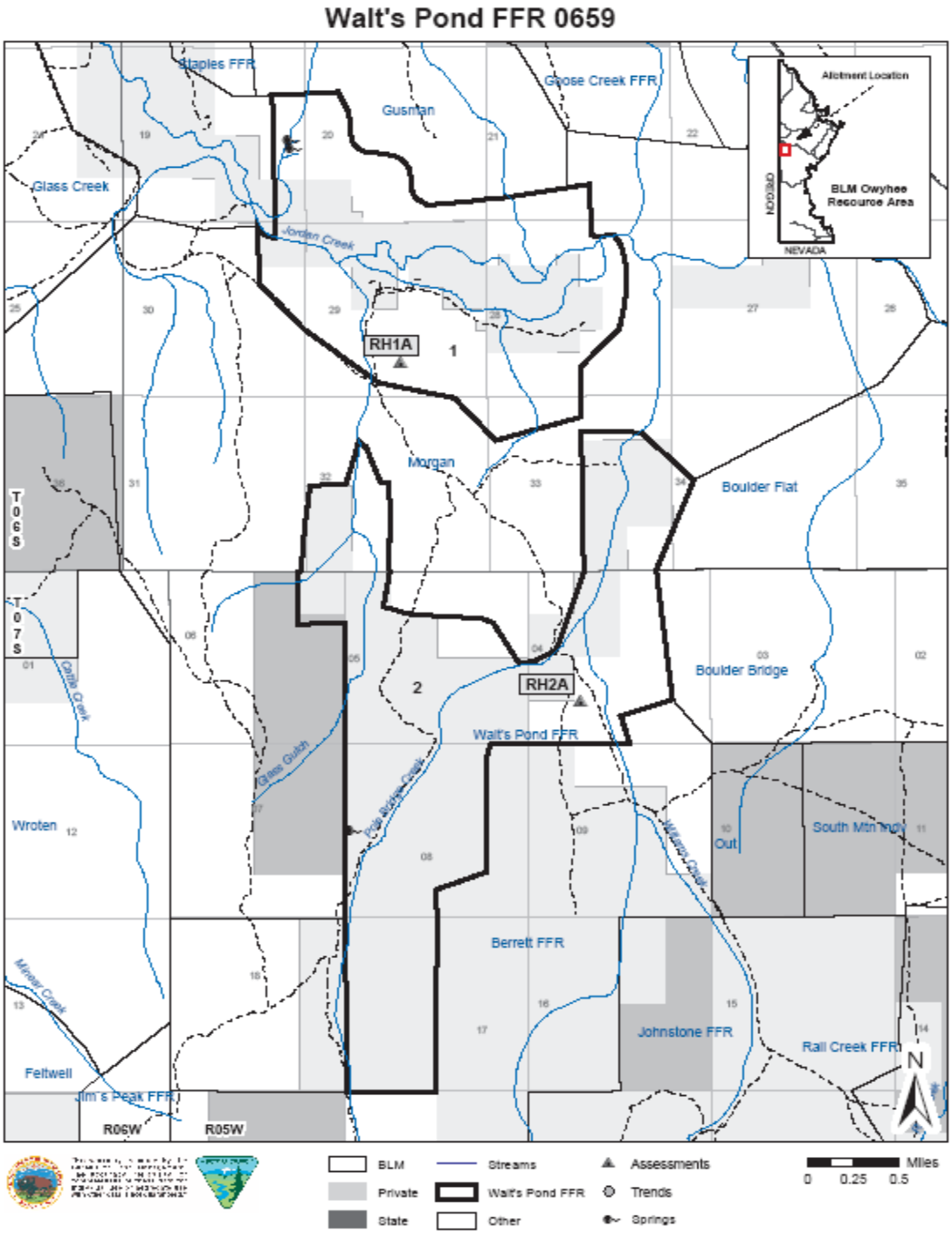
5. Bachelor Flat FFR Allotment Map



6. Boulder Flat Allotment Map

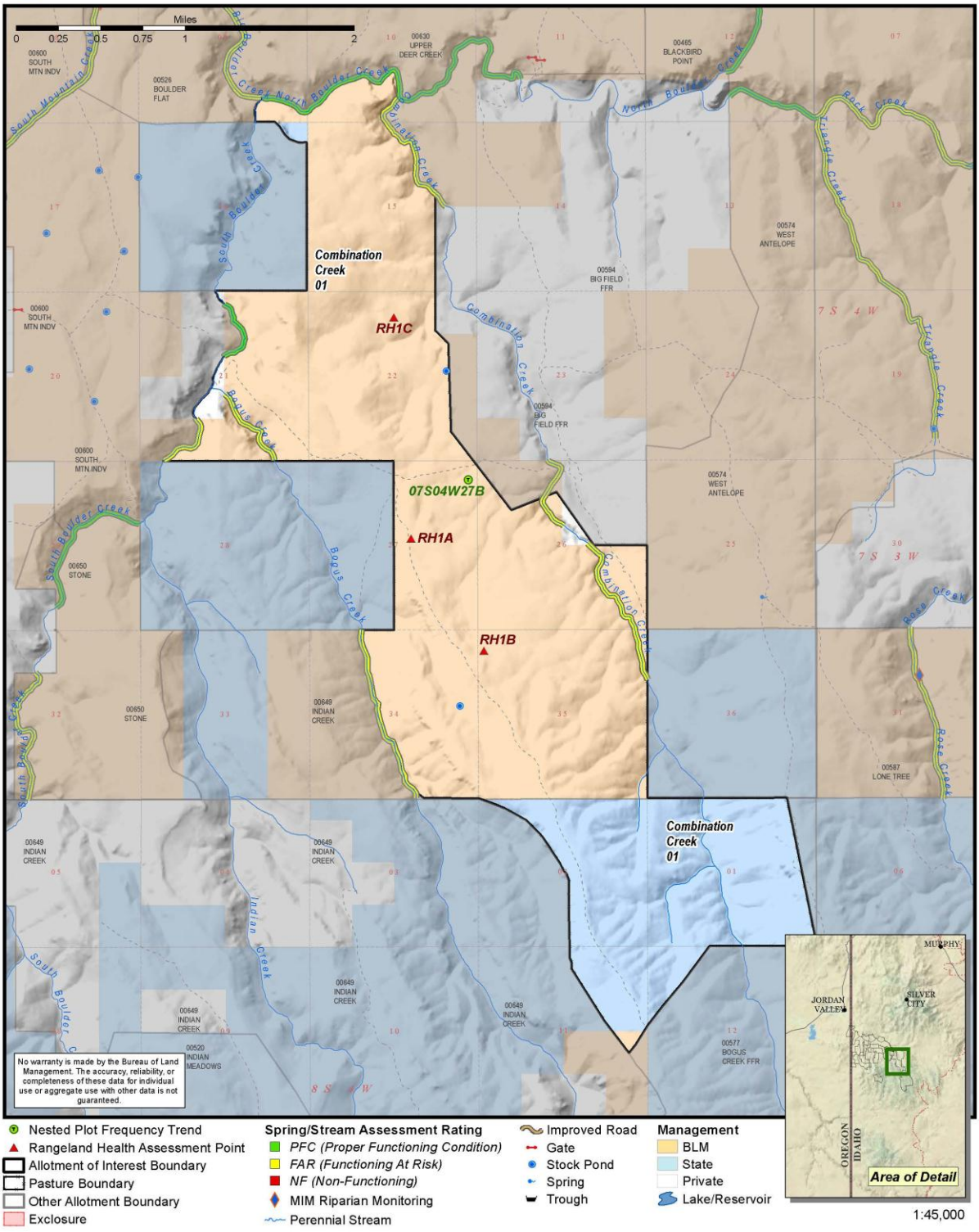


7. Walt's Pond FFR Allotment Map

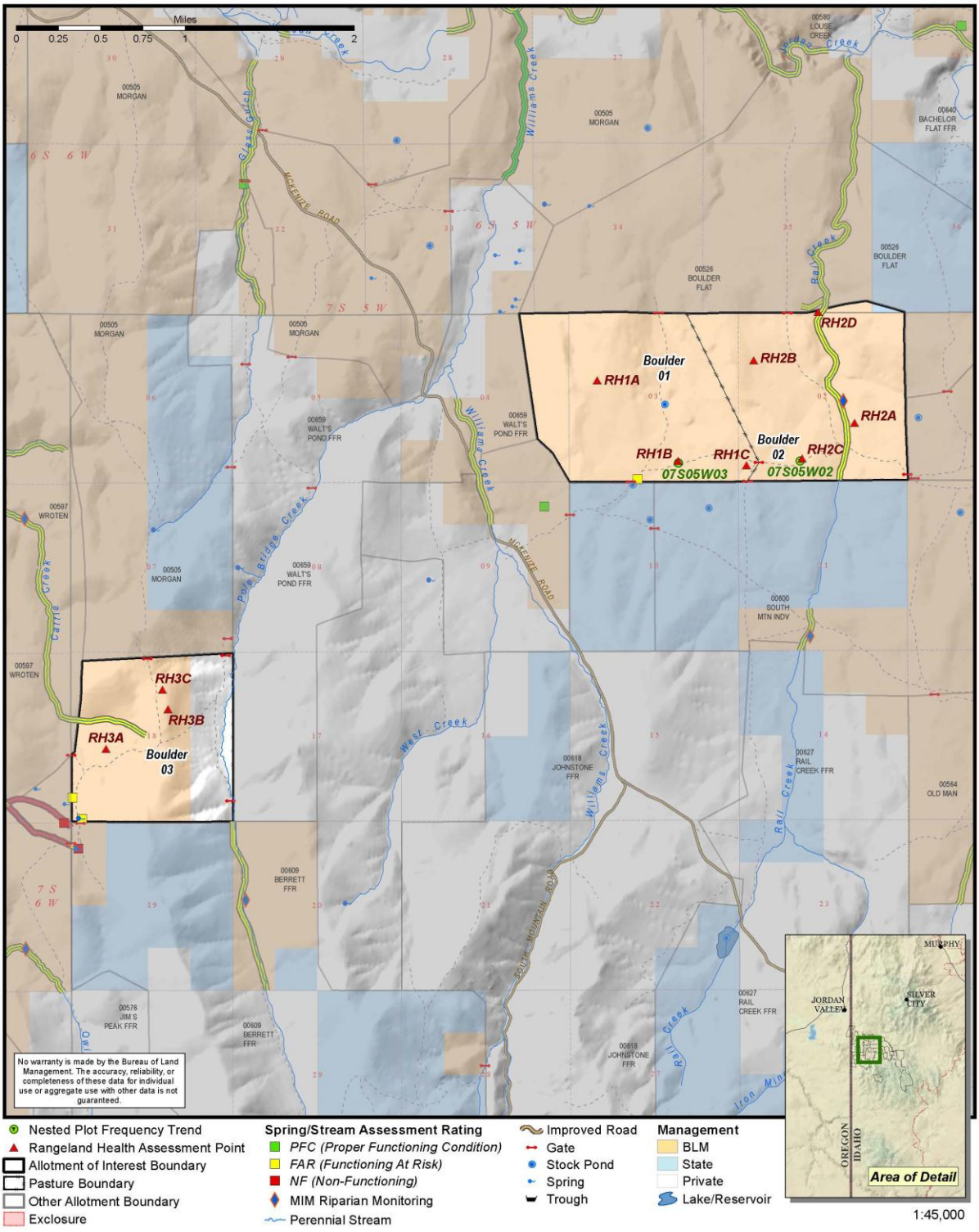


APPENDIX H- MAPS

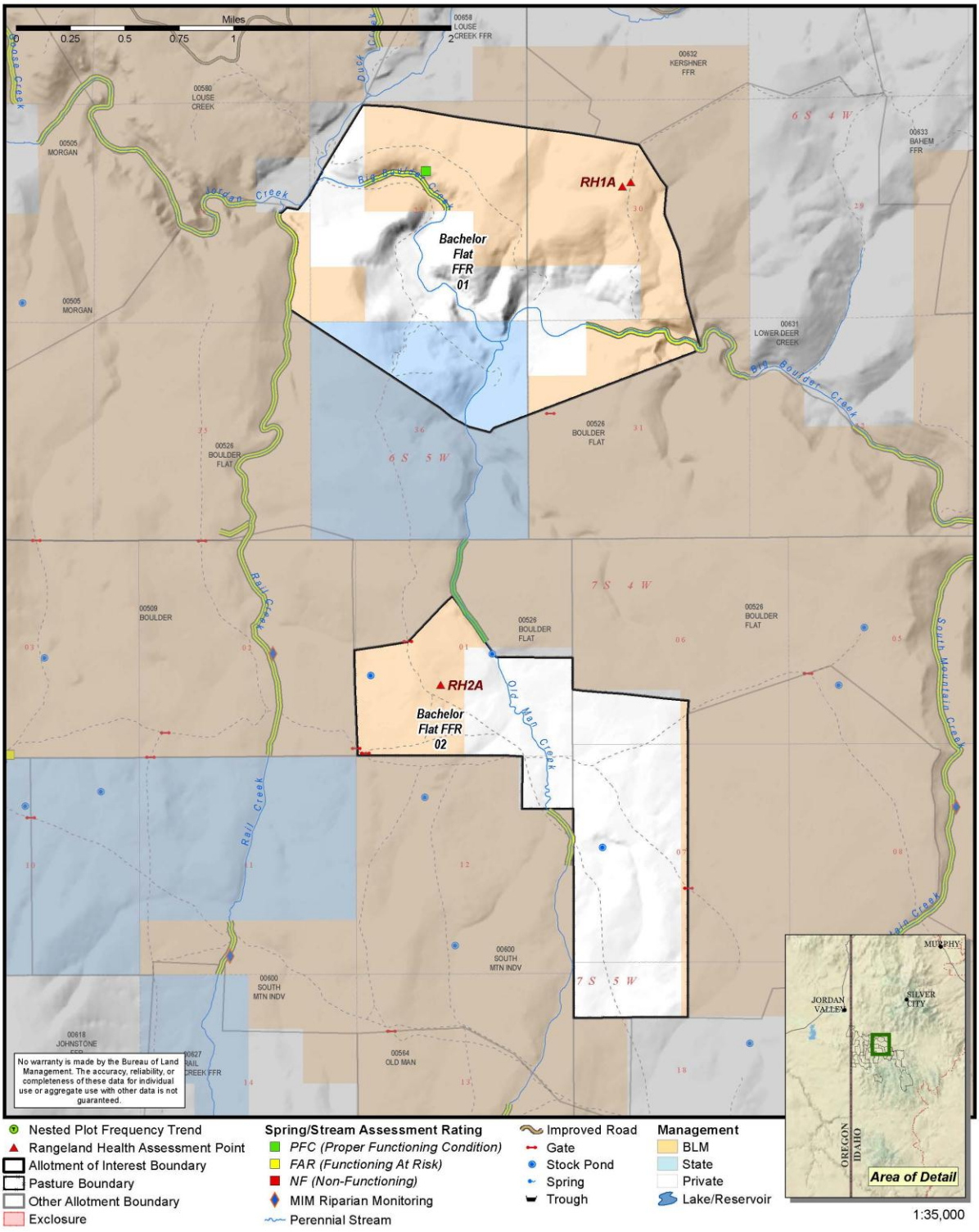
RNGE-1B: Combination Creek (00595) Range and Riparian Overview



RNGE-1C: Boulder (00509) Range and Riparian Overview



RNGE-1E: Bachelor Flat FFR (00640) Range and Riparian Overview



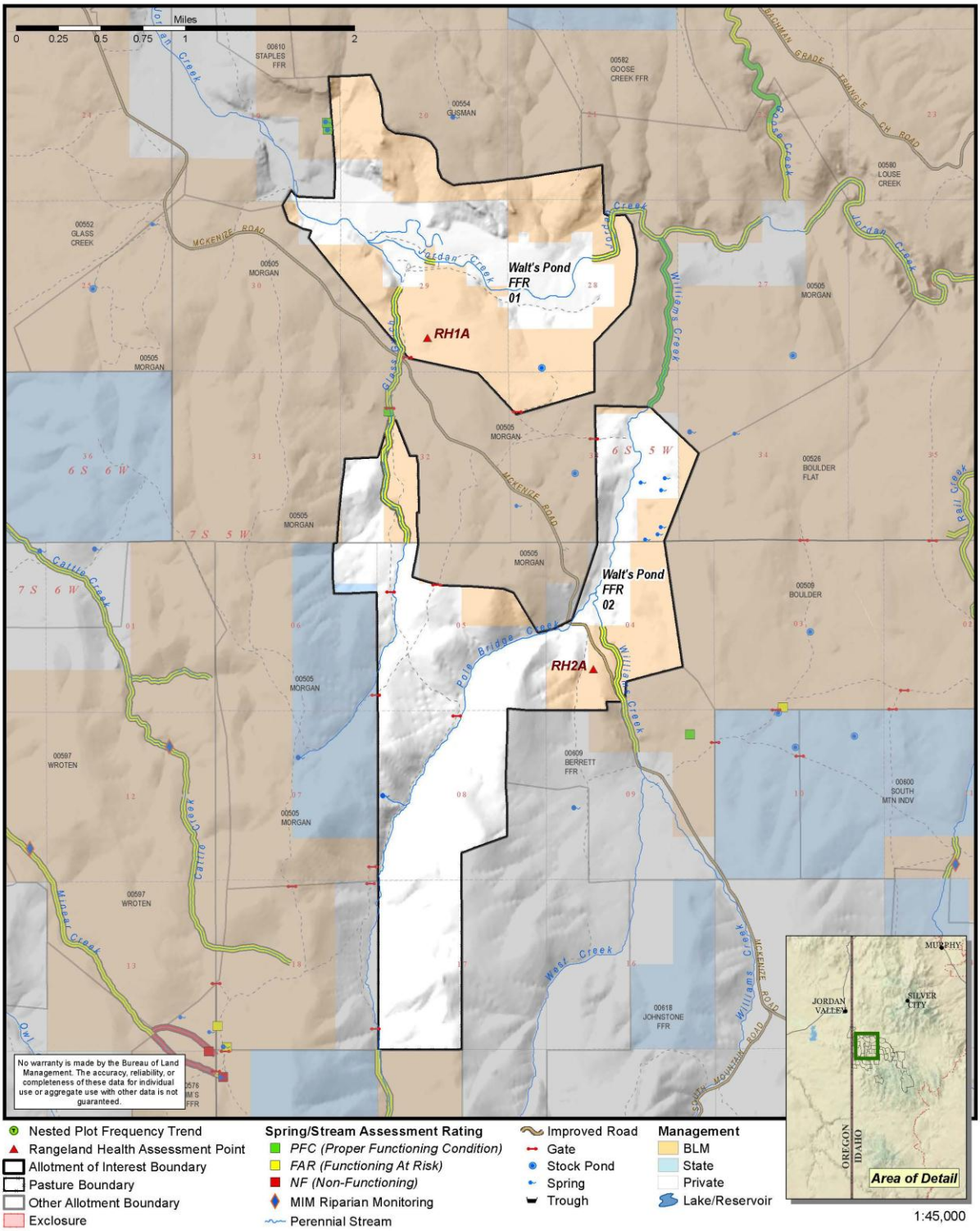
Nested Plot Frequency Trend
Rangeland Health Assessment Point
Allotment of Interest Boundary
Pasture Boundary
Other Allotment Boundary
Exclosure

Spring/Stream Assessment Rating
PFC (Proper Functioning Condition)
FAR (Functioning At Risk)
NF (Non-Functioning)
MIM Riparian Monitoring
Perennial Stream

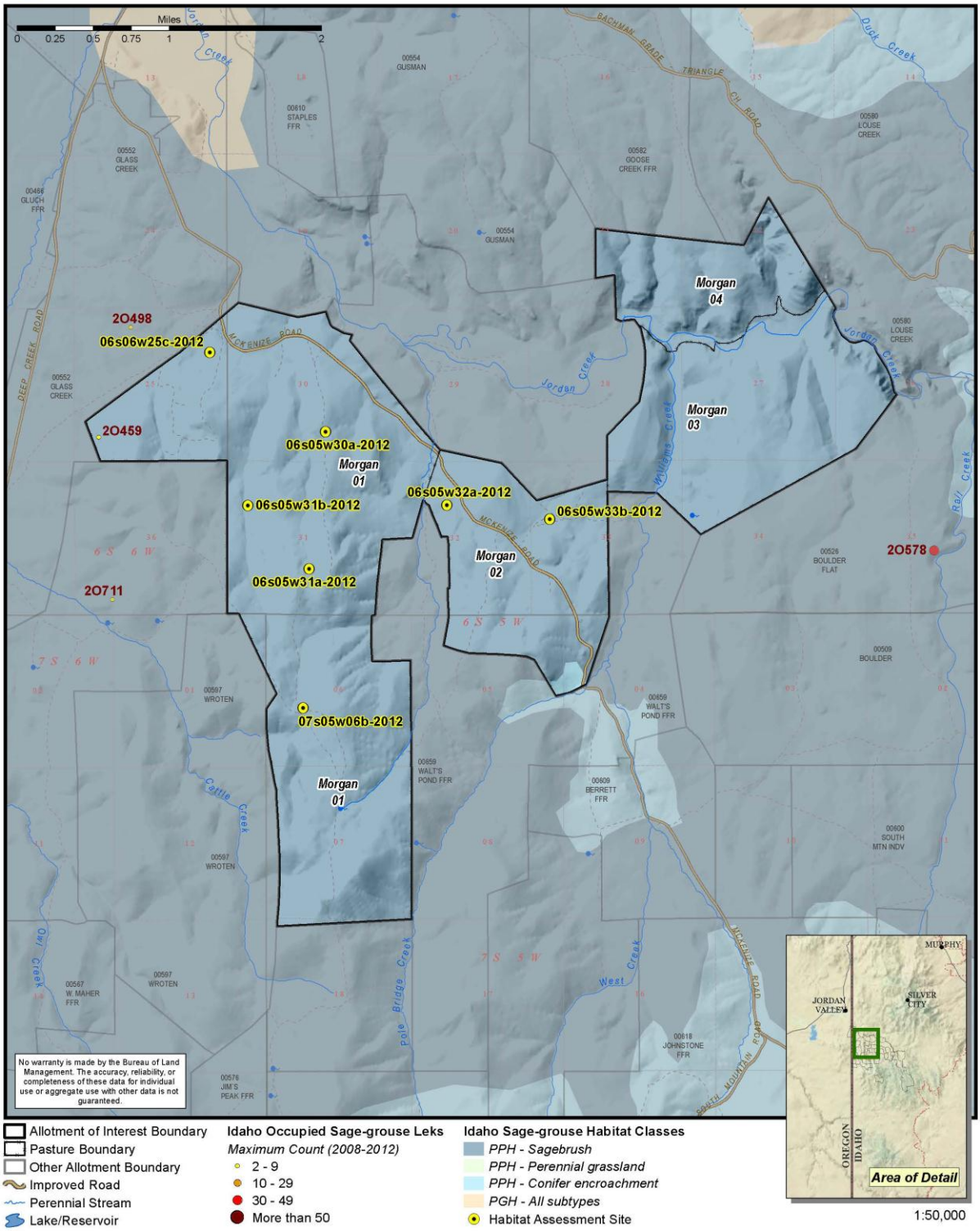
Improved Road
Gate
Stock Pond
Spring
Trough

Management
BLM
State
Private
Lake/Reservoir

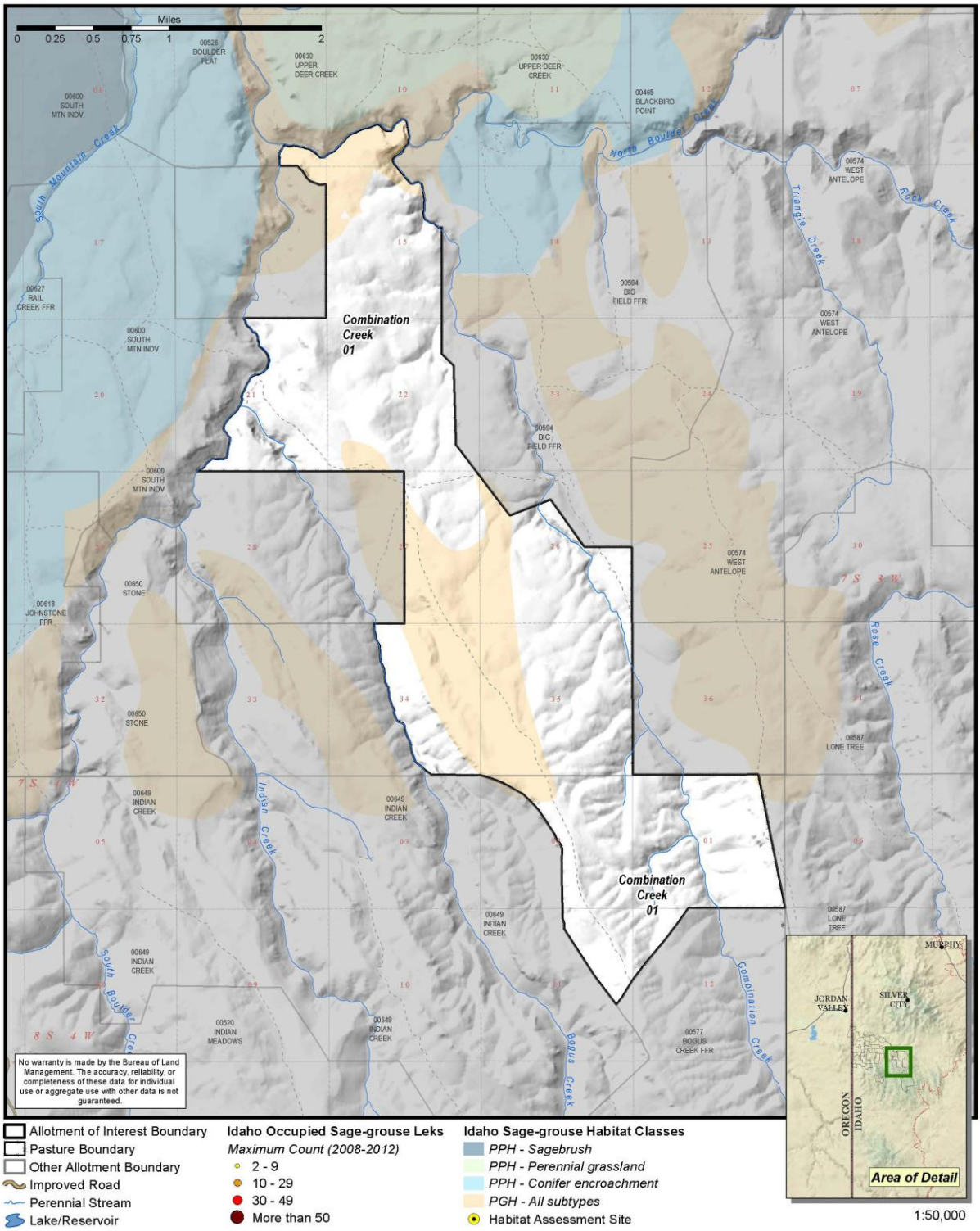
RNGE-1G: Walt's Pond FFR (00659) Range and Riparian Overview



WDLF-1A: Morgan (00505) Sage-grouse Habitat and Leks



WDLF-1B: Combination Creek (00595) Sage-grouse Habitat and Leks

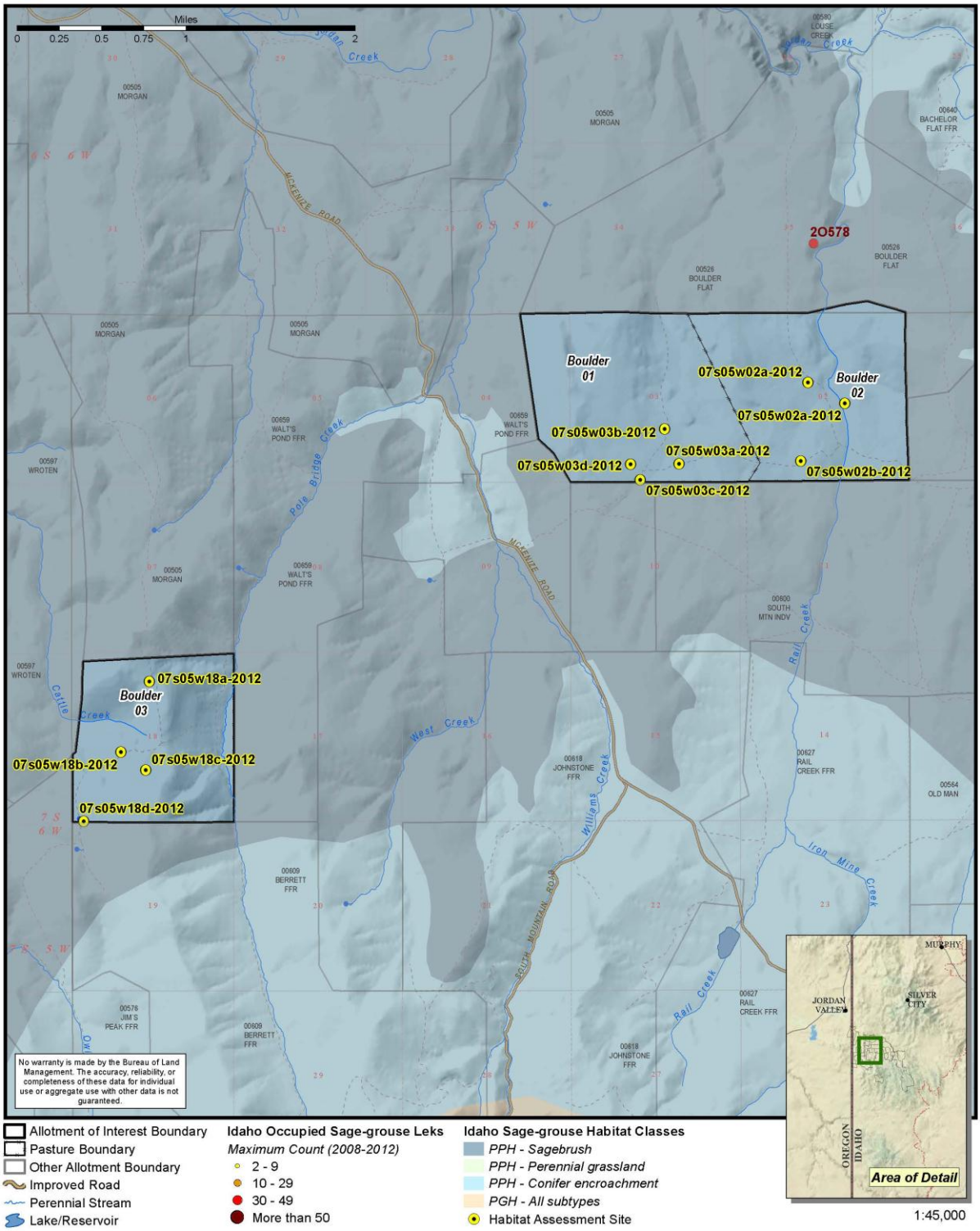


Allotment of Interest Boundary
Pasture Boundary
Other Allotment Boundary
Improved Road
Perennial Stream
Lake/Reservoir

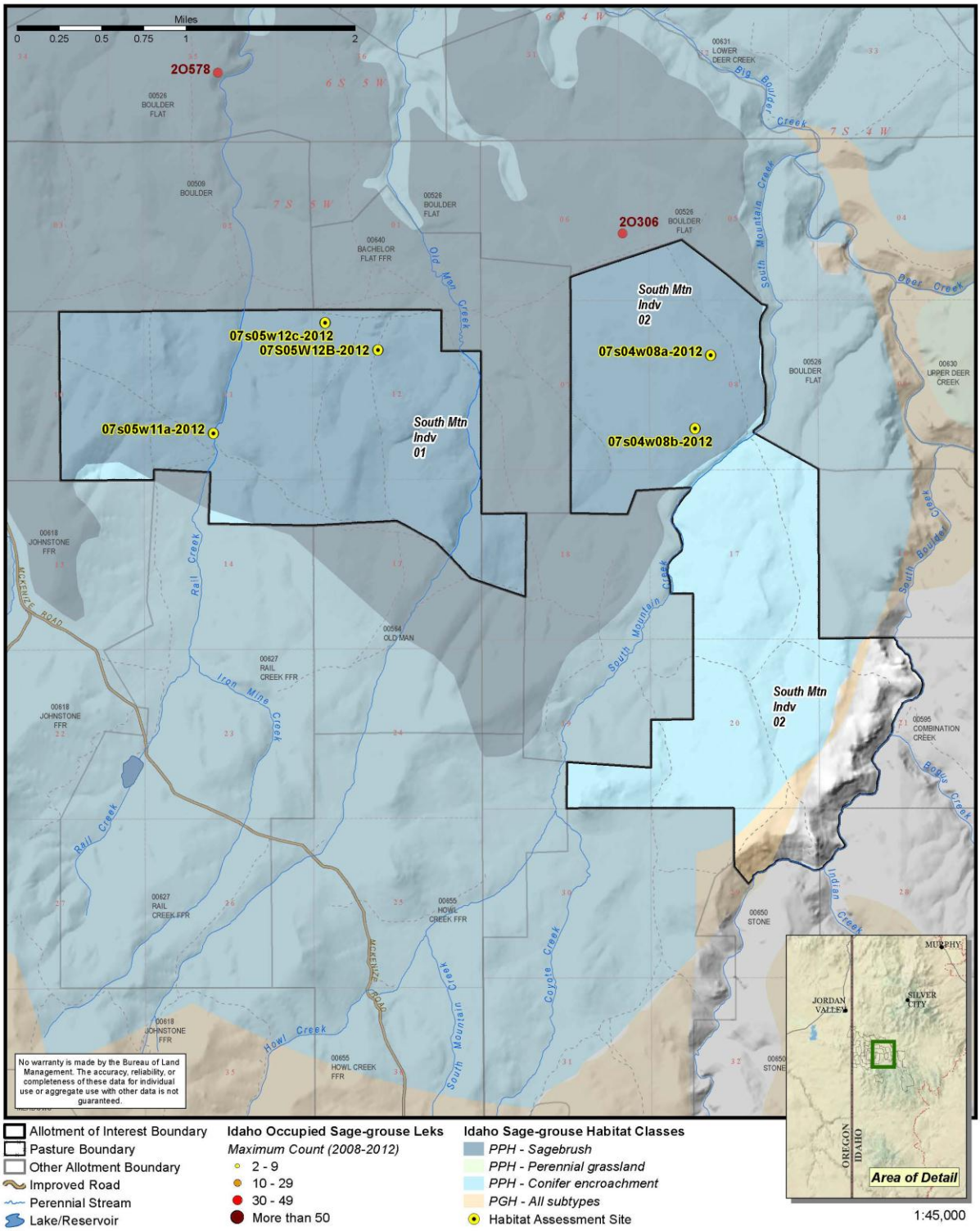
Idaho Occupied Sage-grouse Leks
Maximum Count (2008-2012)
2 - 9
10 - 29
30 - 49
More than 50

Idaho Sage-grouse Habitat Classes
PPH - Sagebrush
PPH - Perennial grassland
PPH - Conifer encroachment
PGH - All subtypes
Habitat Assessment Site

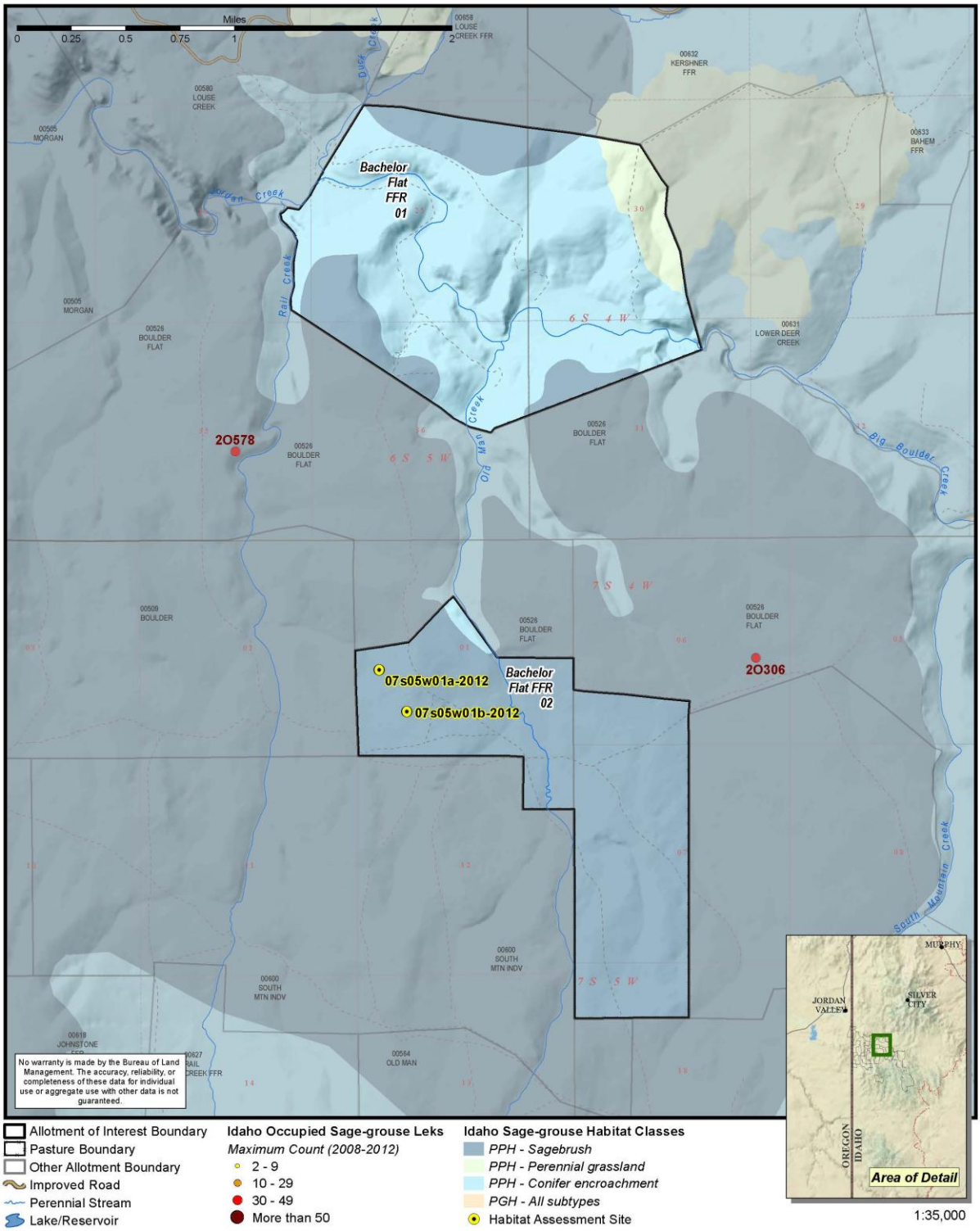
WDLF-1C: Boulder (00509) Sage-grouse Habitat and Leks



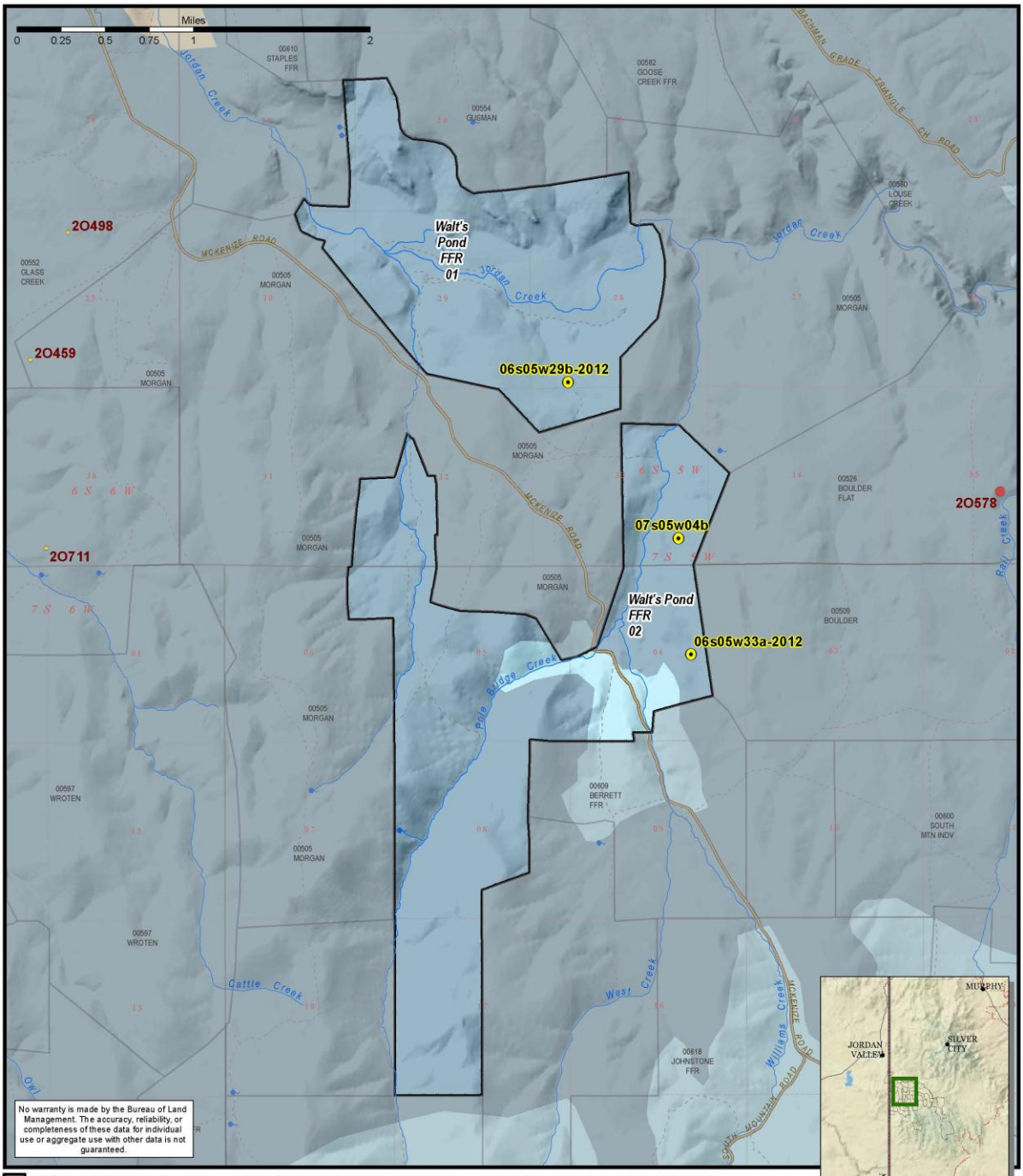
WDLF-1D: South Mtn Indv (00600) Sage-grouse Habitat and Leks



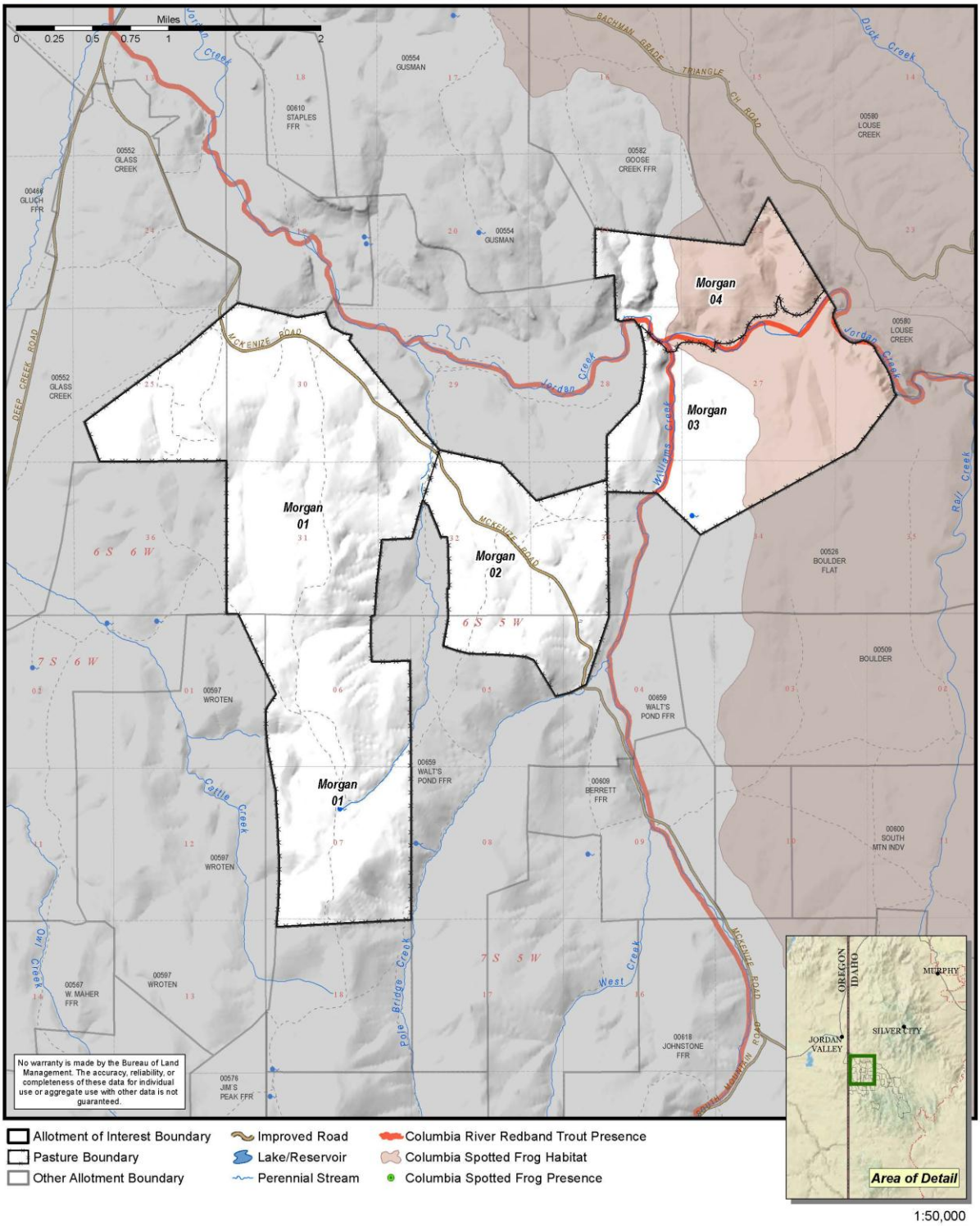
WDLF-1E: Bachelor Flat FFR (00640) Sage-grouse Habitat and Leks



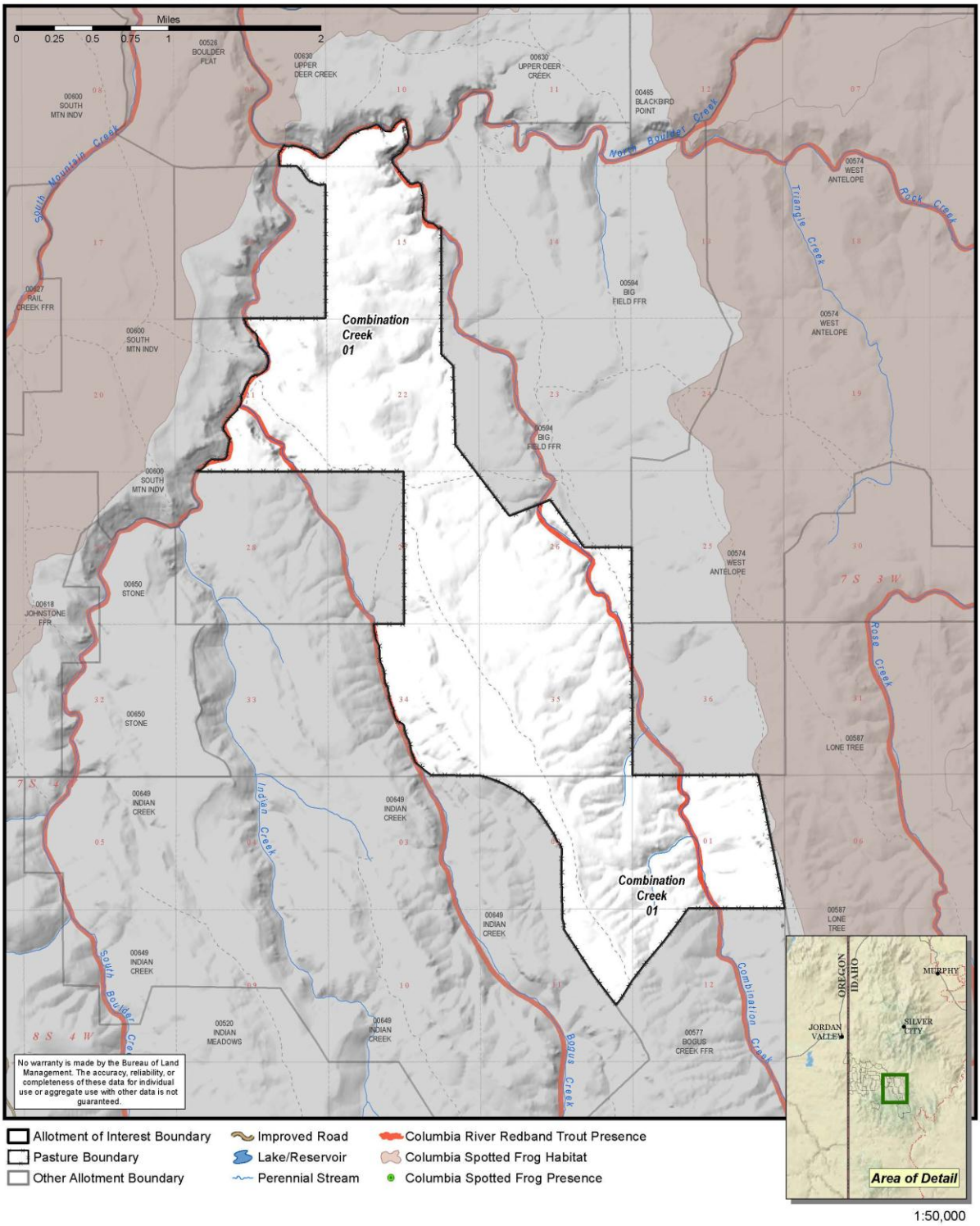
WDLF-1G: Walt's Pond FFR (00659) Sage-grouse Habitat and Leks



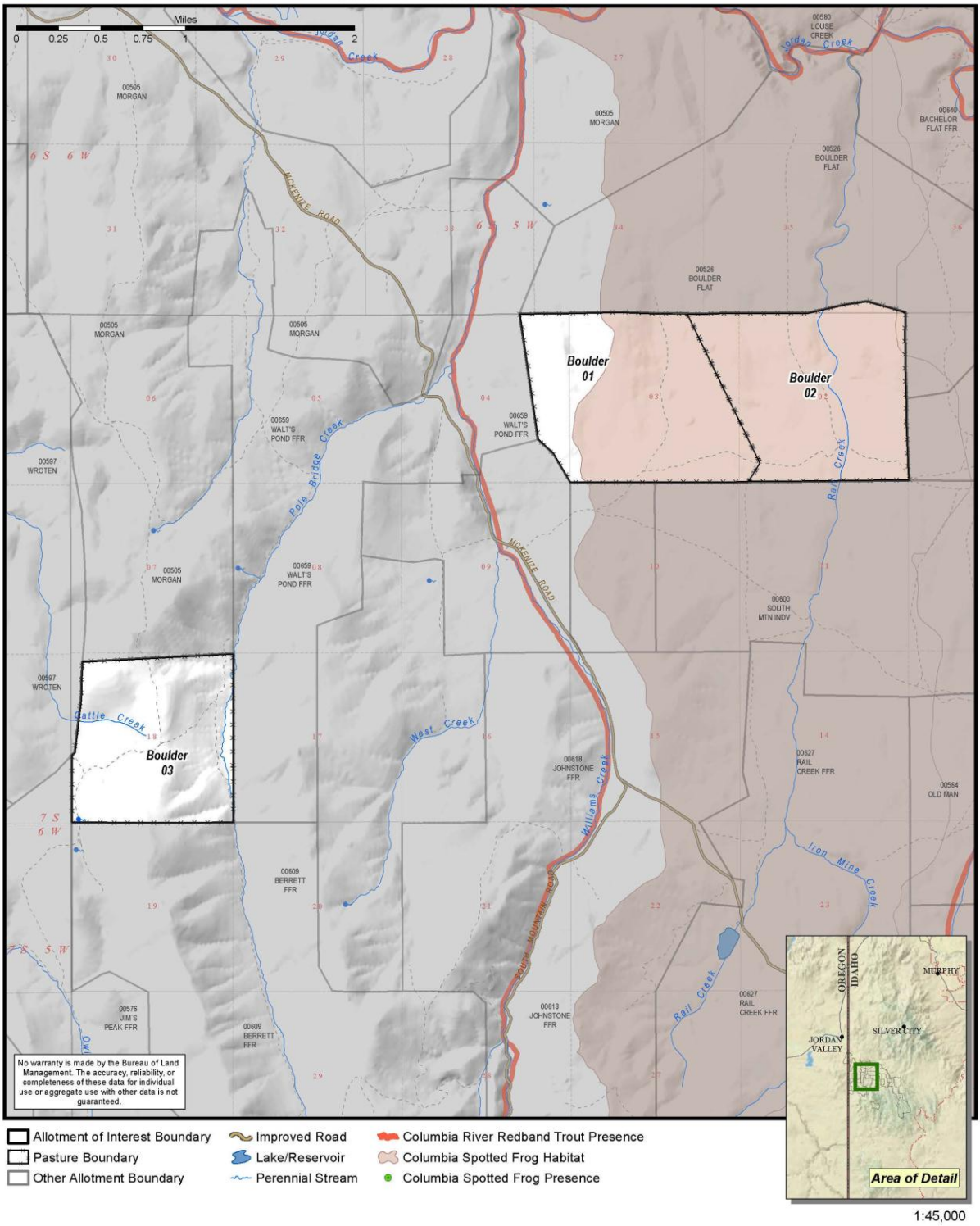
WDLF-2A: Morgan (00505) Columbia Spotted Frog Distribution and Columbia River Redband Trout Presence



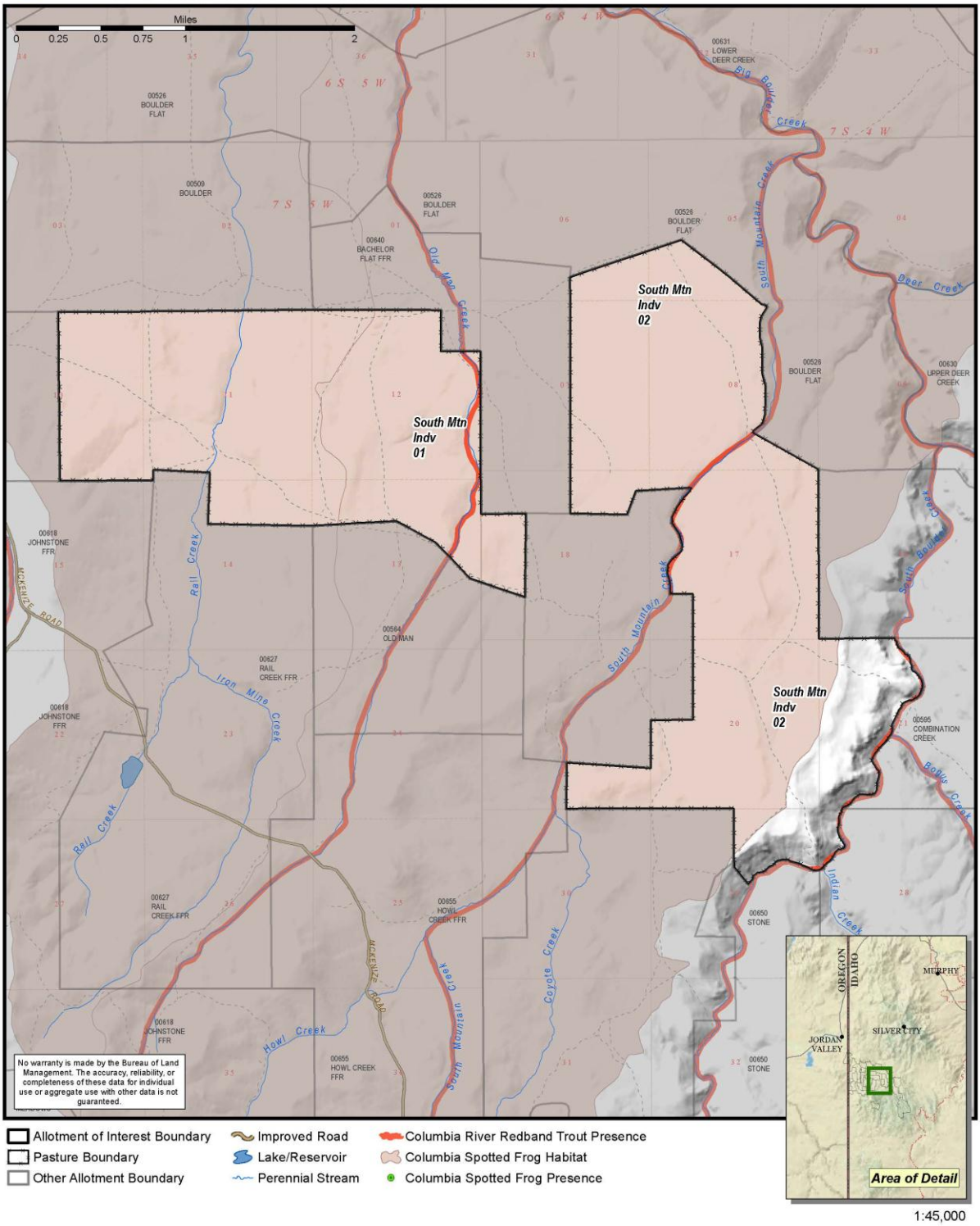
WDLF-2B: Combination Creek (00595) Columbia Spotted Frog Distribution and Columbia River Redband Trout Presence



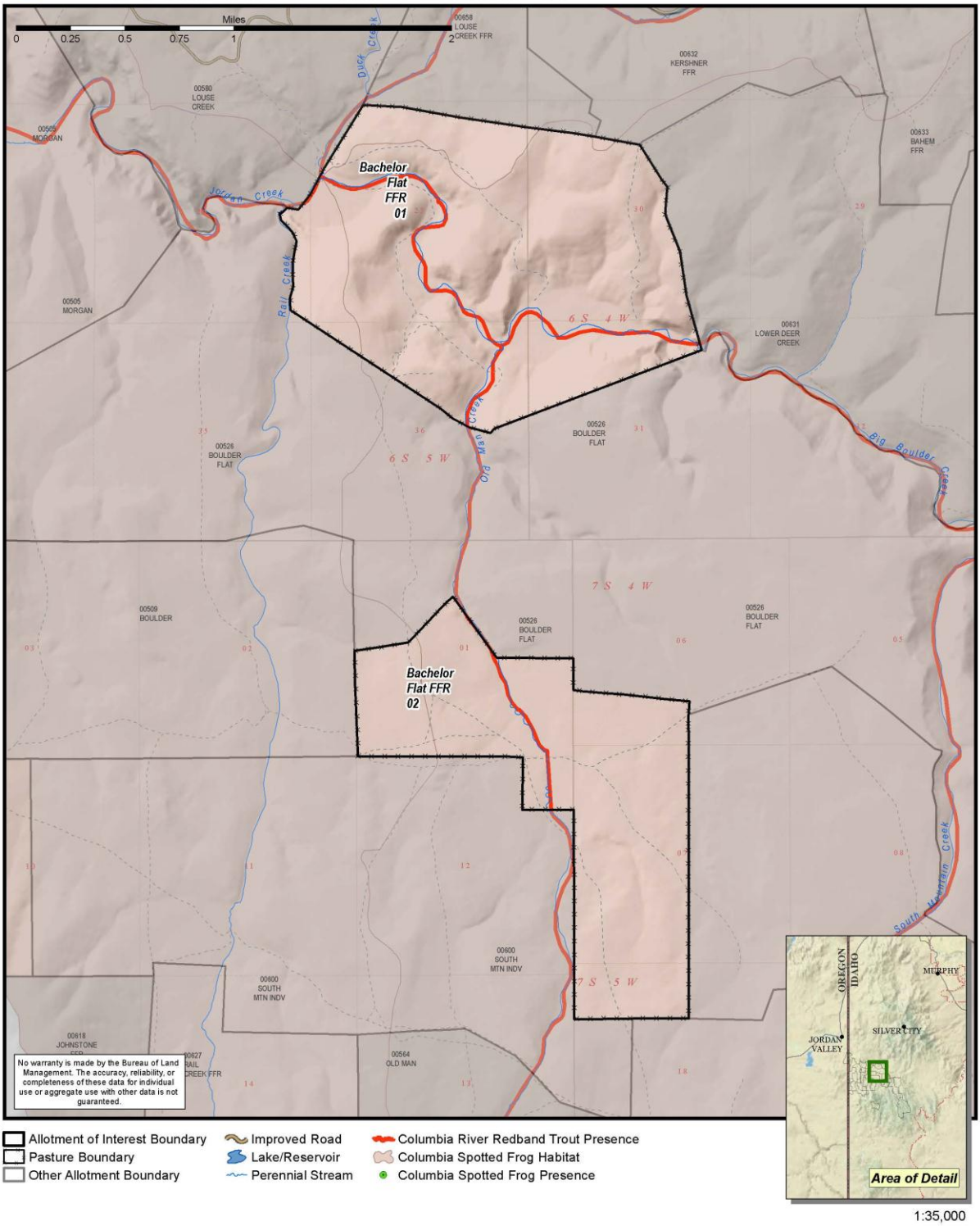
WDLF-2C: Boulder (00509) Columbia Spotted Frog Distribution and Columbia River Redband Trout Presence



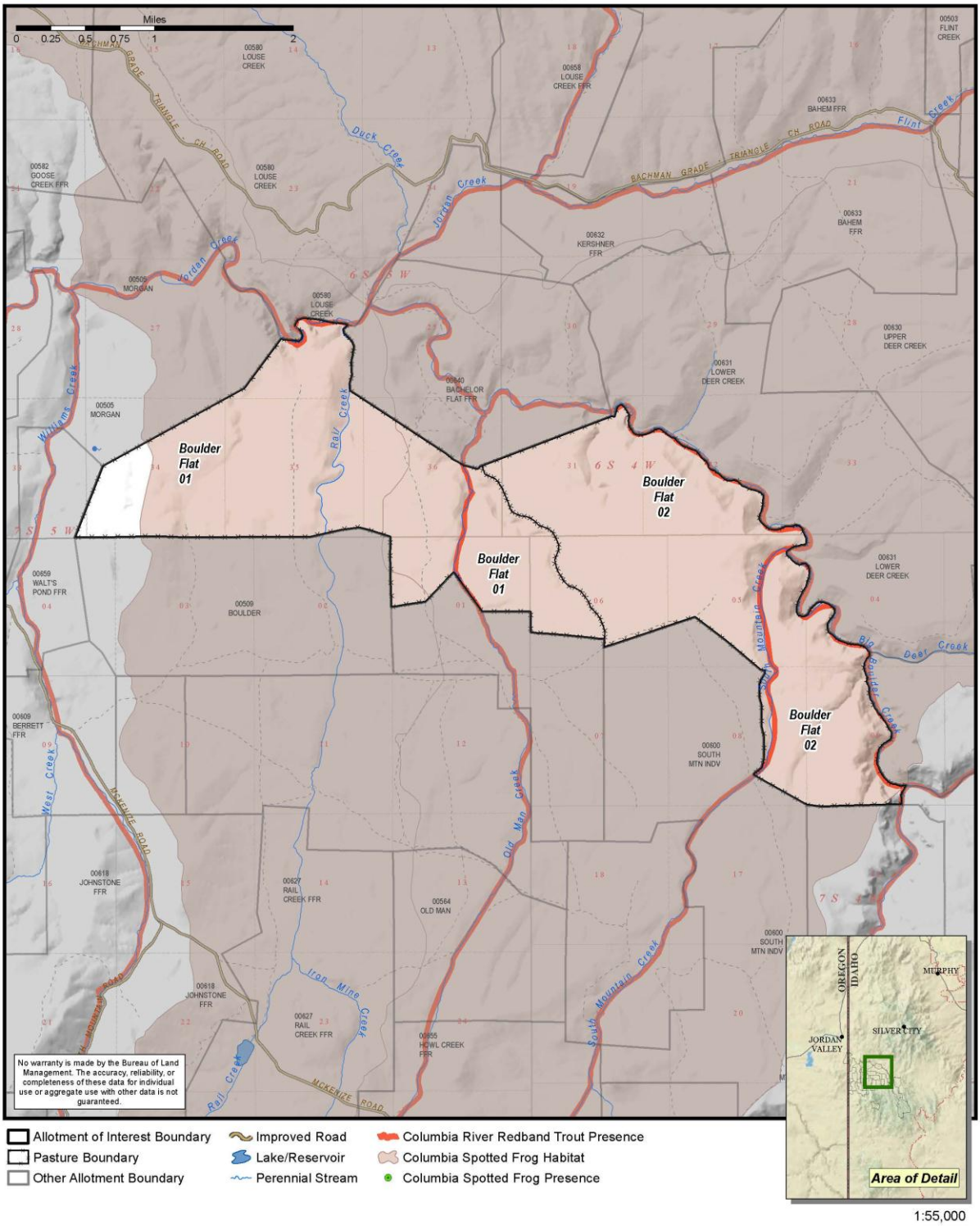
WDLF-2D: South Mtn Indv (00600) Columbia Spotted Frog Distribution and Columbia River Redband Trout Presence

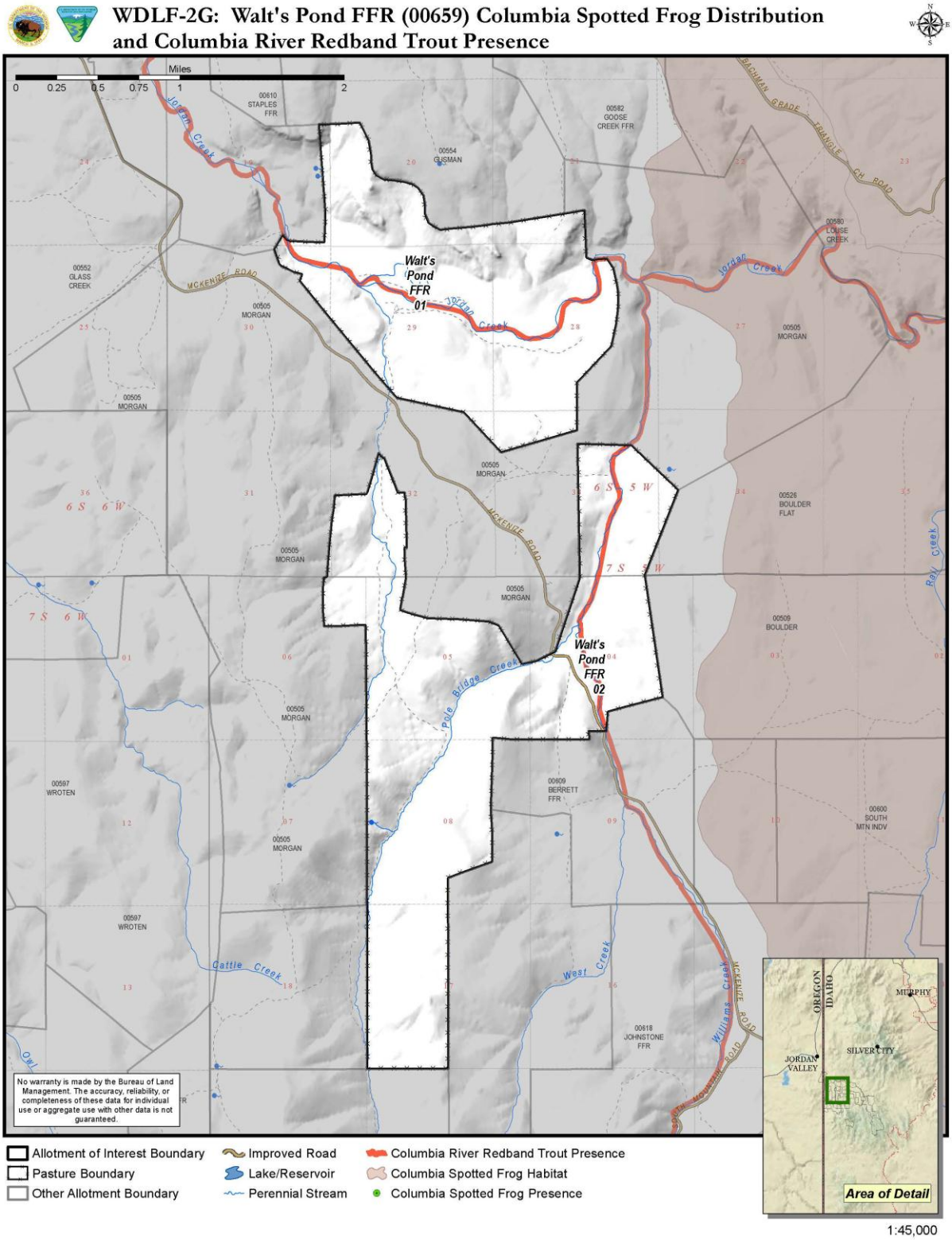


WDLF-2E: Bachelor Flat FFR (00640) Columbia Spotted Frog Distribution and Columbia River Redband Trout Presence



WDLF-2F: Boulder Flat (00526) Columbia Spotted Frog Distribution and Columbia River Redband Trout Presence





I. Determinations: 2013 Supplement to the Morgan, Combination Creek, Boulder, South Mountain Individual, Bachelor Flat FFR, Boulder Flat,

and Walt's Pond FFR Rangeland Health Standards and Guidelines Assessment

1. Morgan Allotment Evaluation Findings and Determination

2013 Supplement to the Morgan Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _1, 3, 4, 8_

Rationale for Evaluation Finding and Determination
Current livestock grazing management practices are significant causal factors for not meeting upland watershed Standard 1 in pasture 2; pastures 1 and 3 are not meeting due to past grazing impacts and invasive annuals, and pasture 4 is meeting.

While ground cover trend in pasture 2 is slightly upward, a photo trend plot shows the gradual increase of invasive grasses and shallow-rooted bunchgrasses after a fire in 1999. While it can be assumed that the vegetative cover present in 2011 may provide some protection over the previously recorded conditions just two years after the fire, the remaining underlying degradation of soils recorded for all rangeland health sites in this pasture continues to be a problem.

Both historic and active accelerated erosional processes have resulted in abundant pedestaling of plants, water flow patterns, and commonly found physical soil impacts by livestock hoof action. Biological soil crusts are variable, ranging from being present to being greatly reduced or absent, especially in interspatial areas. Repeated spring and early summer season use by cattle and horses under wet conditions have promoted mechanical damage to the soil surface and bare ground.

Pastures 1 and 3 show impacts from past grazing as erosion relics are in various states of

stabilization. Gravel armor helps to retain soils and reduce erosion, especially where vegetation cover is lacking. This is due to altered plant community composition and distribution from a decrease in relative abundance of large, deep-rooted native perennial bunchgrasses, and an increase in invasive species. As a result, a shift in the plant community has led to accelerated erosion and impacts to upland watershed health, especially with no rest or deferred grazing in place.

The decreased ecological function, impaired soils, and repeated spring use in the absence of rest indicate that soil and hydrologic function are compromised. Current and past livestock management are the primary contributing factors for not meeting Standard 1 and ORMP soil management objectives of improving unsatisfactory watershed health/conditions in the Morgan allotment.

2013 Supplement to the Morgan Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

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

Rationale for Evaluation Finding and Determination

The named streams that occur in the Morgan allotment include the Glass Gulch, Goose, Jordan, and Williams Creeks. Standard 2 is being met in pastures 1, 3, and 4 because the reaches of Glass Gulch, Goose, and Jordan Creeks were most recently either rated in PFC or observations were made that the reach is in a confined canyon limiting livestock access. The resource is not present in pasture 2. Therefore, current livestock grazing management practices conform with the Idaho Guidelines for Livestock Grazing Management applicable to Standard 2.

Evaluation Findings and Determination

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

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

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

Rationale for Evaluation Finding and Determination

The named streams that occur in the Morgan allotment include the Glass Gulch, Goose, Jordan, and Williams Creeks. Standard 2 is being met in pastures 1, 3, and 4 because the reaches of Glass Gulch, Goose, and Jordan Creeks were most recently either rated in PFC or observations were made that the reach is in a confined canyon limiting livestock access. The resource is not present in pasture 2. Therefore, current livestock grazing management practices conform with the Idaho Guidelines for Livestock Grazing Management applicable to Standard 2.

Evaluation Findings and Determination

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

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

significant factors

Guidelines

■ Conforms with Guidelines for Livestock Grazing Management

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

Rationale for Evaluation Finding and Determination

Rangeland Health Standard 4 is not met in all four pastures of the Morgan allotment. All pastures show evidence of historic grazing impacts are present throughout with the reduced composition of deep-rooted native perennial bunchgrasses (e. g., bluebunch wheatgrass and Idaho fescue) from reference site conditions and a greater dominance by increaser species (e.g., Sandberg bluegrass and squirreltail) and invasive annuals; historic grazing, fire and invasive annuals are causal factors in not meeting Standard 4.

Qualitative rangeland health assessment data indicate that Standard 4 is not met, with moderate to extreme departure of invasive plants in the RHAs dominated by shallow-rooted bunchgrass and invasive annuals, rather than the ecological reference site conditions dominated by deep-rooted species (bluebunch wheatgrass and Idaho fescue). This conclusion is supported by current ecological site descriptions and correlation to vegetation inventories.

Overall interpretations of trend data in pasture 2 suggest that the continuous deterioration of biotic conditions due to decrease of deep-rooted bunchgrasses and increasing annual invasives has compromised the biotic integrity of the community.

The Owyhee Resource Management Plan management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas is also not met within the allotment. Vegetation communities dominated by shallow-rooted bunchgrasses with the expansion of annual invasive grasses lead to a conclusion that the vegetation management objective is not met.

Standard 5 (Rangeland Seeding)

This standard does not apply to this allotment.

Standard 6 (Exotic Plant Communities)

Although non-native plants occur on the Morgan allotment, they do not form the dominant vegetation type in significant portions of any pasture. The allotment is managed for native plant communities; therefore, this standard does not apply.

2013 Supplement to the Morgan Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

Standard 7 (Water Quality)

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

Standard

□ Standard does not apply

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

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

Rationale for Evaluation Finding and Determination

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

According to the Clean Water Act, each state must develop Total Maximum Daily Loads (TMDLs) for all the waters on the 303(d) list. The objective of a TMDL is to determine the loading capacity of the water body and to allocate that load among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved. The TMDL process is important for improving water quality because it links the development and implementation of control actions to the attainment of water quality standards. Once a TMDL is developed for a particular pollutant or pollution, it is effectively removed from the 303(d) list.

Current IDEQ information identifies that the BLM portions of the four pastures within the Morgan allotment contain approximately 2.9 miles of stream that are not supporting the watershed's beneficial uses, and 6.9 miles that have not been assessed. The Morgan allotment contains portions of five AUs with associated beneficial uses and pollutants (Table RIPN-15). Three of the AUs are currently not supporting the beneficial uses, and all of the streams that occur within those AUs are also on the 303(d) list of impaired waters for the pollutants listed below; however, the streams have been de-listed for temperature because TMDLs have been developed and approved. However, the streams that occur within the ID17050108SW004_02 and ID17050108SW004_05 AUs are also not meeting the beneficial uses based on mercury, and AU # ID17050108SW001_05 is also not meeting the beneficial use based on flow alteration. TMDLs have not been developed for the flow alteration pollutant and the mercury pollution; thus, the streams that occur within these AUs are currently 303(d) listed.

Potential Natural Vegetation (PNV) TMDLs were developed for temperature for the AUs that occur within the allotment. Idaho water quality standards include a provision (IDAPA 58.01.02.200.09), which establishes that if natural conditions exceed numeric water quality criteria, exceedance of the criteria is not considered to be a violation of water quality standards. In these situations, natural conditions essentially become the water quality standard, and the

natural level of shade and channel width become the target of the TMDL. The in-stream temperature that results from attainment of these conditions is consistent with the water quality standards, even though it may exceed numeric temperature criteria. However, current IDEQ information indicates that the reaches of Jordan Creek that traverse pastures 3 and 4 and that have been evaluated for temperature using the PNV approach are not meeting the shade target established.

Standard 7 is currently not being met in pastures 3 and 4 of the Morgan allotment; however, because the streams are 303(d) listed based on flow alteration and mercury, the allotment is in conformance with the Guidelines for Livestock Grazing Management because livestock are not the causal factor. Standard 7 is not applicable in pastures 1 and 2 because the streams have not been assessed by IDEQ.

Table RIPN-15: DEQ Water Quality Summary for the Morgan Allotment

AU #	AU Name	Pasture (s) AU Occurs Within	Beneficial Use Not Meeting	Pollutant/ Pollution	TMDL
ID17050108SW001_02	Lower Jordan Creek - 1st and 2nd order tributaries	1, 2, 4	not assessed	NA	NA
ID17050108SW001_05	Jordan Creek - Williams Creek to State Line	4	CWAL[1]	flow alterations temperature	NO all streams
ID17050108SW003_03	Williams Creek - 3rd order (Pole Bridge Creek to mouth)	3, 4	not assessed	NA	NA
ID17050108SW004_02	Upper Jordan Creek - 1st and 2nd order tributaries	3, 4	CWAL SCR[2]	temperature mercury	all streams NO
ID17050108SW004_05	Jordan Creek - Big Boulder Creek to Williams Creek	3, 4	CWAL SCR	temperature mercury	all streams NO

[1]CWAL = cold-water aquatic life
[2]SCR = secondary contact recreation

Evaluation Findings and Determination

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

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

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). 8, 11, and 12

Rationale for Evaluation Finding and Determination

Plants
Standard 8 for botany is met in the Morgan allotment. There are no federally listed plant species and there is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment.

Upland Habitat
Pastures 1, 2, 3, and 4 in the Morgan allotment are managed as native plant communities and are determined to be not meeting Standard 4 (see Standard 4) due past grazing practices and annual invasive species. Pastures 1 and 2 also are experiencing the impacts of past fire. Evaluation of Standard 4 noted an increase in annual invasive grass species showing a transition in the plant community composition from native bunchgrasses to more grazing tolerant exotic species. This information is also consistent with the vegetation data for sage-grouse habitat assessments that showed the dominance of invasive annuals in these pastures and the unsuitable-marginal occurrence of large perennial grasses. Annual species do not have the robust growth form or stature such as bluebunch wheatgrass and do not provide the plant community composition, structure, and function for sagebrush steppe dependent species and therefore these pastures are not meeting Standard 8 due to historic grazing practices and the increase of annual invasive species.

Riparian
Evaluation of Standard 7 found that Jordan Creek is not meeting Idaho water quality parameters due to mercury pollutants and altered water flow (see Standard 7). This stream is not providing habitat quality for beneficial uses which includes cold-water aquatic species. Because water quality standards are not being met, this allotment is failing to provide adequate aquatic habitat conditions for cold water species and is therefore is not meeting Standard 8 due to mercury

pollutants and altered stream flow and that livestock grazing practices were not identified as a casual factor.

Focal Species

New sage-grouse habitat assessment information collected in 2012 is only available for pastures 1 and 2. The assessments showed unsuitable to marginal breeding and upland summer habitat conditions for sage-grouse. Common to all assessments is the reduced occurrence of native perennial grasses in the understory. Effective sage-grouse habitat requires an adequate combination of both overstory shrubs and understory grasses. Currently the perennial grasses are deficient in the understory to provide adequate nesting and security cover for sage-grouse. Because understory cover values are less than adequate, this allotment is therefore not meeting Standard 8 for sage-grouse due to historic and current livestock grazing practices.

Sage-grouse breeding habitat assessment information was collected in pastures 3 and 4 in 2004. The assessments showed breeding habitat to be marginal. Overall, all the pastures in this allotment are not providing adequate habitat conditions for sage-grouse.

Columbia River redband trout are known to occur within the Jordan Creek system. Evaluation of Standard 7 identified streams not meeting water quality parameters due to mercury pollutants and altered stream flow current grazing practices (see Standard 7). Redband trout is a beneficial use within this watershed and requires cold, clean water. Because healthy water quality conditions are not being provided for beneficial uses in the Jordan Creek, this allotment is not providing adequate aquatic conditions to sustain viable populations of redband trout and therefore is not meeting Standard 8 due to mercury pollutants and altered stream flow.

This allotment is within the distribution of the Columbia spotted frog. Evaluation of Standard 7 identified streams not meeting water quality parameters due to mercury pollutants and altered stream flow current grazing practices (see Standard 7). Spotted frogs are usually found along vigorous grassy/sedge margins of streams, lakes, ponds, springs, and marshes not far from sources of quiet permanent water. They migrate along these vegetation corridors between habitats used for spring breeding, summer foraging, and winter hibernation. Because healthy water quality conditions are not being provided for beneficial uses in the Jordan Creek, this allotment is not providing adequate aquatic conditions to sustain viable populations of spotted frogs and therefore is not meeting Standard 8 due to mercury pollutants and altered stream flow.

2013 Supplement to the Morgan Allotment Rangeland Health Standards and Guidelines Assessment – Field Manager's Determination

Determination

I have determined that Standards 1, 4, 7, and 8 of the applicable Standards for Rangeland Health are not being met in the Morgan allotment, while Standards 2, 3, and 5 are being met. Standards 5 and 6 are not applicable to this allotment. Current livestock grazing management practices are significant factors in not meeting Standards 1, 7, and 8, whereas current livestock management practices are not significant factors for not meeting Standard 4. Livestock management practices do not conform with the applicable Livestock Grazing Management Guidelines 1, 3, 4, 7, 8, 9, 10 11, and 12.

Field Manager 8/22/13 **Date**

Owyhee Field Office

2. Combination Creek Allotment Evaluation Findings and Determination

2013 Supplement to the Combination Creek Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

Standard 1 (Watersheds)

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

Standard

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

Guidelines

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

Rationale for Evaluation Finding and Determination

The Combination Creek allotment is not meeting Standard 1 due to past livestock grazing management practices. The reduction in soil and hydrologic function is associated with soil surface loss and degradation that continues to be displayed due to the presence of water erosion

relics. These are in various stages of stabilization as most are covered by biological soil crusts and mosses. Past grazing management altered plant community composition and distribution that now contains a high component of shallow-rooted bunchgrasses, though deep-rooted native perennial bunchgrasses are maintained.

With the vegetation cover reduced from moderate to heavy utilization in the past, abundant rock and gravel now fill much of the interspaces and provide stability. Ground cover and frequency trend show a long-term static to slightly upward trend though not quite conclusive enough to show significant progress toward meeting the Standard. Western juniper is scattered throughout the allotment and in some places are heavy enough to consider them at risk for potential deteriorating watershed function.

The localized reduction in ecological function from impaired soils indicates that soil and hydrologic function are compromised. Past livestock management is the primary contributing factor for not meeting Standard 1 and ORMP soil management objectives of improving unsatisfactory watershed health/conditions for the Combination Creek allotment.

2013 Supplement to the Combination Creek Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _5_

Rationale for Evaluation Finding and Determination

The named streams that occur within the Combination Creek allotment include Bogus, Combination, North Boulder, and South Boulder Creeks. The allotment is not meeting Standard 2 because reaches totaling 4.7 miles of Bogus, Combination, and South Boulder Creeks were most recently rated FAR. Similar issues were identified for all reaches and included an inadequate amount of hydric species to stabilize stream banks, riparian plants had low vigor, and there was a lack of large woody material that aids in dissipating energy during high flows. On one reach of Combination Creek, there were noxious weeds present, and on the reaches of South

Boulder Creek, there was undesirable herbaceous species encroaching (i.e., Kentucky Blue Grass).

The NHD does not identify any springs within the allotment.

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

2013 Supplement to Combination Creek Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _7_

Rationale for Evaluation Finding and Determination

The named streams that occur within the Combination Creek allotment include Bogus, Combination, North Boulder, and South Boulder Creeks. The allotment is not meeting Standard 2 because reaches totaling 4.7 miles of Bogus, Combination, and South Boulder Creeks were rated FAR. Similar issues were identified for all reaches and included an inadequate amount of hydric species to stabilize stream banks, riparian plants had low vigor, and there was a lack of large woody material that aids in dissipating energy during high flows. On one reach of Combination Creek, there were noxious weeds present, and on the reaches of South Boulder Creek, there was undesirable herbaceous species encroaching (i.e., Kentucky Blue Grass).

Current livestock grazing management practices are significant causal factors for not meeting Standard 3. Residual vegetation has not been sufficient to maintain or improve riparian-wetland function, the recent grazing schedule has not allowed for rest years, and the management has not

allowed progress toward appropriate stream channel and stream bank morphology and function. Therefore, current livestock grazing management practices do not conform with the Idaho Guidelines for Livestock Grazing Management applicable to Standard 3.

2013 Supplement to the Combination Creek Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

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

Rationale for Evaluation Finding and Determination

Rangeland health Standard 4 is being met in the Combination Creek allotment. Although soil stability is not improving on the site, making it at risk for future disturbance activities, all other indicators for productive native plants are maintained as appropriate to provide for proper nutrient cycling, hydrologic cycling, and energy flow on the allotment.

Qualitative rangeland health assessment data indicate that Standard 4 is met on two of the three sites, with moderate departure on one sight for plant mortality and increased water flow patterns, as concluded on the RHAs. This supports the conclusion that the allotment is meeting the Standard.

Overall interpretations of trend data suggest that grass frequency is primarily static with a short-term increase in Idaho fescue; biotic conditions are maintained with a shift to shallow-rooted bunchgrasses from historic livestock grazing. However, bluebunch wheatgrass remains at 29 percent occurrence on the trend site and Idaho fescue is increasing and co-dominating the trend site.

The Owyhee Resource Management Plan management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas is also met. Static and short-term upward trend recorded in the vegetation communities lead to a conclusion that the vegetation

management objective is being met.

Standard 5 (Rangeland Seeding)

This standard does not apply in this allotment.

Standard 6 (Exotic Plant Communities)

This standard does not apply in this allotment, which is managed for native plant communities.

2013 Supplement to the Combination Creek Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

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

Rationale for Evaluation Finding and Determination

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

Current IDEQ information identifies that the BLM portions within the Combination Creek allotment contain approximately 5.8 miles of stream that have not been assessed. The allotment contains portions of four AUs; however, none of them have been assessed. Therefore, information is not available regarding the beneficial uses or pollutants that may be impacting the streams that occur within the allotment.

Standard 7 is currently not applicable within the Combination Creek allotment because the streams have not been assessed by IDEQ.

2013 Supplement to the Combination Creek Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). 5, 7, 8, 11, and 12

Rationale for Evaluation Finding and Determination

Botany
Standard 8 for botany is met in the Combination Creek allotment. There are no federally listed plant species and there is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment.

Riparian Habitat
Evaluation of Standards 2 and 3 identified streams within this allotment that are not properly functioning due to historic and current grazing practices and therefore do not meet Standard 8. Streams, springs, and wetlands that are FAR are lacking adequate riparian vegetation composition and distribution to provide the structure and function to support a productive riparian environment. Because Standards 2 and 3 are not being met, this allotment is failing to provide adequate riparian conditions to support viable aquatic and terrestrial species populations and therefore is not meeting Standard 8 due to historic and current grazing practices.

2013 Supplement to the Combination Creek Allotment Rangeland Health Standards and Guidelines Assessment – Field Manager's Determination

Determination

I have determined that Standards 1, 2, 3, and 8 of the applicable Standards for Rangeland Health are not being met in the Combination Creek allotment, while Standard 4 is being met. Standards 5, 6, and 7 are not applicable to this allotment. Current livestock grazing management practices are significant factors in not meeting Standards 1, 2, 3, and 8. Livestock management practices do not conform with the applicable Livestock Grazing Management Guidelines 1, 3, 4, 5, 7, 8, 11, and 12.

Loretta V Clark 8/22/13

Field Manager **Date**
Owyhee Field Office

3. Boulder Allotment Evaluation Findings and Determination

2013 Supplement to the Boulder Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _1, 3, 4, 8_

Rationale for Evaluation Finding and Determination

Current and historic livestock grazing management practices are significant causal factors for not meeting upland watershed Standard 1 in pastures 1, 2, and 3 of the Boulder Creek allotment. The reduction in soil and hydrologic function is associated with physical soil disturbance and an altered plant community composition and distribution from decreased relative abundance of large, deep-rooted native perennial bunchgrasses.

Mechanical damage, impacts from trails, and pugging have impaired soils along with widespread erosion relics from past and current livestock grazing management where spring and growing season use has been ongoing and utilization has been moderate to heavy. Over time, altered plant community composition and distribution and loss of surface soils have reduced vegetation cover in interspaces. As a result, soil surface loss and degradation is present in the form of water flow paths and associated extensive pedestaling that are in various stages of stabilization.

Invasive annuals are also the cause for considering all pastures at risk for declining soil conditions. Pasture 2 is the most affected with shallow-rooted and deep-rooted perennial bunchgrasses declining and the latter being practically absent. The biotic integrity has been compromised by invasive annuals that, over the long term, have long-lasting negative impacts to hydrologic function and soil productivity.

The declining ecological condition and impaired soils indicate that soil and hydrologic function are compromised. Current and past livestock management is the primary contributing factor for not meeting. The ability for proper nutrient cycling, hydrologic cycling, and energy flow is impaired so that Standard 1 and ORMP soil management objectives of improving unsatisfactory watershed health/conditions are not met in the Boulder allotment.

2013 Supplement to the Boulder Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). 5, 6

Rationale for Evaluation Finding and Determination

There are two named streams that occur within pastures 2 and 3 of the allotment: Rail and Cattle Creeks. Additionally, one unnamed spring occurs in pasture 1 and two occur in pasture 3. A total of 1.6 miles of stream have been assessed and were rated FAR. Rail Creek was twice rated FAR (2001 and 2004) because there were inadequate riparian species present and noxious weeds

were increasing in the area. Approximately 0.5 mile of Cattle Creek was assessed as part of a longer reach of stream and was FAR because there was a lack of deep-rooted stabilizing species to protect the stream banks during times of high flow, there were downcut banks and the channel was incised, and there were unstable beaver dams present.

All three springs were rated FAR. The spring in pasture 1 had altered flow patterns and compacted soils from livestock trailing and trampling, subsequent erosion and deposition occurring, and the area was losing extent. Minear Creek Spring that occurs in pasture 1 was previously developed and had been deserted leaving a non-functioning riparian-wetland area. A second unnamed spring that occurs in pasture 3 had a high percent of bare ground, a lack of hydric species composition, and upland species were encroaching on the wetland area.

Current livestock grazing management practices are significant causal factors for not meeting Standard 2. Residual vegetation has not been sufficient to maintain or improve riparian-wetland function, and the springs were not developed to protect the ecological functions of water source. Therefore, current livestock grazing management practices do not conform with the Idaho Guidelines for Livestock Grazing Management applicable to Standard 2.

2013 Supplement to Boulder Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _7_

Rationale for Evaluation Finding and Determination

There are two named streams that occur within pastures 2 and 3 of the allotment: Rail and Cattle Creeks. Additionally one unnamed spring occurs in pasture 1 and two occur in pasture 3. A total of 1.6 miles of stream have been assessed and were rated FAR. Rail Creek was twice FAR (2001 and 2004) because there were inadequate riparian species present and noxious weeds were increasing in the area. Approximately 0.5 mile of Cattle Creek was assessed as part of a longer

reach of stream and was FAR because there was a lack of deep-rooted stabilizing species to protect the stream banks during times of high flow, there were downcut banks and the channel was incised, and there were unstable beaver dams present.

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

2013 Supplement to the Boulder Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

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

Rationale for Evaluation Finding and Determination

Rangeland Health Standard 4 is not met in the Boulder allotment. Annual invasives are increasing. The allotment shows evidence of historic grazing impacts are present, with the reduced composition of deep-rooted native perennial bunchgrasses (e.g., bluebunch wheatgrass and Idaho fescue less than 10 percent) from reference site conditions and a greater dominance by increaser species (e.g., Sandberg bluegrass and North African grass). Current grazing and invasive annuals are causal factors in not meeting Standard 4, due to repeated moderate utilization during spring use.

Qualitative rangeland health assessment data indicate that Standard 4 is not met, with moderate to extreme departure of functional/structural groups and plant mortality/decadence in the RHAs. The allotment is dominated by shallow-rooted bunchgrass and invasive annuals (rather than ecological reference site conditions dominated by deep-rooted species (bluebunch wheatgrass

and Idaho fescue). This conclusion is supported by current ecological site descriptions and correlation to vegetation inventories.

Overall interpretations of trend data in pasture 1 and 2 suggest that the continuous deterioration of biotic conditions due to decrease of deep-rooted bunchgrasses and increasing annual invasives has compromised the biotic integrity of the community.

The Owyhee Resource Management Plan management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas is also not met. Vegetation communities shifting to shallow-rooted bunchgrasses, with the expansion of annual invasive grasses lead to a conclusion that the vegetation management objective is not met.

Standard 5 (Rangeland Seeding)

This standard does not apply in this allotment.

Standard 6 (Exotic Plant Communities)

This standard does not apply in this allotment.

2013 Supplement to the Boulder Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

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

Rationale for Evaluation Finding and Determination

Idaho Department of Environmental Quality (IDEQ) designates basins, sub-basins, and assessment units in order to manage the state's waterways. The 2010 Integrated Report (303(d)/305(b)) uses assessment units within the sub-basin. Assessment units are groups of similar streams within a sub-basin that have similar land use practices, ownership, or land management. Assessment units are assessed for pollutants and assigned beneficial uses with associated Water Quality Standards. The Beneficial Use Reconnaissance Program (BURP) is a

field assessment of stream segments (all IDEQ data and standards mentioned here are available on the IDEQ web site http://www.deq.idaho.gov).

According to the Clean Water Act, each state must develop Total Maximum Daily Loads (TMDLs) for all the waters on the 303(d) list. The objective of a TMDL is to determine the loading capacity of the water body and to allocate that load among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved. The TMDL process is important for improving water quality because it links the development and implementation of control actions to the attainment of water quality standards. Once a TMDL is developed for a particular pollutant or pollution, it is effectively removed from the 303(d) list. Current IDEQ information identifies that the BLM portions of the four pastures within the Boulder allotment contain approximately 2.2 miles of stream that are not supporting the watershed's beneficial uses. The Boulder allotment contains a portion of AU # ID17050108SW004_02 with associated beneficial uses and pollutants (Table RIPN-16). The AUs are currently not supporting the beneficial uses, and all of the streams that occur within the AUs are also on the 303(d) list of impaired waters for the pollutants listed below; however, the streams have been de-listed for temperature because TMDLs have been developed and approved. However, the streams that occur within the AU are also not meeting the beneficial uses based on mercury. TMDLs have not been developed for the mercury pollution; thus, the streams that occur within these AUs are currently 303(d) listed.

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

Standard 7 is currently not being met in pastures 1 and 2 of the Boulder allotment, and is not applicable in pasture 3. However, because the streams are currently 303(d) listed based on mercury, the allotment is in conformance with the Guidelines for Livestock Grazing Management because livestock are not the causal factor.

Table RIPN-16: Stream information for the Boulder allotment

AU #	AU Name	Pasture (s) AU occurs in	Beneficial Use Not Meeting	Pollutant/ Pollution	TMDL
ID17050108SW004_02	Upper Jordan Creek - 1st and 2nd order tributaries	1, 2	CWAL[1] SCR[2]	mercury temperature	NO all streams

[1]CWAL = cold-water aquatic life
[2]SCR = secondary contact recreation

Evaluation Findings and Determination

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

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

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). 5, 7, 8, 11, and 12

Rationale for Evaluation Finding and Determination

Botany
Standard 8 for botany is met in the Boulder allotment. There are no federally listed plant species and there is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment.

Upland Habitat
Pastures 1, 2, and 3 are managed as native plant communities and are determined to be not meeting Standard 4 due to past and current livestock grazing practices and annual invasive species (see Standard 4). Currently, the herbaceous understory component is transitioning from basin big sagebrush/bluebunch wheatgrass reference community to a basin big sagebrush/Sandberg bluegrass- North African grass community. The downward trend in the plant community composition is favoring more grazing-tolerant, shallow-rooted grass species. These species do not have the robust growth form or stature such as bluebunch wheatgrass and do not provide the plant composition, structure, and function for sagebrush steppe dependent species. Due to the downward trend and transition in the plant community, it can be anticipated that upland habitat conditions will deteriorate further overtime; therefore this allotment is failing to provide adequate upland habitat conditions for sagebrush steppe species, and therefore is not meeting Standard 8 due to historic and current livestock practices.

Riparian Habitat
Evaluation of Standards 2 and 3 identified streams and springs within this allotment that are not properly functioning due to historic and current grazing practices (see Standard 2 and 3) and therefore do not meet Standard 8. Evaluation of Standard 7 identified streams that are not meeting Idaho DEQ water quality standards due to mercury pollutants and that livestock grazing was not a casual factor (see Standard 7). Streams, springs, and wetlands that are FAR are lacking

adequate riparian vegetation composition and distribution to provide the structure and function to support a productive riparian environment. Because Standards 2 and 3 are not being met, this allotment is failing to provide adequate riparian conditions to support viable aquatic and terrestrial species populations and therefore is not meeting Standard 8 due to historic and current grazing practices.

Focal Species

Pasture 1 and 3 showed unsuitable to marginal breeding and upland summer habitat conditions. The primary cause for not meeting sage-grouse habitat criteria is driven by reduced canopy cover of large deep-rooted perennial grasses (i.e., bluebunch wheatgrass, Idaho fescue) in the understory, indicating that functional nesting, brood-rearing, escape, and hiding cover values are not adequate and therefore are not meeting Standard 8 due to past and current grazing practices.

Pasture 2 showed suitable breeding habitat conditions for sage-grouse. This rating appears to be inconsistent with the determination in Standard 4 that showed a reduced abundance of perennial grasses and was failed because of an increased dominance of Sandberg bluegrass and North African grass (see Standard 4). The sage-grouse habitat assessment showed that adequate (suitable) perennial grasses were occurring in this pasture. However, suitable occurrence of perennial grasses identified by the habitat assessment does not equate to optimum conditions but rather that the minimum canopy cover for sage-grouse nesting and early brood-rearing are being provided. Also, the 18 percent canopy cover of perennial grasses shown in the sage-grouse assessment is at the lower scale of the habitat indicator (Appendix B). Consistent information between the rangeland health assessment and the sage-grouse assessment is the increase in invasive annuals in the community. This signals a transition in the plant community composition and structure is occurring. Overall, because pasture 1 and 3 are not providing desirable sage-grouse habitat conditions, and pasture 2 is failing Standard 4 because of invasive annuals, this allotment is therefore not meeting Standard 8 due to historic and current grazing practices and invasive annuals.

This allotment is within the distribution of the Columbia spotted frog. Evaluation of Standards 2 and 3 identified streams and springs that are not properly functioning due to current grazing practices and Standard 7 identified that water quality parameters were not being met but that current grazing practices were not the causal factor (see Standard 2, 3, and 7). Spotted frogs are usually found along vigorous grassy/sedge margins of streams, lakes, ponds, springs, and marshes not far from sources of quiet permanent water. They migrate along these vegetation corridors between habitats used for spring breeding, summer foraging, and winter hibernation. Because streams and springs are not functioning properly, this allotment is not providing adequate aquatic conditions to sustain viable populations of spotted frogs and therefore is not meeting Standard 8 due historic and current grazing practices.

2013 Supplement to the Boulder Allotment Rangeland Health Standards and Guidelines Assessment – Field Manager's Determination

Determination

I have determined that Standards 1, 2, 3, 4, 7, and 8 of the applicable Standards for Rangeland Health are not being met in the Boulder allotment, while Standards 5 and 6 are not applicable to this allotment. Current livestock grazing management practices are significant factors in not meeting Standards 1, 2, 3, 4, and 8, while livestock is not the causal factor for not meeting Standard 7. Livestock management practices do not conform with the applicable Livestock Grazing Management Guidelines 1, 3, 4, 5, 6, 7, 8, 9, 11, and 12.

Scott V Cleveland _____ 8/22/13 _____

Field Manager **Date**

Owyhee Field Office

4. South Mountain Individual Allotment Evaluation Findings and Determination

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

Evaluation Findings and Determination

Standard 1 (Watersheds)

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

Standard

□ Standard does not apply

□ Meeting the Standard

■ Not meeting the Standard: Current livestock grazing management practices are significant factors

□ Not Meeting the Standard; Making significant progress toward

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

Guidelines

□ Conforms with Guidelines for Livestock Grazing Management

■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _1, 3, 4, 8_

Rationale for Evaluation Finding and Determination

Current and past livestock grazing management practices are significant causal factors for not meeting upland watershed Standard 1 in pastures 1 and 2 of the South Mountain Individual

allotment. Conditions in both pastures are deteriorated by the widespread and uniform loss of the soil surface horizon, active erosional features, extensive bare ground, and physical impacts from increased amounts of trails and hoof shearing.

The reduction in soil and hydrologic function is associated with altered plant community composition and distribution due to decreased relative abundance of large, deep-rooted native perennial bunchgrasses. Past grazing management altered plant community composition and distribution that has resulted in accelerated erosional processes and extensive loss of surface soils. The establishment of vegetation cover in interspaces continues to be inhibited as mortality rates on pedestals are high and as mechanical disturbance from spring grazing continues.

Degraded ecological conditions will not lead to improvement in watershed health, especially with spring grazing in the absence of rest. The decreased ability for proper nutrient cycling, hydrologic cycling, and energy flow due to reduced soil and hydrologic function lead to a conclusion that current livestock management is the primary causal factor in not meeting Standard 1 and ORMP soil management objectives of improving unsatisfactory watershed health/conditions for the South Mountain Individual allotment.

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

Evaluation Findings and Determination

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

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

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

Rationale for Evaluation Finding and Determination

The South Mountain Individual allotment is not meeting Standard 2. Pasture 1 contains 0.3 mile of Old Man Creek that was rated FAR with an upward trend in 2004; the observers noted improvement, but there were issues with the banks being terraces and the channel was over-wide. Another 0.3 mile of Rail Creek was assessed FAR in 2000 because there was a lack of composition and age class of hydric vegetation that is necessary to protect streambanks.

Approximately 1.7 miles of South Boulder Creek were rated FAR in 2000 because the vegetation present did not reflect maintenance of hydric soils and the vegetation was inadequate to protect stream banks. In 2011, apportion of the same reach was re-visited and the observers noted the stream is geologically confined and inaccessible to livestock; however, the PFC protocol was not applied. Within pasture 2, 1.5 miles of South Mountain Creek were assessed FAR in 2000. The stream reach had an inadequate cover of hydric species to stabilize and protect stream banks during high flows, the vegetation present was in poor condition, and the banks and channel were trampled by livestock. A 0.6-mile portion of the same reach was re-visited in 2011 and photos and field notes were taken. The reach appeared to be FAR, with a lack of hydric vegetation present and evidence of stream bank and channel trampling. The observers also noted that the stream was fish bearing.

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

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

Evaluation Findings and Determination

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

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

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _7_

Rationale for Evaluation Finding and Determination

The South Mountain Individual allotment is not meeting Standard 3 on pasture 2 because 1.5 miles of South Mountain Creek were assessed FAR. The stream reach had inadequate cover of hydric species to stabilize and protect stream banks during high flows, the vegetation present was in poor condition, and the banks and channel were trampled by livestock.

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

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

Evaluation Findings and Determination

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

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

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

Rationale for Evaluation Finding and Determination

Rangeland health Standard 4 is not met in pastures 1 and 2 of the South Mountain Individual allotment. Evidence of historic grazing impacts are present throughout the allotment, with the reduced composition of deep-rooted native perennial bunchgrasses (e.g., bluebunch wheatgrass and Idaho fescue) from reference site conditions and a greater dominance by increaser species (e.g., Sandberg bluegrass and squirreltail) including juniper. Historic grazing and invasive annuals in pasture 1 and 2 are the causal factors in the failure to meet Standard 4.

Qualitative rangeland health assessment data indicate that Standard 4 is not being met in pastures 1 and 2, with moderate to extreme departure of functional-structural groups in the RHAs dominated by shallow-rooted bunchgrass and invasive annuals, rather than the ecological reference site conditions dominated by deep-rooted species (bluebunch wheatgrass and Idaho fescue). This conclusion is supported by current ecological site descriptions and correlation to vegetation inventories.

Overall interpretations of trend data in pasture 2 suggest that the continuous deterioration of

biotic conditions due to lack of deep-rooted bunchgrasses and increasing annual invasives on the site has compromised the biotic integrity of the site.

The Owyhee Resource Management Plan management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas is also not met within pasture 2 and 3. Vegetation communities dominated by shallow-rooted bunchgrasses in pasture 1 and 2, with the expansion of annual invasive grasses lead to a conclusion that the vegetation management objective is not met.

Standard 5: Rangeland Seeding

This Standard does not apply to this allotment as no area is managed for seeded species.

Standard 6: Exotic Plant Communities

This Standard does not apply to this allotment.

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

Evaluation Findings and Determination

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

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

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

Rationale for Evaluation Finding and Determination

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

According to the Clean Water Act, each state must develop Total Maximum Daily Loads (TMDLs) for all the waters on the 303(d) list. The objective of a TMDL is to determine the loading capacity of the water body and to allocate that load among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved. The TMDL process is important for improving water quality because it links the development and implementation of control actions to the attainment of water quality standards. Once a TMDL is developed for a particular pollutant or pollution, it is effectively removed from the 303(d) list. Current IDEQ information identifies that the BLM portions of the two pastures within the South Mountain Individual allotment contain approximately 0.9 miles of stream that are not supporting the watershed's beneficial uses, 1.0 mile that is fully supporting, and 7.8 miles that have not been assessed. The allotment contains portions of 5 AUs with associated beneficial uses and pollutants (Table RIPN-17). One of the AUs is currently not supporting the beneficial uses, and all of the streams that occur within those AUs are also on the 303(d) list of impaired waters for the pollutants listed below; however, the streams have been de-listed for temperature because TMDLs have been developed and approved. However, the streams that occur within AU# ID17050108SW004_02 is also not meeting the beneficial uses based on mercury. TMDLs have not been developed for the mercury pollution; thus, the streams that occur within these AUs are currently 303(d) listed.

Potential Natural Vegetation (PNV) TMDLs were developed for temperature for the streams within AU# ID17050108SW004_02. Idaho water quality standards include a provision (IDAPA 58.01.02.200.09), which establishes that if natural conditions exceed numeric water quality criteria, exceedance of the criteria is not considered to be a violation of water quality standards. In these situations, natural conditions essentially become the water quality standard, and the natural level of shade and channel width become the target of the TMDL. The in-stream temperature that results from attainment of these conditions is consistent with the water quality standards, even though it may exceed numeric temperature criteria.

Standard 7 is currently not being met in pastures 1 of the South Mountain Individual allotment; however, because the streams are 303(d) listed based on mercury, the allotment is in conformance with the Guidelines for Livestock Grazing Management because livestock are not the causal factor. Standard 7 is not applicable in pasture 2 because the streams have not been assessed by IDEQ.

Table RIPN-17: DEQ water quality summary for the South Mountain Individual allotment

AU #	AU Name	Pasture (s) AU occurs in	Beneficial Use Not Meeting	Pollutant/ Pollution	TMDL
ID17050108SW004_02	Upper Jordan Creek - 1st and 2nd order tributaries	1	CWAL[1] SCR[2]	temperature mercury	all streams NO
ID17050108SW005_02	Old Man, Coyote, Howl and parts of South Mountain	1, 2	not assessed	NA	NA

	Creeks				
ID17050108SW005_03	South Mountain Creek - 3rd order	2	fully supporting	NA	NA
ID17050108SW006_03	South Boulder and Indian Creeks - 3rd order sections	2	fully supporting	NA	NA
ID17050108SW006_04	South Boulder Creek - 4th order (Indian Creek to mouth)	2	not assessed	NA	NA

[1]CWAL = cold-water aquatic life
[2]SCR = secondary contact recreation

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

Evaluation Findings and Determination

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

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

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). 5, 7, 8, 11, and 12

Rationale for Evaluation Finding and Determination

Botany
Standard 8 for botany is met in the South Mountain Individual allotment. There are no federally listed plant species and there is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment.

Wildlife

Upland Habitat

Evaluation of Standard 4 determined that the South Mountain Individual allotment is not meeting Rangeland Health Standards due to past grazing practices, invasive annuals, and juniper encroachment (see Standard 4). Currently, the plant community is transitioning from a dominance of large perennial grasses such as bluebunch wheatgrass and Idaho fescue to a community dominated by smaller, more grazing-tolerant species such as Sandberg bluegrass and invasive annual species. These species do not have the robust growth form or stature such as larger perennial grasses and do not provide the plant composition, structure, and function for sagebrush steppe-dependent species. In addition, the invasion of juniper is contributing to changes in the distribution and composition of the sagebrush steppe habitat type and creating a less-than-desirable environment for upland sagebrush steppe-dependent species. Because the upland plant community is showing a downward trend in sagebrush community composition, distribution, and structure, this allotment therefore is failing to provide adequate upland habitat conditions for sagebrush steppe species and is not meeting Standard 8 due to historic livestock practices, invasive annuals, and juniper encroachment.

Riparian Habitat

Evaluation of Standards 2 and 3 identified streams and springs within this allotment that are not properly functioning due to historic and current grazing practices (see Standard 2 and 3) and therefore do not meet Standard 8. This allotment is also not meeting water quality parameters set by Idaho DEQ due to high levels of mercury pollutants and not livestock grazing practices (see Standards 7). Streams, springs, and wetlands that are FAR are lacking adequate riparian vegetation composition and distribution to provide the structure and function to support a productive riparian environment. Because Standards 2 and 3 are not being met, this allotment is failing to provide adequate riparian conditions to support viable aquatic and terrestrial species populations and therefore is not meeting Standard 8 due to historic and current grazing practices.

Focal Species

This allotment lies within mapped PPH habitat for sage-grouse. Both sage-grouse breeding and upland summer habitat conditions in pasture 2 were found to be marginal. The habitat assessments recorded marginal sagebrush canopy cover and height and unsuitable canopy cover of large perennial grasses (i.e., Idaho fescue) and forbs, indicating that functional nesting, brood-rearing, escape, and hiding cover values are not being fully provided in this pasture. Overall, this allotment is not providing adequate sage-grouse habitat conditions and therefore is not meeting Standard 8 due to historic and current grazing practices.

Columbia River redband trout are known to occur in streams within this allotment. Evaluation of Standards 2 and 3 identified streams functioning-at-risk due to historic and current grazing practices (see Standards 2 and 3). Redband trout require intact channels with well-developed riparian communities that stabilize banks to minimize erosion and create undercuts, minimize impacts of flood events and filters sediments, provide shade to reduce water temperatures, and contribute woody debris to create channel structure and regulate seasonal flow. Because these in-stream and near-stream habitat characteristics are not fully represented, this allotment is not providing adequate riparian conditions to sustain viable populations of redband trout and therefore is not meeting Standard 8 due to current grazing practices due to historic and current grazing practices.

This allotment is within the distribution of the Columbia spotted frog. Evaluation of Standards 2 and 3 identified streams and springs that are not properly functioning due to historic and current grazing practices (see Standards 2 and 3). Spotted frogs are usually found along vigorous grassy/sedge margins of streams, lakes, ponds, springs, and marshes not far from sources of quiet permanent water. They migrate along these vegetation corridors between habitats used for spring breeding, summer foraging, and winter hibernation. Because streams and springs are not functioning properly, this allotment is not providing adequate aquatic conditions to sustain viable populations of spotted frogs and therefore is not meeting Standard 8 due to historic and current grazing practices.

2013 Supplement to the South Mountain Individual Rangeland Health Standards and Guidelines Assessment – Field Manager's Decision

Determination

I have determined that Standards 1, 2, 3, 4, 7, and 8 of the applicable Standards for Rangeland Health are not being met in the South Mountain Individual allotment, while Standards 5 and 6 are not applicable to this allotment. Current livestock grazing management practices are significant factors in not meeting Standards 1, 2, 3, and 8, while livestock is not the causal factor for not meeting Standards 4 and 7. Livestock management practices do not conform with the applicable Livestock Grazing Management Guidelines 1, 3, 4, 5, 7, 8, 11, and 12.

Scott V Charnes 8/22/13

Field Manager **Date**
Owyhee Field Office

5. Bachelor Flat FFR Allotment Evaluation Findings and Determination

2013 Supplement to the Bachelor Flat FFR Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

Guidelines

□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). 1, 3, 8

Rationale for Evaluation Finding and Determination

Past wildfires are the causal factors for not meeting upland watershed Standard 1 in pasture 1 of the Bachelor Flat FFR allotment; pasture 2 is not meeting due to current livestock grazing management. The reduction in soil and hydrologic function is associated with altered plant community composition, distribution from a decreased relative abundance of large, deep-rooted native perennial bunchgrasses, and dominance of invasive annuals.

Despite relatively stable soils, watershed conditions in pasture 1 are deteriorating due to the invasion of annual grasses and the resulting extreme departure from expected vegetative conditions. Annual invasive plants, such as cheatgrass and medusahead, dominate along a lesser component of shallow- and deep-rooted perennial bunchgrasses.

Parts of the allotment have already burned several times, and the lack of shrubs and their recruitment is contributing to an extreme departure in plant community distribution and associated hydrologic function. This increases the potential to re-burn in much shorter fire intervals. Subsequently, the remaining adjacent unburned areas are at a greater risk from the spread of invasive annuals.

Conditions in pasture 2 are deteriorated due to commonly observed loss of soil surface horizon, active erosional features, and physical impacts from hoof action. The presence of erosion relics and the removal of surface soils have reduced vegetative cover, as bare soils and flow paths display variable stages of stabilization. With a decrease in cover from vegetation, litter, and organic matter, and the reduced presence of biological soil crusts, watershed function is reduced. Declining ecological conditions and impaired soils indicate that soil and hydrologic function are compromised from the lack of species diversity and the localized invasion of annuals. Recent wildfires and past and current livestock management are the primary contributing factors for not meeting Standard 1 and ORMP soil management objectives for the Bachelor Flat FFR allotment.

2013 Supplement to the Bachelor Flat FFR Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

significant factors

Guidelines

■ Conforms with Guidelines for Livestock Grazing Management

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

—

Rationale for Evaluation Finding and Determination

Standard 2 is being met in the Bachelor Flat FFR. Big Boulder and Rail Creeks are the named streams that occur within the allotment, and approximately 1.5 miles of Big Boulder were most recently observed in a geologically confined canyon with limited access by livestock. Approximately 0.5 mile of Rail Creek was most recently rated in PFC. Similarly, the reach of stream occurs in a relatively deep canyon and is well armored with woody species and bedrock.

One spring was assessed in PFC in pasture 1. The lentic area had sufficient vegetation and soil moisture characteristics present to maintain the riparian-wetland area. However, there was a dam and some trampling present. Therefore, current livestock grazing management practices conform with the Idaho Guidelines for Livestock Grazing Management applicable to Standard 2.

2013 Supplement to Bachelor Flat FFR Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

Standard 3 (Stream Channel/Floodplain)

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

Standard

□ Standard does not apply

■ Meeting the Standard

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

□ Not Meeting the Standard; Making significant progress toward

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

Guidelines

■ Conforms with Guidelines for Livestock Grazing Management

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

—

Rationale for Evaluation Finding and Determination

Standard 3 is being met in the Bachelor Flat FFR. Big Boulder and Rail Creeks are the named streams that occur within the allotment, and approximately 1.5 miles of Big Boulder were most recently observed in a geologically confined canyon with limited access by livestock. Approximately 0.5 mile of Rail Creek was most recently rated in PFC. Similarly, the reach of

stream occurs in a relatively deep canyon and is well armored with woody species and bedrock. Therefore, current livestock grazing management practices conform with the Idaho Guidelines for Livestock Grazing Management applicable to Standard 3.

2013 Supplement to the Bachelor Flat FFR Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

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

Rationale for Evaluation Finding and Determination

Rangeland Health Standard 4 is not being met in pasture 1 but is being met in pasture 2 of the Boulder Flat FFR allotment. Although soil stability are decreasing in pasture 2, making it at risk for future disturbance activities, all other indicators for productive native plants are maintained as appropriate to provide for proper nutrient cycling, hydrologic cycling, and energy flow in pasture 2. Pasture 1 shows evidence of historic grazing impacts that are present throughout the pasture, with the reduced composition of deep-rooted native perennial bunchgrasses (e.g., bluebunch wheatgrass and Idaho fescue) from reference site conditions and a greater dominance by increaser species (e.g., Sandberg bluegrass and squirreltail). Historic grazing, annual invasives and the Flint Creek Fire in pasture 1 are causal factors in not meeting Standard 4, as evidenced by a shift in community composition to shallow-rooted bunchgrasses and juniper encroachment.

Qualitative rangeland health assessment data indicate that Standard 4 is not met in pasture 1, with poor soil surface structure and physical crusting in the RHAs dominated by shallow-rooted bunchgrass, in addition to a moderate to extreme departure in annual invasives, rather than ecological reference site conditions dominated by deep-rooted species (bluebunch wheatgrass and Idaho fescue). This conclusion is supported by current ecological site descriptions and correlation to vegetation inventories.

Overall interpretations of trend data in pasture 1 suggest that the continuous deterioration of biotic conditions due to significant reductions in Idaho fescue and dominance of shallow-rooted bunchgrasses on the site has compromised the biotic integrity of the site. In addition, 2012 sage-grouse monitoring data showed 40 percent canopy cover of annual invasives.

The Owyhee Resource Management Plan management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas is also not met within pasture 1. Vegetation communities dominated by shallow-rooted bunchgrasses in pasture 1, with the expansion of annual invasive grasses and juniper encroachment, lead to a conclusion that the vegetation management objective is not met.

Standard 5: Rangeland Seeding

This Standard does not apply to the Bachelor Flat FFR Allotment.

Standard 6: Exotic Plant Communities

This Standard does not apply to the Bachelor Flat FFR Allotment.

2013 Supplement to the Bachelor Flat FFR Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

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

Rationale for Evaluation Finding and Determination

Idaho Department of Environmental Quality (IDEQ) designates basins, sub-basins, and assessment units in order to manage the state's waterways. The 2010 Integrated Report (303(d)/305(b)) uses assessment units within the sub-basin. Assessment units are groups of similar streams within a sub-basin that have similar land use practices, ownership, or land management. Assessment units are assessed for pollutants and assigned beneficial uses with associated Water Quality Standards. The Beneficial Use Reconnaissance Program (BURP) is a

field assessment of stream segments (all IDEQ data and standards mentioned here are available on the IDEQ web site http://www.deq.idaho.gov).

According to the Clean Water Act, each state must develop Total Maximum Daily Loads (TMDLs) for all the waters on the 303(d) list. The objective of a TMDL is to determine the loading capacity of the water body and to allocate that load among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved. The TMDL process is important for improving water quality because it links the development and implementation of control actions to the attainment of water quality standards. Once a TMDL is developed for a particular pollutant or pollution, it is effectively removed from the 303(d) list.

Current IDEQ information identifies that the BLM portion of the two pastures within the Bachelor Flat FFR allotment contain approximately 0.5 mile of stream that are not supporting the watershed's beneficial uses, 1.0 mile that is fully supporting, and 0.9 mile that has not been assessed. The allotment contains portions of 3 AUs with associated beneficial uses and pollutants (Table RIPN-18). AU # ID17050108SW004_02 is currently not supporting the beneficial uses, and all of the streams that occur within them are also on the 303(d) list of impaired waters for both temperature and mercury. However, TMDLs for temperature that identify actions on the ground to eliminate the pollutants have been developed and approved.

Potential Natural Vegetation (PNV) TMDLs were developed for temperature for AU # ID17050108SW004_02. Idaho water quality standards include a provision (IDAPA 58.01.02.200.09), which establishes that if natural conditions exceed numeric water quality criteria, exceedance of the criteria is not considered to be a violation of water quality standards. In these situations, natural conditions essentially become the water quality standard, and the natural level of shade and channel width become the target of the TMDL. The in-stream temperature that results from attainment of these conditions is consistent with the water quality standards, even though it may exceed numeric temperature criteria. However, current IDEQ information indicates that the reach of Jordan Creek that traverses BLM land in pasture 1 and has been evaluated for temperature using the PNV approach are not meeting the shade target established.

Although the stream that traverses pasture 2 has not been assessed by IDEQ, BLM has assessed Old Man Creek FAR. There was inadequate hydric vegetation present to stabilize and protect stream banks during high flow events. Therefore, increased erosion was occurring, contributing sediment to the streams, decreasing water quality. Additionally, BLM found temperatures exceeding SS and CWAL criterion on Old Man Creek. The State of Idaho criterion for CWAL beneficial use requires water temperatures of 22º C or less with a maximum daily average of less than 19º C.

Based on the streams presence on the 303(d) list of impaired waters for mercury, Standard 7 is not being met in pasture 1 of the Bachelor Flat FFR allotment, and is not applicable to pasture 2. The allotment is in conformance with Guideline #10 for Livestock Grazing Management because the causal factor is mercury that cannot be attributed to livestock.

Table RIPN-18: DEQ water quality summary for the Bachelor Flat FFR allotment

AU #	AU Name	Beneficial Use Not Being Met	Pollutant/ Pollution	TMDL

ID17050108SW004_02	Upper Jordan Creek - 1st and 2nd order tributaries	CWAL[1] SCR[2]	temperature mercury	all streams NO
ID17050108SW005_02	Old Man, Coyote, Howl and parts of South Mountain Creeks	not assessed		
ID17050108SW005_05	Big Boulder Creek - South Boulder Creek to Jordan Creek	fully supporting		

[1]CWAL = cold-water aquatic life
[2]SCR = secondary contact recreation

Evaluation Findings and Determination

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

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

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). 5,7, 8, 11, 12

Rationale for Evaluation Finding and Determination

Botany
Standard 8 for botany is met in the Bachelor Flat FFR allotment. There are no federally listed plant species and there is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment.

Upland Habitat
Pasture 1 in the Bachelor Flat FFR allotment is managed as a native plant community and is determined to be not meeting Standard 4 (see Standard 4) due to annual invasive species and past

fire. Evaluation of Standard 4 noted an increase in annual invasive grass species showing a transition in the plant community composition from native bunchgrasses to more grazing-tolerant exotic species. This information is also consistent with the vegetation data for sage-grouse habitat assessments that showed less-than-adequate (marginal) occurrences of large perennial grasses. Annual species do not have the robust growth form or stature such as bluebunch wheatgrass and do not provide the plant community composition, structure, and function for sagebrush steppe-dependent species and therefore, these pastures are not meeting Standard 8 due to historic grazing practices and annual invasive species.

Pasture 2 in Bachelor Flat FFR allotment is managed as a native plant community and is determined to be meeting Standard 4 for basic proper nutrient cycling, hydrologic cycling, and energy flow requirements (see Standard 4). This is inconsistent with other vegetation information collected by the 2012 sage-grouse habitat assessment that showed that this pasture is not providing adequate habitat conditions for sage-grouse due to unsuitable canopy cover of perennial grasses. This discrepancy is due to the transect location of the two vegetation collection methods. The rangeland health assessment was collected in a low sagebrush (Shallow Claypan site); one of the sage-grouse assessments was collected near a reservoir where low occurrence of perennial grasses would be expected to occur, and the other is located in a Wyoming big sagebrush site (Loamy inclusion) that is showing a low occurrence of perennial grasses as well. Because the loamy inclusion site is also not providing adequate sage-grouse habitat values, this site therefore is not providing adequate (unsuitable) cover conditions and is not meeting Standard 8 for upland wildlife due to historic grazing practices.

Riparian

Evaluation of Standard 7 found that waters within the Bachelor Flat allotment were not meeting Idaho water quality parameters due to mercury pollutants. (see Standard 7). These waters are not providing habitat quality for beneficial uses which includes cold-water aquatic species. Because water quality standards are not being met, this allotment is failing to provide adequate aquatic habitat conditions for cold water species and is therefore is not meeting Standard 8 due to mercury pollutants. However, livestock grazing practices are not identified as a contributing casual factor.

Focal Species

This allotment lies within mapped PPH habitat for sage-grouse. Both sage-grouse breeding and upland summer habitat conditions in pasture 2 were found to be unsuitable. The habitat assessments recorded marginal sagebrush canopy cover and height and unsuitable canopy cover of large perennial grasses (i.e., bluebunch wheatgrass) and forbs, indicating that functional nesting, brood-rearing, escape, and hiding cover values are not being provided in this pasture. Overall, this allotment is failing to provide adequate (unsuitable) sage-grouse habitat conditions and therefore is not meeting Standard 8 due to historic grazing practices.

Columbia River redband trout are known to occur within the Jordan Creek system. Evaluation of Standard 7 identified streams not meeting water quality parameters due to mercury pollutants and elevated stream temperatures (see Standard 7). Redband trout is a beneficial use within this watershed and requires cold, clean water. Because healthy water quality conditions are not providing beneficial uses in the Jordan Creek system, this allotment is not providing adequate

aquatic conditions to sustain viable populations of redband trout and therefore is not meeting Standard 8 due to mercury pollutants and elevated stream temperatures and not livestock grazing practices.

This allotment is within the distribution of the Columbia spotted frog. Evaluation of Standard 7 identified streams not meeting water quality parameters due to mercury pollutants and elevated stream temperatures (see Standard 7). Spotted frogs are usually found along vigorous grassy/sedge margins of streams, lakes, ponds, springs, and marshes not far from sources of quiet permanent water. They migrate along these vegetation corridors between habitats used for spring breeding, summer foraging, and winter hibernation. Because healthy water quality conditions are not being provided for beneficial uses in the Jordan Creek, this allotment is not providing adequate aquatic conditions to sustain viable populations of spotted frogs and therefore is not meeting Standard 8 due to mercury pollutants and elevated stream temperatures and not livestock grazing practices.

2013 Supplement to the Bachelor Flat FFR Rangeland Health Standards and Guidelines Assessment - Field Manager's Determination

Determination

I have determined that Standards 1, 4, 7, and 8 of the applicable Standards for Rangeland Health are not being met in the Bachelor Flat FFR allotment, while Standards 2 and 3 are being met. Standards 5 and 6 are not applicable to this allotment. Current livestock grazing management practices are significant factors in not meeting Standard 1 and 8, while livestock is not the causal factor for not meeting Standards 4 and 7. Livestock management practices do not conform with the applicable Livestock Grazing Management Guidelines 1, 3, 5, 7, 8, 11, and 12.

Lonetta V Chanek 8/22/13

Field Manager **Date**
Owyhee Field Office

6. Boulder Flat Allotment Evaluation Findings and Determination

2013 Supplement to the Boulder Flat Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

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

Guidelines

□ Conforms with Guidelines for Livestock Grazing Management

■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). 1, 3, 4, 8

Rationale for Evaluation Finding and Determination

Current and past livestock grazing management practices are significant causal factors for not meeting upland watershed Standard 1 in pastures 1 and 2 of the Boulder Flat allotment. The reduction in soil and hydrologic function is primarily associated with historic and active accelerated erosional processes that have increased pedestaling of plants and have altered soil infiltration and runoff through elevated water flow. Soil loss is in various stages of stabilization.

The reduction in soil and hydrologic function is associated with an altered plant community composition and distribution from decreased relative abundance of large, deep-rooted native perennial bunchgrasses. Livestock grazing continues to affect the biological soil crust component, especially in the interspatial areas, adding to a reduction in soil stability.

A static ground cover trend and a recent increase in bare ground coincide with declining biotic conditions in pasture 1, where deep-rooted bunchgrasses have been on a steady decline. Pasture 2 shows some progress, as deep-rooted bunchgrasses are increasing within the otherwise dominating shallow-rooted species. However, soil stability and hydrologic function are lagging and continue to impact watershed health as ground cover trend shows recent slight increases in bare ground and ongoing active signs of erosion in some areas of the pasture.

Taken together, soil and hydrologic function are compromised and decrease the ability for proper nutrient cycling, hydrologic cycling, and energy flow as grazing occurs during the spring and active growing season. Current and historic livestock management is the primary contributing factor for not meeting Standard 1 and ORMP soil management objectives of improving unsatisfactory watershed health/conditions for the Boulder Flat allotment.

2013 Supplement to the Boulder Flat Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

Standard 2 (Riparian Areas and Wetlands)

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

Standard

□ Standard does not apply

□ Meeting the Standard

■ Not meeting the Standard; Current livestock grazing management practices are significant factors

□ Not Meeting the Standard; Making significant progress toward

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

Guidelines

□ Conforms with Guidelines for Livestock Grazing Management

■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _5_

Rationale for Evaluation Finding and Determination

The Boulder Flat allotment is not currently meeting Standard 2. The named streams that occur within the Boulder Flat allotment include Big Boulder, Jordan, Old Man, Rail, a tributary to Rail, and South Mountain Creeks. A total of 9.5 miles of stream have been assessed at least once. Based on the most current assessment, 7.2 miles are FAR, and 2.3 miles are in PFC. Generally, the issues related to those reaches of stream that are FAR include an inadequate amount of hydric vegetation to stabilize and protect banks during high flows, noxious weed presence, erosion occurring, and plants with low vigor.

Additionally, a MMIM site was established in pasture 2 in 2011 on the reach of South Mountain Creek that had previously been assessed FAR using the PFC protocol. The modified version of MIM collects the short-term indicators (stubble height, woody browse, and stream bank alteration). The metrics indicated that the stream is not meeting ORMP objectives and is not functioning at the minimal level.

Current livestock grazing management practices are significant causal factors for not meeting Standard 2. Residual vegetation has not been sufficient to maintain or improve riparian-wetland function. Therefore, current livestock grazing management practices do not conform with the Idaho Guidelines for Livestock Grazing Management applicable to Standard 2.

2013 Supplement to Boulder Flat Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

Standard 3 (Stream Channel/Floodplain)

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

Standard

□ Standard does not apply

□ Meeting the Standard

■ Not meeting the Standard; Current livestock grazing management practices are significant factors

□ Not Meeting the Standard; Making significant progress toward

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

Guidelines

□ Conforms with Guidelines for Livestock Grazing Management

■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _7_

Rationale for Evaluation Finding and Determination

The Boulder Flat allotment is not currently meeting Standard 3. The named streams that occur within the Boulder Flat allotment include Big Boulder, Jordan, Old Man, Rail, a tributary to Rail, and South Mountain Creeks. A total of 9.5 miles of stream have been assessed at least once. Based on the most current assessment, 7.2 miles are FAR, and 2.3 miles are in PFC. Generally, the issues related to those reaches of stream that are FAR include an inadequate amount of hydric vegetation to stabilize and protect banks during high flows, noxious weed presence, erosion occurring, and plants with low vigor.

Additionally, a MMIM site was established in pasture 2 in 2011 on the reach of South Mountain Creek that had previously been assessed FAR using the PFC protocol. The modified version of MIM collects the short-term indicators (stubble height, woody browse, and stream bank alteration). The metrics indicated that the stream is not meeting ORMP objectives and is not functioning at the minimal level.

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

2013 Supplement to the Boulder Flat Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

Standard 4 (Native Plant Communities)

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

Standard

□ Standard does not apply

□ Meeting the Standard

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

□ Not Meeting the Standard; Making significant progress toward

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

Guidelines

■ Conforms with Guidelines for Livestock Grazing Management

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

Rationale for Evaluation Finding and Determination

Rangeland Health Standard 4 is not being met in pasture 1 but is being met in pasture 2 of the Boulder Flat allotment. Although soil stability is decreasing in pasture 2, making it at risk for future disturbance activities, all other indicators for productive native plants are maintained as appropriate to provide for proper nutrient cycling, hydrologic cycling, and energy flow in pasture 2. Pasture 1 shows evidence of historic grazing impacts throughout the pasture, with the reduced composition of deep-rooted native perennial bunchgrasses (e.g., bluebunch wheatgrass and Idaho fescue) from reference site conditions and a greater dominance by increaser species (e.g., Sandberg bluegrass and squirreltail). Historic grazing in pasture 1 is the causal factor in not meeting Standard 4, as evidenced by a shift in community composition to shallow-rooted bunchgrasses and juniper encroachment.

Qualitative rangeland health assessment data indicate that Standard 4 is not being met in pasture 1, with poor soil surface structure and physical crusting in the RHAs dominated by shallow-rooted bunchgrass, rather than the ecological reference site conditions dominated by deep-rooted species (bluebunch wheatgrass and Idaho fescue). This conclusion is supported by current ecological site descriptions and correlation to vegetation inventories.

Overall interpretations of trend data in pasture 1 suggest that the biotic conditions due to significant reductions in Idaho fescue and dominance of shallow-rooted bunchgrasses on the site has compromised the biotic integrity of the site. In addition, 2012 sage-grouse monitoring data showed 40 percent canopy cover of annual invasives.

The Owyhee Resource Management Plan management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas is also not met within pasture 1. Vegetation communities dominated by shallow-rooted bunchgrasses in pasture 1, with the expansion of annual invasive grasses and juniper encroachment, lead to a conclusion that the vegetation management objective is not met.

Standard 5: Rangeland Seeding

This Standard does not apply to the Boulder Flat allotment.

Standard 6: Exotic Plant Communities

This Standard does not apply to the Boulder Flat allotment.

2013 Supplement to the Boulder Flat Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

Standard
□ Standard does not apply

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

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

Rationale for Evaluation Finding and Determination

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

According to the Clean Water Act, each state must develop Total Maximum Daily Loads (TMDLs) for all the waters on the 303(d) list. The objective of a TMDL is to determine the loading capacity of the water body and to allocate that load among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved. The TMDL process is important for improving water quality because it links the development and implementation of control actions to the attainment of water quality standards. Once a TMDL is developed for a particular pollutant or pollution, it is effectively removed from the 303(d) list.

Current IDEQ information identifies that the BLM portions of the two pastures within the Boulder Flat allotment contain approximately 2.9 miles of stream that are not supporting the watershed's beneficial uses, 3.4 miles that are fully supporting the beneficial uses, and 5.0 miles that have not been assessed. The allotment contains portions of six AUs with associated beneficial uses and pollutants (Table RIPN-19). Two of the AUs are currently not supporting the beneficial uses, and all of the streams that occur within those AUs are also on the 303(d) list of impaired waters for the pollutants listed below. The streams have been de-listed for temperature because TMDLs have been developed and approved. However, the streams that occur within the AU #ID17050108SW004_02 and # ID17050108SW004_05 are also not meeting the beneficial uses based on mercury. TMDLs have not been developed for the mercury pollution; thus, the streams that occur within these AUs are currently 303(d) listed.

Potential Natural Vegetation (PNV) TMDLs were developed for temperature for the AU #ID17050108SW004_02 and # ID17050108SW004_05. Idaho water quality standards include a provision (IDAPA 58.01.02.200.09), which establishes that if natural conditions exceed numeric water quality criteria, exceedance of the criteria is not considered to be a violation of water quality standards. In these situations, natural conditions essentially become the water quality

standard, and the natural level of shade and channel width become the target of the TMDL. The in-stream temperature that results from attainment of these conditions is consistent with the water quality standards, even though it may exceed numeric temperature criteria.

Standard 7 is currently not being met in the Boulder Flat allotment; however, because the streams are 303(d) listed based on mercury, the allotment is in conformance with the Guidelines for Livestock Grazing Management because livestock are not the causal factor.

Table RIPN-19: DEQ water quality summary for the Boulder Flat allotment

AU #	AU Name	Pasture (s) AU occurs in	Beneficial Use Not Meeting	Pollutant/ Pollution	TMDL
ID17050108SW004_02	Upper Jordan Creek - 1st and 2nd order tributaries	1, 2	CWAL[1] SCR[2]	temperature mercury	all streams NO
ID17050108SW004_05	Jordan Creek - Big Boulder Creek to Williams Creek	1	CWAL SCR	temperature mercury	all streams NO
ID17050108SW005_02	Old Man, Coyote, Howl and parts of South Mountain Creeks	1, 2	not assessed	NA	NA
ID17050108SW005_03	South Mountain Creek - 3rd order	2	fully supporting	NA	NA
ID17050108SW005_05	Big Boulder Creek - South Boulder Creek to Jordan Creek	2	fully supporting	NA	NA
ID17050108SW006_04	South Boulder Creek - 4th order (Indian Creek to mouth)	2	not assessed	NA	NA

[1]CWAL = cold-water aquatic life
[2]SCR = secondary contact recreation

Evaluation Findings and Determination

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

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

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). 5, 7, 8, 11, and 12

Rationale for Evaluation Finding and Determination

Botany
Standard 8 for botany is met in the Boulder Flat allotment. There are no federally listed plant species and there is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment.

Upland Habitat
Pastures 1, 2, and 3 are managed as native plant communities and have been determined to be not meeting Standard 4 (see Standard 4) due past grazing practices, dominance of invasive annuals, and juniper encroachment. Currently, the herbaceous component is transitioning from a bluebunch wheatgrass reference community to a Sandberg bluegrass-dominated understory. The downward trend and transition in the plant community composition are favoring more grazing-tolerant, shallow-rooted grass species and an increase in annual invasive species. These dominant species do not have the robust growth form or stature and do not provide the plant composition, structure, and function for sagebrush steppe-dependent species. Due to the downward trend and transition in the plant community, it can be anticipated that upland habitat conditions will deteriorate further overtime; therefore, this allotment is failing to provide adequate upland habitat conditions for sagebrush steppe species, and therefore is not meeting Standard 8 due to historic and current grazing practices and invasive annuals.

Riparian Habitat
Evaluation of Standards 2 and 3 identified streams and springs within this allotment that are not properly functioning due to historic and current grazing practices (see Standard 2 and 3) and therefore do not meet Standard 8. Water quality parameters set by Idaho DEQ were also found to be not being met due to mercury pollutants but that livestock grazing practices were not a casual factor (see Standard 7). Streams, springs, and wetlands that are FAR are lacking adequate

riparian vegetation composition and distribution to provide the structure and function to support a productive riparian environment. Because Standards 2 and 3 are not being met, this allotment is failing to provide adequate riparian conditions to support viable aquatic and terrestrial species populations and therefore is not meeting Standard 8 due to historic and current grazing practices.

Focal Species

Pastures 1 and 2 showed marginal to unsuitable breeding and upland summer habitat conditions for sage-grouse. The primary cause for not meeting sage-grouse habitat criteria is driven by reduced canopy cover of large, deep-rooted perennial grasses (i.e., bluebunch wheatgrass, Idaho fescue) in the understory, indicating that functional nesting, brood-rearing, escape, and hiding cover values are not being provided in these pastures and therefore are not meeting Standard 8 due to historic and current livestock grazing practices.

Columbia River redband trout are known to occur within the Big Boulder, Jordan, Old Man, and South Mountain Creek systems and have been identified as functioning-at-risk due to historic and current grazing practices (see Standards 2 and 3). Redband trout require intact channels with well-developed riparian communities that stabilize banks to minimize erosion and create undercuts, minimize impacts of flood events and filters sediments, provide shade to reduce water temperatures, and contribute woody debris to create channel structure and regulate seasonal flow. Because these in-stream and near-stream habitat characteristics are not fully represented, this allotment is not providing adequate riparian conditions to sustain viable populations of redband trout and therefore is not meeting Standard 8 due to historic and current grazing practices.

This allotment is within the distribution of the Columbia spotted frog. Evaluation of Standards 2 and 3 identified streams and springs that are not properly functioning or meeting water quality parameters due to historic and current grazing practices (see Standard 2 and 3). Spotted frogs are usually found along vigorous grassy/sedge margins of streams, lakes, ponds, springs, and marshes not far from sources of quiet permanent water. They migrate along these vegetation corridors between habitats used for spring breeding, summer foraging, and winter hibernation. Because streams and springs are not functioning properly, this allotment is not providing adequate aquatic conditions to sustain viable populations of spotted frogs and therefore is not meeting Standard 8 due to historic and current grazing practices.

2013 Supplement to the Boulder Flat Rangeland Health Standards and Guidelines Assessment – Field Manager's Determination

Determination

I have determined that Standards 1, 2, 3, 4, 7, and 8 of the applicable Standards for Rangeland Health are not being met in the Boulder Flat allotment, while Standards 5 and 6 are not applicable to this allotment. Current livestock grazing management practices are significant factors in not meeting Standard 1, 2, 3, and 8, while livestock is not the causal factor for not meeting Standards 4 and 7. Livestock management practices do not conform with the applicable Livestock Grazing Management Guidelines 1, 3, 4, 5, 7, 8, 11, and 12.

Scott V Clark — 8/22/13

Field Manager — **Date**

Owyhee Field Office

7. Walt's Pond FFR Allotment Evaluation Findings and Determination

2013 Supplement to the Walt's Pond Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). 1, 3, 4, 8

Rationale for Evaluation Finding and Determination

Current and past livestock grazing management practices are significant causal factors for not meeting upland watershed Standard 1 in pastures 1 and 2 of the of the Walt's Pond FFR allotment. The reduction in soil and hydrologic function is associated with physical soil disturbance and an altered plant community composition and distribution due to decreased relative abundance of large, deep-rooted native perennial bunchgrasses, and an increase in invasive annuals.

The reduction in soil and hydrologic function is primarily associated with accelerated erosional processes that have increased pedestaling of plants and have altered soil infiltration and runoff through elevated water flow. Soil loss is in various stages, primarily due to widespread mechanical damage and increased bare ground. The physical damage from hoof action to soils by livestock continues to affect the biological soil crust component, especially in the interspatial areas, adding to a reduction in soil stability. An increase in invasive species also contributes to an ongoing decline in hydrologic function and nutrient availability.

The decreased ecological function and impaired soils indicate that soil and hydrologic function are compromised. Current and historic livestock management is the primary contributing factor for not meeting Standard 1 and ORMP soil management objectives of improving unsatisfactory watershed health/conditions for the Walt's Pond FFR allotment.

Evaluation Findings and Determination

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

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

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

Rationale for Evaluation Finding and Determination

The Walt's Pond FFR allotment is not meeting Standard 2. Approximately 0.4 mile of Glass Gulch that traverses pasture 1 was assessed FAR in 2000 and was re-visited in 2012, at which time a lack of hydric species and mechanical damage to the banks were noted. Approximately 0.7 mile of Glass Gulch that occurs in pasture 2 was twice assessed FAR. The most recent assessment had an upward trend but noted intermittent mechanical damage of the herbaceous understory where livestock access the stream and that the channel had been previously deeply incised.

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

Evaluation Findings and Determination

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

Standard

□ Standard does not apply

□ Meeting the Standard

■ Not meeting the Standard; Current livestock grazing management practices are significant factors

□ Not Meeting the Standard; Making significant progress toward

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

Guidelines

□ Conforms with Guidelines for Livestock Grazing Management

■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _7_

Rationale for Evaluation Finding and Determination

The Walt's Pond FFR allotment is not meeting Standard 3. Approximately 0.4 mile of Glass Gulch that traverses pasture 1 was assessed FAR in 2000 and was re-visited in 2012, at which time a lack of hydric species and mechanical damage to the banks were noted. Approximately 0.7 mile of Glass Gulch that occurs in pasture 2 was twice assessed FAR. The most recent assessment had an upward trend, but noted intermittent mechanical damage of the herbaceous understory where livestock access the stream and that the channel had been previously deeply incised.

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

2013 Supplement to the Walt's Pond FFR Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

Standard 4 (Native Plant Communities)

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

Standard

□ Standard does not apply

□ Meeting the Standard

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

□ Not Meeting the Standard; Making significant progress toward

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

Guidelines

■ Conforms with Guidelines for Livestock Grazing Management

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

Rationale for Evaluation Finding and Determination

Rangeland Health Standard 4 is not met in pastures 1 and 2 of the Walt's Pond FFR allotment. Although evidence of historic grazing impacts are present throughout the allotment, with the reduced composition of deep-rooted native perennial bunchgrasses (e.g., bluebunch wheatgrass and Idaho fescue) from reference site conditions and a greater dominance by increaser species (e.g., Sandberg bluegrass and squirreltail), invasive annuals, including juniper encroachment, are the causal factor in not meeting Standard 4.

Qualitative rangeland health assessment data indicate that Standard 4 is not met, with departure of functional-structural groups in the RHAs dominated by shallow-rooted bunchgrass and invasive annuals, rather than the ecological reference site conditions dominated by deep-rooted species (bluebunch wheatgrass and Idaho fescue) and juniper encroachment. This conclusion is supported by current ecological site descriptions and correlation to vegetation inventories.

The Owyhee Resource Management Plan management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas is also not met. Vegetation communities dominated by shallow-rooted bunchgrasses with the expansion of annual invasive grasses and juniper encroachment lead to a conclusion that the vegetation management objective is not met.

Standard 5: Rangeland Seeding

Standard does not apply.

Standard 6: Exotic Plant Communities

Standard does not apply.

2013 Supplement to the Walt's Pond FFR Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

Standard 7 (Water Quality)

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

Standard

□ Standard does not apply

□ Meeting the Standard

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

□ Not Meeting the Standard; Making significant progress toward

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

Guidelines

■ Conforms with Guidelines for Livestock Grazing Management

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

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Rationale for Evaluation Finding and Determination

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

According to the Clean Water Act, each state must develop Total Maximum Daily Loads (TMDLs) for all the waters on the 303(d) list. The objective of a TMDL is to determine the loading capacity of the water body and to allocate that load among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved. The TMDL process is important for improving water quality because it links the development and implementation of control actions to the attainment of water quality standards. Once a TMDL is developed for a particular pollutant or pollution, it is effectively removed from the 303(d) list.

Current IDEQ information identifies that the BLM portions of the two pastures within the Walt's Pond FFR allotment contain approximately 1.1 miles of stream that are not supporting the watershed's beneficial uses, 0.5 mile that is fully supporting the beneficial uses, and 2.5 miles that have not been assessed. The allotment contains portions of four AUs with associated beneficial uses and pollutants (Table RIPN-20). AU #ID17050108SW001_05 is currently not supporting the beneficial uses, and all of the streams that occur within the AU is also on the 303(d) list of impaired waters for the pollutants listed below. The streams have been de-listed for temperature because TMDLs have been developed and approved. However, the streams that occur within the AU are also not meeting the beneficial uses based on flow alteration. TMDLs have not been developed for the flow alteration pollutant; thus, the streams that occur within the AU are currently 303(d) listed.

Potential Natural Vegetation (PNV) TMDLs were developed for temperature for AU #ID17050108SW001_05. Idaho water quality standards include a provision (IDAPA 58.01.02.200.09), which establishes that if natural conditions exceed numeric water quality criteria, exceedance of the criteria is not considered to be a violation of water quality standards. In these situations, natural conditions essentially become the water quality standard, and the natural level of shade and channel width become the target of the TMDL. The in-stream temperature that results from attainment of these conditions is consistent with the water quality standards, even though it may exceed numeric temperature criteria.

Standard 7 is currently not being met in pasture 1 of the Walt's Pond FFR allotment; however, because the streams are 303(d) listed based on flow alteration, the allotment is in conformance

with the Guidelines for Livestock Grazing Management because livestock are not the causal factor.

Table RIPN-20: DEQ water quality summary for the Walt's Pond FFR allotment

AU #	AU Name	Pasture (s) AU occurs in	Beneficial Use Not Meeting	Pollutant/ Pollution	TMDL
ID17050108SW001_02	Lower Jordan Creek - 1st and 2nd order tributaries	1, 2	not assessed	NA	NA
ID17050108SW001_05	Jordan Creek - Williams Creek to State Line	1	CWAL[1]	temperature flow alteration	all streams NO
ID17050108SW003_02	Williams Creek - 1st and 2nd order	2	fully supporting	NA	NA
ID17050108SW003_03	Williams Creek - 3rd order (Pole Bridge Creek to mouth)	2	not assessed	NA	NA

[1]CWAL = cold-water aquatic life
[2]SCR = secondary contact recreation

2013 Supplement to the Walt's Pond FFR Allotment Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

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

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

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). 5, 7, 8, 11, and 12

Rationale for Evaluation Finding and Determination

Botany
Standard 8 for botany is met in the Walt's Pond allotment. There are no federally listed plant species and there is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment.

Upland Habitat
Pastures 1 and 2 in the Walt's Pond allotment are managed as native plant communities and are determined to be not meeting Standard 4 (see Standard 4). Evaluation of Standard 4 noted an increase in annual invasive grass species, showing a shift in the plant community composition from native bunchgrasses to more grazing-tolerant exotic species. This information is also consistent with the vegetation data for sage-grouse habitat assessments that showed the dominance of invasive annuals in these pastures. Annual species do not have the robust growth form or stature such as bluebunch wheatgrass and do not provide the plant community composition, structure, and function for sagebrush steppe-dependent species. Because of the undesirable shift in plant community composition, this allotment therefore is failing to provide adequate upland habitat conditions for sagebrush steppe species and is not meeting Standard 8 due to historic grazing practices invasive annuals.

Riparian
Evaluation of Standards 2 and 3 determined that streams and springs within this allotment are not properly functioning due to historic and current livestock grazing. However, riparian conditions in pasture 1 were noted to be improving (see Standard 2 and 3). Water quality parameters set by Idaho DEQ were also found to not being met due to flow alteration, but that livestock grazing was not a casual factor (see Standard 7). Streams, springs, and wetlands that are functioning-at-risk (including those making progress) are lacking adequate riparian vegetation composition and distribution to provide the structure and function to support a productive riparian environment. If Standards 2 and 3 are not meeting, this allotment is failing to provide adequate riparian habitat conditions to support viable aquatic and terrestrial species populations, and therefore is not meeting Standard 8 due to historic and current grazing practices.

Focal Species
Sage-grouse
New sage-grouse habitat assessment information collected in 2012 for pastures 1 and 2 showed unsuitable breeding and upland summer habitat conditions for nesting and late brood-rearing sage-grouse. The assessments identified marginal sagebrush overstory conditions combined with a substantially reduced occurrence of perennial grasses and forbs in the understory. Because of the absence of understory cover and the reduced availability of forbs, this allotment is not providing adequate breeding and late brood-rearing nesting and security cover for sage-grouse and does not meet Standard 8 due to historic grazing practices and invasive annuals.

Columbia River redband trout are known to occur within the Jordan Creek system, which has been identified as functioning-at-risk due to historic and current grazing practices (see Standards 2 and 3). Redband trout require intact channels with well-developed riparian communities that stabilize banks to minimize erosion and create undercuts, minimize impacts of flood events and filters sediments, provide shade to reduce water temperatures, and contribute woody debris to create channel structure and regulate seasonal flow. Because these in-stream and near-stream

habitat characteristics are not fully represented, this allotment is not providing adequate riparian conditions to sustain viable populations of redband trout and therefore is not meeting Standard 8 due to current grazing practices due to historic and current grazing practices.

2013 Supplement to the Walt's Pond FFR Rangeland Health Standards and Guidelines Assessment – Field Manager's Determination

Determination

I have determined that Standards 1, 2, 3, 4, 7, and 8 of the applicable Standards for Rangeland Health are not being met in the Walt's Pond FFR allotment, while Standards 5 and 6 are not applicable to this allotment. Current livestock grazing management practices are significant factors in not meeting Standard 1, 2, 3, and 8, while livestock is not the causal factor for not meeting Standards 4 and 7. Livestock management practices do not conform with the applicable Livestock Grazing Management Guidelines 1, 3, 4, 5, 7, 8, 11, and 12.

Lorretta V Cranwell 8/22/13

Field Manager **Date**

Owyhee Field Office