

**United States Department of the Interior
Bureau of Land Management**

**RANGELAND HEALTH ASSESSMENT AND EVALUATION REPORT
ROSEWORTH POINT ALLOTMENT #01014**

November 18, 2015

U.S. Department of the Interior
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ALLOTMENT INFORMATION

Field Office: Jarbidge Field Office (JFO)

Name of Permittee: Camas Creek Cattle Association, LLC

Allotment Name/Number: Roseworth Point (#1014)

Date of Field Assessments: June 11, 2014 and August 5, 2015 (validate data)

Stream Miles on Public Land (miles): 0

Table 1: Roseworth Point acres

Total Acres	BLM Acres	State Acres	Private Acres	Other Acres
12,349	11,771	578	0	0

Table 2: Assessment participants

Name	Position
Dan Strickler	JFO Rangeland Management Specialist
Michael Haney	JFO Wildlife Biologist and Botanist
Elena Shaw	TFD Resource Coordinator
Bonnie Ross	GIS Specialist

CURRENT PERMITTED LIVESTOCK GRAZING USE

Total Active Use: 1573 Animal Unit Months (AUMs)

Livestock Type: Cattle

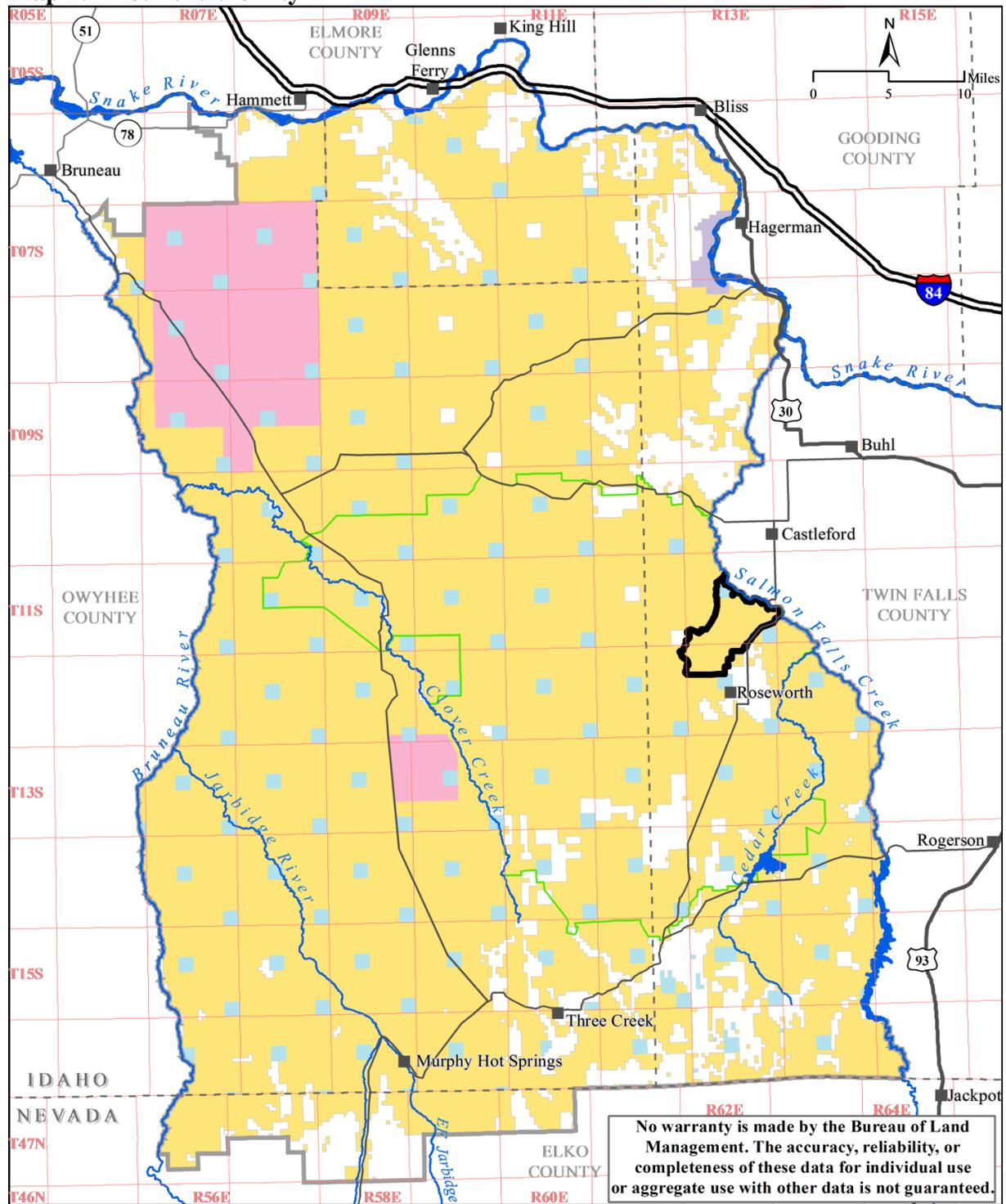
Livestock Numbers: 196 Cattle

Season of Use: 04/01 to 11/30

Current Land Use Plan: 2015 Jarbidge Resource Management Plan (RMP)

Current BLM Stocking Level: 7.5 Acres/AUM

Map 1: Allotment Vicinity



	Roseworth Point Allotment		Bureau of Land Management		Private; other
	Devil Creek Sub-region		Military, Department of Defense		State
			National Park Service	Map projection: UTM zone 11 NAD 1983	

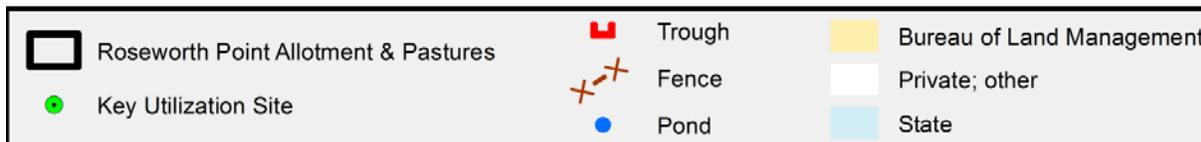
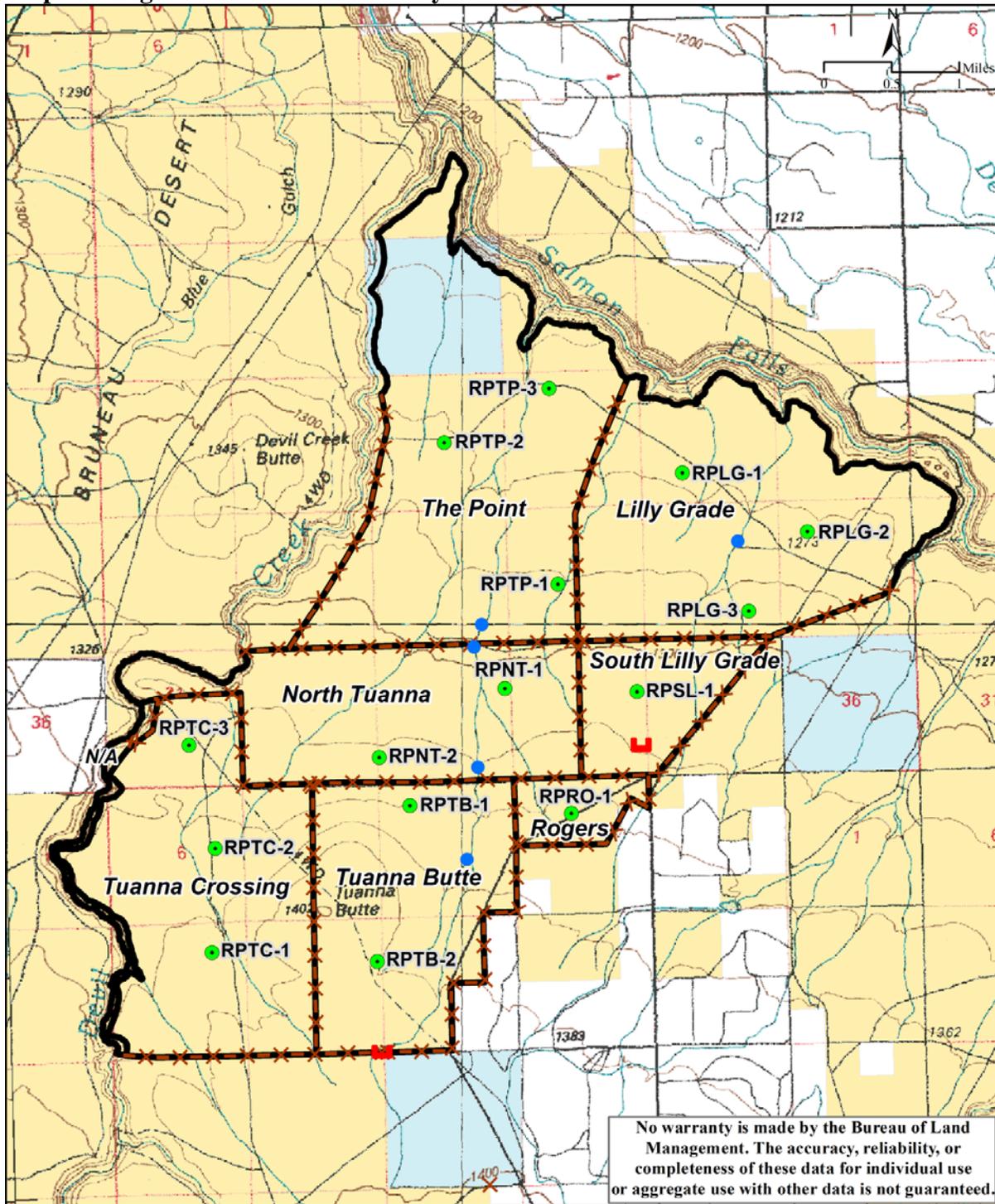
ALLOTMENT PROFILE

The Roseworth Point Allotment (Map 1) is about 4 miles southwest of Castleford, Idaho. Topography within the allotment is relatively flat. Elevation ranges from 4,000 feet to 4,600 feet. Nine miles of fence form the south and southeast boundaries of the Roseworth Point Allotment. The allotment's western boundary consists of gap fences and natural barriers (i.e. cliffs, rim rock, etc.) along Devil Creek Canyon. Cliffs and rimrock along Salmon Falls Creek Canyon forms the allotment's northeastern boundary.

About 13 miles of four-strand barbed wire fence splits the Roseworth Point Allotment into seven pastures (Map 2). Cattle graze the allotment during the fall and winter months. A pond on State land on the southeast side of the Tuanna Butte Pasture provides livestock water to the Roseworth Allotment as well as the Conover Allotment. Two more water sources located further north on private land also provides livestock water to the allotment. Access to these two water sources is through the Tuanna Butte and Rogers Pastures.

In past years, ponds in the Tuanna Butte, North Tuanna, Lilly Grade, and The Point Pastures provided water for livestock. Irrigation water (i.e. waste water) from nearby farms flowed into these ponds via a couple of manmade ditches. Water is no longer diverted into the ditches. Livestock cannot access Salmon Falls Creek or Devil Creek from the Roseworth Allotment (Specialist Report at the Jarbidge Field Office). Further, private landowners divert water upstream from this reach of Devil Creek for irrigation. Thus, Devil Creek is currently functioning as an ephemeral stream and does not support riparian vegetation.

Map 2: Range Infrastructures and Key Utilization Sites



Climate

Typical climatic conditions within the allotment display low humidity, clear skies, large diurnal variation in temperature, and wind patterns reflecting the westerly direction of the prevailing storm track. Annual rainfall within the Roseworth Point Allotment ranges from 8 - 12 inches. Moisture typically falls as rain and snow from late-fall through late-spring.

Precipitation and temperature trends (2004 to 2013) were assessed using weather data collected at the Horse Butte RAWS Station. The RAWS station is in an 8-10 inch precipitation zone about 13 miles west of the allotment. The data collected at the RAWS station show trends in temperature and precipitation due to its general proximity to the allotment.

The thirty-year annual average precipitation at the Horse Butte RAWS station is 8.1 inches (Figure 1). Annual precipitation at the station was below the thirty-year average during five of the ten-year evaluation period, especially in 2012 and 2013 (Figure 2). Total rainfall in 2012 was 4.89 inches and in 2013 it was 4.52 inches. Rainfall was above the thirty-year average the remaining five years. Moisture exceeded the thirty-year average by at least two inches in 2005 (14.12 inches), 2006 (10.1 inches), and 2010 (10.46 inches).

The thirty-year average for rain that fell during the spring/growing season (March–June) is four inches. Growing season precipitation was below the thirty-year average during four of the ten years (2004, 2007, 2012, and 2013). Rainfall was especially low in 2012 (1.92 inches) and 2013 (1.48 inches). Annual plant production during these years was likely below that expected for an average year based on this data. Plant growth was likely enhanced in 2005 and 2010 due to higher amounts of rainfall (two inches or more above the average). Except for 2004, temperatures during the growing season were cooler than the thirty-year average (Figure 2).

Figure 1: Annual Precipitation (2004 – 2013) at the Horse Butte RAWS Station

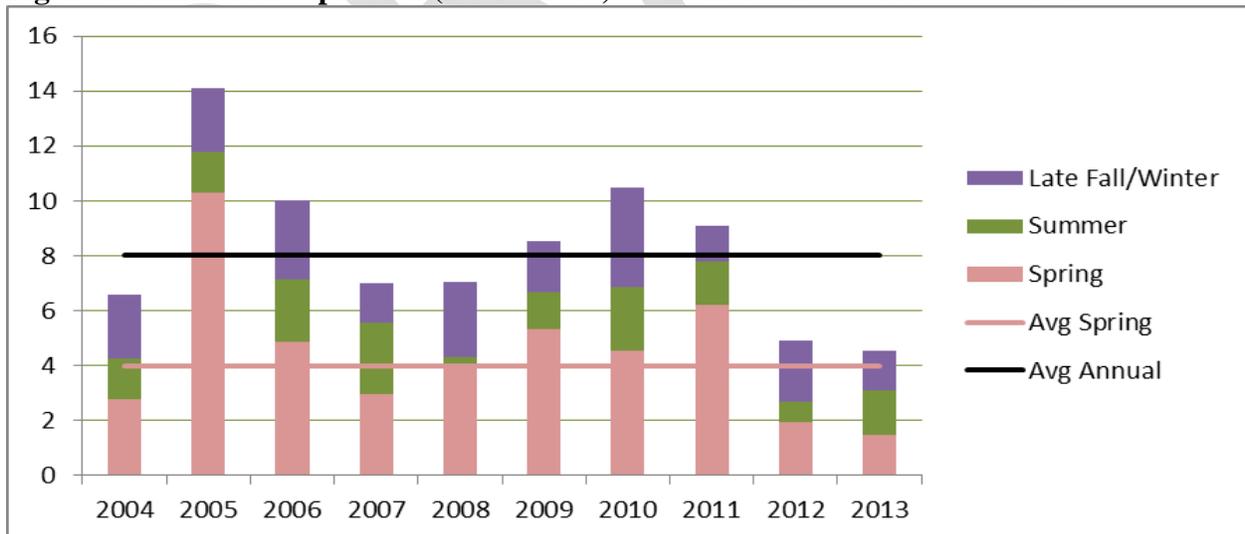
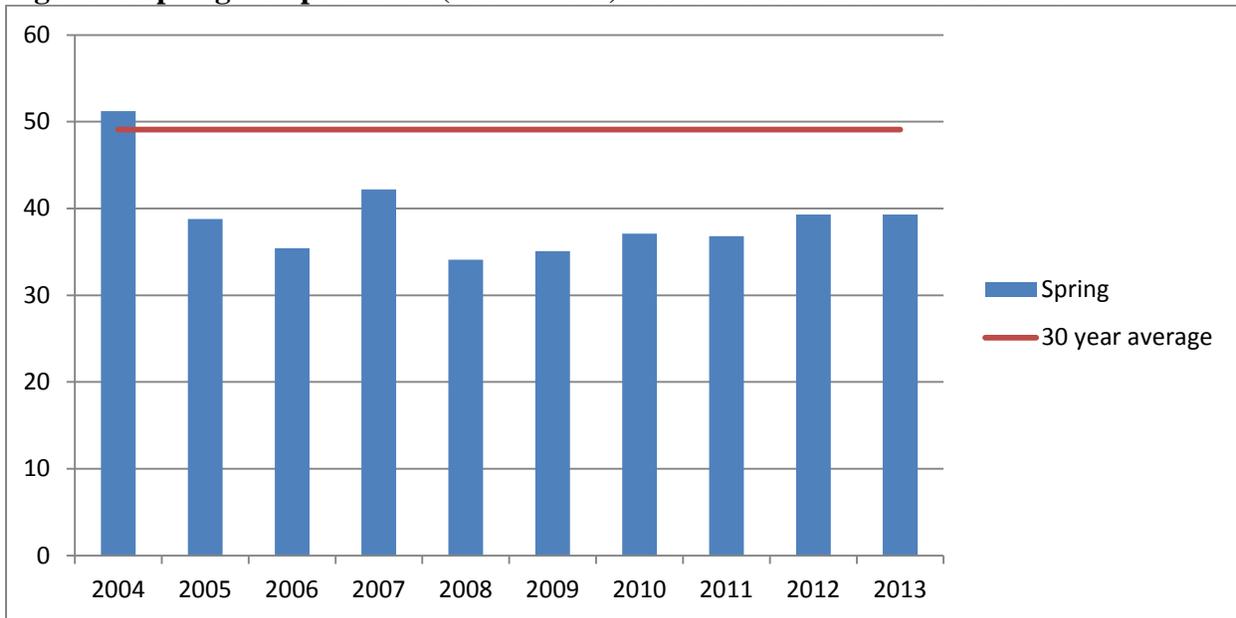


Figure 2: Spring Temperatures (2004 – 2013) at the Horse Butte RAWs Station



Grazing Management

The grazing permit for the Roseworth Point Allotment transferred to different livestock operations three times within the last ten years. Livestock management has also changed during this time. Prior to 1998, both cow/calf pairs and yearlings used the allotment during the fall, winter, and early spring. A term and condition of the permit added in 1998 combined management in the Roseworth Point Allotment with the Conover Allotment. Livestock grazed both allotments using a deferred rotation system.

In 2005 a stipulated settlement agreement (Administrative Law Judge Robert G. Holt Court Order, November 18, 2005) modified the permitted season of use and number of AUMs allowed (Table 3). The season of use was temporarily changed from spring, summer, fall grazing to fall and winter grazing. The number of authorized AUMs were temporarily reduced from 1570 AUMs to 1480 AUMs in 2005, 1470 AUMs in 2006, and 1400 AUMs from 2007 to 2012.

Table 3: Stipulated Settlement Agreement Season of Use and AUMs in the Roseworth Point Allotment.

Year	AUMs	November	December	January	February
2005	1480				
2006	1470				
2007 - 2012	1400				

Since 2009 livestock management within the Roseworth Point Allotment has been subject to Chief District Judge Winmill’s Decision and Order of February 26, 2009. The court order directs the Bureau of Land Management (BLM) to adjust livestock grazing practices so to maintain and enhance sage-grouse, pygmy rabbit, and slickspot peppergrass habitats. To comply with Judge Winmill’s order livestock grazing in each pasture would be deferred in the spring (March 1 through June 15) on alternate years. The season of use was further modified to December 15

through February 28 with no formal rotation of the pastures identified. Due to limited availability and the accessibility of livestock water in the winter, The Point, Lilly Grade, South Lilly Grade, North Tuanna, and Rogers Pastures are typically used together and the Tuanna Crossing, North Tuanna, and Tuanna Butte Pastures are used together. An Annual Grazing Agreement describing livestock management within the Roseworth Point Allotment is developed each year.

Livestock Actual Use and Utilization

Permitted active AUMs within the Roseworth Point Allotment are 1573. The grazing permit was transferred in 2004 and again in 2012. The Jarbidge Field Office staff used the Height-Weight Method (Cooperative Extension Service et al., 1999) to collect utilization data on crested wheatgrass (*Agropyron cristatum*) and Sandberg bluegrass (*Poa secunda*). Actual use data is available for most years; however, data for 2004 and 2005 was either not available or incomplete.

Utilization data collected in 2004 is from an Ecological Site Inventory (ESI) site in the South Lilly Pasture. BLM staff collected data at random sites in the South Lilly Grade and Tuanna Butte Pastures during 2005. In 2006 permanent utilization sites were established in each pasture. Actual use and utilization data are shown in Tables 4 and 5.

Table 4: Actual Use in the Roseworth Point Allotment 2004 – 2013

Year	Pastures	Season of Use	AUMs
2004	Data not available for 2004		
2005	Pasture data not available for 2005		240
2006	Tuanna Butte/Tuanna Crossing	01/06 – 01/10	86
		01/15 – 02/18	349
	Lilly Grade/South Lilly Grade	01/11 – 01/23	224
	The Point/North Tuanna	01/24 – 02/28	621
2007	Tuanna Butte/Tuanna Crossing	01/09 – 02/29	427
	Lilly Grade/South Lilly Grade	12/31 – 01/27	536
	The Point/North Tuanna	01/28 – 02/29	631
2008	Tuanna Butte/Tuanna Crossing	01/06 – 03/03	349
	Lilly Grade/South Lilly Grade	12/01 – 01/26	460
	The Point/North Tuanna	01/27 – 03/04	460
2009	Rogers/South Lilly Grade/Lilly Grade	01/06 – 02/09	575
	Rogers/North Tuanna/The Point	02/10 – 02/28	312
	Tuanna Butte/North Tuanna	01/08 – 02/05	362
	Tuanna Butte/Tuanna Crossing	02/06 - 02/28	287
2010	Lilly Grade/South Lilly Grade	01/05 – 02/01	552
	The Point/North Tuanna	02/02 – 02/28	533
	Tuanna Butte/Tuanna Crossing	01/06 – 02/28	403
2011	Lilly Grade/South Lilly Grade	01/05 – 01/30	427
	The Point/North Tuanna	01/31 – 02/28	477
	Tuanna Butte/Tuanna Crossing	01/07 – 02/28	523
2012	Lilly Grade/South Lilly Grade/Rogers/Tuanna Butte	12/24 – 02/27	759
2013	Lilly Grade	01/01 – 01/26	421
	South Lilly Grade	1/27 – 02/05	162
	Rogers	02/06 – 02/10	81

Year	Pastures	Season of Use	AUMs
	Tuanna Butte	02/11 – 02/28	291

Since 2006, actual use within the Roseworth Point Allotment has averaged 1289 AUMs. Livestock grazing has almost exclusively occurred during the winter when plants are dormant. The number of AUMs used from 2006 to 2011 was near the permitted use of 1573 AUMs. In 2012 and 2013 actual use was 48 percent and 61 percent of permitted use. The 2012 Kinyon Road Wildfire resulted in reduced livestock use during these years. Further, rainfall during 2012 and 2013 was about one-half of the 30 year average precipitation which likely influenced forage production.

Table 5: Utilization by Pasture in the Roseworth Point Allotment (2004 – 2013)

Pasture	Site #	Year	% Utilization	
			Crested Wheatgrass	Sandberg Bluegrass
Lilly Grade	RPLG_1	2007	22	10
		2008	16	8
		2009	19	-
		2011	5	-
		2012	10	-
		2013	28	-
	RPLG_2	2007	-	23
		2008	-	6
	RPLG_3	2007	-	15
		2008	-	10
South Lilly Grade	Site 1	2005	45	-
	RPSL_1	2006	52	-
		2007	42	22
		2008	7	7
		2009	11	-
		2011	12	-
		2012	35	-
		2013	35	-
Rogers	RPRO_1	2006	48	-
		2007	48	-
		2008	-	6
		2010	19	-
		2011	3	-
		2013	34	-
Tuanna Crossing	RPTC_1	2006	-	27
		2007	-	27
		2008	-	5
	RPTC_1t	2009	17	-
	Tuanna Butte	Site 1	2005	73
Site 2		2005	-	24
Site 3		2005	53	12
RPTB_1		2006	50	-
		2007	43	21

Pasture	Site #	Year	% Utilization	
			Crested Wheatgrass	Sandberg Bluegrass
		2009	15	-
		2008	11	12
		2012	6	-
	RPTB_2	2006	50	29
		2007	50	29
		2009	22	-
		2010	28	-
		2011	12	-
Tuanna Butte	RPTB_2	2013	27	-
	RPTB_3	2007	34	42
		2008	12	-
North Tuanna	RPNT_1	2006	43	-
		2007	40	13
		2009	15	-
		2010	18	-
		2011	3	-
	RPNT_2	2006	33	-
		2007	15	-
		2009	22	-
The Point	RPTP_1	2007	32	15
		2009	8	-
		2010	15	-
		2011	3	-
	RPTP_2	2007	16	-
		2009	11	-
	RPTP_3	2007	-	21

Livestock utilization on crested wheatgrass and Sandberg bluegrass was intermittently collected over the 10-year study period. Use levels on Sandberg bluegrass was consistently slight (0 to 20 percent) to light (21 to 40 percent) throughout the study period. Livestock grazed crested wheatgrass slight to light in most years. However, crested wheatgrass was heavily grazed (>60 percent) in part of the Tuanna Pasture in 2005. Crested wheatgrass utilization was moderate (41 to 60 percent) in the South Lilly Grade Pasture in 2005 and 2007 and in the Rogers, Tuanna Butte, and North Tuanna Pastures in 2006 and 2007. The data does not show a direct correlation between moderate and heavy use levels, precipitation, and actual use. Map 2 shows the locations of key utilization sites in the allotment.

Vegetation

Plant communities within the planning area were mapped in 2006 using field observations, field cover data, and National Agriculture Imagery Program (NAIP). Updates to the map occurred in 2013 using more recent field observations and NAIP imagery. The Field Office classified and mapped vegetation communities based on dominant plant cover using a minimum mapping unit of 20-acres. This scale is appropriate for landscape-level planning but is not intended to show the

complexity of vegetation communities at a finer-scale. Fifty-three vegetation communities were mapped based on dominant plant cover. These vegetation communities were organized into five classes and six sub-classes according to national standards (Grossman et al., 1998), with the exception of shrublands dominated by sagebrush. Sagebrush dominated shrublands are defined as having 10 percent or more shrub cover. The criteria of 10 percent or more shrub cover provide consistency with defined habitat needs for greater sage-grouse (Wisdom et al., 2000).

Shrublands occupy nearly half (48 percent) of the Roseworth Point Allotment. Most of the shrublands (78 percent) were mapped as a Wyoming big sagebrush (*Artemisia tridentata wyomingensis*)/Sandberg bluegrass plant community. However, crested wheatgrass is found in this vegetation community. The remaining shrublands are mapped as Wyoming big sagebrush/crested wheatgrass plant community. Small pockets (200 to 300 acres) of established crested wheatgrass and Sandberg bluegrass grasslands are (Table 6) intermixed with the shrublands. About 47 percent of the allotment has burned with most acres burned since 2005. Areas burned in 2012 were seeded, but have not yet fully established so they are classified as “Recent Burn”. Map 3 shows the vegetation communities and their distribution throughout the Roseworth Point Allotment.

Other perennial grasses such as Thurber’s needlegrass (*Achnatherum thurberianum*), squirreltail (*Elymus elymoides*), and bluebunch wheatgrass (*Pseudoroegneria spicata*) also grow in the allotment. A forb component (Appendix A) is present and includes 26 native and two exotic perennial forb species and nine native and eight exotic annual forb species. Cheatgrass (*Bromus tectorum*) was also documented in the allotment. Steep canyon slopes with cliff, rim rock, and talus (i.e. breaks) form the Devil Creek and Salmon Falls Creek Canyons.

Table 6: Vegetation Community by Pasture (Acres)

Vegetation Community*	Pastures [^]						
	The Point	Lilly Grade	South Lilly Grade	Rogers	North Tuanna	Tuanna Butte	Tuanna Crossing
Wyoming big sagebrush/ Sandberg Bluegrass	76	1707	639	269	184	618	932
Wyoming Big Sagebrush/ Crested Wheatgrass	0	256	0	0	0	669	302
Recent Burn (Kinyon Road Wildfire)	2461	215	0	0	1558	386	845
Sandberg Bluegrass	0	304	0	0	0	0	0
Crested Wheatgrass	0	0	0	0	0	0	230
Other (Juniper, Breaks, Barren)	0	5	0	1	0	10	0

* Vegetation community is listed by dominate cover species. Numerous other plant species, both native and non-native, are present in the plant communities.

[^]104 acres of public land are not accounted for in pasture totals.

Since 1956 three vegetation treatments and three Emergency Rehabilitation and Stabilization (ESR) treatments have occurred in the Roseworth Point Allotment. About 1,000 acres of sagebrush was sprayed with 2,4-D, and then aerially seeded to crested wheatgrass in the North

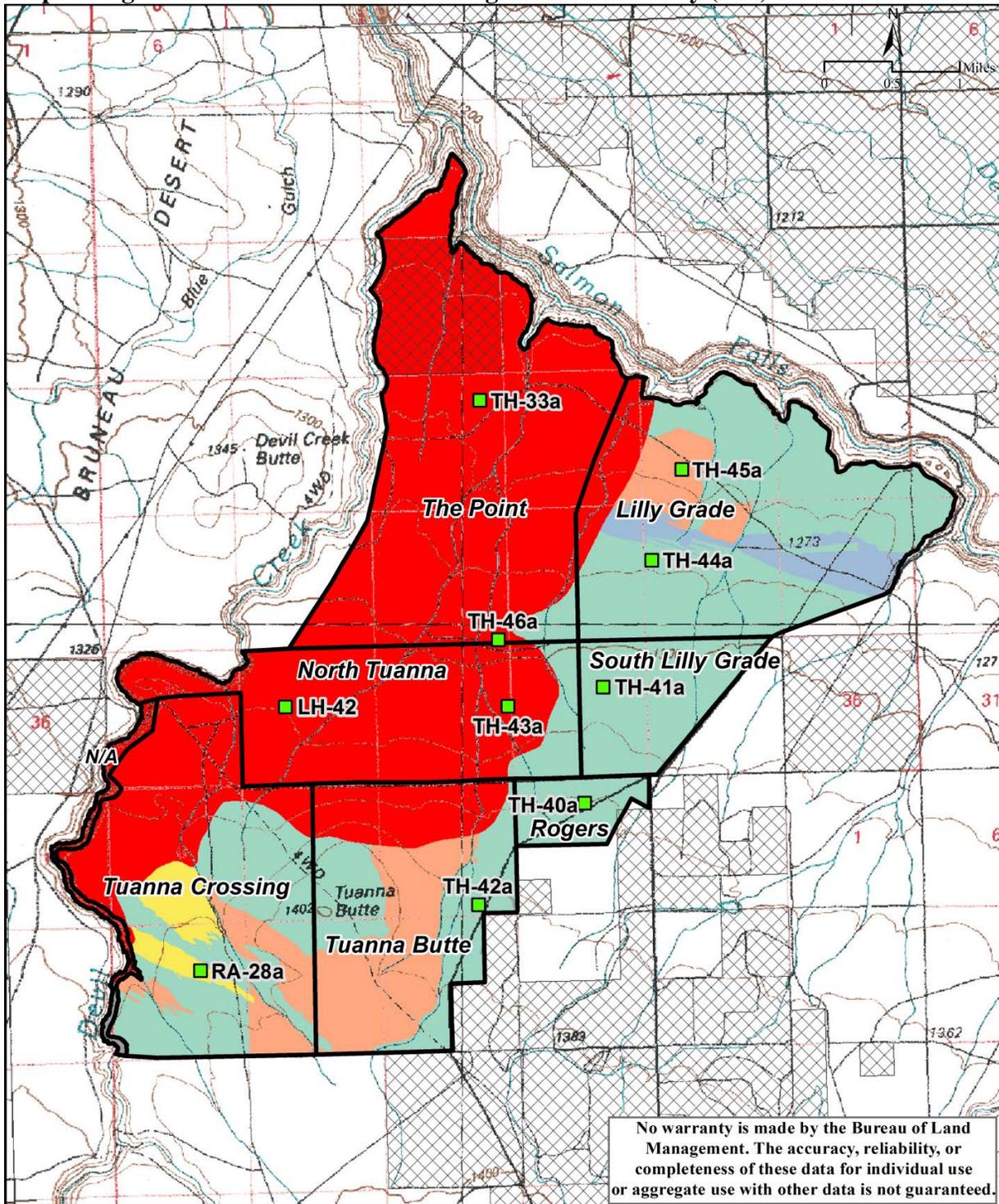
Tuanna, The Point, and Lilly Grade Pastures during the 1957 Roseworth Point Spraying and Seeding project. The Roseworth Point Seeding, also done in the 1950s, appears to have occurred in these pastures (see Roseworth Point Spraying File, BLM), but records of this seeding cannot be found. In 1965, the West Roseworth Seeding occurred in the Tuanna Crossing, Tuanna Butte, and Rogers Pastures. About 1,450 acres of sagebrush/Sandberg bluegrass was plowed and then seeded with drills to crested wheatgrass. Sagebrush had successfully reestablished on most of these seeded acres; however, wildfires have removed much of this sagebrush since 2005.

ESR treatments occurred after the Blue Gulch (1995), Clover (2005), and Kinyon Road (2012) wildfires. The Blue Gulch ESR project included drill and aerial seeding about 2271 acres in the Roseworth Point Allotment. Crested Wheatgrass (Hycrest variety) was drilled and a mixture of Wyoming big sagebrush, alfalfa (*Medicago sativa*), and yellow sweetclover (*Melilotus spp.*) was aerial seeded. The treatments occurred in the North Tuanna, Tuanna Butte, and Tuanna Crossing Pastures.

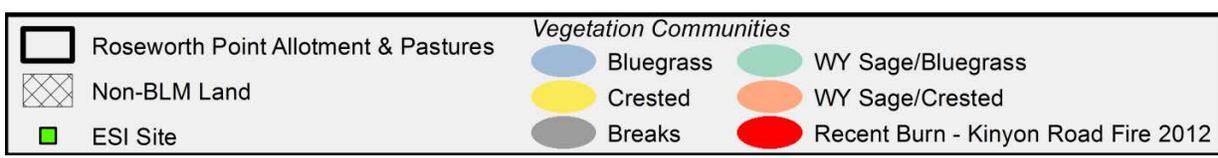
The Clover ESR project occurred in the Lilly Grade and The Point Pastures. The treatment drill seeded 500 acres with a grass/forb seed mix. The mixture included bluebunch wheatgrass (variety Secar), Sandberg bluegrass, squirreltail, sainfoin (*Onobrychis viciifolia*), Lewis flax (*Linum lewisii*), and alfalfa. The reason for planting these species is to return the burned area to its original habitat appearance and structural form. Native forbs were not included due to their low availability, high cost, and low success establishing in the area.

Portions of the Tuanna Butte, Tuanna Crossing, and North Tuanna Pastures and most of The Point Pasture were drill seeded after the Kinyon Road Fire. About 3,868 acres were seeded to a grass/forb mix. The mix included bluebunch wheatgrass (variety Anatone), Sherman big bluegrass (formally *Poa ampla*; now *Poa Secunda*), squirreltail, sainfoin, Western Yarrow (*Achillea millefolium*), and alfalfa. In addition, about 3,858 acres were aerial seeded to sagebrush and sagebrush seedlings were hand planted across 1,163 acres. Objectives of the seed mix and hand planting of sagebrush are: 1) reduce the potential for cheatgrass expansion, 2) provide habitat for sage-grouse and other sagebrush-steppe obligate wildlife, and 3) provide structural and compositional diversity to decrease fuel continuity.

Map 3: Vegetation Communities and Ecological Site Inventory (ESI) Sites



No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.



Noxious and Invasive Weeds

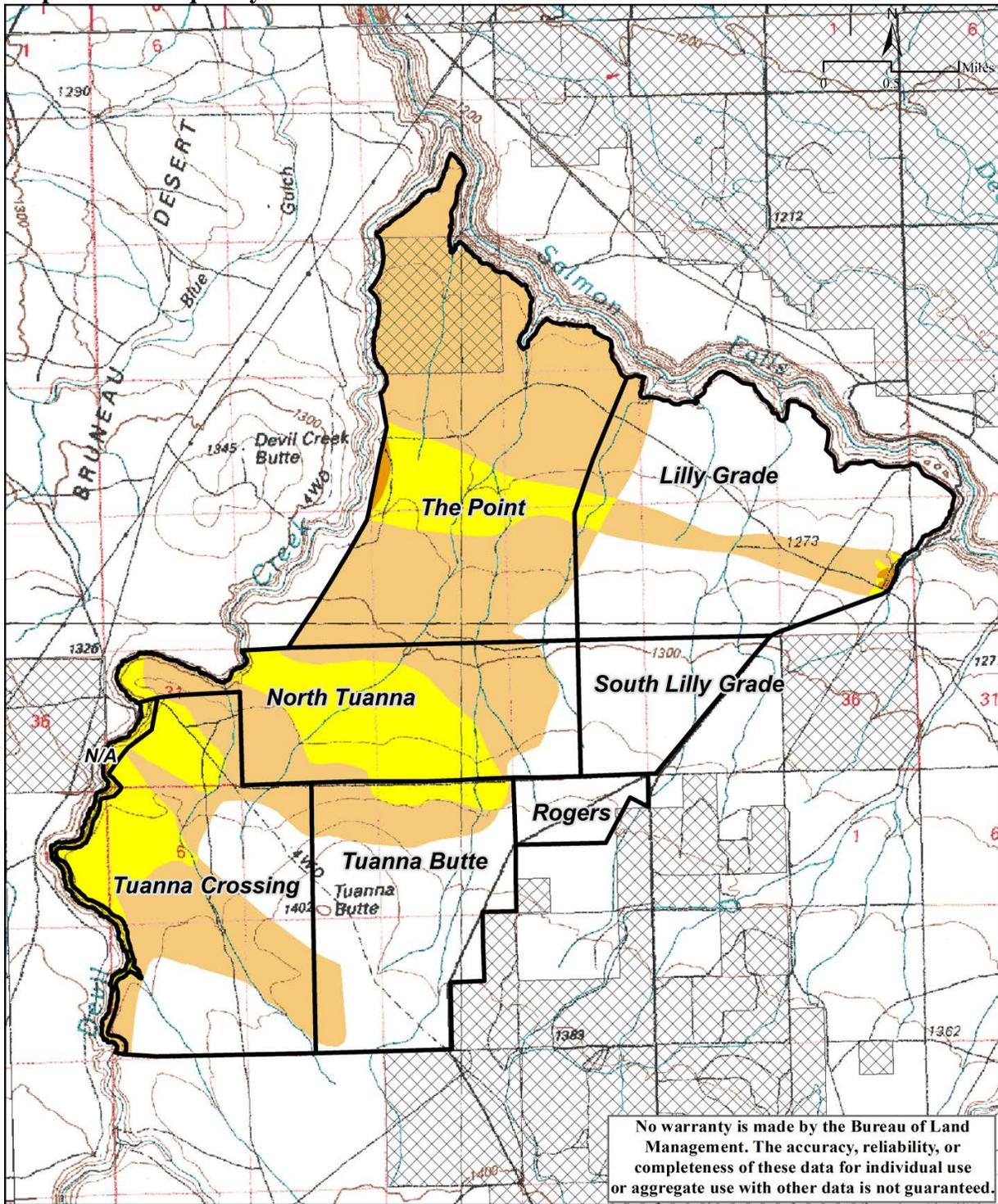
The State of Idaho has listed 66 plant species as noxious weeds. Scotch thistle and whitetop occur just outside of the allotment's eastern boundary. Both plants have been treated in the past. Treatment goals are to reduce noxious weeds so they do not significantly impact the economy or environment or to eradicate them completely. The BLM also works to prevent the establishment of new species and occurrences in areas where they presently do not occur. Noxious weeds are not documented on the allotment or at any of the monitoring/study sites evaluated in this analysis. Although noxious weeds have not been documented, several weedy species are within the allotment. They include: cheatgrass, curvseed butterwort (*Ceratocephala testiculata*), spring draba (*Draba verna*), Redstem stork's bill (*Erodium cicutarium*), saltlover (*Halogeton glomeratus*), clasping pepperweed (*Lepidium perfoliatum*), Russian thistle (*Salsola kali*), Western tansymustard (*Descurainia pinnata*), and tall tumbled mustard (*Sisymbrium altissimum*).

Wildfire History

Natural fire frequency on the allotment is 50-70 years (NRCS, 2013a). Prior to 1995, the 1976 Devil Creek Wildfire burned 438 acres in The Point Pasture. Since 1995, four wildfires have burned in the allotment: Blue Gulch Fire (1995), Lilly Fire (1999), Clover Fire (2005), and Kinyon Road Fire (2012). About 79 percent (9,735 acres) of the allotment has burned once since 1995 and 16 percent (2,031 acres) has burned twice (Map 4). The Kinyon Road Fire was the largest fire (6,126 acres) to occur in the allotment, burning through most of the North Tuanna and The Point Pastures and in portions of the Tuanna Crossing, Tuanna Butte, and Lilly Grade Pastures. Wildfire has not been documented in the Rogers and South Lilly Grade Pastures.

A 2014 monitoring report for the Kinyon Road ESR treatment described seedling establishment as spotty in 2013. However; both seeded grasses and forbs occurred in drill rows in most of the monitored locations. The use of depth bands likely influenced the inconsistent establishment of seeded plants by not uniformly planting the seed. Seedling germination and establishment appeared staggered with both large reproductive and smaller non-reproductive seeded plants present in 2014. Sagebrush seedlings occurred as scattered patches or individuals in 2014. Seeding success will again be evaluated in 2015.

Map 4: Fire Frequency



Monitoring/Study Data Summaries

Study data used in this evaluation includes 2004 and 2006 ESI, Idaho Indicators of Rangeland Health (IIRH) field assessments, soil stability tests, and 2010 and 2012 Sage-grouse Habitat Assessment Framework (HAF) data. Trend sites are not established in the Roseworth Point Allotment.

ESI Data

ESI data collected in 2004 and 2006 included plant production data, measured in pounds/acre (dry weight). BLM crews collected data at eight sites located throughout most of the pastures in 2004; data was not collected in the South Lilly Grade and Rogers Pastures. ESI data was collected at nine sites throughout all the pastures in 2006. Map 3 displays ESI site locations.

Three of the 2006 ESI sites and four of the 2004 sites burned in the Kinyon Road Wildfire. Five of these seven sites were drill and aerially seeded after the fire (Kinyon Road Wildfire ESR Project). These seeded sites are in the North Tuanna Pasture (RPP-8, TH-43a), The Point Pasture (RPP-2, TH-33a), and Tuanna Butte Pasture (RPP-9). ESI production data is not used in this assessment for these five sites since seeding them changed the plant species composition from that existing in 2004 and 2006. The remaining two sites (RPP-7 and LH-42) were aerial seeded with sagebrush, but not drilled. All the other ESI sites have either not burned or burned several years before the 2004 and 2006 ESI data collections.

All the ESI sites are on a Loamy 8-12" Wyoming big sagebrush/bluebunch wheatgrass – Thurber's needlegrass ecological site. The data indicates perennial grass production is within the range of production of reference condition (USDA and NRCS, 2013a) at most sites, with crested wheatgrass replacing bluebunch wheatgrass as the dominant bunchgrass (Tables 7 and 8). Perennial grass production at Site TH-45a (Lilly Grade Pasture) and Site TH-42a (Tuanna Butte Pasture) was lower than noted in the reference plant community. Crested wheatgrass production was down at both sites. Data was collected at these two sites in 2006. Precipitation likely did not influence lower grass production at these sites since precipitation exceeded the 30-year average for both the year and the growing season in 2006. However, crested wheatgrass was a bit higher at Site LH-42 (Tuanna Butte) and much higher at Sites RPP-7 (North Tuanna), RPP-11 (Tuanna Crossing), and RPP-12 (Tuanna Crossing). Sandberg bluegrass exceeded its upper production at all sites except for Sites RPP-7, RPP-11, LH-42, and RA-28a (Tuanna Crossing). Cheatgrass was present at Sites RPP-6 (Tuanna Butte), TH-45a and LH-42, but was not recorded elsewhere during ESI data collection. Cheatgrass production was particularly high at Site LH-42. Bluebunch wheatgrass and Thurber's needlegrass were not recorded at any of the sites.

Perennial forb production was well below the reference plant community's range of production (Tables 7 and 8). Spiny phlox (*Phlox hoodii*) is the only native species recorded in 2006 (Sites LH-42 and RA-28a). It along with longleaf phlox (*Phlox longifolia*) was recorded in 2004 at Site RPP-6 in trace amounts. Also recorded in 2004 was longleaf phlox and woollypod milkvetch (*Astragalus purshii*) at Site RPP-11. Other forbs recorded are not native: alfalfa, Bastard toadflax (*Comandra umbellata*), and yellow salsify (*Tragopogon dubius*). All three forbs were found in very low amounts, except for alfalfa in 2004. Annual forb production included clasping pepperweed, curvseed butterwort, tall tumbled mustard, spring draba, and saltlover. All of the annual forbs are weedy species with most occurring in minimal amounts. Clasping pepperweed

(Site RA-28a) and saltlover (RPP-7) amounts were high. Data collection occurred in mid to late June. Both annual and spring precipitation was above the 30-year average in 2006 and below the average in 2004. Although precipitation was low in 2004, considering the timing of data collections and above average precipitation amounts in 2006, native forb production is below its potential for this ecological site.

Wyoming big sagebrush was found at eight sites. Total shrub production was similar to the ESI reference condition at four sites and higher than reference condition at four sites. Those areas where shrub production was high (Sites RPP-4, RPP-12, TH-41a, TH-42a) have not experience recent wildfire activity. Shrubs were either absent or occur at low amounts at Sites TH-42 and RPP-7 (North Tuanna Pasture) and Sites RA-28a and RPP-12. The 2012 Kinyon Fire burned Sites TH-42 and RA-28a. ESI data shows vegetation has changed in the allotment. The plant community is not as diverse as the ESI reference plant community. Total plant product is similar; however, crested wheatgrass and Wyoming big sagebrush provides most of the total plant production. Wildfire and past vegetation treatments have influenced this change in vegetation.

Table 7: Comparison of ESD and 2004 ESI Production Data

Vegetation Class	Plant Species	Loamy 8-12" (Wyoming big sagebrush/bluebunch wheatgrass-Thurber's needlegrass) Ecological Site/ ESD Reference Sheet #R011XY001ID (Total Dry Weight expressed as pounds per acre)					
		Reference Plant Community ▪	Site RPP-4 (LG)	Site RPP-6 (TB)	Site RPP-7 (NT)*	Site RPP-11 (TC)	Site RPP-12 (TC)
Perennial Grasses	Sandberg bluegrass	25 - 55	88	80	40	66	58
	Crested wheatgrass	0	171	446	743	749	748
	Squirreltail	25 - 45	7	0	0	22	
	Bluebunch wheatgrass	100 - 225	0	0	0	0	0
	Thurber's needlegrass	8 - 180	0	0	0	0	0
	Other Native Grasses (5 species)^	0 - 110	0	0	0	0	0
	Total Perennial Grass	220 - 450	266	263	783	837	806
Annual Grasses	Cheatgrass	0	0	Trace	0	0	0
	Total Annual Grasses ^o	0	0	Trace	0	0	0
Perennial Forbs	Alfalfa	0	0	0	0	68	0
	Spiny phlox	0 - 5	3	Trace	0	0	0
	Longleaf phlox	0 - 5	0	Trace	0	5	0
	Woollypod	0 - 5	0	0	0	4	0

Vegetation Class	Plant Species	Loamy 8-12" (Wyoming big sagebrush/bluebunch wheatgrass-Thurber's needlegrass) Ecological Site/ ESD Reference Sheet #R011XY001ID (Total Dry Weight expressed as pounds per acre)					
		Reference Plant Community ▪	Site RPP-4 (LG)	Site RPP-6 (TB)	Site RPP-7 (NT)*	Site RPP-11 (TC)	Site RPP-12 (TC)
	milkvetch						
	Tapertip hawksbeard (<i>Crepis acuminata</i>)	1 - 25	0	0	0	0	0
	Arrowleaf balsamroot (<i>Balsamorhiza sagittata</i>)	10 - 25	0	0	0	0	0
	Other Native Perennial Forbs (17 species) ^	0 - 100	0	0	0	0	0
	Total Perennial Forbs°	60 - 175	1	Trace	0	77	0
Annual Forbs	Clasping pepperweed	0	0	1	0	0	0
	Saltlover	0	0	0	67	0	0
	Curveseed butterwort	0	Trace	9	8	0	0
	Total Annual Forbs	0 - 15	Trace	0	75	0	0
Shrubs	Wyoming big sagebrush	100 - 225	324	199	7	0	455
	Other Native Shrubs (10 species)^	0 - 105	0	0	0	0	0
	Total Shrubs	120 - 275	324	199	7	0	455
Total Production		400 - 900	591	462	865	914	1261

LG=Lilly Grade Pasture, SLG=South Lilly Grade Pasture, NT=North Tuanna, TB=Tuanna Butte, TC=Tuanna Crossing,

▪ Total plant production listed in the table for plant types is quoted from the ESD and does not equal the sum of individual plant species. Further the ESD was modified by the ID team to reflect local conditions and included additional forb species.

*This site burned in the 2012 Kinyon Road Fire.

^ Other grasses, forbs and shrub are those species that individually occur in small amounts but collectively contribute to the site's overall production. (Refer to Reference Sheet #R011BY001ID for a full list of plants occurring in the reference plant community.)

°ESD does not include annual grass or forb production.

Table 8: Comparison of ESD and 2006 ESI Production Data

Vegetation Class	Plant Species	Loamy 8-12" (Wyoming big sagebrush/bluebunch wheatgrass-Thurber's needlegrass) Ecological Site/ ESD Reference Sheet #R011XY001ID (Total Dry Weight expressed as pounds per acre)							
		Reference Plant Community	Site TH-44a (LG)	Site TH-45a (LG)	Site TH-41a (SLG)	Site TH-40a (Roger s)	Site TH-42a (TB)	Site LH-42 (NT)*	Site RA-28a (TC)*
Perennial Grasses	Sandberg bluegrass	20 - 55	124	84	126	88	69	41	34
	Crested wheatgrass	0	210	114	200	257	36	459	341
	Squirreltail	25 - 45	0	0	0	0	0	0	1
	Bluebunch wheatgrass	100 - 225	0	0	0	0	0	0	0
	Thurber's needlegrass	80 - 180	0	0	0	0	0	0	0
	Other Native ^	0 - 110	0	0	0	0	0	0	0
	Total Perennial Grass	220 - 450	334	198	326	345	105	500	376
Annual Grasses	Cheatgrass	0	0	34	0	0	0	364	0
	Total Annual Grasses°	0	0	34	0	0	0	364	0
Perennial Forbs	Alfalfa	0	0	0	0	0	0	0	29
	Spiny phlox	0 - 5	0	0	0	0	0	1	3
	Bastard toadflax	0	0	0	1	0	0	0	0
	Yellow salsify	0	0	0	0	0	0	6	0
	Tapertip hawksbeard	1 - 25	0	0	0	0	0	0	0
	Arrowleaf Balsamroot	10 - 25	0	0	0	0	0	0	0
	Other Native Perennial Forbs ^	0 - 100	0	0	0	0	0	0	0
	Total Perennial Forbs°	60 - 175	0	0	1	0	0	1	29
Annual Forbs	Tall Tumblemustard	0	0	0	0	0	0	2	0
	Clasping pepperweed	0	14	0	2	1	0	4	77
	Spring draba	0	0	0	0	0	0	0	0
Annual Forbs	Saltlover	0	5	0	0	0	0	0	0
	Total Annual Forbs°	0	19	0	2	1	0	6	77

Vegetation Class	Plant Species	Loamy 8-12" (Wyoming big sagebrush/bluebunch wheatgrass-Thurber's needlegrass) Ecological Site/ ESD Reference Sheet #R011XY001ID (Total Dry Weight expressed as pounds per acre)							
		Reference Plant Community	Site TH-44a (LG)	Site TH-45a (LG)	Site TH-41a (SLG)	Site TH-40a (Roger s)	Site TH-42a (TB)	Site LH-42 (NT)*	Site RA-28a (TC)*
Shrubs	Wyoming big sagebrush	100 – 225	125	169	344	238	366	0	0
	Other Native Shrubs ^	0 – 105	0	0	0	0	0	0	0
	Total Shrubs	120 – 275	125	169	344	238	366	0	0
Total Production		400 – 900	478	401	673	584	471	871	482

LG=Lilly Grade Pasture, SLG=South Lilly Grade Pasture, NT=North Tuanna Pasture, TB=Tuanna Butte Pasture, TC=Tuanna Crossing Pasture,

▪ Total plant production listed in the table for plant types is quoted from the ESD and does not equal the sum of individual plant species. Further the ESD was modified by the ID team to reflect local conditions and included additional forb species.

*This site burned in the 2012 Kinyon Road Fire.

**This site burned in the 2007 Murphy Complex Fire.

^ Other grasses, forbs and shrub are those species that individually occur in small amounts but collectively contribute to the site's overall production. (Refer to Reference Sheet #R011BY001ID for a full list of plants occurring in the reference plant community.)

°ESD does not include annual grass production.

IDAHO RANGELAND HEALTH STANDARDS ASSESSMENT

There are eight Rangeland Health Standards for BLM lands in Idaho. However, not all eight standards apply to the Roseworth Point Allotment. This is due to variances in the allotment's land type, dominant vegetation types, and geographical area. Of the eight Idaho Standards for Rangeland Health, three are applicable to the Roseworth Point Allotment. Those that apply to the allotment are:

- **Standard 1** – Watersheds provide for the proper infiltration, retention, and release of water appropriate to soil type, hydrologic cycling, and energy flow.
- **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.
- **Standard 8** – Habitats are suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species.

**Standards 2, 3, 4, 6, and 7 do not apply to the Roseworth Point Allotment*

Table 9: Standards Applicable to the Roseworth Point Allotment.

Standard	Pastures
1	All Pastures
2	Not Applicable
3	Not Applicable
4	Not Applicable
5	All Pastures
6	Not Applicable
7	Not Applicable
8	All Pastures

An interdisciplinary (ID) team conducted IIRH field evaluations at seven sites in the Roseworth Point Allotment in June 2014. Each pasture has one IIRH site and all the sites are in seedings. Most of the IIRH evaluation sites are in the same spots as the HAF sites (Map 5). HAF sites were randomly selected through GIS using criteria specific to sage-grouse habitat requirements (Appendix A).

Using IIRH, the ID team evaluated three attributes: Soil and Site Stability, Hydrologic Function, and Biotic Integrity (Pellant et al., 2005). The ID team completed an IIRH sheet, took photographs, recorded plant species, and took field notes at each site. Field notes provide more details helping to better describe the indicators and any resulting departures from the ecological site reference condition.

Vegetation cover data collected during the HAF assessments is also used for the IIRH evaluation. The line point intercept method was used to collect vegetation cover data at the HAF sites (BLM, 2010). Daubenmire frames were used in addition to the line point intercept method to count the number of forbs within frames. Forb species were recorded in a 7.9 inches by 19.7 inches (20 centimeters by 50 centimeters) Daubenmire frame placed at each point along the line intercept. This resulted in more comprehensive data on forb species diversity than could be obtained by the line point intercept alone.

Natural Resource Conservation Service ecological site description (ESD) reference sheets were used to compare reference conditions to current plant and soil characteristics of the IIRH site and decide whether ecological processes are adequately functioning. The ESD describes the characteristics of the ecological site in its reference state as well as the transitional reference states that can occur on the site.

All of the IIRH sites are on a Loamy 8 to 12", Wyoming big sagebrush/bluebunch wheatgrass – Thurber's needlegrass ecological site #R011XY001ID (NRCS, 2013a). The reference plant community has Wyoming big sagebrush in the overstory with bluebunch wheatgrass and Thurber's needle grass dominating the understory. Sandberg bluegrass, squirreltail, arrowleaf balsamroot, and tapertip hawksbeard are sub-dominant species. The plant community includes other grasses, forbs, and shrubs that individually make up a minor part of the species composition. The ESD also states cheatgrass will occupy the site when disturbed.

Map 5: Interpreting Indicators of Rangeland Health (IIRH) & Sage-grouse Habitat Assessment Framework (HAF) Sites

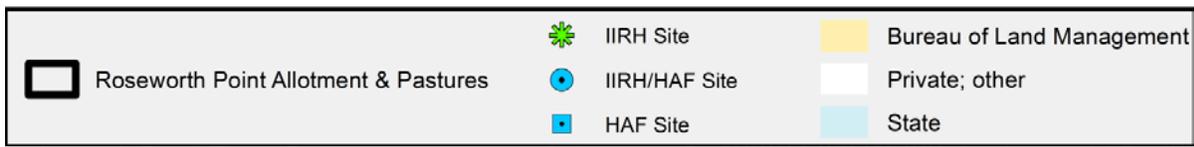
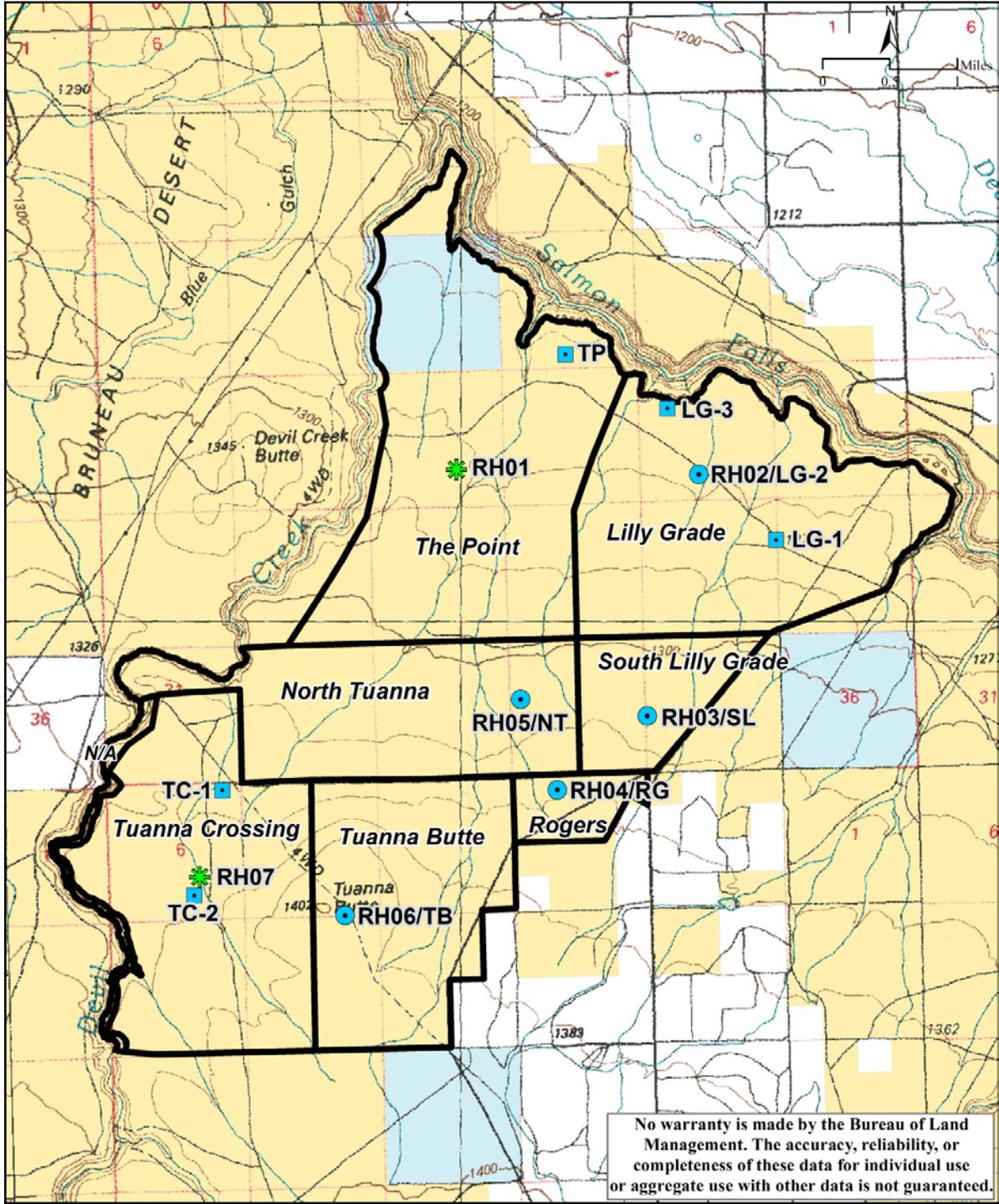


Table 10 shows the indicator ratings for each IIRH site in the Roseworth Point Allotment.

Table 10: Summary of 17 Rangeland Health Indicators

Indicators	Attributes	Degree of Departure from Ecological Site Description and/or Ecological Reference Area(s)				
	S = Soil & Site Stability H=Hydrologic Function B = Biotic Integrity	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
1. Rills	S, H					TP,LG,SL G,R,NTT B,TC
2. Water-flow Patterns	S, H				NT	TP,LG,SL G,R,TB,T C
3. Pedestals and/or terracettes	S, H				TP,LG,SL G,R,TB	NT,TC
4. Bare ground	S, H			NT	R	TP,LG,SL G,TB, TC
5. Gullies	S, H					TP,LG,SL G,R,NT,T B,TC
6. Wind-scoured, blowouts, and/or deposition areas	S					TP,LG,SL G,R,NT,T B,TC
7. Litter movement	S					TP,LG,SL G,R,NT,T B,TC
8. Soil surface resistance to erosion	S, H, B			NT	TC	TP, LG,SLG, R,TB
9. Soil surface loss or degradation	S, H, B				TP, NT	LG,SLG, R,TB,TC
10. Plant community composition and distribution relative to infiltration	H			TC	TP, NT	LG,SLG, R,TB
11. Compaction layer	S, H, B					TP,LG,SL G,R,NT,T B, TC
12. Functional/structural groups	B			TP,SLG,N TTC	LG,R,TB	
13. Plant mortality/decadence	B				TB,TC	TP,LG,SL G,R,NT

Indicators	Attributes S = Soil & Site Stability H=Hydrologic Function B = Biotic Integrity	Degree of Departure from Ecological Site Description and/or Ecological Reference Area(s)				
		Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
14. Litter amount	H, B				NT	TP,LG,SLG,R,TB,TC
15. Annual production	B					TP,LG,SLG,R,NT,TB,TC
16. Invasive plants	B				TP,NT,TB,TC	LG,SLG,R,M
17. Reproductive capability of perennial plants	B					TP,LG,SLG,R,NT,TB,TC

TP-The Point, LG-Lilly Grade, SLG-South Lilly Grade, R-Rogers, NT-North Tuanna, TB-Tuanna Butte, TC-Tuanna Crossing

Attribute departure ratings were determined by considering the collective evidence of departure for the group of indicators related to each attribute (Pellant et al., 2005). Indicators showing departure from the ESD reference sheet can be more important or less important than those not departing based upon the effect of the departure on the ecological function of the site being evaluated. The ratings showing the degree of departure for the three attributes of rangeland health are in Table 11.

Table 11: Rangeland Health Attribute Rating by Site

Rangeland Health Attribute	Degree of Departure				
	Extreme to Total	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
Soil and Site Stability				R,NT	TP, LG,SLG,TB,TC
Hydrologic Function				TP,R,NT,TC	LG,SLG,TB
Biotic Integrity				TP,SLG,NT, TB,TC	LG,R

TP-The Point, LG-Lilly Grade, SLG-South Lilly Grade, R-Rogers, NT-North Tuanna, TB-Tuanna Butte, TC-Tuanna Crossing

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.

Rangeland Health Assessment (All Pastures)

The ESD describes soils within the Roseworth Point Allotment as sandy loam to very stony sandy clay loams on the surface. The subsoil has a loam to clay loam texture. Soils are well drained and have a slight to moderate erosion hazard.

The ID team evaluated 12 indicators for Standard 1 at the seven IIRH sites using the ESD reference sheet #R011XY001ID (loamy 8-12”). The range of values (described in the ESD) used to rate indicators #4, #8, and #14 are 5-20 percent bare ground, 4 to 6 soil stability test values (scale of 1 to 6; Pellant et al., 2005), and 30 to 40 percent litter cover, respectively. Ground cover (Tables 12 and 13) collected during the IRRH and HAF monitoring was also used (uppermost canopy cover data) to assess watershed attributes.

Table 12: Percent Ground Cover at IIRH/HAF Sites

Cover Types	% Cover						
	RH01 (HAF TP) The Point	RH02 (HAF LG_2) Lilly Grade	RH03 (HAF SL) S. Lilly Grade	RH04 (HAF RG) Rogers	RH05 (HAF NT) N. Tuanna	RH06 (HAF TB) Tuanna Butte	RH07 Tuanna Crossing
Perennial Grasses	70	16	55.5	22	46	37	54
Annual Grasses	0	0	1	0	0	0	3
Perennial Forbs	0	0	0	0	0	0	0
Annual Forbs	6	0	1	2	0	3.5	0
Shrubs	0	28	15.5	18	0	12	0
Biological Crusts	10	33	6	20	0	19	6
Litter	4	15	4.5	10	11	13	26
Gravel/Rock	0	0	0	0	7	0.5	2
Bare Ground	10	8	16.5	28	36	15	9
Total	100	100	100	100	100	100	100

Table 13: Percent Ground Cover at 2010 HAF Sites

Cover Types	% Cover			
	HAF LG_1 Lilly Grade	HAF LG_3 Lilly Grade	HAF TC_1 Tuanna Crossing	HAF TC_2 Tuanna Crossing
Perennial Grasses	40	35	26	44
Annual Grasses	7	0	0	2
Perennial Forbs	0	3	3	0
Annual Forbs	12	0	0	2
Shrubs	0	21	18	0
Biological Crusts	1	29	34	6
Litter	15	7	10	12

Gravel/Rock	1	1	0	2
Bare Ground	24	4	9	34
Total	100	100	100	100

Bare ground amounts are within the expected ESD range (5 – 20 percent) at five IIRH sites and one HAF site and above the range at two IIRH sites and one HAF site. Litter is below the ESD range (30 to 40 percent) at all the sites. Soil surface resistance/stability values are within the ESD range at three sites and less than expected at four sites. Pedestals were observed at all the rangeland health sites except for RH05 and RH07 (North Tuanna and Tuanna Crossing Pastures).

The Point Pasture

IIRH Site RH01 (Loamy 8-12”)

Vegetation consists mostly of crested wheatgrass and Sandberg bluegrass at Site RH01 (HAF Site TP). The site burned in the 2005 Clover Wildfire and 2015 Kinyon Road Wildfire. Perennial grasses provided 70 percent of the ground cover. Biological crusts and litter amounts were low and have yet to recover from the 2015 wildfire. Some sagebrush was found in nearby unburned patches. Pedestals at the site, occur around Sandberg bluegrass plants, and are mostly inactive. The pedestal, soil surface loss, and infiltration indicators deviated (slight to moderate rating) from the ESD reference sheet mostly due to pedestals and the low amounts of sagebrush throughout the site.

Lilly Grade Pasture

IIRH Site RH02 (Loamy 8-12”)

Shrubs and biological crusts provided most of the cover at Site RH02 (HAF LG_2). BLM sprayed and seeded this pasture in 1957. The site has not burned since it was treated in 1957. The dominant vegetation is Wyoming big sagebrush and Sandberg bluegrass. Litter and perennial grass cover are lower than expected. The only soil and hydrologic function indicator deviating from the ESD reference sheet was pedestals, which was given a rating of “slight to moderate”.

Two more HAF sites are in the Lilly Grade Pasture: HAF LG_1 and HAF LG_3. Litter amounts are lower than expected at both sites. Biological crusts were high (29 percent) at HAF LG_3. Biological crust, shrub, and perennial grass cover contribute to the low amount of bare ground at Site HAF LG_3. Perennial grasses provide much of the ground cover at HAF LG_1. Bare ground slightly exceeded amounts in the ESD reference sheet.

South Lilly Grade Pasture

IIRH Site RH03 (Loamy 8-12”)

Site RH03 (HAF SL) is in an area that has not burned in recent years. BLM seeded the pasture, however; records documenting the seeding were not found. Perennial grasses (crested wheatgrass and Sandberg bluegrass) followed by Wyoming big sagebrush provide most of the ground cover. Both biological crusts and litter are lower than expected on an unburned site. Pedestals were the only indicator that deviated from the ESD reference sheet with a rating of “slight to moderate”. Active pedestalling was rare and associated with Sandberg bluegrass.

Rogers Pasture

IRRH Site RH04 (Loamy 8-12”)

Vegetation at Site RH04 (HAF RG) consists of crested wheatgrass, Sandberg bluegrass, and Wyoming big sagebrush. BLM plowed and seeded the area in 1965 and the site has not burned since then. Vegetation provides 40 percent of the ground cover. Litter provides 10 percent of the cover, well below that expected for the site. Slickspots are found in the area. Livestock trailing appears common close to the road with soil pugging occurring nearby. Soil pugging declined with distance from the road. Pedestals are present and are mostly associated with Sandberg bluegrass. A few pedestals were noted as active. Biological crust is present at 20 percent. Both the bare ground (28%) and pedestal indicator had a slight to moderate deviation from the ESD reference sheet.

North Tuanna Pasture

IRRH Site RH05 (Loamy 8-12”)

Site RH05 (HAF NT) burned in the 2012 Kinyon Fire. Perennial grasses provided most of the ground cover (46 percent) with litter and gravel providing much less. Bare ground was high at 36 percent. Except for small unburned patches, sagebrush was absent from the site. Some water flow patterns were observed. They are mostly short in length being interrupted by perennial grasses. The soil stability rating averaged 3.3. The indicators for bare ground and soil surface resistance to erosion showed a “moderate” deviation from the ESD reference sheet. Indicator ratings for water flow patterns soil surface loss, and infiltration/runoff were “slight to moderate”. The 2012 Kinyon Wildfire likely influenced the 2014 ratings.

Tuanna Butte Pasture

IRRH Site RH06

Perennial grasses, biological crusts, litter, and Wyoming big sagebrush provide ground cover at Site RH06 (HAF TB). Perennial grasses include crested wheatgrass and Sandberg bluegrass. Some minor pedestalling around Sandberg bluegrass occurs at the site. Pedestals appear inactive with biological crust growing on them. The only indicator for soils and hydrologic attributes deviating from the ESD reference sheet was pedestals.

Tuanna Crossing Pasture

IRRH Site RH07

Litter and perennial grasses provided most of the ground cover at Site RH07. BLM seeded the area in 1965. The site burned in the 1995 Blue Gulch Wildfire. Vegetation consists primarily of crested wheatgrass and Sandberg bluegrass. Although it has been about 20 years since the fire, sagebrush has not yet reestablished on the site as expected. Biological crust was also low, likely contributing to the soil stability rating of 3.7. Two indicators, soil surface resistance to erosion (slight to moderate) and infiltration/runoff (moderate), deviated from the ESD reference sheet.

HAF TC_1 and HAF TC_2 are also in the Tuanna Crossing Pasture. Litter cover was low at both sites. Biological crusts were also low at HAF TC_2, which likely contributed to the high amount of bare ground (34 percent) at this site. Perennial grasses consisted of crested wheatgrass and Sandberg bluegrass at HAF TC_2. HAF TC_2 burned in the 2012 Clover Wildfire, which likely influenced the amount of bare ground and absence of shrubs at the site. Sandberg bluegrass was the dominant grass at HAF TC_1. Wyoming big sagebrush also provided cover at HAF TC_1.

Allotment Summary for Standard 1 (Watersheds)

Considering all the information described above, the ID team rated the soil and site stability attribute as a “none to slight” departure in all the pastures except for the Rogers and North Tuanna Pastures. The “slight to moderate” rating is due to higher amounts of bare ground and pedestals in the Rogers Pasture. Low amounts of litter combined with cow trails and soil pugging, and to a lesser extent slickspots, probably contributed to the amount of bare ground at the site as well as soil movement resulting in pedestals. Departures from reference conditions in the North Tuanna Pasture are likely due to the 2012 Kinyon Road Wildfire. Bare ground contributed to the attribute rating in the Rogers and North Tuanna Pastures.

The ID team rated the hydrologic attribute as a slight to moderate departure from the ESD in all pastures except the Lilly Grade, South Lilly Grade, and Tuanna Butte Pastures. Pedestals contributed to this rating in all the pastures except the Tuanna Crossing Pasture. Recent soil loss was noted in The Point and North Tuanna Pastures as evidence by exposed Sandberg bluegrass roots associated with pedestals. However, any soil loss was likely minimal since only a few plants exhibited exposed roots while most pedestalling appeared to have occurred in the past. The shrub component (Wyoming big sagebrush) in The Point, North Tuanna, and Tuanna Crossing Pastures was sparse, due to wildfires.

Evaluation of Standard 1

The soil and site stability attribute was rated as a “slight to moderate” deviation from the ESD in the Rogers and North Tuanna Pastures. The rating in the Rogers Pasture was based on the presence of a few active pedestals, bare ground amounts, and the lack of biological crusts in an unburned area. The North Tuanna Pasture recently burned in the 2012 Kinyon Road Fire resulting in higher amounts of bare ground, lower amounts of litter, absence of shrubs, decline in soil stability, the presence of water-flow patterns, and some evidence of soil loss.

Pedestals were present at all IIRH sites except in the Tuanna Crossing and North Tuanna Pastures. Pedestals were mostly associated with Sandberg bluegrass plants and were mostly inactive. Biological soil crust is growing on many of the pedestals in pastures that have not recently burned in a wildfire.

Bare ground amounts were within or slightly above the range described in the ESD in all pastures except for the North Tuanna (RH05), Tuanna Crossing (HAF TC_2), and Rogers Pastures (RH04). RH05 is in an area that had recently burned (2012 Kinyon Road Fire). Vegetation and ground cover had not yet fully recovered from the fire when field crews collected the cover data at this site. The lack of ground cover is expected and should recover as vegetation, litter, biological crust return to the site.

The lack of biological crusts, low amount of litter, lack of shrub cover as well as some slickspots at the site contribute to the high amount of bare ground at HAF TC_2 (Tuanna Crossing Pasture). The area burned in the 1995 Blue Gulch Wildfire and was subsequently seeded with Hycrest crested wheatgrass. Hycrest is highly competitive which may be preventing sagebrush from reestablishing in the area. Wildfire and the ensuing seeding with drills likely disturbed biological crusts, which have yet to recover.

Low perennial grass cover likely influenced the amount of bare ground (28 percent) in the Rogers Pasture. Wyoming big sagebrush cover is dominant with small stature grasses (Sandberg bluegrass) providing most of the perennial grass cover. Biological crust provides 22 percent of the cover, which aids in keeping bare ground from being higher than it is (28 percent).

The hydrologic function attribute is a “slight to moderate” deviation in The Point, Rogers, North Tuanna, and Tuanna Crossing Pastures. The ratings in the Rogers and North Tuanna Pastures are based on the same reasons discussed above for deviations in the soil and site stability attribute. Signs of soil loss (a few active pedestals) and very little shrubs present resulted in the “slight to moderate” rating in The Point Pasture. The rating in the Tuanna Crossing Pasture is due to the soil surface resistance to erosion values being less than expected in the ESD and the lack of sagebrush in the seeding 20 years after the area burned. However, the erosion value was slightly below the ESD erosion value.

Evaluation Finding – The Point, Lilly Grade, South Lilly Grade, Tuanna Butte, and Tuanna Crossing Pastures are:

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

Rationale for Evaluation Finding

All the attributes for soil stability and hydrologic function in the Lilly Grade, South Lilly Grade, and Tuanna Pastures showed none to slight deviations from the ESD. Data collected during the IIRH field assessments show ground cover is ample for soil stability and hydrologic function. Evidence of accelerated erosion, such as active rills, gullies, flow patterns, etc., was not present. Pedestals are present in all three pastures, but pedestalling is mostly inactive. Topography is relatively flat, reducing risk for accelerated soil erosion. Infiltration, retention, and release of water processes relative to soil, vegetation, climate and landform are providing for proper nutrient and hydrologic cycling and energy flow.

The soil and site stability attribute in The Point and Tuanna Crossing Pastures showed a “none to slight” deviation from the ESD. The Hydrologic Function rating in both pastures is “slight to moderate” mostly because of the lack of sagebrush. However, deep-rooted grasses (crested wheatgrass) dominate both sites and are well-distributed. Large stature grasses combined with litter amounts is allowing for the infiltration, retention, and release of water processes.

Evaluation Finding – Rogers and North Tuanna Pastures are:

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

Rationale for Evaluation Finding

The attribute rating for soil stability in the Rogers and North Tuanna Pastures is a “slight to moderate” deviation from the ESD. Bare ground amounts are higher and litter and biological crust amounts are lower than expected in both pastures. Hoof shearing in the Rogers Pasture mostly contributed to the higher amounts of bare ground and attribute rating. Soil stability

measurements were low in the North Tuanna Pasture and are a result of reduced ground cover and higher amounts of bare ground. Burnt clumps of vegetation are pedestal indicating some soil loss happened after the 2012 Kinyon Road Wildfire. Short water-flow patterns are present and are also likely caused by the recent wildfire. The opportunity for accelerated erosion (i.e. higher amounts of bare ground, reduced ground cover) exists in these two pastures.

Hydrologic function attribute ratings for the Rogers and North Tuanna Pastures showed a “slight to moderate” deviation. Again, increased bare ground and reduced ground cover in the Rogers and North Tuanna Pastures, as well as reduced soil stability and signs of soil loss in the North Tuanna Pasture resulted in the attribute ratings. The lack of sagebrush is also a contributing factor in the North Tuanna Pasture. As a result, infiltration, retention, and release of water processes relative to soil, vegetation, climate and landform are impeding proper nutrient and hydrologic cycling and energy flow.

Standard 2 (Riparian Areas & 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.

X Standard Doesn't Apply

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.

X Standard Doesn't Apply

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.

X Standard Doesn't Apply

Standard 5 (Seedings)

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

Rangeland Health Assessment (All Pastures)

All of the rangeland health sites in the Roseworth Allotment are in crested wheatgrass seedings; therefore, the ID team assessed rangeland health using Standard 5. Seedings in the Lilly Grade, South Lilly Grade, Rogers, and Tuanna Butte were planted in the mid-1950s or 1960s. Wildfire has not burned these seedings and sagebrush has reestablished in all of them. The rangeland health sites in The Point, North Tuanna, and Tuanna Crossing Pastures were also seeded at the

same time as the other pastures but have experienced wildfire since then and were reseeded after the fires. Perennial grass provides most of the vegetative cover in these pastures. Vegetation cover data is in Tables 14 and 15.

Table 14: Vegetation Cover at IIRH Sites (2014)

Vegetation Class	Species	% Cover (All Layers)						
		RH01 (HAF TP) The Point	RH02 (HAF LG_2) Lilly Grade	RH03 (HAF SL) South Lilly Grade	RH04 (HAF RG) Rogers	RH05 (HAF NT) North Tuanna	RH06 (HAF TB) Tuanna Butte	RH07 Tuanna Crossing
Perennial Grasses	Crested Wheatgrass	35	10	37	10	12	9	39
	Sandberg Bluegrass	39	21	26	12	29	35	28
	Bluebunch Wheatgrass	0	0	0	0	4	0	0
	Squirreltail	0	0	0	0	1	0	0
Annual Grasses	Cheatgrass	3	0	1	0	0	0	4
Perennial Forbs	Sagebrush Phlox (<i>Phlox aculeate</i>)	0	0	0	2	0	24	0
	Shaggy Fleabane (<i>Erigeron pumilus</i>)	0	0	0	0	0	1	0
Annual Forbs	Russian Thistle	9	0	0	0	0	0	0
	Western Tansymustard	2	0	0	0	0	0	0
	Clasping Pepperweed	2	0	1	0	0	0	0
	Curvseed butterwort	0	0	0	0	0	4	1
Shrubs	Wyoming Big Sagebrush	0	28	19	18	0	12	0
Vegetation Total		90	44	84	42	46	85	72
Other Cover	Biological Crusts	45	52	16	20	0	40	24
	Total Litter	23	14	33	10	11	29	53

Table 15: Vegetation Cover at Other HAF Sites (2010)

Vegetation Class	Species	% Cover (All Layers)*		
		HAF LG_1 Lilly Grade	HAF LG_3 Lilly Grade	HAF TC_2 Tuanna Crossing
Perennial Grasses	Crested Wheatgrass	6	0	20
	Sandberg Bluegrass	64	46	26
	Bluebunch Wheatgrass	6	0	0
	Squirreltail	4	0	0
Annual Grasses	Cheatgrass	20	0	2
Perennial Forbs	Sagebrush Phlox	0	2	0
	Spiny Phlox	0	2	0
Annual Forbs	Clasping Pepperweed	26	0	0
	Curvseed butterwort	2	0	2
Shrubs	Wyoming Big Sagebrush	0	26	0
Vegetation Total		128	76	50
Other Cover	Biological Crusts	4	50	6
	Total Litter	16	12	16

*HAF TC_1 not included in table since it was read in 2010 and burned in the 2012 Kinyon Road Wildfire and as a result no longer supports pre-burn vegetation.

The Point Pasture

IIRH Site RH01 (Loamy 8-12")

Crested wheatgrass (35 percent) and Sandberg bluegrass (39 percent) provide similar amounts of cover at Site RH01 in The Point Pasture. Also present along the cover transect were invasive weedy species: cheatgrass, Russian thistle, clasping pepperweed, and Western tansymustard. Cheatgrass cover is 3 percent and combined annual forbs provided 13 percent of the total vegetation cover. Perennial forbs were not noted along the cover transect, but some were seen in the area. They included sainfoin, alfalfa, Lewis flax, spiny phlox, Nevada onion (*Allium nevadense*), shaggy fleabane, and Bruneau mariposa lily (*Calochortus bruneaunis*). Although seen, perennial forb density was low. Biological crusts and a few Wyoming sagebrush seedlings were also present at the site.

Most of the indicators of rangeland health for a seeding were within the expected values of the ESD. Three indicators deviated from the ESD: functional/structural groups, soil surface loss/degradation, and invasive plants. Functional/structural groups rated as a “moderate” deviation while the other two indicators rated “slight to moderate”. The lack of Wyoming big sagebrush and perennial forbs strongly influenced the “moderate” rating. Weedy annual forbs were mostly found in areas disturbed by rodents, but were also in the seeding at low densities (saltlover, Russian thistle, Western tansymustard, and clasping pepperweed). Most these annual forbs are likely present at the site because of wildfire and drought (2012 and 2013) and they

should decrease as the site fully recovers from both events. Some soil loss associated with pedestals was noted but appeared minor and likely occurred after the 2005 Clover Wildfire. Photo 1 shows Site RH01.

Lilly Grade Pasture

IIRH Site RH02 (Loamy 8-12")

Wyoming big sagebrush cover (28 percent) dominates Site RH02. Perennial grasses provide little cover to the site (31 percent), with Sandberg bluegrass providing the most at 21 percent. Forbs were not noted along the cover transect and only four species were seen nearby. They included plains pricklypear cactus (*Opuntia polyacantha*), tall annual willowherb (*Epilobium paniculatum*), fiddleneck (*Amsinkia spp.*), and shaggy fleabane. Biological crusts were also present.

The functional/structural group indicator was the only indicator to deviate from the ESD reference sheet. Reduced amounts of large stature grasses and forbs resulted in the “slight to moderate” rating. Wyoming big sagebrush is providing much of the structure on the site. Invasive plants were not noted at the site.

Sites HAF LG_1 and HAF LG_3 are also in the Lilly Grade Pasture. HAF LG_1 is in a seeded area that burned in the 2005 Clover Wildfire. Sandberg bluegrass cover dominates the site (64 percent) with little crested wheatgrass noted along the cover transect. Secar bluebunch wheatgrass and squirreltail were also present in low amounts. Cheatgrass and clasping pepperweed were common along the cover transect. Other invasive annual plants seen near the cover transect include Western tansymustard, tall tumbledustard, Russian thistle, and saltlover. Two seeded perennial forbs were also present (alfalfa and Lewis flax), but at low densities.

HAF LG_3 is located in an area of the pasture that has not recently burned. Sandberg bluegrass and Wyoming sagebrush provide most of the vegetative cover at the site. Biological crust cover is high at 50% cover. A couple of perennial forbs were measured along the transect, but at low amounts (Sagebrush phlox and spiny phlox).

South Lilly Grade Pasture

IIRH Site RH03 (Loamy 8-12")

Shrubs (19 percent) and perennial grasses (63 percent) dominate Site RH03 in the South Lilly Grade Pasture. Crested wheatgrass provides most of the vegetation cover (37 percent) at the site, with Sandberg bluegrass providing 26 percent. Squirreltail was also observed in small amounts. Perennial forbs were not documented along the cover transect and only Plains milkweed was present nearby. Weedy annual forbs seen in the area include clasping pepperweed, curvedseed butterwort, and saltlover. Biological crusts provided 16 percent of the cover.

All but one indicator is within the expected values of the ESD reference sheet. A lack of diversity among grass species as well as minute amounts of perennial forbs resulted in a “moderate” deviation in the functional/structural indicator. Two grasses dominated the site (crested wheatgrass and Sandberg bluegrass) and the only perennial forb seen at the site was Plains milkweed. Annual invasive plants were also present, but in low amounts.

Rogers Pasture

IRRH Site RH04 (Loamy 8-12")

Sagebrush, crested wheatgrass, and Sandberg bluegrass dominate the vegetation cover at Site RH04 in the Rogers Pasture. Total vegetation cover and plant diversity is less than expected for the site, resulting in the functional/structural group indicator deviation (“slight to moderate”) from the ESD reference sheet. Invasive annual weeds were present, but found mostly in disturbed areas (vole mounds). All other biological indicators are within the values identified in the ESD.

North Tuanna Pasture

IRRH Site RH05 (Loamy 8-12")

Site RH05 burned in the 2012 Kinyon Road Wildfire. As a result, the area is dominated by perennial grass cover: crested wheatgrass (12 percent), Sandberg bluegrass (29 percent), Bluebunch wheatgrass (4 percent), and squirreltail (1 percent). No other vegetation nor biological crusts were noted along the cover transect. Some litter was measured at the site (11 percent).

Two indicators, soil surface resistance to erosion and functional/structural groups, rated a “moderate” deviation from the ESD reference sheet. The ESD value for soil surface resistance is 4 or greater, while the site's value is 3.3. Grasses dominate the site with a few perennial forbs present near the cover transect. Perennial forbs included Munroe globemallow (*Sphaeralcea munroana*), Plains pricklypear cactus, longleaf phlox, spiny phlox, Nevada onion, Toano milkvetch (*Astragalus toanus*), and deathcamas (*Zigadenus spp.*). Sandberg bluegrass dominance and low forb density at the site resulted in the “moderate” deviation for the functional/structural group indicator.

Three indicators rated a “slight to moderate” deviation from the ESD reference sheet at Site RH05. The soil surface loss/degradation indicator rated as a deviation due to some soil loss as shown by water flow patterns at the site. Litter amounts were lower than expected for the site. Curveseed butterwort and saltlover plants are scattered throughout the site causing a deviation in the invasive plants indicator. Trace amounts of cheatgrass were also noted at the site.

Tuanna Butte Pasture

IRRH Site RH06 (Loamy 8-12")

Dominant vegetation cover at Site RH06 is perennial grasses (44 percent), followed by perennial forbs (24 percent), and lastly shrub cover (12 percent). Biological crust cover was high (40 percent). The dominant grass is Sandberg bluegrass and sagebrush phlox provides most of the forb cover. Shaggy fleabane and curveseed butterwort were also present, but at much lower amounts.

Three indicators rated as a “slight to moderate” deviation from the ESD reference sheet. Functional/structural group indicator deviated due to Sandberg bluegrass providing most of the grass cover and only one perennial forb providing most of the forb cover (sagebrush phlox). Other perennial forbs seen, but at reduced amounts include Plains prickly pear cactus, deathcamas, Plains milkweed, spiny phlox, shaggy fleabane, and milkvetch.

Wyoming sagebrush showed some decadence that was more than expected for the site. Shrub decadence resulted in the plant mortality/decadence indicator deviating (“slight to moderate”) from the ESD reference sheet. The invasive plant indicator also had a “slight to moderate” deviation due to curvseed butterwort scattered throughout the site. Cheatgrass was present but at trace amounts.

Tuanna Crossing Pasture **IRRH Site RH07 (Loamy 8-12”)**

Perennial grass cover dominates Site RH07 in the Tuanna Crossing Pasture. Biological crust cover (29 percent) is also present at the site. Neither perennial forbs nor shrubs were noted along the cover transect. Cheatgrass and curvseed butterwort were measured at 4 percent and 1 percent cover, respectively. Vegetation cover was also measured at HAF TC_2 in the Tuanna Crossing Pasture. Perennial grass cover dominated the HAF TC_2 site. Shrubs and perennial forbs were not noted along the cover transect. Cheatgrass and curvseed butterwort were each measured at 2 percent cover. Biological crusts were noted but at much lesser cover amounts (6 percent) than at Site RH07. Data from HAF TC_1 was not used since it was collected before burning in 2012. Pre-burn vegetation included sagebrush; hence, the data does not represent current vegetation.

One indicator rated as a “moderate” deviation and another two indicators rated at a “slight to moderate” deviation from the ESD reference sheet at Site RH07. The functional/structural indicator received a “moderate” rating largely due to the lack of Wyoming sagebrush at the site. The site burned in 1995, but few shrubs have reestablished in the area since the fire. Perennial forbs are found at lower amounts at the IIRH site.

The plant mortality/decadence and invasive plants indicators rated as a “slight to moderate” deviation. Some crested wheatgrass plants were dead. Some decadence is expected since the seeding is >20 years old. Cheatgrass and curvseed butterwort are scattered throughout the site but at low densities. They occur in higher amounts in disturbed areas (rodent mounds).

The ID team rated the biological attribute as a “slight to moderate” departure from the ESD in all pastures except the Lilly Grade and Rogers Pastures. The latter two pastures rated as a “none to slight” deviation. The primary reason for the “slight to moderate” deviation in most of the pastures is the shortage of functional/structural groups at the sites. Scarce perennial forbs throughout all the pastures and the dominance of crested wheatgrass and Sandberg bluegrass, as well as the lack of shrubs in the Tuanna Crossing and The Point Pastures resulted in the deviations from the ESD. Invasive plants (mostly annual forbs) in the Point, North Tuanna, and the Tuanna Butte Pastures also influenced the rating in these three pastures.

Evaluation of Standard 5

IIRH sites in four pastures, the Lilly Grade, South Lilly Grade, Rogers, and Tuanna Butte Pastures, in the Roseworth Point Allotment have not burned in a wildfire in the past several years. However, they were seeded in the 1950’s and 1960’s to crested wheatgrass. Sagebrush has reestablished in all four pastures. Crested wheatgrass and Sandberg bluegrass dominate the understory. Very few forbs are present, and if present are low in numbers. Annual invasive forbs are found in all pastures, but only influenced the attribute rating in the Tuanna Butte Pasture.

The remaining IIRH sites in The Point, North Tuanna, and Tuanna Crossing Pastures have burned with most acres burning in the 2012 Kinyon Road Wildfire. As a result of the wildfire, Wyoming sagebrush is lacking in these pastures. As with the unburned sites, crested wheatgrass and Sandberg bluegrass dominate the understory, there is a lack of perennial forbs, and annual invasive forbs are found in all the pastures. Annual invasive plants influenced the attribute rating in the Point and North Tuanna Pastures.

The ESI production data also show similar results. Perennial grass cover dominates the understory, very few perennial forbs are present, and invasive annual forbs are found throughout the sites. Noxious weeds have not been noted on the allotment. Cheatgrass is found throughout the allotment, but mostly at low amounts except in The Point, Lilly Grade, and North Tuanna Pastures, where it was present in larger amounts. ESR monitoring results in 2014 determined that areas seeded after the Kinyon Road Wildfire had spotty seedling establishment. This likely influenced the deviations from ESD in the North Tuanna Pasture.

The Roseworth Allotment has primarily been used during the winter months over the past ten years. Actual use has been near the permitted use except in 2012 and 2013. Very dry growing conditions as well as the Kinyon Road Wildfire influenced reduced use in 2012 and 2013. Utilization has been slight to light on both crested wheatgrass and Sandberg bluegrass in most years. Three years of moderate use (2005 - 2007) occurred on crested wheatgrass in a few pastures. Crested wheatgrass was heavily grazed in part of the Tuanna Butte Pasture in 2005. Current livestock grazing (i.e. winter grazing and slight to light use) does not seem to be directly influencing plant health at this time.

The Biological attribute rating is “slight to moderate” for all pastures, except the Lilly Grade and Rogers Pastures (rated “none to slight”). The type and amount of vegetation has been greatly altered over the years. Crested wheatgrass seedlings are established throughout the allotment. Recent wildfires have burned about 79 percent of the allotment, with much of the burned area being reseeded. The most recent ESR seeding treatment has yet to successfully establish. Invasive annuals are found throughout the allotment.

Evaluation Finding – The Point, Lilly Grade, South Lilly Grade, Rogers, Tuanna Butte, and Tuanna Crossing Pastures are:

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

Rationale for Evaluation Finding

The Biological attribute rating for the Lilly Grade and Rogers Pastures is “none to slight”. The functional/structural indicator deviated from the ESD in both pastures. This is due to Sandberg bluegrass cover slightly dominating the understory and forbs are uncommon. Biological crust is present. However, annual vegetation production appears within the ESD range, invasive plants if present are found in recently disturbed areas, and plants are vigorous and are reproducing. Further, soils are stable and precipitation infiltration rates appear adequate for plant use.

The Point, South Lilly Grade, Tuanna Butte, and Tuanna Crossing Pastures' biological attribute rating is "slight to moderate". The functional/structural indicator deviated from the ESD in all pastures, primarily due to the low amounts of forbs and absence of sagebrush at each site. In addition, the plant mortality/decadence and invasive plants indicators are a "slight to moderate" change from the ESD in the Tuanna Butte and Tuanna Crossing Pastures. Sagebrush in the Tuanna Butte Pasture displayed slightly more decadence than expected and butterwort curvseed is found throughout the plant community. Although these two indicators were outside of the ESD, they are not influencing the site's overall ability to function accordingly. Plants are vigorous and are reproducing. Plant production is within the ESD range. Crested wheatgrass and biological crust presence is high; providing sufficient ground and herbaceous plant cover to the site. Some decadence on crested wheatgrass is in the Tuanna Crossing Pasture; however, the seeding is at least 20 years old and older crested wheatgrass plants will start to die out. Weedy species also occur in the Tuanna Crossing Pasture, but most of them are likely a symptom of wildfire and drought.

In general, the seeded vegetation communities in The Point, Lilly Grade, South Lilly Grade, Rogers, Tuanna Butte, and Tuanna Crossing Pastures are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow, and the hydrologic cycle.

Evaluation Finding – North Tuanna Pasture is:

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

Rationale for Evaluation Finding

The biological attribute rating for the North Tuanna Pasture is a "slight to moderate" deviation from the ESD. Nearly 100 percent of the North Tuanna Pasture burned in the 2012 Kinyon Road Wildfire. The functional/structural and soil surface resistance indicators showed a "moderate" deviation from the ESD. Sandberg bluegrass (29%) provided most of the vegetation cover. Crested wheatgrass cover is considerably lower at 12%. Biological crusts were absent. Soil stability measurements were low, likely due to low amounts of litter and biological crusts resulting in higher amounts of bare ground. The soil surface loss, litter, and invasive plant indicators showed a "slight to moderate" change from the ESD. Water flow patterns were present indicating some soil loss likely occurred after the fire. Although, present at low amounts, invasive annual forbs were scattered throughout the site, and have the potential to increase if perennial vegetation does not recover after the fire.

Although the standard is not met in the North Tuanna Pasture, in time it is expected vegetation will recover providing adequate cover, soil stability, and litter to the site. However, the opportunity exists for invasive plants to increase in the area as well as more soil loss to occur if vegetation does not recover.

Standard 6 (Exotic Plant Communities, Other than Seedings)

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

X Standard Doesn't Apply

Standard 7 (Water Quality)

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

X Standard Doesn't Apply

Standard 8 (Threatened, Endangered and BLM Sensitive Plants and Animals)

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

Rangeland Health Assessment (All Pastures)

Plants:

There are no known BLM sensitive plants within the allotment. However, systematic inventories for special status plants have not been conducted in the allotment. In the Jarbidge Field Office special status plants are generally associated with distinct soil types. None of these soil types occur within the allotment based on SSURGO soil data (USDA and NRCS, 2012). Potential habitat occurs for one sensitive plant species, slickspot peppergrass (*Lepidium papilliferum*; Proposed Endangered, BLM sensitive species).

Slickspot peppergrass grows within the semiarid sagebrush-steppe ecosystem of southwestern Idaho. Interspersed within this habitat type, slickspot peppergrass can be found in visually distinct microsites known as slickspots (mini playas or natric sites) that act as small water basins and where the sodium and clay content is higher than adjacent, unoccupied habitat (Moseley, 1994). The Roseworth Point Allotment contains 292 acres (2 percent of allotment) of potential slickspot peppergrass habitat (Map 6). A GIS model was developed to help focus inventory efforts to areas that would have a higher probability of finding slickspot peppergrass plants (BLM, 2012). This model used updated soils data, vegetation community data, fire frequency, slope, and elevation to further refine potential habitat and to categorize it into groups (high, medium, and low) that identify the potential for finding the species. The allotment contains 291 acres of high potential, 2 acres of medium potential, and 11,504 acres of non-habitat for slickspot peppergrass (Table 16). The nearest known occupied habitat for slickspot peppergrass is 16 miles to the west, on the west side of Clover Creek.

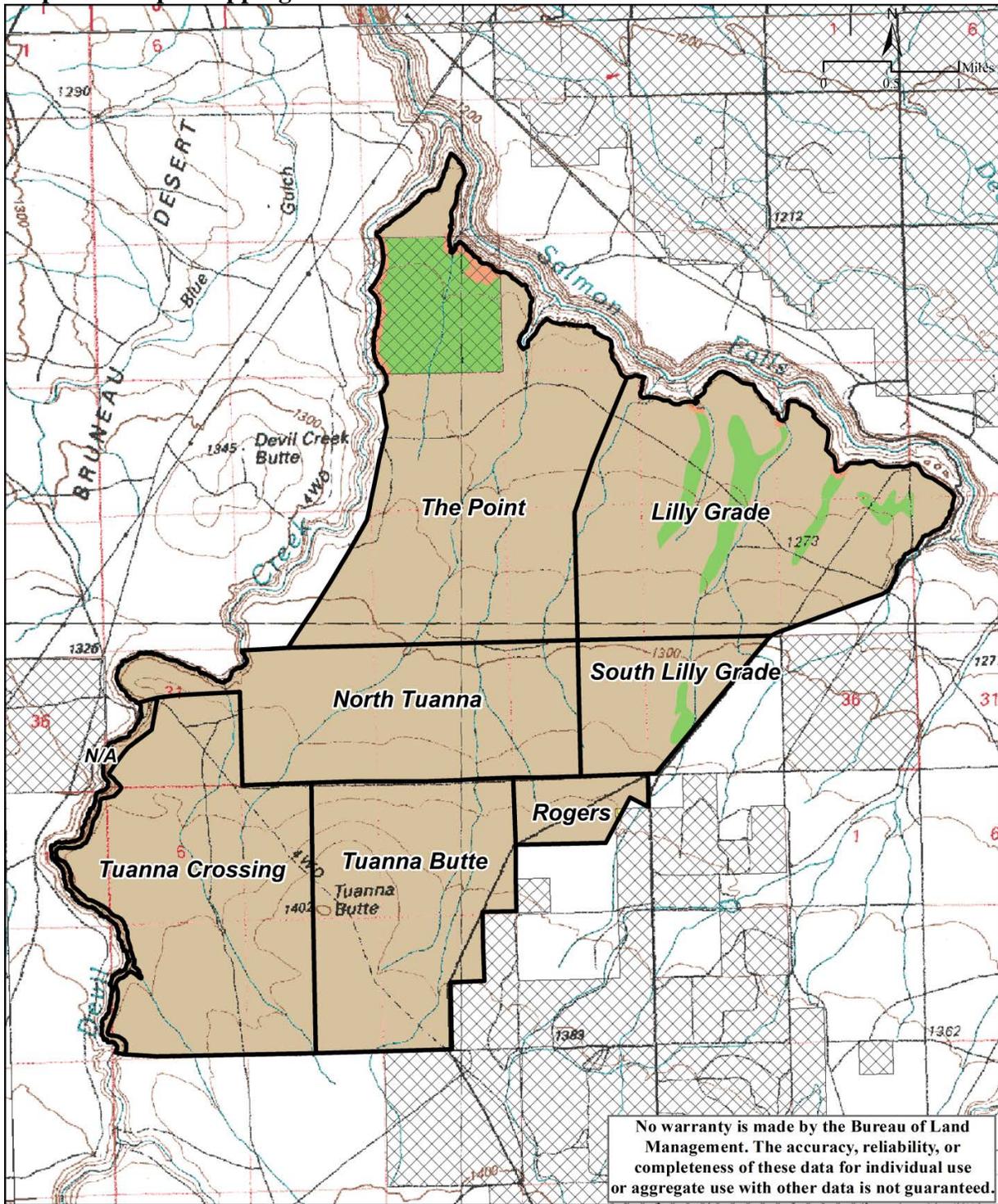
Table 16: Slickspot Peppergrass Potential Habitat (Acres).

Pasture	High	Medium	Low	Non-habitat
Lilly Grade	260	2	0	2,226
North Tuanna	0	0	0	1,742
N/A	0	0	0	129
Rogers	0	0	0	270
South Lilly Grade	28	0	0	610

Pasture	High	Medium	Low	Non-habitat
The Point	2	0	0	2,534
Tuanna Butte	0	0	0	1,683
Tuanna Crossing	0	0	0	2,310

DRAFT

Map 6: Slickspot Peppergrass Potential Habitat



Animals:

The presence of various sensitive wildlife species are mostly based on incidental observations by BLM staff and data entered into the Idaho Natural Heritage Center database by other people. Species with the potential to occur on the Roseworth Point Allotment are discussed below.

There are no BLM sensitive or federally listed fish or aquatic invertebrates or their habitat within the allotment. No perennial streams occur within the allotment.

Greater Sage-Grouse (*Centrocercus urophasianus*; BLM sensitive species)

Sage-grouse require sagebrush and other shrub habitat to fulfill seasonal habitat needs (Connelly et al., 2000; Holloran et al., 2005). Sage-grouse are dependent on sagebrush ecosystems and require extensive stands of sagebrush with a diverse and vigorous herbaceous understory.

Sage-grouse display and breed on leks (i.e., display grounds with sparse vegetation cover) between March and May. After breeding, hens disperse into nesting areas around the leks. Sage-grouse typically return to the same lek and nest areas year after year. Hens seek out nest sites that are concealed from predators especially avian predators (Conover et al., 2010) by a combination of sagebrush and grass cover. When chicks hatch the hen and her chicks feed on insects and forbs. They slowly move towards wetter areas like wet meadows, irrigated farmland, or streams and springs where forbs are still green and growing later in the summer. A diverse forb component and an abundance of forbs are necessary to support a variety of insects which are critical to the growth of young sage-grouse (Knick and Connelly, 2011). In the fall as forbs dry up sage-grouse switch from eating forbs to sagebrush, which they eat through the winter. Sage-grouse may either migrate to different seasonal habitats or may stay in a single general area throughout the year.

In 2010, BLM developed the Sage-Grouse HAF to assess seasonal sage-grouse habitats at multiple scales (Stiver et al., 2010). Habitat suitability requirements were based on the following guidelines which were published in 2000 and describe desired conditions for sage-grouse habitats during nesting and early brood rearing, late brood rearing, and winter:

- Nesting and early brood rearing habitat should support 15-25 percent canopy cover of sagebrush, perennial herbaceous cover should average at least 7" in height with at least 10 percent canopy cover for grasses and at least 5 percent for forbs and a diversity of forb species during spring (Connelly et al., 2000).
- Late brood rearing habitat should support 10-25 percent canopy cover of sagebrush. Riparian areas or wet meadows in the general area improve habitat for sage-grouse (Connelly et al., 2000).
- Winter habitat should have 10-30 percent canopy cover of sagebrush with at least 10-14" exposed above the snow (Connelly et al., 2000).

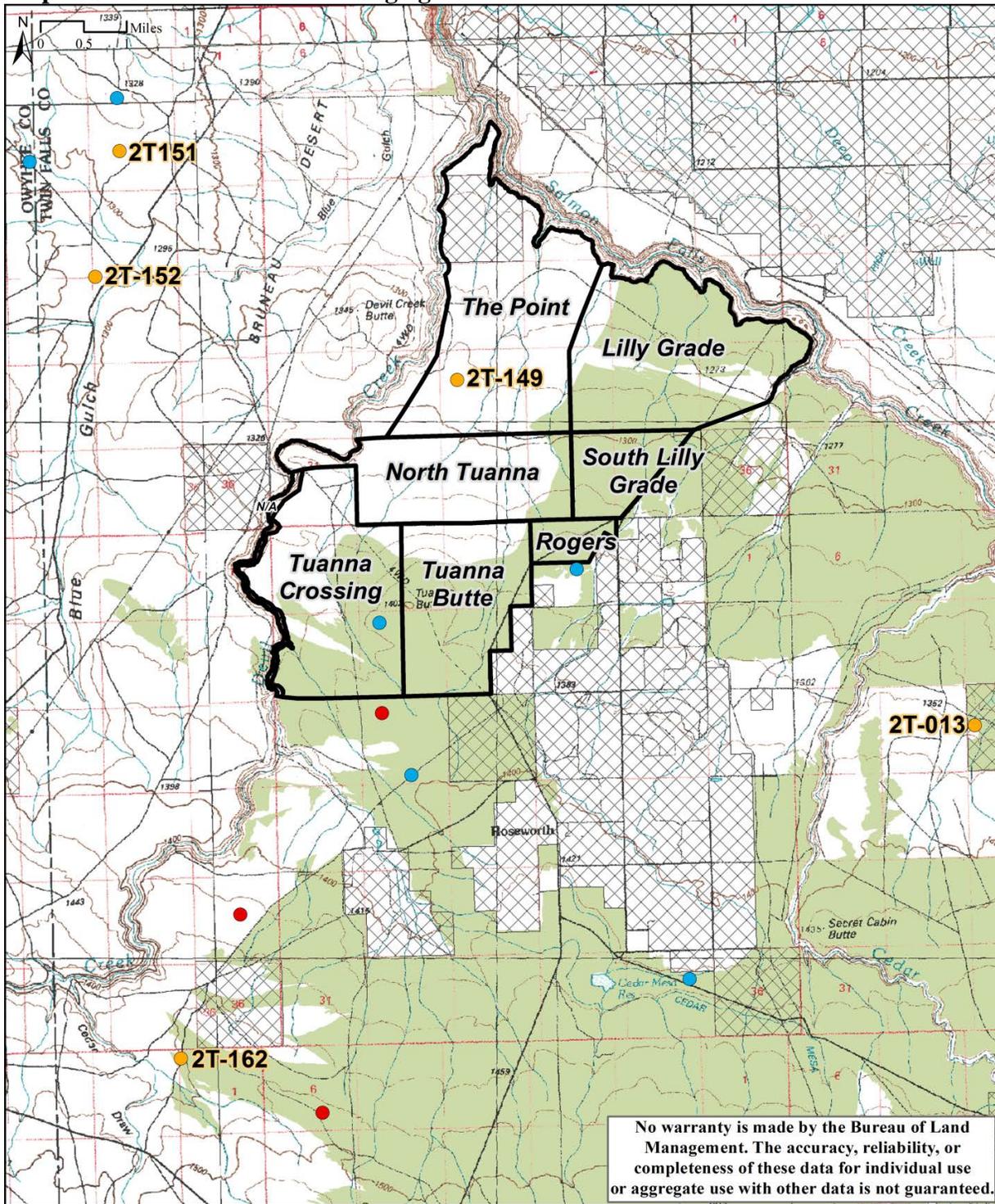
Based on vegetation mapping from 2013, the Roseworth Point Allotment has 5,625 acres mapped as sagebrush (48 percent of the allotment; Map 3). Sagebrush occurs in the following

pastures: Lilly Grade (1,964 acres, 79 percent of pasture), North Tuanna (184 acres, 11 percent of pasture), Rogers (269 acres, 100 percent of pasture), South Lilly Grade (639 acres, 100 percent of pasture), The Point (76 acres, 3 percent of pasture), Tuanna Butte (1,287 acres, 76 percent of pasture), and Tuanna Crossing (1,234 acres, 53 percent of pasture).

The Blue Gulch Wildfire of 1995, Clover wildfire of 2005, and Kinyon Road Wildfire of 2012 have eliminated sagebrush in portions of allotment. Most of the sagebrush in The Point and North Tuanna Pastures burned in the Kinyon Road Wildfire. Following the Kinyon Road Wildfire, sagebrush was aerial reseeded in The Point Pasture (1,870 acres seeded, 74 percent of pasture) and the North Tuanna Pasture (762 acres seeded, 44 percent of pasture). Sagebrush was also aerial reseeded in the northern part of the Tuanna Butte Pasture (389 acres seeded, 23 percent of pasture) and Tuanna Crossing Pasture (560 acres seeded, 24 percent of pasture). Where sagebrush has been reseeded, recovery of the sagebrush community needed for sage-grouse is expected to take one (Wambolt and Payne, 1986) to several (Baker, 2006; Baker, 2011) decades assuming the absence of additional fire. Where sagebrush was not reseeded, natural recovery typically takes multiple decades.

Sage-grouse have been observed year round in the adjoining allotments. Sage-grouse habitat extends from the Roseworth Point Allotment into the Conover Allotment to the south and East Roseworth Point Allotment to the east (Map 7).

Map 7: Shrubland Habitat and Sage-grouse Leks



	Roseworth Point Allotment & Pastures		Shrubland	Management Status	
	Non-BLM Land		Occupied		Undetermined
			Unoccupied		

The Roseworth Point Allotment has one occupied and one undetermined (due to a lack of recent surveys) sage-grouse lek. Within five miles there are five occupied, six undetermined, one not verified (historic lek in database, no count numbers assigned to the lek), and three unoccupied sage-grouse leks (Map 7). Table 17 describes sage-grouse attendance at occupied leks within five miles of the allotment. Leks are occupied if there has been documented sage-grouse activity in the past five years.

Table 17: Sage-grouse Attendance at Occupied Leks within Five Miles of the Roseworth Point Allotment, 2000-2014.

Lek	Location	Survey Year ¹														
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
2T-149	The Point Pasture	18	16	12	--	--	2	3	--	0	8	0	4	12*	16	9
2T-152	2.9 miles W	0	0	0	--	0	0*	0	--*	0	0	--	13	0*	0	0
2T-151	3.8 miles W	13	11	8	--	0	0*	0	0*	19	10	18*	0	4*	8	4
2T-162	4.3 miles S	18	5	8	--	--	18	8	11*	12	14	5	8	3	10	6
2T-013	4.4 miles SE	--	--	--	--	--	--	0	--	0	--	--	--	0	--	14

¹Surveys were not conducted in years indicated by dashes (--); an asterisk indicates area around lek burned in a wildfire that year (*).

Nesting and Early Brood Rearing Habitat

The current conditions of sage-grouse seasonal habitats were assessed following protocols outlined in the Sage-grouse Habitat Assessment Framework (Stiver et al., 2010). Sage-grouse habitat suitability assessments were conducted in 2010 at HAF sites LG_1, LG_2, and LG_3- Lilly Grade Pasture, NT- North Tuanna Pasture, RG- Rogers Pasture, and TC_1 and TC_2- Tuanna Crossing Pasture (Table 18). Assessments were also conducted in 2012 at HAF sites SL- South Lilly Grade Pasture, TP- The Point Pasture, and TB- Tuanna Butte Pasture. Map 5 shows the locations of the sage-grouse habitat assessments sites (HAF sites).

Table 18: Sage-grouse Habitat Assessment Worksheet for Nesting and Early Brood Rearing Habitat (Arid Site).

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Average Sagebrush Canopy Cover	15 – 25%	10 - < 15% or > 25%	< 10%
	LG_3(21%), RG(18%, majority of pasture 10-12%), SL(18%)	LG_2(28%), TB(12%)	LG_1(trace), NT(0%), TP(0%), TC_1(0%), TC_2(trace)
Average Sagebrush Height	12 - 30"	10 -11" or >30"	< 10"
	LG_2(22"), LG_3(17"), RG(22"), SL(18"), TB(24")		LG_1(0"), NT(0"), TP(0"), TC_1(0"), TC_2(0")
Sagebrush Growth Form	Spreading	Mix of spreading and columnar	Columnar
	LG_1, LG_3, TB, TC_2	LG_2, SL	NT, RG, TP, TC_1
Average Grass Height	≥ 7"	5 - < 7"	< 5"

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
	LG_1(7''), LG_2(10''), LG_3(9''), RG(7''), SL(9''), TC_1(10''), TC_2(9'')	NT(5.6'')	TP(4.9''), TB(4.7'')
	≥ 10%	5 - < 10%	< 5%
Average Perennial Grass Canopy Cover	LG_1(44%), LG_2(30%), LG_3(47%), NT(30%), RG(32%), SL(62%), TP(48.5%), TB(43.5%), TC_1(34%), TC_2(42%)		
	≥ 5%	3 - < 5%	< 3%
Average Forb Canopy Cover		LG_3(3%), TC_1(3%)	LG_1(0%), LG_2(0%), NT(2%), RG(2%), SL(0%), TP(2%), TB(0%), TC_2(trace)
Preferred Forb Abundance and Diversity	Forbs common with at least a few preferred species common	Forbs common, but only 1 or 2 preferred species present	Forbs rare to sparsely present
	LG_3, TC_1		LG_1, LG_2, NT, RG, SL, TP, TB, TC_2
Overall Site Evaluation	LG_3	LG_2, RG	LG_1, NT, SL, TP, TB, TC_1, TC_2
Pasture Evaluation		Lilly Grade, Rogers	North Tuanna, South Lilly Grade, The Point, Tuanna Butte, Tuanna Crossing

The Lilly Grade Pasture has three HAF sites. HAF Site LG_1 is in the central portion of the pasture that burned in the Clover Wildfire of 2005. Sagebrush was aerial seeded after the fire and during the IIRH field visit sagebrush was observed at one to three percent cover in the area. The absence of sagebrush of sufficient height and density for nesting was expected since the area recently burned and sagebrush has yet to fully reestablish. The habitat assessment documented suitable grass height and cover at the site. Forbs were rare at the site, with only seven species of forbs observed (0.09 forbs per 0.1 m² plot). Cheatgrass provided 10 percent cover (all layers). HAF site LG_2 is in an area mapped as a Wyoming sagebrush/ crested wheatgrass vegetation community. Attributes are suitable for sagebrush height, grass height, and perennial grass canopy cover. Sagebrush canopy cover and growth form are marginal and forb indicators are unsuitable. Forbs were rare at the site, with only seven species of forbs observed (0.05 forbs per 0.1 m² plot). Cheatgrass was not recorded along the cover transects at the site.

HAF site LG_3 is in the northwest portion of the pasture in an area mapped as a Wyoming sagebrush/ Sandberg bluegrass vegetation community. All habitat indicators are suitable except for forb canopy cover (marginal). Although average forb canopy cover was marginal, the site is suitable for preferred forb abundance and diversity with 20 species of forbs observed (1.43 forbs per 0.1 m² plot). The most common forb species included sagebrush phlox, spiny phlox, and

fleabane, all sage-grouse preferred forbs. Cheatgrass was not recorded along the cover transects at the site. Overall, the Lilly Grade Pasture is marginal as nesting and early brood rearing habitat for sage-grouse.

The North Tuanna Pasture has one HAF site. Wildfire has eliminated most of the sagebrush in the pasture making it unsuitable for sage-grouse. HAF site NT is in an area that burned in the Kinyon Road Wildfire of 2012. Attributes at the site are suitable for grass canopy cover, marginal for grass height, and unsuitable for all sagebrush and forb habitat indicators. Forbs are rare at the site, with only four species observed (0.2 forbs per 0.1 m² plot). Cheatgrass was not recorded along the cover transects at the site.

The Rogers Pasture contained one HAF site (HAF site RG). The entire pasture is mapped as a Wyoming sagebrush/ Sandberg bluegrass vegetation community. Attributes at the site are suitable for sagebrush canopy cover, sagebrush height, grass height, and grass canopy cover. Sagebrush growth form and forb indicators were all unsuitable. Forbs were rare at the site, with only six species observed (0.1 forbs per 0.1m² plot). Cheatgrass was not recorded along the cover transects at the site. Overall, the Rogers Pasture is marginal as nesting and early brood rearing habitat.

The South Lilly Grade Pasture contained one HAF site (HAF site SL). The entire pasture is mapped as a Wyoming sagebrush/ Sandberg bluegrass vegetation community. Attributes at the site are suitable for sagebrush canopy cover, sagebrush height, grass height, and grass canopy cover. Sagebrush growth form is marginal and forb indicators are unsuitable. Forbs were essentially absent at the site, with only 4 species observed. Only one forb was recorded in 200 Daubenmire frames surveyed (each frame is 0.1m²). Cheatgrass was recorded at 1 percent cover. Overall, the South Lilly Grade Pasture is unsuitable as nesting and early brood rearing habitat.

The Point Pasture contained one HAF site (HAF site TP). The Kinyon Road Wildfire burned most of the sagebrush in the pasture making it unsuitable for sage-grouse. HAF site TP is in the northern portion of the pasture in an area mapped as recent burn. Attributes at the site are unsuitable for all habitat indicators except for perennial grass canopy cover (suitable). Ten species of forbs were observed at the site and they occurred at low densities (0.28 forbs per 0.1 m² plot). The only common forb at the site was spiny phlox. Cheatgrass was not recorded along the cover transects at the site.

The Tuanna Butte Pasture contained one HAF site (HAF site TB). The northern third of the pasture burned in the Kinyon Road Wildfire and the southern two-thirds contains mature sagebrush. HAF site TB is in the west-central portion of the pasture in an area mapped as a Wyoming sagebrush/ Sandberg bluegrass vegetation community. Attributes at the site are suitable for sagebrush height, sagebrush growth form, and perennial grass canopy cover. Sagebrush canopy cover is marginal and grass height and forb indicators are unsuitable. Eight species of forbs were observed at the site and they occurred at low densities (0.25 forbs per 0.1 m² plot). The only common forb was sagebrush phlox. Cheatgrass was not recorded along the cover transects. Overall, the Tuanna Butte Pasture is unsuitable as nesting and early brood rearing habitat due to the low amount of forbs at the site, marginal sagebrush cover, and low grass height.

The Tuanna Crossing Pasture contained two HAF sites. HAF site TC_1 is in the northern portion of the pasture that burned in the Kinyon Road Wildfire. HAF site TC_2 is in the central portion of the pasture mapped as a crested wheatgrass seeding that burned in the Blue Gulch Wildfire of 1995. Attributes at HAF site TC_1 are unsuitable for sagebrush indicators, marginal for sagebrush growth form and forb canopy cover, and suitable for grass height and preferred forb abundance and diversity. Thirteen species of forbs were observed and they occurred at high densities (1.93 forbs per 0.1 m² plot). The most common forbs were sagebrush phlox, spiny phlox, and fleabane, all sage-grouse preferred forbs. Cheatgrass was not recorded along the cover transects at the site. Attributes at HAF site TC_2 are suitable for grass height and cover and the remaining habitat indicators are unsuitable. Sagebrush is at trace levels at the site despite having nearly two decades to recover. Six species of forbs were observed and they occurred at low densities (0.68 forbs per 0.1m² plot). The only common forb was sagebrush phlox. Cheatgrass was recorded at 2 percent cover. Overall, the Tuanna Crossing Pasture is unsuitable as nesting and early brood rearing habitat.

Appendix A has a list of plants species observed at each site, including preferred sage-grouse forbs.

The southeastern edge of the Rogers and Tuanna Butte Pastures are next to private agricultural lands in the Roseworth area. The eastern edge of the Lilly Grade, Rogers, and South Lilly Grade Pastures border a paved road (about 2.5 miles borders the road). Private agricultural lands generally have increased densities of black-billed magpies (*Pica hudsonia*) and common ravens (*Corvus corax*) as well as mesopredators such as cats (*Felis catus*), dogs (*Canis lupus familiaris*), red foxes (*Vulpes vulpes*), and striped skunks (*Mephitis mephitis*). These areas also have increased levels of human associated disturbance, infrastructure, roads, and tall structures. Human disturbance or occupancy increases displacement of wildlife (Miller et al., 1998, 2001) and temporal or spatial habitat fragmentation or abandonment. Roads reduce and divide habitat (Forman and Alexander, 1998) and are a source of wildlife mortality (Jochimsen, 2006). Tall structures provide raptors and ravens additional perching or nesting sites (Steenhof et al., 1993), which may alter habitat use by some wildlife, or increase predation locally at some distance from the structure (Armentrout and Hall, 2006).

Late Brood Rearing Habitat

Drainages that use to carry agricultural runoff to Salmon Falls Creek are in the Lilly Grade, South Lilly Grade, North Tuanna, The Point, and Tuanna Butte Pastures. These drainages have little value as late brood rearing habitat for sage-grouse because they do not contain water during the summer. Vegetation along the drainages consists primarily of Kentucky bluegrass (*Poa pratensis*) and foxtail (*Hordeum jubatum*).

The southeastern portion of the Tuanna Butte Pasture is next to irrigated farmland in Roseworth. Sage-grouse and sage-grouse broods may use irrigated farmland during the summer when forbs desiccate in the surrounding uplands (Connelly et al., 1988).

Riparian areas associated with Devil and Salmon Falls Creeks are not expected to be used by sage-grouse since they occur in the bottom of steep canyons (Stiver et al., 2010).

Winter Habitat

The Lilly Grade, Rogers, South Lilly Grade, and Tuanna Butte Pastures contain shrub height (17 to 34 inches) and cover (10-28 percent) that is suitable for wintering sage-grouse. During winter snow depths are usually less than 12 inches leaving most sagebrush above the snow and available for wintering sage-grouse.

The east central and southwest portions of the Tuanna Crossing Pasture has sagebrush of adequate height and cover for wintering sage-grouse while the rest of the pasture has only limited areas with sagebrush. Overall, the Tuanna Crossing Pasture is marginal for wintering sage-grouse.

Wildfire has removed most of the sagebrush in the North Tuanna and The Point Pastures, making them unsuitable as wintering habitat for sage-grouse. Cover of grasses and forbs for wintering habitats generally is irrelevant, because of the complete reliance of sage-grouse upon sagebrush during this period (Homer et al., 1993).

Ferruginous Hawk (*Buteo regalis*; BLM sensitive species)

Ferruginous hawks typically inhabit flat and rolling terrain in grasslands and shrub-steppe regions (Bechard and Schmutz, 1995). They primarily nest in trees or less often on cliffs, rock outcrops, or on the ground at the crest of ridges. Although ferruginous hawks exhibit flexibility in nest site selection, they prefer elevated nest sites and rarely nest on level ground (Bechard and Schmutz, 1995). Ferruginous hawks may have more than one nest site within their nesting territory that they may use in different years (Bechard and Schmutz, 1995). Locally, ferruginous hawks that nest on the ground are rarely successful. Both the male and female share in the nest selection, egg incubation and young rearing, though the male does most of the hunting.

Ferruginous hawks prey primarily on smaller mammals. Prey species include ground squirrel (*Urocitellus* spp.), black-tailed jackrabbit (*Lepus californicus*), mountain cottontail (*Sylvilagus nuttalli*), and pocket gopher (*Thomomys talpoides*). Fledgling birds, reptiles and insects constitute a small percent of the diet (Bechard and Schmutz, 1995).

Management of shrub-steppe and grassland habitats that provide healthy native shrub and bunchgrass communities and a natural range of habitat variation would be expected to provide suitable habitat for ferruginous hawks.

There is one ferruginous hawk nest in the Roseworth Point Allotment (Nest F12; Table 19). The nest is in a live juniper in The Point Pasture along a small ephemeral drainage that empties into Salmon Falls Creek.

Table 19: Ferruginous Hawk Nest Data

Nest	Survey Year ¹																		
	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13
F12	I	--	--	--	--	--	I	--	--	--	--	--	--	I	--	I*	2	--	--

¹Surveys were not conducted in years indicated by dashes (--); an asterisk indicates the nest was knocked down that year (*). If the nest was active with young, the number of young was recorded, if the nest was inactive (I) that was also recorded.

Trees suitable for nesting are found in the Lilly Grade Pasture (three junipers along Salmon Falls Creek Canyon rim), North Tuanna Pasture (two junipers along Devil Creek Canyon rim), South Lilly Grade Pasture (one Russian Olive along drainage), The Point Pasture (one juniper along drainage to Salmon Falls Creek Canyon), and Tuanna Crossing Pasture (one juniper in west-central portion of the pasture). No trees are present in the Rogers and Tuanna Butte Pastures. The Lilly Grade, Rogers, South Lilly Grade, Tuanna Butte, and Tuanna Crossing Pastures contain native shrub and bunchgrass communities which provide suitable habitat for mammalian prey (black-tailed jackrabbit, mountain cottontail, ground squirrels, etc.) favored by ferruginous hawks. The North Tuanna and The Point Pastures are predominately perennial grasslands that provide marginal habitat for prey species.

Brewer's Sparrow (*Spizella breweri*; BLM sensitive species)

Brewer's sparrows are typically associated with sagebrush steppe. Brewer's sparrow place nests primarily in shrubs, but occasionally on the ground. The nest shrub is typically taller and denser than in the surrounding habitat (Rotenberry et al., 1999). Shrubs used for nesting by Brewer's sparrows include primarily big sagebrush (81 percent), with spiny hopsage (*Grayia spinosa*) (ten percent), antelope bitterbrush (*Purshia tridentata*) (six percent), and rabbitbrush (*Chrysothamnus spp.*) (three percent) (Rotenberry et al., 1999). Brewer's sparrows construct their nest in the canopy of sagebrush which averaged 27 inches tall (Rotenberry et al., 1999). In Idaho, Brewer's sparrow nests ranged from 7.8 to 19.6 inches above the ground, averaged nine inches from the top of the sagebrush and averaged seven inches from the edge of the shrub canopy (Rotenberry et al., 1999). These sparrows feed on small insects and seeds (Rotenberry et al., 1999).

Management and conservation of habitat to provide suitable sage-grouse habitat would also benefit Brewer's sparrow (Rowland et al., 2006). Brewer's sparrows have been observed and are expected to be common in sagebrush habitats within the Roseworth Point Allotment. At this time shrub height and density are suitable for Brewer's sparrow nesting in the Lilly Grade, Rogers, South Lilly Grade, and Tuanna Butte Pastures.

The east central and southwest portions of the Tuanna Crossing Pasture contain sagebrush of adequate height and cover for nesting while the rest of the pasture has only limited areas with sagebrush. Overall, the Tuanna Crossing Pasture is marginal for Brewer's sparrow nesting.

Perennial grasslands are dominant in the North Tuanna and The Point Pastures. Grasslands are generally unsuitable for Brewer's sparrow nesting. Some limited nesting habitat occurs in areas of sagebrush along the eastern side of the North Tuanna Pasture and the southeastern corner of The Point Pasture. In addition, scattered patches of low density sagebrush occur in the northern portion of the North Tuanna Pasture and the southern portion of The Point Pasture.

Loggerhead shrike (*Lanius ludovicianus*; BLM sensitive species)

Loggerhead shrikes are associated with open grasslands and shrub-steppe habitats. In southern Idaho loggerhead shrikes place nests in big sagebrush, antelope bitterbrush and greasewood (*Sarcobatus vermiculatus*) (Woods and Cade, 1996). Nest shrubs ranged from 35 to 117 inches tall (Woods and Cade, 1996). The average height of the nest was 31 inches and ranged from 13 to 63 inches above ground (Woods and Cade, 1996). Although big sagebrush was shorter than

greasewood or bitterbrush nest height was similar for all shrubs (Woods and Cade, 1996). In the Jarbidge Field Office a few loggerhead shrike nests have been found in western juniper.

Loggerhead shrikes feed on arthropods, amphibians, reptiles, small mammals and birds (Yosef, 1996). They use thorny bushes or barbed wire fences to impale their prey to facilitate feeding and to store future meals.

Management of shrub-steppe habitat that provides healthy native shrub and bunchgrass communities and a natural range of habitat variation would be expected to provide suitable habitat for loggerhead shrikes.

Loggerhead shrikes occur on the allotment and are expected to nest and forage on the allotment. At this time sagebrush of suitable height for nesting occurs in the Lilly Grade, Tuanna Butte, and Tuanna Crossing Pastures. The tallest sagebrush on transect in the Lilly Grade Pasture (site 2) was 37 inches, the Tuanna Butte Pasture was 40 inches, and the Tuanna Crossing Pasture was 43 inches. Overall, the Lilly Grade, Tuanna Butte, and Tuanna Crossing Pastures contain areas of suitable nesting habitat for loggerhead shrikes.

Shrubs in the Rogers and South Lilly Grade Pastures are shorter in height (Rogers Pasture: average shrub height was 22 inches, tallest sagebrush on transect was 30 inches; South Lilly Grade: average shrub height was 18 inches, tallest sagebrush on transect was 32 inches) than those preferred by loggerhead shrikes for nesting. Overall, the Rogers and South Lilly Grade Pastures are marginal for loggerhead shrike nesting.

Perennial grasslands dominate the North Tuanna and The Point Pastures. Grasslands are generally unsuitable for loggerhead shrike nesting. Some limited nesting habitat occurs in areas of sagebrush along the eastern side of the North Tuanna Pasture and the southeastern corner of The Point Pasture.

Sagebrush sparrow (*Artemisioispiza nevadensis*; BLM sensitive species)

Sagebrush sparrows are sagebrush obligates that are typically common in shrub-steppe habitats (Martin and Carlson, 1998). Sagebrush sparrows nest in shrubs, in bunchgrasses, or occasionally on the ground at the base of a shrub (Martin and Carlson, 1998). The nest shrub is usually taller than the surrounding vegetation (Martin and Carlson, 1998). In Idaho sagebrush sparrows nest in big sagebrush; however, in Oregon they may also use antelope bitterbrush, rabbitbrush, greasewood and bunchgrasses (Martin and Carlson, 1998). In general, sagebrush sparrows place their nests closer to the main stem than the edge of the shrub. In shrubs the nest can range from 9 to 11 inches above the ground. Sagebrush sparrows feed on seeds, insects, spiders, fruits, and succulent vegetation (Martin and Carlson, 1998).

Sagebrush sparrows have been observed and are expected to be common in sagebrush habitats within the Roseworth Point Allotment. Sagebrush height and density is suitable for sagebrush sparrow nesting in the Lilly Grade, Rogers, South Lilly Grade, and Tuanna Butte Pastures. The Tuanna Crossing Pasture is marginal for nesting and the North Tuanna and The Point Pastures are unsuitable.

Pygmy rabbit (*Brachylagus idahoensis*; BLM sensitive species)

Pygmy rabbits are sagebrush obligates and are usually found in areas with tall dense stands of big sagebrush and deep soils (Green and Flinders, 1980; Heady and Landré, 2005). Pygmy rabbits usually excavate burrow systems with multiple entrances. Burrow entrances are often at the base of sagebrush (Green and Flinders, 1980). Pygmy rabbits spend most of their time (68 percent) in a generally small area (less than 200 feet radius [three acres]) from the burrow within a larger (90 acres to 170 acres) home range. The primary food of pygmy rabbits is sagebrush which comprises 99 percent of its winter diet (Green and Flinders, 1980). Grasses and forbs make up more of the diet in the late spring into early summer.

Limited pygmy rabbit surveys in the northern portion of the Lilly Grade Pasture (about 50 acres have been surveyed) did not find them or their sign. Due to past vegetation treatments in the allotment in the 1950s and 1960s, most of the allotment lacks the sagebrush density preferred by pygmy rabbits. In addition, wildfires have eliminated sagebrush in most of the North Tuanna and The Point Pastures and in portions of the Lilly Grade, Tuanna Butte, and Tuanna Crossing Pastures. Areas that have burned do not contain sagebrush of sufficient density for pygmy rabbit burrows. Despite this the allotment does contain areas of dense sagebrush in the southwest portion of the Lilly Grade Pasture, the eastern portion of the Tuanna Crossing, and the western portion of the Tuanna Butte Pasture. However, these areas of dense sagebrush are somewhat isolated from other areas of dense sagebrush. Overall, the Lilly Grade, Rogers, South Lilly Grade, Tuanna Butte, and Tuanna Crossing Pastures are marginal for pygmy rabbits. The Point and North Tuanna Pastures are unsuitable due to the general lack of dense sagebrush in these pastures.

Piute ground squirrel (*Urocitellus mollis*; BLM sensitive species)

Piute ground squirrels are associated with shrub-steppe habitats in southwestern Idaho. They emerge from hibernation in late February into March depending on the year and begin hibernation by late June (Yensen and Sherman, 2003). The diet of Piute ground squirrels is dominated by herbaceous vegetation including grasses and forbs, seeds, and animal matter (Rickart, 1987; Yensen and Sherman, 2003). Piute ground squirrels excavate deep and shallow burrow systems (Reynolds and Wakkinen, 1987).

Piute ground squirrels are an important prey item to many predators within shrub-steppe habitats including other sensitive species like ferruginous hawks and prairie falcons.

Management of shrub-steppe habitat that provides healthy native shrub and bunchgrass communities and a natural range of habitat variation would be expected to provide suitable habitat for Piute ground squirrels.

Although Piute ground squirrels have been observed within the allotment, the BLM does not have distribution data on ground squirrels within the allotment. Sagebrush and grassland habitats in the Lilly Grade, Rogers, South Lilly Grade, Tuanna Butte and Tuanna Crossing Pastures are suitable to support a relatively stable Piute ground squirrel population (Steenhof et al., 2006). Because shrub habitats provide more favorable environments for ground squirrels than grass habitats (Yensen et al., 1992; Van Horne et al., 1997) the North Tuanna and The Point Pastures are marginal for Piute ground squirrels.

Spotted bat (*Euderma maculatum*; BLM sensitive species)

Spotted bats are typically found in arid portions of the western United States where they forage primarily on moths (Adams, 2003). They roost in rock crevices in tall cliffs. Little is known about the behavior and population size of spotted bats.

Roosting habitat for spotted bats is present in the canyon cliffs along Devil and Salmon Falls Creeks. Devil Creek occurs along the western border of the North Tuanna, The Point, and Tuanna Crossing Pastures. Salmon Falls Creek occurs along the northern border of the Lilly Grade and The Point Pastures. The Rogers, South Lilly Grade, and Tuanna Butte Pastures do not contain roosting habitat. Spotted bats may forage over the allotment and along Devil and Salmon Falls Creeks. Devil Creek only has water from March until mid-May while Salmon Falls Creek has water year round. Drainages and ponds within the allotment may contain water in the spring and fall; however, they generally do not contain water during the summer.

Evaluation for Standard 8

There is no known BLM sensitive or federally listed plants within the Roseworth Point Allotment. However, systematic inventories for other special status plants have not been conducted in the allotment. GIS modeling predicts that the allotment has 291 acres of high potential and two acres of medium potential habitat for slickspot peppergrass. The nearest known occupied habitat for slickspot peppergrass is 16 miles to the west, on the west side of Clover Creek.

There is no BLM sensitive or federally listed fish or aquatic invertebrates or their habitat within the allotment.

Habitat for BLM sensitive wildlife species occurs within the allotment. Table 20 shows habitat ratings for each wildlife species.

Table 20: Overall Habitat Suitability for BLM Sensitive Wildlife Species by Pasture

Species Name and Type of Habitat	Lilly Grade	North Tuanna	Rogers	South Lilly Grade	The Point	Tuanna Butte	Tuanna Crossing
Sage-grouse (nesting & early brood rearing)	M	U	M	U	U	U	U
(late brood rearing)	U	U	U	U	U	U	U
(winter)	S	U	S	S	U	S	M
Ferruginous hawk (nesting)	S	S	U	S	S	U	S
(foraging)	S	M	S	S	M	S	S
Brewer's sparrow (nesting)	S	U	S	S	U	S	M
Sagebrush sparrow (nesting)	S	U	S	S	U	S	M
Loggerhead shrike (nesting)	S	U	M	M	U	S	S
Pygmy rabbit (year round)	M	U	M	M	U	M	M
Piute ground squirrel (year round)	S	M	S	S	M	S	S
Spotted bat (roosting)	S	S	U	U	S	U	S
(foraging)	S	S	S	S	S	S	S

S = Suitable (combination of components make the habitat suitable), M = Marginal (some habitat components are missing), U = Unsuitable (one or more critical habitat components are missing).

Overall, sage-grouse nesting and early brood rearing habitat is marginal in the Lilly Grade and Rogers Pastures and unsuitable in the North Tuanna, South Lilly Grade, The Point, Tuanna Butte, and Tuanna Crossing Pastures. The Lilly Grade Pasture has areas of sagebrush which provides habitat for nesting and areas that have burned (21 percent of the pasture has burned since 2005). Sagebrush has been aerially reseeded across the entire area that burned. Until sagebrush achieves sufficient height and density for nesting the area that burned remains unsuitable for sage-grouse. The Rogers Pasture has extensive areas with favorable shrub height, shrub cover, shrub growth form, and residual herbaceous height and cover. However, forbs are generally limited in the pasture.

The North Tuanna and The Point Pastures both burned in the Kinyon Road Wildfire of 2012 which eliminated the majority of sagebrush in these pastures. Without sagebrush these pastures are unsuitable for sage-grouse. The Tuanna Butte Pasture is unsuitable as nesting and early brood rearing habitat due to a lack of forbs and low grass height. The Tuanna Crossing Pasture was also rated unsuitable since nearly half of the pasture has burned. Drainages occurring throughout the allotment have little value as late brood rearing habitat because they do not contain water during the summer.

Sagebrush of adequate cover and height provide suitable wintering habitat for sage-grouse in the Lilly Grade, Rogers, South Lilly Grade, and Tuanna Butte Pastures. The Tuanna Crossing Pasture is marginal for wintering sage-grouse since only half of the pasture has mature sagebrush. The North Tuanna and The Point Pastures are unsuitable as wintering habitat since sagebrush is largely absent in these pastures.

Junipers that could be used for nesting by ferruginous hawks occur in the Lilly Grade, North Tuanna, South Lilly Grade, The Point, and Tuanna Crossing Pastures. No trees are present in the Rogers and Tuanna Butte Pastures. Habitat that supports prey species such as mountain cottontail, black-tailed jackrabbit, and ground squirrels usually hunted by ferruginous hawk is suitable in all pastures except the North Tuanna and The Point Pastures which are marginal.

Shrub height and cover is suitable for Brewer's sparrow and sagebrush sparrow nesting in the Lilly Grade, Rogers, South Lilly Grade, and Tuanna Butte Pastures. The Tuanna Crossing Pasture is marginal for Brewer's sparrow and sagebrush sparrow nesting and the North Tuanna and The Point Pastures were rated unsuitable. Loggerhead shrike nesting habitat is suitable in the Lilly Grade, Tuanna Butte, and Tuanna Crossing Pastures. The Rogers and South Lilly Grade Pastures are marginal for loggerhead shrike nesting since these pastures contain shrubs that are shorter than those preferred for nesting. The North Tuanna and The Point Pastures are unsuitable for loggerhead shrike nesting since wildfires have eliminated most of the sagebrush in these pastures.

Areas of dense sagebrush which provide habitat for pygmy rabbits occur in the southwest portion of the Lilly Grade Pasture, the eastern portion of the Tuanna Crossing Pasture, and the western portion of the Tuanna Butte Pasture. However, these areas of dense sagebrush are somewhat

isolated from other areas of dense sagebrush. Overall, the Lilly Grade, Rogers, South Lilly Grade, Tuanna Butte, and Tuanna Crossing Pastures are marginal for pygmy rabbits. The North Tuanna and The Point Pastures are unsuitable for pygmy rabbits.

Sagebrush and grassland habitats in the Lilly Grade, Rogers, South Lilly Grade, Tuanna Butte and Tuanna Crossing Pastures are suitable to support a relatively stable Piute ground squirrel population (Steenhof et al., 2006). Because shrub habitats provide more favorable environments for ground squirrels than grass habitats (Yensen et al., 1992; Van Horne et al., 1997) the North Tuanna and The Point Pastures were rated marginal for Piute ground squirrels.

Spotted bat roosting habitat is suitable in the Lilly Grade, North Tuanna, The Point, and the Tuanna Crossing Pastures due to the presence of tall cliffs along Devil Creek and Salmon Falls Creeks. The Rogers, South Lilly Grade, and Tuanna Butte Pastures do not contain roosting habitat. Spotted bats may forage over the allotment and along Devil and Salmon Falls Creeks. Devil Creek only has water from March until mid-May while Salmon Falls Creek has water year round.

Evaluation Finding for Lilly Grade and Rogers Pastures are:

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

Rationale for Evaluation Finding

The Lilly Grade and Rogers Pastures are suitable for most special status species. These pastures contain extensive areas with favorable shrub height, shrub cover, shrub growth form, and residual herbaceous height and cover that provide habitat for sage-grouse and other sagebrush dependent special status species. However, past vegetation treatments in these pastures in the 1950s or 1960s have reduced the number of perennial forbs and sage-grouse preferred forbs. These forbs are necessary to support a variety of insects which are critical to the growth of young sage-grouse. Given the past treatment history the number of perennial forbs and sage-grouse preferred forbs will likely remain somewhat limited. Because of this, these pastures are not ideal but still provide habitat for special status species.

Evaluation Finding for North Tuanna, South Lilly Grade, The Point, Tuanna Butte, and Tuanna Crossing Pastures are:

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

Rationale for Evaluation Finding

The North Tuanna and The Point Pastures both burned in the Kinyon Road Wildfire of 2012 which eliminated most of the sagebrush in these pastures. Without sagebrush these pastures are unsuitable for sage-grouse and other sagebrush dependent special status species. Therefore, the North Tuanna and The Point Pastures are not meeting the standard for special status species. Sagebrush has been aerial reseeded in portions of these pastures. Recovery of the sagebrush community needed for sage-grouse and other sagebrush dependent special status species is

expected to take one (Wambolt and Payne, 1986) to several (Baker, 2006; Baker, 2011) decades assuming the absence of additional fire.

The South Lilly Grade Pasture is entirely vegetated by sagebrush that provides habitat for sagebrush dependent special status species. However, forbs are essentially absent in the pasture due to past vegetation treatments in the 1950s or 1960s. During the sage-grouse habitat assessment only one forb was recorded in 200 Daubenmire frames surveyed (each frame is 0.1m²). Due to the general absence of forbs the pasture does not provide nesting or early brood rearing habitat for sage-grouse. Therefore, the South Lilly Grade Pasture is not meeting the standard for special status species.

The Tuanna Butte and Tuanna Crossing Pastures contain extensive areas of mature sagebrush. However, these pastures also contain areas that have burned where sagebrush remains limited. The northern portion of these pastures burned in the Kinyon Road Wildfire of 2012. After the fire, sagebrush was reseeded in the entire burned area within the Tuanna Butte Pasture and the northern one-fourth of the Tuanna Crossing Pasture. The middle portion of the Tuanna Crossing Pasture burned in the Blue Gulch Wildfire of 1995. While sagebrush was aerial reseeded following the fire, sagebrush remains at trace levels in most of the area despite having nearly 20 years to recover. In addition, past vegetation treatments in the 1960s have also reduced the number of perennial forbs and sage-grouse preferred forbs in portions of these pastures. Therefore, the Tuanna Butte and Tuanna Crossing Pastures are not meeting the standard for special status species.

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APPENDIX A: PROCESS FOR GENERATING SAGE-GROUSE HABITAT ASSESSMENT FRAMEWORK SAMPLE SITES

Sage-grouse Habitat Assessment Framework sites were randomly generated in the following manner. In GIS the vegetation layer was broken into the following habitat categories: shrublands, native perennial grass, non-native perennial grass, and annual grassland. The pasture layer was then incorporated and six random points were generated for each habitat category in the pasture.

Using National Agriculture Imagery Program imagery, any points that fell in non-habitat (maintained roads, ponds, gravel pits, cliffs) were removed. To ensure sampling transects did not cross allotment or pasture boundaries, randomly selected points within 100 meters of fences were removed. Random points were also evaluated for ease of access and to maximize sampling efficiency; random points that were more than one mile from a road, jeep trail, or fence were generally dropped. In cases where the amount of BLM land in a pasture was small and state or private land dominated the pasture, the pasture was generally dropped from sampling. Also if the habitat category was minimally present such as 30 acres of annual grassland out of a 1,200 acres pasture, no sampling would be done in the annual area. For shrublands to be evaluated they had to be at least 20 acres in size to accommodate sampling transects.

Ultimately, only two random sites in each habitat category were retained. Two points were retained to provide an alternate sampling site if the first point was not in the appropriate habitat category due to mapping errors. If both points were not in the appropriate habitat category, field crews were instructed to travel to the nearest appropriate habitat in the pasture, select a random bearing leading into the habitat category and pace a randomly selected distance prior to sampling.

Due to limited field crew and time when forbs are easily discernable, the following was the priority order for sampling: (1) shrubland habitats; (2) perennial native grassland, (3) non-native perennial grass; and (4) annual grass communities. When randomly generated points in shrubland habitats were in the same general area as randomly generated points in grassland habitats, field crews would often sample both sites on the same day regardless of their priority order. This was to increase sampling efficiency by reducing the amount of time spent traveling between points.

APPENDIX B: SPECIES LIST ACCUMULATED DURING UPLAND ASSESSMENTS

Scientific Name	Common Name	Species Type	Site(s) where species occurred
Perennial Grasses			
<i>Achnatherum thurberianum</i>	Thurber's needlegrass	Native	TC_1
<i>Agropyron cristatum</i>	Crested wheatgrass	Exotic, Seeded	LG_1, LG_2, NT, RG, SL, TB, TC_2
<i>Elymus elymoides</i>	Bottlebrush squirreltail	Native	LG_1, LG_2, LG_3, TP, TC_1
<i>Poa secunda</i>	Sandberg bluegrass	Native	LG_1, LG_2, LG_3, NT, RG, SL, TP, TB, TC_1, TC_2
<i>Pseudoroegneria spicata</i>	Bluebunch wheatgrass	Native, Seeded	LG_1
Annual Grasses			
<i>Bromus tectorum</i>	Cheatgrass	Exotic, Invasive	LG_1, LG_2, RG, SL, TC_2
Perennial Forbs			
<i>Allium</i> spp.	Onion	Native	LG_3, TC_1
<i>Allium acuminatum</i>	Tapertip onion	Native	LG_3
<i>Allium nevadense</i>	Nevada onion	Native	LG_3
<i>Antennaria dimorpha</i>	Low pussytoes	Native, Sage-grouse Preferred	LG_2, SL, TC_1
<i>Aster</i> spp.	Aster	Native	LG_1, LG_2
<i>Astragalus lentiginosus</i>	Freckled milkvetch	Native	LG_3, NT, TB, TC_1
<i>Astragalus purshii</i>	Woollypod milkvetch	Native	LG_2, LG_3, NT, RG, SL, TP, TB, TC_1, TC_2
<i>Balsamorhiza hookeri</i>	Hooker's balsamroot	Native	LG_3
<i>Calochortus bruneaunis</i>	Bruneau mariposa lily	Native	LG_3, TC_2
<i>Castilleja angustifolia</i>	Northwestern Indian paintbrush	Native	LG_2, LG_3, NT, RG, SL, TP, TB, TC_1
<i>Crepis</i> spp.	Hawksbeard	Native, Sage-grouse Preferred	LG_3
<i>Crepis acuminata</i>	Tapertip hawksbeard	Native, Sage-grouse Preferred	LG_3, RG, TP
<i>Delphinium andersonii</i>	Anderson's larkspur	Native	LG_3, TC_1
<i>Erigeron</i> spp.	Fleabane	Native, Sage-grouse Preferred	LG_1, LG_2, LG_3, NT, RG, TC_1, TC_2
<i>Erigeron pumilus</i>	Shaggy fleabane	Native, Sage-grouse Preferred	LG_1, TP, TB
<i>Eriogonum ovalifolium</i>	cushion buckwheat	Native	LG_3
<i>Iva axillaris</i>	Povertyweed	Native	SL
<i>Linanthus pungens</i>	Granite prickly phlox	Native	LG_3, TC_1
<i>Lomatium foeniculaceum</i>	Desert biscuitroot	Native, Sage-grouse Preferred	LG_3, NT, RG, TP, TC_1
<i>Medicago sativa</i>	Alfalfa	Exotic, Sage-grouse Preferred	LG_1, TC_2
<i>Opuntia polyacantha</i>	Plains pricklypear	Native	LG_1, LG_3, TC_1, TC_2
<i>Penstemon</i> spp.	Penstemon	Native	LG_3
<i>Penstemon procerus</i>	Littleflower penstemon	Native	TP
<i>Phlox aculeata</i>	Sagebrush phlox	Native, Sage-grouse Preferred	LG_1, LG_2, LG_3, NT, RG, SL, TP, TB, TC_1, TC_2
<i>Phlox hoodii</i>	Spiny phlox	Native, Sage-grouse Preferred	LG_1, LG_2, LG_3, NT, RG, SL, TP, TB, TC_1, TC_2

Scientific Name	Common Name	Species Type	Site(s) where species occurred
<i>Phlox longifolia</i>	Longleaf phlox	Native, Sage-grouse Preferred	SL
<i>Tragopogon dubius</i>	Yellow salsify	Exotic, Sage-grouse Preferred	LG_1, TP, TB
<i>Zigadenus venenosus</i>	Meadow deathcamas	Native	LG_3, NT, TP, TB, TC_1
Annual Forbs			
<i>Ceratocephala testiculata</i>	Curvseed butterwort	Exotic	LG_1, LG_2, LG_3, NT, RG, TP, TB, TC_1, TC_2
<i>Collinsia parviflora</i>	Maiden blue eyed Mary	Native	LG_3
<i>Descurainia incana</i>	Mountain tansymustard	Native	LG_2, LG_3, NT, RG, TC_1
<i>Descurainia pinnata</i>	Western tansymustard	Native	LG_1, LG_2, TB, TC_1, TC_2
<i>Draba verna</i>	Spring draba	Exotic	LG_1, LG_3, RG
<i>Erodium cicutarium</i>	Redstem stork's bill	Exotic	SL
<i>Gilia sinuata</i>	Rosy gilia	Native	LG_3
<i>Gymnosteris nudicaulis</i>	Nakedstem gymnosteris	Native	LG_3
<i>Halogeton glomeratus</i>	Saltlover	Exotic	LG_1, TC_1
<i>Lepidium perfoliatum</i>	Clasping pepperweed	Exotic	LG_1, LG_2, LG_3, RG, SL, TB, TC_1, TC_2
<i>Microsteris gracilis</i>	Slender phlox	Native, Sage-grouse Preferred	LG_3, NT, RG, TC_1
<i>Salsola kali</i>	Russian thistle	Exotic	LG_1
<i>Sisymbrium altissimum</i>	Tall tumbled mustard	Exotic	LG_1, LG_2, RG, TB, TC_1, TC_2
<i>Townsendia florifer</i>	Showy townsend daisy	Native, Sage-grouse Preferred	LG_3
Shrubs			
<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>	Wyoming big sagebrush	Native	LG_1, LG_2, LG_3, NT, RG, SL, TP, TB, TC_1
<i>Chrysothamnus viscidiflorus</i>	Yellow rabbitbrush	Native	LG_3
<i>Grayia spinosa</i>	Spiny hopsage	Native	LG_3

This list does not include all plants that can be found in the Roseworth Point Allotment and is not exhaustive. Scientific and common names were derived from the USDA NRSC Plant Database (USDA and NRCS, 2013b).