

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

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**RANGELAND HEALTH ASSESSMENT AND EVALUATION REPORT**

**EAST ROSEWORTH POINT ALLOTMENT #01061**

October 16, 2015

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**DRAFT**

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## ALLOTMENT INFORMATION

**Field Office:** Jarbidge Field Office (JFO)

**Name of Permittee:** Tracy Vulgamore

**Allotment Name/Number:** East Roseworth Point (01061)

**Date of Field Assessment:** May 13, 2013

**Stream Miles on Public Land (miles):** 0

**Table 1. Roseworth Tract FFR Acres**

Total Acres	BLM Acres	State Acres	Private Acres	Other Acres
2,617	1,970	647	12	0

**Table 2. Assessment Participants**

Name	Position
Kate Crane	TFD Fisheries Biologist
Jim Klott	JFO Wildlife Biologist
Michael Haney	JFO Wildlife Biologist and Botanist
Krystle Wengreen	JFO Wild Horse and Burro Specialist
Dan Strickler	JFO Rangeland Management Specialist
Bonnie Ross	TFD GIS Specialist

## CURRENT PERMITTED LIVESTOCK GRAZING USE

**Total Active Use:** 292 AUMs

**Livestock Type:** Cattle

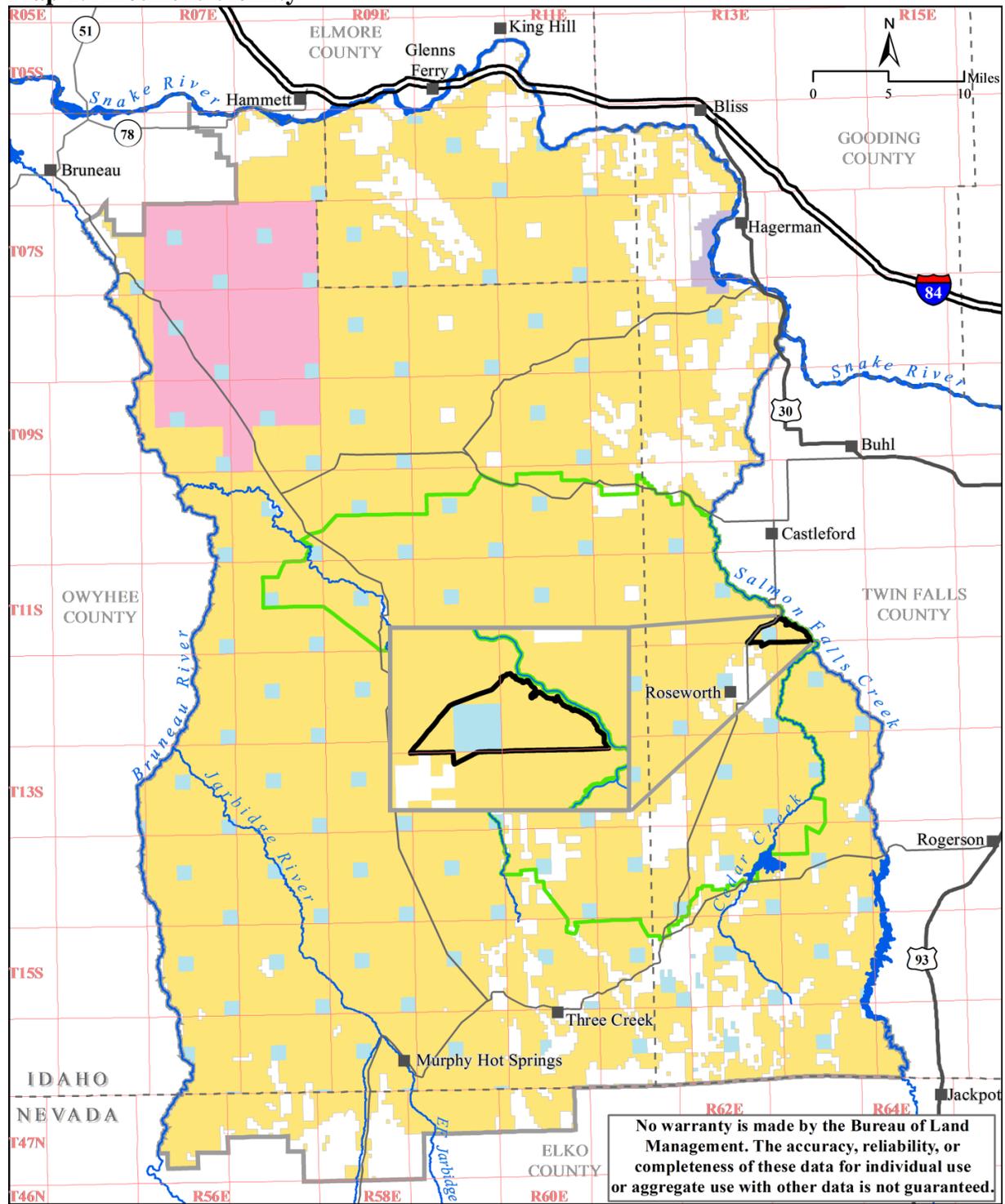
**Livestock Numbers:** 40 Cattle

**Season of Use:** 04/15 to 11/22

**Current Land Use Plan:** 1987 Jarbidge Resource Management Plan (RMP)

**Current Stocking Level:** 6.7 Acres/AUM

**Map 1. Allotment Vicinity**



	East 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 East Roseworth Point Allotment is located approximately 5 miles south of Castleford, Idaho (Map 1). The elevation ranges from approximately 4,000 to 4,300 feet.

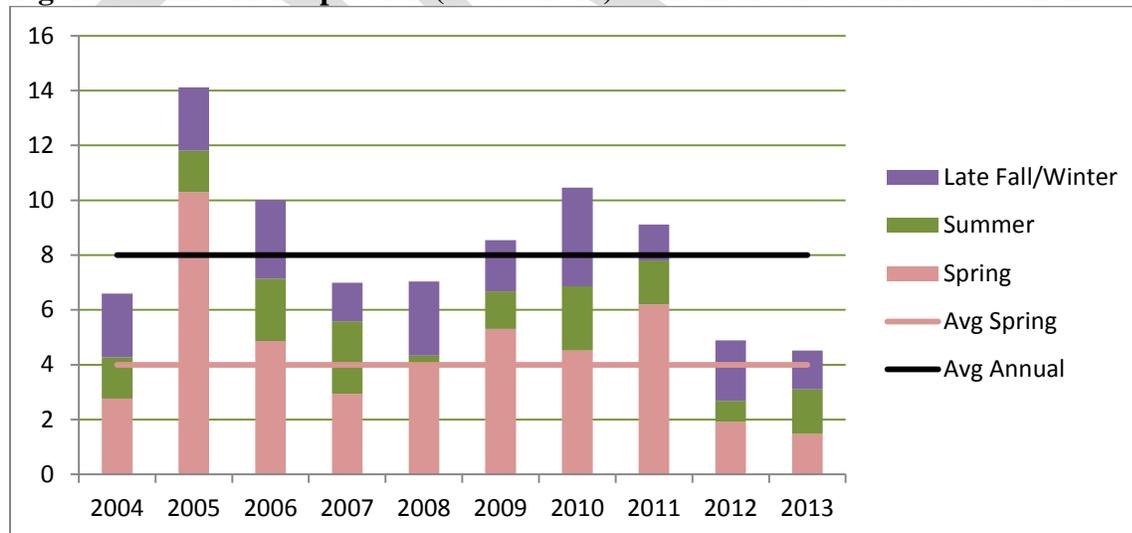
### Climate

Climatic conditions in south central Idaho are characterized by low humidity, clear skies, large diurnal variation in temperature, and wind patterns reflecting the westerly direction of the prevailing storm track. Annual rainfall in the East Roseworth Point Allotment ranges from 8 to 12 inches. The bulk of the moisture typically falls as rain and snow from late fall through late spring.

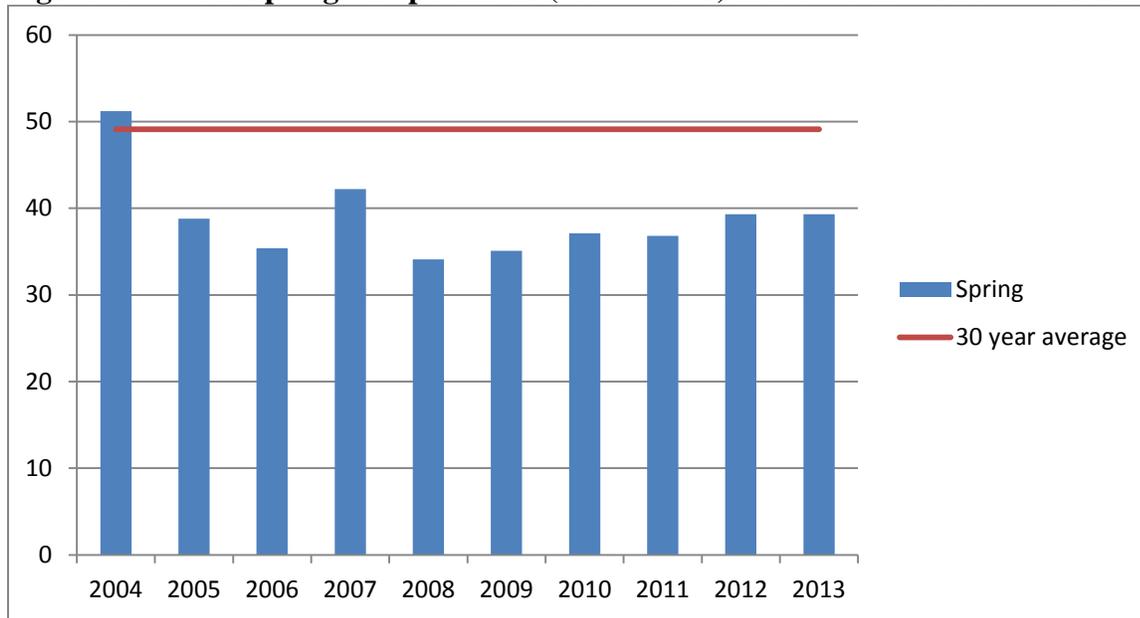
Weather data collected at the Horse Butte RAWS station is used to assess precipitation and temperature trends from 2004 to 2013. The RAWS station is located in an 8 to 12 inch precipitation zone approximately sixteen miles west of the East Roseworth Point Allotment. The thirty-year annual average precipitation at the Horse Butte RAWS station is 8.1". Annual precipitation at the station was below the thirty-year average during five of the ten years, especially in 2012 and 2013 (Figure 1). Total rainfall in 2012 was 4.89" and in 2013 it was 4.52". Rainfall was above the thirty-year average the remaining years. Moisture exceeded the thirty-year average by at least two inches in 2005 (14.12), 2006 (10.1"), and 2010 (10.46).

The thirty- year average for rain that fell during the growing season (March–June) is 4". 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") and 2013 (1.48"). Plant growth was likely enhanced in 2005 and 2011 due to higher amounts of spring rainfall (2" or more above the spring 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. Annual Spring Temperatures (2004 – 2013) at the Horse Butte RAWs Station**



### **Grazing Management**

The East Roseworth Point Allotment is divided into two unequal sized pastures (East and West) with the East Pasture being more than 3 times larger than the West Pasture (Table 3). The west, south, and east borders of the allotment are completely fenced; however, some natural barriers (i.e. rim rocks, etc.) are used as pasture/allotment boundaries along the north/northeast border adjacent to Salmon Falls Creek. Livestock water is provided by four small ponds, with two in the West Pasture and two in the East Pasture. A wildlife exclosure has been constructed around a third pond in the East Pasture. The ponds receive water via drainage ditches connected to the Cedar Mesa canal system. Over the years most of the irrigation systems on adjacent private agricultural land have been upgraded to closed systems (sprinklers/pivots). Due to the conversion of irrigation systems, waste water is not supplied consistently. In some years no waste water is available and the permittee hauls water to the ponds.

**Table 3. Acreage by pasture and ownership.**

Allotment Name	Pasture Name	Public	State	Private	Total*
East Roseworth Point	East	1,594	456	0	2,050
	West	375	191	0	567
<b>Allotment Total</b>		1,969	647	0	2,617

\*Total acres may not match the sum of individual ownership acres due to rounding numbers.

The East Roseworth Point Allotment is subject to Chief U. S. District Judge B. Lynn Winmill’s Decision and Order of February 26, 2009. Under the Order, the Bureau of Land Management (BLM) is directed to adjust livestock grazing to maintain and enhance sage-grouse, pygmy rabbit, and slickspot peppergrass habitat. The East Roseworth Point Allotment is managed as a non-priority allotment under the court order due to the limited suitable sage-grouse habitat in the

allotment. The current grazing permit has active use of 292 Animal Unit Months (AUMs). Typically use occurs from April through November or December.

A summary of actual use and utilization in the East Roseworth Point Allotment from 2004 to 2013 is shown in Table 4. Actual use by pasture within the allotment is not available. Utilization has been measured on crested wheatgrass (*Agropyron cristatum*), squirreltail (*Elymus elymoides*) and Sandberg bluegrass (*Poa secunda*) (Table 4). Utilization measurements on Sandberg bluegrass during winter months can result in inconsistent measurements due to high amount of biomass loss to natural disarticulation from mechanical damage from wind, snow, and decomposition. Because of this, the JFO has ceased monitoring use of Sandberg's bluegrass during winter use periods. Utilization data was collected by the Height-Weight Method (Cooperative Extension Service et al., 1999). Locations of key utilization sites are shown on Map 2. Livestock utilize the seeded four-wing saltbush for forage throughout the year and many of the plants are hedged due to browsing. However, utilization has not been measured on the seeded four-wing saltbush.

Up until 2004, when a Federal District Court order disallowed Temporary Non-Renewable (TNR) authorizations, TNR had been authorized through annual National Environmental Policy Act (NEPA) analysis and decisions. Since 2005, Congressional Appropriations language has allowed the JFO to annually authorize up to the allotment's highest TNR authorization between 1997 and 2003, which is 204 AUMs, when forage is available. All actual use values shown in Table 4 that exceed the active use of 292 are TNR AUMs. Since 2004, actual use data within the East Roseworth Point Allotment, including active use and TNR, has averaged 313 AUMs (excluding the years that actual use was not submitted). Actual use by pasture is not available.

There are no livestock trailing authorizations within this allotment.

**Table 4. Actual Use and Utilization Summary**

Year	Number and Class	In Date	Out Date	AUMs Used^	Utilization		
					Sandberg bluegrass	Crested wheatgrass	Squirreltail
2004	No data			146*	24%-East Pasture	64%- East Pasture 71%- West Pasture	-
2005	70 Cattle	04/17	11/28	314	18%- East Pasture	35%- East Pasture	-
2006	60 Cattle	04/01	11/24	267	31%- East Pasture	41%-East Pasture 48%-West Pasture	41%- East Pasture
2007	59 Cattle	04/01	12/31	294	-	31%- East Pasture 6%- West Pasture	-
2008	No data			294*	9%- East Pasture	20%- East Pasture 13%- West Pasture	-
2009	60	04/15	01/23	360	-	38%- East Pasture 22%- West Pasture	-
2010	No data			294*	-	21%- West Pasture	-
2011	59 Cattle	04/15	02/14	394	-	14%- East Pasture 19%- West Pasture	-

Year	Number and Class	In Date	Out Date	AUMs Used^	Utilization		
					Sandberg bluegrass	Crested wheatgrass	Squirreltail
2012	60 Cattle	04/01	12/09	299	-	28%- East Pasture 4%- West Pasture	-
2013	58 Cattle	04/02	12/01	264	-	55%- East Pasture 47%- West Pasture	-

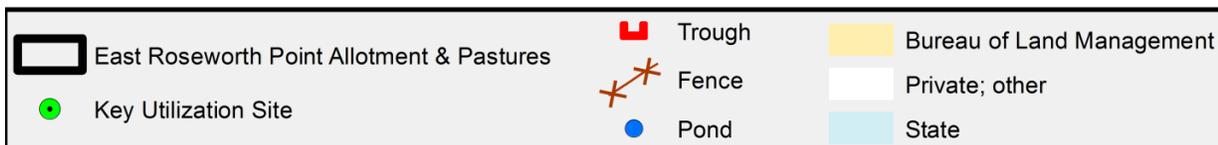
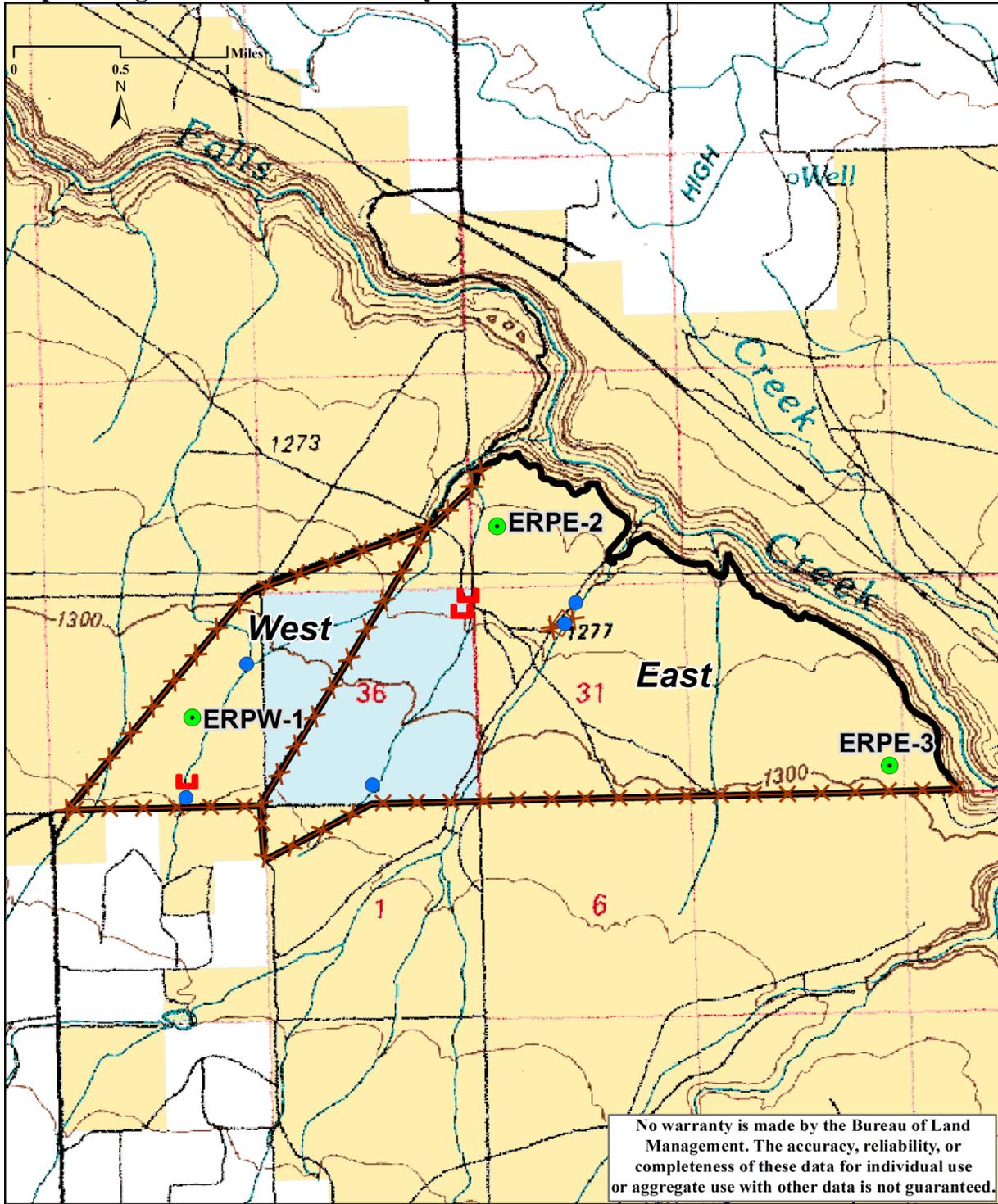
^Cattle number and dates will not add up to total AUMs used, because Exchange of Use is issued in the allotment in the amount of approximately 200 AUMs annually. Exchange of Use typically occurs from April 1 through April 14, and then after November 22 annually.

\*Based off of RAS billing, actual use form was not submitted by permittee.

-Utilization data not collected, or species is not present or is not a key species for utilization monitoring.

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**Map 2. Range Infrastructures and Key Utilization Sites**



## **Vegetation**

Vegetation in the East Roseworth Point Allotment was initially mapped in 2006 using field observations, field cover data, and 2004 National Agriculture Imagery Program (NAIP) imagery. The vegetation map was updated in 2013 using field observations and NAIP imagery (Map 3, Table 5). Vegetation communities were classified and mapped based on dominant plant cover using a minimum mapping unit of 20 acres, which is appropriate for landscape-level planning. The map is not intended to show the complexity of the vegetation communities at a finer-scale. Fifty-three vegetation communities were classified and mapped within the JFO based on dominant plant cover. These vegetation communities were subsequently organized into five classes and six sub-classes according to national standards (Grossman et al., 1998), with the exception of evergreen shrublands dominated by sagebrush; these communities were defined as having 10% or more shrub cover rather than the national standard of more than 25% shrub cover. This was done to provide consistency with defined habitat needs (Wisdom et al., 2000) and proposed management objectives for greater sage-grouse (sage-grouse).

Plant communities within the East Roseworth Point Allotment have been modified. The West Pasture was seeded to crested wheatgrass, it is believed to have been during the 1950s or 1960s, but records of the seeding are not available. Following the 1981 Lillygrade Fire, it is believed that crested wheatgrass was planted in the burned areas, which is approximately 400 acres within the East Pasture, as it is still present in those areas. Following the 1985 Lilly Fire, approximately 1,000 acres within the East Pasture was seeded with Siberian wheatgrass (*Agropyron fragile*), western wheatgrass (*Pascopyrum smithii*), ‘Nomad’ alfalfa (*Medicago sativa media*) and fourwing saltbush (*Atriplex canescens*). Since that time, Wyoming big sagebrush (*A. tridentata* var. *wyomingensis*) has increased and the allotment is a shrub steppe plant community. As a result of these treatments, the allotment is currently vegetated by both native and non-native perennial grass species (Table 5, Map 3).

**Table 5. Vegetation Community in Acres and Percentage by Pasture**

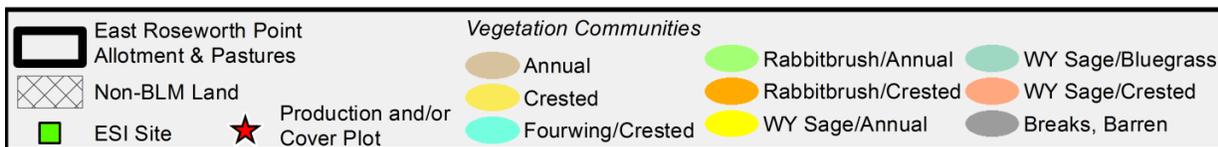
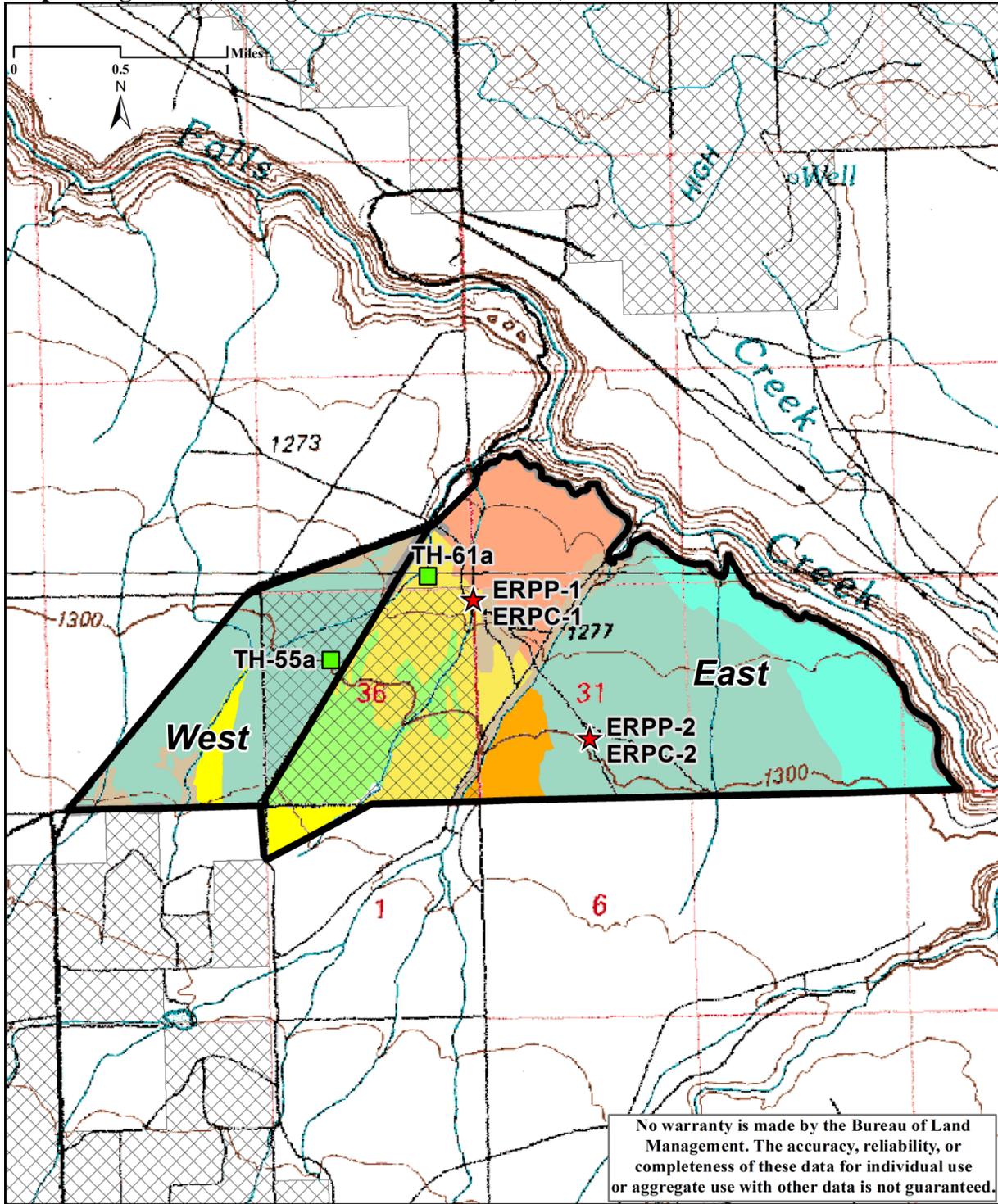
<b>Vegetation Community*</b>	<b>East Pasture (1,594 acres)</b>	<b>West Pasture (375 acres)</b>
Annual	84 (5%)	57 (15%)
Barren	0 (0%)	2 (<1%)
Breaks	3 (<1%)	0 (0%)
Crested wheatgrass	74 (5%)	1 (<1%)
Fourwing/Crested	321 (20%)	0 (0%)
Rabbitbrush/Crested	79 (5%)	0 (0%)
Wyoming Sage/Annual	39 (3%)	41 (11%)
Wyoming Sage/Bluegrass	712 (45%)	275 (73%)

<b>Vegetation Community*</b>	<b>East Pasture (1,594 acres)</b>	<b>West Pasture (375 acres)</b>
Wyoming Sage/Crested	282 (18%)	0 (0%)

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

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**Map 3. Vegetation, Ecological Site Inventory (ESI) & Production and/or Cover Plots**



In 2004 the JFO ID team conducted Interpreting Indicators of Rangeland Health (IIRH) field evaluations of the East Roseworth Point Allotment, but an evaluation to determine if the allotment was meeting the Idaho Standards for Rangeland Health was not completed. The field data for the 2004 IIRH was completed in 2002 and 2003 at two sites within the East Pasture; production data is displayed in Table 6 and cover data is displayed in Table 12. One Ecological Site Inventory (ESI) site is located in the East Pasture (Map 3). Vegetative production data and cover data recorded during the 2006 ESI is summarized in Table 6 and Table 12. The majority of the areas within both pastures have been seeded in the past; therefore, crested wheatgrass makes up the majority of vegetative production.

No trend sites have been established in this allotment. Due to differences in sampling locations and methodology (e.g. number of transects per site and number of points per transect) among the 2002, (Step Point Method; BLM, 1996) data, 2006 (ESI) data, the 2012 and 2013 Habitat Assessment Framework (HAF) data, and the 2015 data (Step Point Method; BLM, 1996), statistical tests cannot be used to analyze vegetative cover across years. However, the data can be used to describe general similarities or differences in vegetation between years or locations within the allotment.

**Table 6. Summary of 2003 and 2006 production data (total dry weight, in pounds per acre)**

Vegetation Class	Species	Site			
		Loamy 8-12 ARTRW8/PSS P-ACTH7 ESD	2006-TH-61a (East Pasture)	2003-ERPP-1 (East Pasture)	2003-ERPP-2 (East Pasture)
Perennial Grasses	Squirreltail	25-45	14.1	0.0	90
	Crested wheatgrass	-	723.4	335	0.0
	Sandberg bluegrass	25-45	30	61	103
	Indian ricegrass		5.5	0.0	0.0
	Thurber's needlegrass	8-180	0.0	0.0	0.0
	Bluebunch wheatgrass	100-225	0.0	0.0	0.0
	Thickspike wheatgrass	0-45	0.0	0.0	0.0
Perennial Forbs	Longleaf phlox	0-5	0.0	0.0	0.0
	Mourning milkvetch	0-5	0.0	0.0	0.0
	Purple milkvetch	0-5	0.0	0.0	0.0
	Lupine	0-5	0.0	0.0	0.0
Annual Grasses	Cheatgrass	-	54.2	0.0	0.0

Vegetation Class	Species	Site			
		Loamy 8-12 ARTRW8/PSS P-ACTH7 ESD	2006-TH-61a (East Pasture)	2003-ERPP-1 (East Pasture)	2003-ERPP-2 (East Pasture)
Annual Forbs	Bur buttercup	-	39.9	0.0	0.0
	Tall tumbled mustard	-	0.2	0.0	0.0
	Clasping pepperweed	-	2.2	0.0	0.0
Shrubs	Yellow rabbitbrush	0-10	0.0	0.0	0.0
	Wyoming big sagebrush	100-225	48.5	0.0	107
TOTAL		400-900	918	395	300

### Noxious Weeds

The State of Idaho has listed 65 plant species as noxious weeds. Four are known to occur in the East Roseworth Point Allotment: Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), scotch thistle (*Onopordum acanthium*), and diffuse knapweed (*Centaurea diffusa*). Currently the BLM does not have any records of treating these noxious weeds. When noxious weeds are located in the JFO the specific data are given to the Weeds personnel that treat the occurrences. Treatment goals are to reduce noxious weeds to where they will not have a significant economic or environmental impact and/or to eradicate them completely. The BLM also works to prevent the establishment of new species and infestations in areas where they presently do not occur. Noxious weeds were not documented at any of the monitoring/study sites evaluated in this analysis.

Many of the known noxious weed infestations are found and treated through the TFD Emergency Stabilization and Rehabilitation (ESR) program. Approved ESR plans allow three year funding for weed control and play a vital part in the success or failure of newly seeded areas. Weed personnel grid the burned areas and treat noxious weed infestations in order to allow the desired vegetation time to reestablish. Crews also treat road corridors throughout the field office which helps prevent the spread of weeds from vehicles transporting weed seeds to new areas or sites recovering from wildfire. Types of weed treatments done in the TFD include biological and mechanical control methods, as well as the use of herbicides.

### **IDAHO RANGELAND HEALTH STANDARDS ASSESSMENT**

There are eight standards for rangeland health that apply to BLM lands in the state of Idaho. Not all of the Standards apply to the East Roseworth Point Allotment due to variances in the land type and geographical area. Of the eight Idaho Standards for Rangeland Health, the following standards are applicable to the East Roseworth Point Allotment:

- **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 East Roseworth Point Allotment*

**Table 7. Applicable Standards by Pasture.**

<b>Standard</b>	<b>Pastures</b>
1	East and West
2	Not Applicable
3	Not Applicable
4	Not Applicable
5	East and West
6	Not Applicable
7	Not Applicable
8	East and West

An interdisciplinary (ID) team conducted IIRH field evaluations at three sites representative of the East Roseworth Point Allotment during May of 2013 (Map 4). The East Pasture contained two sites, while the West Pasture contained one site. The sites were located in areas of both native and seeded non-native plant species. Of the three sites at which IIRH evaluations were conducted, all were HAF sites.

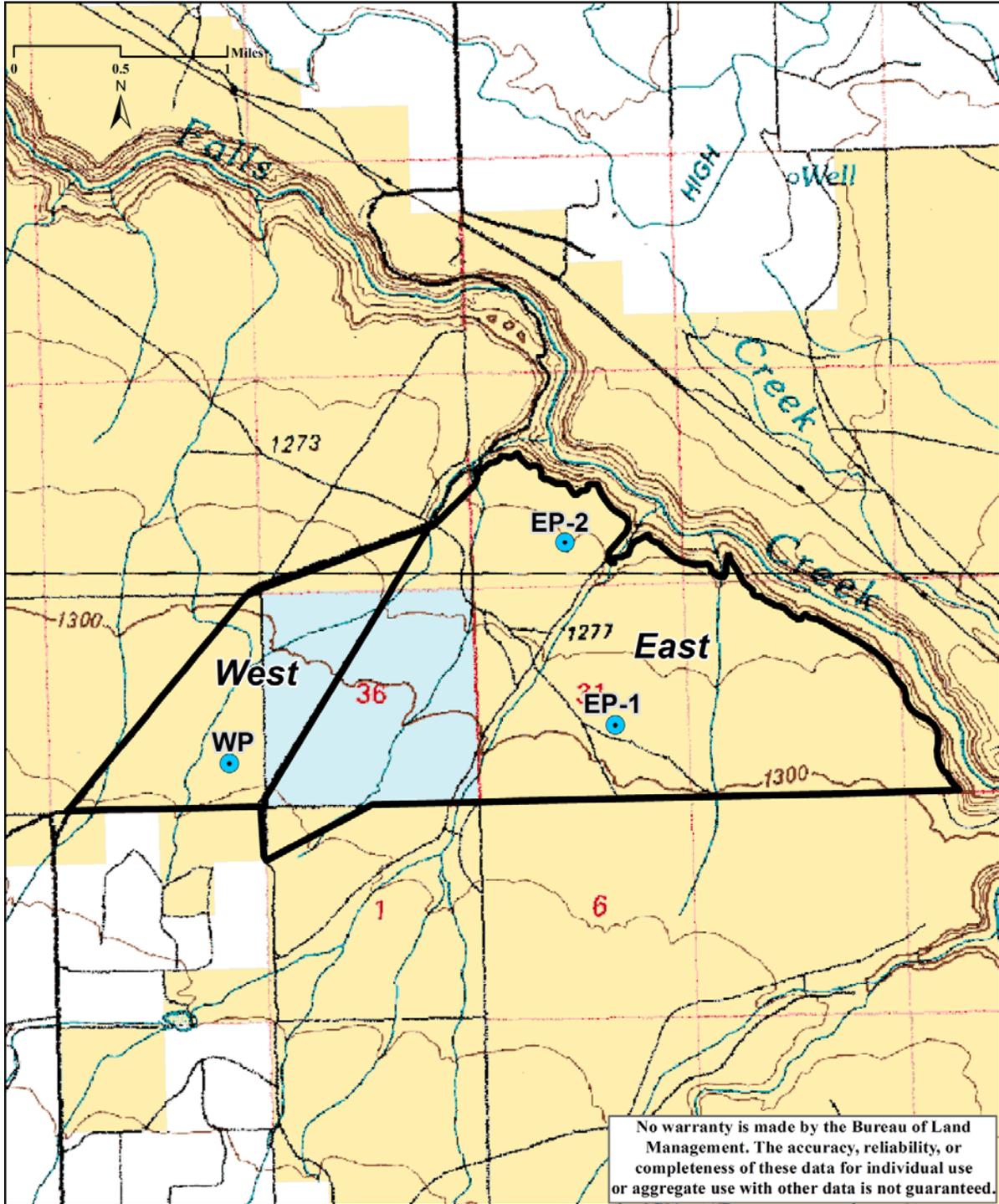
IIRH field evaluation sites were selected using a predetermined process. Sites are typically located in vegetation communities that most represent the allotment. HAF sites are generally selected for completing IIRH assessments. HAF locations are randomly generated through a GIS process (Appendix B). Because the criteria used for HAF site selection is specific to sage-grouse habitat, not all vegetation communities are always represented. If HAF sites are not located in a representative area, an ESI site is selected. If an ESI site is not found in the representative vegetation community, key utilization sites are used. Lastly, the ID Team selects a representative site if the above pre-determined sites are not representative of the plant communities. The ID Team also tours the allotment to ensure IIRH sites are representative of the vegetation communities throughout the allotment.

Seventeen indicators of rangeland health (Table 8) were used to evaluate three rangeland health attributes (Table 9): Soil and Site Stability, Hydrologic Function, and Biotic Integrity (TR 1734-6). An IIRH sheet was completed at each site, photographs were taken, and a list of plant species observed was recorded. In addition, general field notes were recorded for the allotment that included such items as presence of noxious weeds, wildlife sign, recreation impacts, and presence or condition of range infrastructure.

Cover transects to determine vegetative cover were recorded at the IIRH sites within the East Pasture following the Line Point Intercept method as described in the Sage-grouse Habitat Assessment Framework (BLM 2010) protocol. Because forbs are important to sage-grouse, the line point intercept method was augmented using Daubenmire frames. Forb species were recorded in 7.9 inch by 19.7 inch (20 cm by 50 cm) Daubenmire frame placed at each point along the line intercept. This resulted in more comprehensive data on forb species diversity present than could be obtained by the line point intercept alone. During review of cover data as part of the Rangeland Health Assessment process, it was discovered that the 2012 cover data used to evaluate IIRH site WP in the West Pasture was collected at a different site in an adjacent area within the pasture; therefore, IIRH site WP was revisited in 2015 and a cover transect to determine vegetative cover was recorded following the step-point method (BLM, 1996).

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**Map 4. Interpreting Indicators of Rangeland Health (IIRH) and Sage-grouse Habitat Assessment Framework (HAF) 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.



In addition to evaluating rangeland health indicators at each of the three IIRH sites, the ID Team also examined other areas to ensure evaluation sites were representative of the vegetation communities throughout the allotment. Data collected at the evaluation sites were compared to the Natural Resource Conservation Service’s (NRCS) ESD reference sheet for the soil types and potential vegetation communities in the East Roseworth Point Allotment. All three evaluation sites in the allotment occurred in the Loamy 8-12” Wyoming Big Sagebrush/Bluebunch wheatgrass-Thurber’s needlegrass ecological site. The ESD reference sheet describes the expected condition of the ecological site in state 1, phase A of the reference state. The reference phase plant community is expected to have Wyoming big sagebrush in the overstory with bluebunch wheatgrass (*Pseudoroegneria spicata*) and Thurber’s needlegrass (*Achnatherum thurberianum*) dominating the understory. Sandberg bluegrass, squirreltail, arrowleaf balsamroot (*Balsamorhiza sagittata*), and taper-tip hawkbeard (*Crepis acuminata*) should be sub-dominant species. A large variety of other grasses, forbs, and shrubs can occur in minor amounts. Natural fire frequency should be 50-70 years.

Indicator ratings for each site in the East Roseworth Point Allotment are shown in Table 8. Rangeland health attributes ratings are shown in Table 9.

**Table 8. Summary of 17 Rangeland Health Indicators**

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
1. Rills	S, H					EP_1, EP_2, WP
2. Water-flow Patterns	S, H					EP_1, EP_2, WP
3. Pedestals and/or terracettes	S, H					EP_1, EP_2, WP
4. Bare ground	S, H					EP_1, EP_2, WP
5. Gullies	S, H					EP_1, EP_2, WP
6. Wind-scoured, blowouts, and/or deposition areas	S					EP_1, EP_2, WP
7. Litter movement	S					EP_1, EP_2, WP
8. Soil surface resistance to erosion	S, H, B					EP_1, EP_2, WP
9. Soil surface loss or degradation	S, H, B					EP_1, EP_2, WP

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
10. Plant community composition and distribution relative to infiltration	H					EP_1, EP_2, WP
11. Compaction layer	S, H, B					EP_1, EP_2, WP
12. Functional/structural groups	B			WP	EP_1, EP_2	
13. Plant mortality/decadence	B					EP_1, EP_2, WP
14. Litter amount	H, B	EP_2		EP_1, WP		
15. Annual production	B					EP_1, EP_2, WP
16. Invasive plants	B		EP_2		EP_1	WP
17. Reproductive capability of perennial plants	B					EP_1, EP_2, WP

EP\_1 = East Pasture IIRH evaluation Site 1, EP\_2 = East Pasture IIRH evaluation Site 2, WP = West Pasture IIRH evaluation Site 1

The ratings of the 17 indicators do not result in a single rating of rangeland health for a site. The 17 indicators are related to three components of rangeland health known as attributes (soil and site stability, hydrologic function, and biotic integrity). The second column of Table 8 identifies which indicators are related to each of the three attributes. The ID team arrived at attribute departure ratings by considering the preponderance of evidence of departure for the group of indicators related to each attribute. Indicators showing departure from reference conditions may be weighted more heavily, based upon the effect of the departure on ecological function of the site being evaluated. The degree of departure ratings for each of the three attributes of rangeland health are shown in Table 9.

**Table 9. 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					EP_1, EP_2, WP
Hydrologic Function					EP_1, EP_2, WP
Biotic Integrity			EP_2	EP_1, WP	

EP\_1 = East Pasture IIRH evaluation Site 1, EP\_2 = East Pasture IIRH evaluation Site 2, WP = West Pasture IIRH evaluation Site 1

### **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 three IIRH sites were evaluated using the ESD reference sheet (R011XY001ID) for the Loamy 8-12 ARTRW8/PSSP-ACTH7 (USDA and NRCS, 2013a) Ecological Site Description (ESD). The reference sheet for this ESD indicates bare ground should range from 30 to 40%, litter cover should range from 5 to 10%, and soil stability test values should range from 4 to 6 (Scale of 1 to 6; Pellant et al., 2005). Litter percentage calculations used for rating indicator 14 include all litter, detached and standing. While the ESD indicates that litter cover should range from 5 to 10%, foliar cover data collected within the allotment shows that litter values actually range from 21 to 70% (all layers). With this, even though the litter indicator may have been rated as a departure from the reference condition, this departure may not be reflected in the overall attribute rating. Average percent bare ground recorded within the allotment shows that bare ground ranges from 5 to 20% of foliar cover (Tables 11 and 12). In addition, a soil stability test (Pellant et al., 2005) was completed in the allotment. The soil stability test from East Roseworth Point Allotment (East Pasture) resulted in an average soil stability value of 5.6 which indicates adequate soil surface resistance to erosion.

Multiple soil series exist within the East Roseworth Point Allotment and are typically silt loams. The majority of the allotment is relatively flat, except for Salmon Falls Creek and the associated canyon along the north/northeast border. The Soil Survey Geographic (SSURGO) Database (NRCS 2012) shows that 100% of the allotment has a moderate wind erosion hazard. In addition, the soil survey shows that 96% of the allotment has a high water erosion hazard and 4% has a medium water erosion hazard.

Although the soil survey shows potential for both wind and water erosion in this area, no indications of soil loss or active erosion were noted during the 2013 IIRH field visit. Adequate soil cover is present within the allotment to reduce potential erosion. Bare ground is generally low, with an abundance of vegetation and biological soil crusts throughout the majority of the allotment (Tables 10, 11, and 12).

While the amount of litter deviated from the reference condition in some areas, the ID Team determined that the litter amount was appropriate for site stability and ecological processes as shown by adequate soil moisture, as well as annual plant growth/production matching what is expected.

**Table 10. Top Layer Cover by Vegetation Class at IIRH sites**

Vegetation Class	IIRH Site EP_1	IIRH Site EP_2	IIRH Site WP
	East Pasture		West Pasture
Perennial Grasses	39.5%	37%	34%
Annual Grasses	2%	17%	0%
Annual Forbs	0%	4%	2%
Shrubs	19%	6%	17%
Biological Soil Crust	24.5%	3%	14%
Bare Ground	5.5%	6%	19%
Litter	9.5%	27%	10%
Rock	0%	0%	1%
Gravel	0%	0%	3%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**East Pasture**

*IIRH Site EP\_1. Loamy 8-12”*

Site EP\_1 is located in a native vegetation community where Sandberg bluegrass is the dominant grass species (34.5% cover), and Wyoming big sagebrush is the dominant shrub species (26.5% cover). Squirreltail was also present, representing 5% of the cover. In addition, biological soil crusts comprise 10.5% of the cover (Table 10). The site is of relatively flat topography with a north aspect and has not burned by wildfire in over 50 years.

**Photo 1. Soil Profile at IIRH site EP\_1**



The indicator for litter amount was rated as a moderate departure from the reference condition due to an increase in the amount of litter (32.5%) found at the site. A soil stability test (Pellant et al., 2005) was completed at the site and the soil stability value averaged 5.6 indicating adequate soil surface resistance to erosion.

All other indicators related to the Soil and Site Stability and Hydrologic Function attributes were rated none to slight departure from the reference condition. Therefore, the Soil and Site Stability and Hydrologic Function attributes were each rated as none to slight departure.

*IIRH Site EP\_2. Loamy 8-12”*

Site EP\_2 is located in a seeded vegetation community where Sandberg bluegrass is the dominant shallow-rooted bunch grass species (31% cover), crested wheatgrass was the dominant deep rooted perennial bunchgrass (6% cover) and Wyoming big sagebrush is the dominant shrub species (5% cover). In addition, biological soil crusts comprise 3% of the cover (Table 10). The site is of relatively flat topography with a north aspect and was burned by wildfire in 1985.

**Photo 2. Soil Profile at IIRH site EP\_2.**



The indicator for litter amount was rated as an extreme to total departure from the reference condition due to an increase in the amount of litter (70%) found at the site.

All other indicators related to the Soil and Site Stability and Hydrologic Function attributes were rated none to slight departure from the reference condition. Therefore, the Soil and Site Stability and Hydrologic Function attributes were each rated as none to slight departure.

### **West Pasture**

*IIRH Site WP. Loamy 8-12"*

Site WP is located in a seeded vegetation community where crested wheatgrass is the dominant deep-rooted perennial bunchgrass (20% cover) and Sandberg bluegrass is the dominant shallow-rooted perennial bunchgrass (14% cover). Wyoming big sagebrush is the dominant shrub species (17% cover). In addition, biological soil crusts comprise 14 percent of the cover (Table 10). The site is of relatively flat topography with a north aspect and has not burned by wildfire in over 50 years.

**Photo 3. Soil Profile at IIRH site WP.**



The indicator for litter amount was rated as a moderate departure from the reference condition due to an increase in the amount of litter (35%) found at the site.

All other indicators related to the Soil and Site Stability and Hydrologic Function attributes were rated none to slight departure from the reference condition. Therefore, the Soil and Site Stability and Hydrologic Function attributes were each rated as none to slight departure.

***Allotment Summary for Standard 1 (Watersheds):***

Attributes of rangeland health related to Standard 1 (Soil and Site Stability and Hydrologic Function) were rated as none to slight departure for all three sites (Table 9). The litter amount indicator was rated as a moderate departure at two sites and extreme to total departure at one site.

**Evaluation of Standard 1**

The amount of litter found within the allotment is higher than what is described in the ESD. However, litter is providing cover for site protection, and replenishing nutrients, and does not appear to be negatively affecting ecological processes.

Although deep-rooted perennial bunchgrasses were of lower abundance than expected within most of the native plant communities, the ID Team noted that deep-rooted perennial grasses, as well as shrubs, were present within both pastures to distribute water deep into the soil profile.

***Evaluation Finding – East and West Pastures are:***

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

***Rationale for Evaluation Finding***

Abundant perennial vegetation, as well as biological soil crusts, within the East Roseworth Point Allotment is present to provide protection for site stability. Additionally, bare ground is lower than expected throughout the allotment and topography is relatively flat.

Observations made by the ID Team during 2013 IRRH evaluations, as well as cover data (Tables 10, 11, and 12) collected within each pasture of the East Roseworth Point Allotment indicate that ground cover (vegetation, biological soil crusts, litter, etc.) is sufficient for soil stability. Deep-rooted perennial bunchgrasses are of lower abundance than is expected within the native plant communities of the allotment which has potential to affect infiltration and retention of soil moisture. However, some deep-rooted perennial bunchgrasses, as well as abundant shrub species are present to carry soil moisture deeper in the soil profile. Evidence of accelerated erosion, such as active rills, water flow patterns, pedestals, or other indications of soil erosion are not present within the allotment. Infiltration, retention, and release of water processes relative to soil, vegetation, climate and landform appear to be providing for appropriate nutrient and hydrologic cycling and energy flow.

The litter amount indicator ratings deviated from the reference condition found in the ESD at all three sites. However, litter is providing cover for site protection, replenishing nutrients, and does not appear to be negatively affecting ecological processes.

The Soil and Site Stability and Hydrologic Function attributes were rated as none to slight departure at all IIRH sites within the allotment.

**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.*

- Standard Doesn't Apply

All streams within the East Roseworth Point allotment are classified as ephemeral (USGS 2014; National Hydrography Dataset). Ephemeral streams only flow in direct response to precipitation and are above the water table throughout the year (BLM 1998). Naturally occurring streams, springs or wetlands are not present within the allotment. Riparian Proper Functioning Condition (PFC) assessments cannot be used to evaluate artificial wetlands within the allotment. The East Roseworth Point allotment is adjacent to Salmon Falls Creek, but livestock access to the stream and riparian area are precluded by topography.

Several small ponds exist within the allotment and were constructed for the purpose of providing livestock water. The ponds receive water via a drainage ditch connected to the Cedar Mesa canal

system. Riparian vegetation is present along the ditch and around the ponds, but this riparian vegetation exists as a result of the artificial water source. In some years there is no water available from adjacent private agriculture lands, so there is not water in the ditches or ponds. Vegetation associated with the artificial water include mountain rush (*Juncus arcticus*), Kentucky bluegrass (*Poa pratensis*), dandelion (*Taraxacum officinale*), yarrow (*Achillea millefolium*), dock (*Rumex* spp.) and rose (*Rosa* spp).

### **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

See Standard 2 for rationale. Management of the artificial water precludes the formation of a floodplain which can be naturally flooded on a periodic basis.

### **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

Although vegetation cover data collected for the IIRH field evaluations includes native plant species (Tables 11 and 12), the JFO Interdisciplinary Team determined that both the East and West Pastures should be assessed as a seeded plant community rather than native plant community due to the majority of the allotment having been seeded in the past.

### **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**

Plant communities across most of the East Roseworth Point Allotment have been modified. The West Pasture was seeded to crested wheatgrass, it is believed to have been during the 1950s or 1960s, but records of the seeding are not available. Following the 1981 Lillygrade Fire, it is believed that crested wheatgrass was planted in the burned areas, which is approximately 400 acres within the East Pasture, as it is still present in those areas. Following the 1985 Lilly Fire, approximately 1,000 acres within the East Pasture was seeded with Siberian wheatgrass, western wheatgrass, 'Nomad' alfalfa and fourwing saltbush. Since that time, sagebrush has increased and the allotment is a shrub steppe plant community. As a result of these treatments, the allotment is currently vegetated by both native and non-native perennial grass species (Table 5, Map 3).

While not all of the seeded areas across the allotment are currently mapped as seeding (Crested wheatgrass, Wyoming sagebrush/crested wheatgrass), more acres within the two pastures have been seeded than what is shown on the vegetation community map. Some of the seeded areas are mapped as native (Wyoming big sagebrush/Sandberg bluegrass, Wyoming big sagebrush/Thurbers needlegrass) rather than seeded because Sandberg bluegrass comprises the dominant foliar cover.

Two of the three IIRH evaluation sites (WP and EP\_2) within the West and East Pastures of the East Roseworth Point Allotment are located within seeded plant communities, as shown by vegetation cover data (Table 11).

Cover data was collected at site EP\_1 in 2012 and at site EP\_2 in 2013. During review of cover data as part of the Rangeland Health Assessment process, it was discovered that the 2012 cover data used to evaluate IIRH site WP was collected at a different site in an adjacent area within the pasture; therefore, IIRH site WP was revisited in 2015 to collect cover data. The cover data has been summarized below in Table 11. Vegetative cover data was collected at multiple layers; however, Table 11 displays only the top layer. Sandberg bluegrass comprises the highest percent foliar cover across the seeded plant communities within the East Pasture, followed by Wyoming big sagebrush, crested wheatgrass, squirreltail, and biological soil crusts. Meanwhile, crested wheatgrass dominates the foliar cover within the West Pasture, followed by Wyoming big sagebrush and biological soil crusts.

**Table 11. Percent ground cover (top layer) at IIRH sites**

Vegetation Class	Species	% Cover		
		WP (2015)	EP_1 (2012)	EP_2 (2013)
Perennial Grasses	Sandberg's bluegrass	14%	34.5%	31%
	crested wheatgrass	20%	0%	6%
	Squirreltail	0%	5%	0%
Annual Grasses	cheatgrass	0%	2%	17%
Annual Forbs	maiden blue eyed Mary	2%	0%	4%
Shrubs	purwing saltbush	0%	0%	1%
	Wyoming big sagebrush	17%	19%	5%
<b>Vegetation Total</b>		<b>51%</b>	<b>60.5%</b>	<b>64%</b>
Other Cover	Biotic Crust	14%	24.5%	3%
	Bare Ground	19%	5.5%	6%
	Litter in contact with soil	10%	9.5%	25%
	Litter standing	0%	0%	2%
	Rock/Gravel	4%	0%	0%
<b>Grand Total</b>		<b>100%</b>	<b>100%</b>	<b>100%</b>

Other plant species not recorded during cover transects but observed at the 2012 and 2013 sites are listed in Appendix B.

While the amount of litter deviated from the reference condition in some areas, the ID Team

determined that the litter amount was appropriate for site stability and ecological processes as shown by adequate soil moisture, as well as annual plant growth/production matching what is expected.

### **East Pasture**

#### ***IIRH Site EP\_1. Loamy 8-12”***

Site EP\_1 is located in a native vegetation community where Sandberg bluegrass is the dominant grass species (34.5% cover), and Wyoming big sagebrush is the dominant shrub species (26.5% cover). Squirreltail was also present, representing 5% of the cover (Photo 4). In addition, biological soil crusts comprise 10.5% of the cover (Table 11). The site is of relatively flat topography with a north aspect and has not burned by wildfire in over 50 years.

#### **Photo 4. Overview of IIRH Site EP\_1**



The indicator for litter amount was rated as a moderate departure from the reference condition due to a slight increase in the amount of litter (32.5%) found at the site. A soil stability test (Pellant et al., 2005) was completed at the site and the soil stability value averaged 5.6 indicating adequate soil surface resistance to erosion.

The 2013 HAF data and IIRH field notes indicate that perennial forb species and large deep-rooted perennial were of low abundance and diversity. Because the abundance of perennial forb species was lower than expected, the functional/structural group indicator was rated at slight to moderate departure from reference condition.

Cheatgrass (*Bromus tectorum*) was recorded at 2% of cover and was noted to be found in some disturbed areas; therefore, the indicator for invasive plants was rated a slight to moderate departure from the reference condition.

All indicators related to the Biotic Integrity attribute other than Functional/Structural Groups, Litter Amount, and Invasive Plants were rated none to slight. The Biotic Integrity attribute was rated slight to moderate departure from the reference condition due to forbs being reduced in combination with cheatgrass being found in some disturbed areas.

*IIRH Site EP\_2. Loamy 8-12"*

Site EP\_2 is located in a seeded vegetation community where Sandberg bluegrass is the dominant shallow-rooted bunch grass species (31% cover), crested wheatgrass was the dominant deep rooted perennial bunchgrass (6% cover) and Wyoming big sagebrush is the dominant shrub species (5% cover). Fourwing saltbush was seeded in this area following the 1985 Lilly and Lillygrade Fires, and represented 1% of the cover at this site. In addition, biological soil crusts comprise 3% of the cover (Table 11). The site is of relatively flat topography with a north aspect and was burned by wildfire in 1985 (Photo 5).

**Photo 5. Overview of IIRH Site EP\_2**



The indicator for litter amount was rated as an extreme to total departure from the reference condition due to an increase in the amount of litter (70%) found at the site.

The 2012 HAF data and IIRH field notes indicate that perennial forb species and large deep-rooted perennial bunchgrasses were of low abundance and diversity. Because the abundance of perennial forb species was lower than expected, the functional/structural group indicator was rated at slight to moderate departure from reference condition.

Cheatgrass was recorded at 17% of cover and was noted to be common throughout the site; therefore, the indicator for invasive plants was rated a moderate to extreme departure from the reference condition.

All indicators related to the Biotic Integrity attribute other than Functional/Structural Groups, Litter Amount, and Invasive Plants were rated none to slight. The Biotic Integrity attribute was rated a moderate departure from the reference condition due to forbs being reduced in combination with cheatgrass being common and the high presence of litter.

### **West Pasture**

*IIRH Site WP. Loamy 8-12"*

Site WP is located in a seeded vegetation community where crested wheatgrass is the dominant deep-rooted perennial bunchgrass (20% cover) and Sandberg bluegrass is the dominant shallow-rooted perennial bunchgrass (14% cover). Wyoming big sagebrush is the dominant shrub species (17% cover). In addition, biological soil crusts comprise 14 percent of the cover (Table 11). The site is of relatively flat topography with a north aspect and has not burned by wildfire in over 50 years (Photo 6).

**Photo 6. Overview of IRRH Site WP**



The indicator for litter amount was rated as a moderate departure from the reference condition due to an increased amount of litter (35%) found at the site.

The 2013 HAF data and IIRH field notes indicate that forb species were of low abundance and diversity. Therefore the functional/structural group indicator was rated at a moderate departure from reference condition.

Cheatgrass or curvseed butterwort (*Ceratocephala testiculata*) were not recorded in the cover transect, and only a few plants of curvseed butterwort were observed in disturbed areas; therefore, the indicator for invasive plants was rated a none to slight departure from the reference condition.

All indicators related to the Biotic Integrity attribute other than Functional/Structural Groups, and Litter Amount were rated none to slight. The Biotic Integrity attribute was rated slight to moderate departure from the reference condition.

***Allotment Summary for Standard 5 (Seedings):***

The ID Team rated the functional/structural group indicator as slight to moderate departure from reference condition at sites EP\_1 and EP\_2 and a moderate departure at WP. Invasive plants were rated at a moderate to extreme departure at site EP\_2 and slight to moderate at EP\_1 and none to slight at WP. The litter amount indicator was rated extreme to total at EP\_2 and moderate at EP\_1 and WP.

With this, the Biotic Integrity attribute was rated as a slight to moderate departure from reference condition at two sites (EP\_1, WP) and a moderate departure at one site (EP\_2) (Table 9).

**Evaluation of Standard 5**

The 2013 IIRH field notes, as well as the cover data, indicate that throughout the East Pasture Sandberg bluegrass dominates overall cover. Meanwhile, crested wheatgrass dominates overall cover within the West Pasture. Sagebrush was present at each site and ranged from 5 to 26.5% of cover. The West Pasture site (WP) was rated in the moderate category and both East Pasture sites (EP\_1, EP\_2) were rated slight to moderate departure for the functional/structural group indicator. This was due to the overall perennial forb component either missing or greatly reduced. Large deep-rooted perennial bunchgrasses were also reduced compared to the reference condition within the East Pasture.

The invasive species indicator was rated none to slight in at the West Pasture (WP) site. Within the East Pasture, one site EP\_1 was rated as slight to moderate departure because cheatgrass made up 2 percent of the cover and was noted to be scattered throughout the site. The other site in the East Pasture (EP\_2) was rated as a moderate to extreme departure because cheatgrass made up 17 percent of the cover and was noted to be common throughout the site. During previous data collection in 2002 and 2006, cheatgrass ranged from 0 to 10% of overall cover. Other invasive species and noxious weeds such as Canada thistle, bull thistle, scotch thistle, Russian thistle (*Salsola kali*), and diffuse knapweed have been noted by the ID Team during previous visits to the allotment.

One site (EP\_2) rated in the extreme to total category for litter amount because the litter amount was substantially higher than expected based on the reference condition, with 70 percent. The litter was noted in the IIRH field notes to be mainly composed of cheatgrass and crested wheatgrass litter. The increased in litter amount relative to the reference sheet could be affecting infiltration within the East Pasture. The pasture's plant community is creating substantially more litter compared to the reference site, which is attributed to the high number of annuals. One site (EP\_1) was rated in the moderate category for litter amount with 32.5%. The West Pasture (WP) site was rated a moderate departure, but most of the increased litter was due to the fact that it is a crested wheatgrass seeding.

The Biotic Integrity Attribute was rated as a slight to moderate departure from the reference condition at two of the sites (EP\_1, WP) and a moderate departure at one site (EP\_2) (Table 9).

**Table 12. Percent ground cover (top layer) recorded in 2002, 2006, and 2012 in other areas of the East Roseworth Point Allotment**

Vegetation Class	Species	HAF Site (2012) West	ESI Site TH-61a (2006) East	ERPC-1 (2002) East	ERPC-2 (2002) East
Perennial Grasses	Sandberg's bluegrass	34.5%	12%	12%	15%
	Crested wheatgrass	3.0%	43.3%	15%	0%
	Squirreltail	3.5%	1.3%	0%	0%
Annual Grasses	Cheatgrass	0%	10%	6%	0%
	Sixweeks fescue	0%	0.7%	0%	0%
Annual Forbs	Bur buttercup	0%	0%	4%	0%
Shrubs	Spiny hopsage	0%	0.7%	0%	0%
	Wyoming sagebrush	26.5%	2.7%	2%	23%
	Four wing saltbush	0%	0%	5%	0%
	Rubber rabbitbrush	0%	0%	3%	0%
<b>Vegetation Total</b>		<b>67.5%</b>	<b>66.6%</b>	<b>47%</b>	<b>38%</b>
Other Cover	Bare Ground	14.0%	5.3%	20%	8%
	Biotic Crust	10.5%	5.3%	2%	24%
	Litter in Contact with Soil	4.5%	10.7%	25%	24%
	Litter Standing	0%	7.3%	5%	2%
	Rock or gravel	3.5%	0.7%	4%	0%
<b>Total</b>		<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**Evaluation Finding – East Pasture is:**

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

### ***Rationale for Evaluation Finding***

Deep-rooted perennial bunchgrasses are not the dominant functional/structural group within most areas of the seeded plant communities of the East Pasture (Photos 4 and 5). Many areas of the seeded plant communities are dominated by Sandberg bluegrass. This is indicative of a shift in the relative dominance of vegetation functional/structural groups. Declines in deep-rooted perennial bunchgrasses can result in a modification of nutrient cycling and energy flow due to changes in above and below ground structure. Shallow-rooted grasses generally have a shorter active growth period, smaller root systems, and relatively lower potential to capture and store carbon below ground.

The 2013 IIRH field notes, as well as the HAF cover data, also indicate that perennial forb species were of low abundance and diversity across the plant communities of the East Pasture. No perennial forbs were recorded within the five cover transects (Tables 11 and 12) across the Pasture. The 2003 or 2006 production data also did not detect any perennial forb species (Table 6). The ID Team rated the functional/structural group indicator based on field observations documenting the reduced relative dominance of deep-rooted perennial grasses and low abundance and diversity of perennial forbs.

The perennial species present within the pasture may not be appropriately productive and capable of reproduction and recruitment of new seedlings. The seeded four-wing saltbush showed signs of browsing and hedging. Although the reproductive capability of four-wing saltbush was not noted to be reduced within the field notes, some of the plants may have decreased ability to reproduce.

The perennial species present may not be able to provide appropriate competition to invasive species. Cheatgrass was present at both sites within the East Pasture and was also detected during previous monitoring in 2002 and 2006 (Table 12). Other invasive species such as Russian thistle and curvseeded butterwort and noxious weeds such as Canada thistle, bull thistle, scotch thistle, and diffuse knapweed have been noted by the ID Team during previous visits to the allotment. Invasive species may be increasing over time within the pasture. Invasive species can become a threat to biotic integrity following large scale disturbances such as wildfire if adequate desirable perennial species and biological soil crusts are not present within the seeded plant communities to hinder further spread or establishment of invasive or noxious plant species.

Adequate litter is present within the seeded plant communities to provide cover for site protection. The litter amount indicator rating deviated from the reference condition found in the ESD. The presence of seeded species can result in higher biomass production, resulting in more litter than is described in the ESD reference sheet. However, the ID Team determined that the litter amount was appropriate for site stability and ecological processes as shown by adequate soil moisture, as well as plant growth/annual production matching what is expected at each site.

However, the vegetation communities within the East Pasture of the East Roseworth Point Allotment are not functioning to maintain native animal habitat or life form diversity due to the reduction of deep-rooted perennial bunchgrasses and low abundance and diversity of perennial forbs across the pasture. Therefore, the East Pasture is not meeting Standard 5.

***Evaluation Finding – West Pasture is:***

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

***Rationale for Evaluation Finding***

Diversity of perennial species within the West Pasture is as expected for a seeded area. Deep-rooted perennial bunchgrasses are the dominant functional/structural group within most areas of the seeded plant community (Table 11). The perennial species present within the pasture are productive and capable of reproduction and recruitment of new seedlings. Perennial forbs were not recorded within the cover transects (Tables 11 and 12) and field notes indicate that very low amounts of perennial forbs are present within the seeded plant community. This is within what is expected due to the seeding project of the 1950s or 1960s in which the area may have been plowed, chemically treated, or both.

Adequate litter is present within the seeded plant communities to provide cover for site protection. The litter amount indicator rating deviated from the reference condition found in the ESD at the site. The presence of seeded species can result in higher biomass production, resulting in more litter than is described in the ESD reference sheet. However, the ID Team determined that the litter amount was appropriate for site stability and ecological processes as shown by adequate soil moisture, as well as plant growth/annual production matching what is expected at each site.

Cheatgrass was not recorded within the two cover transects (Tables 11 and 12) conducted in the West Pasture. A low amount of cheatgrass was noted to occur near the IIRH site. Other invasive species and noxious weeds such as Canada thistle, bull thistle, scotch thistle, and diffuse knapweed have been noted by the ID Team during previous visits to the allotment. Although invasive species can become a threat to biotic integrity following large scale disturbances such as wildfire, these species are present at low densities and adequate desirable perennial species and biological soil crusts are present within the seeded plant community to hinder further spread or establishment of invasive or noxious plant species.

The seeded vegetation communities in the West Pasture of the East Roseworth Point Allotment are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow, and the hydrologic cycle. Therefore, the West Pasture is meeting Standard 5.

**Standard 6 (Exotic Plant Communities, Other than Seedings)**

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

- Standard Doesn't Apply

The plant communities with the East Roseworth Point are dominated by native and seeded non-native species. Standard 6 does not apply to the allotment.

### **Standard 7 (Water Quality)**

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

X Standard Doesn't Apply

Intermittent streams, perennial streams, springs or wetlands are not present within the East Roseworth Point allotment (USGS 2014). All streams within the allotment are classified as ephemeral. No water quality assessments have been completed within the allotment, and beneficial uses have not been designated (IDEQ 2014) as no intermittent or perennial water bodies are present within the allotment. The East Roseworth Point allotment is adjacent to Salmon Falls Creek, but livestock are not able to access the stream and riparian area due to cliffs/steep topography. Therefore, standard 7 does not apply to the allotment.

### **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**

#### **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 that occur in scattered portions of the field office. 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).

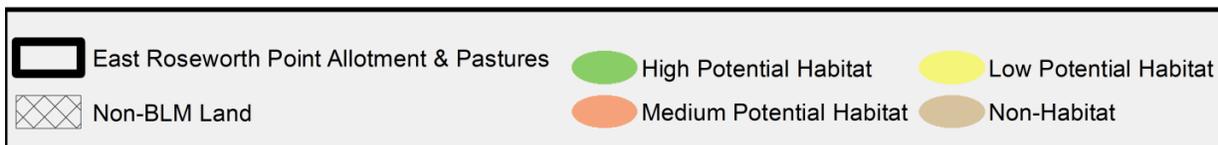
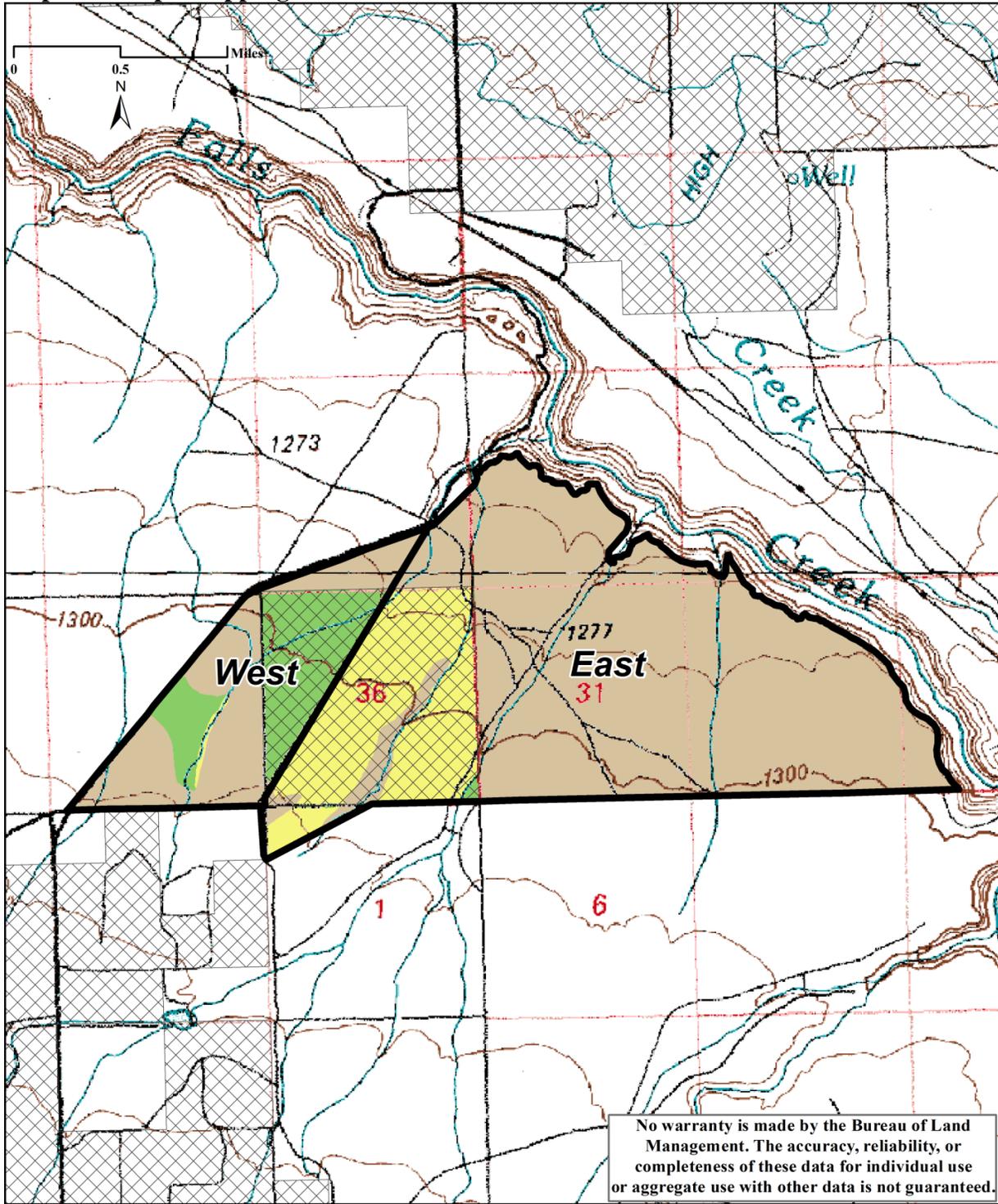
Slickspot peppergrass grows in the semiarid sagebrush-steppe ecosystem of southwestern Idaho. Interspersed within this habitat type, slickspot peppergrass can be found in visually distinct microsites known as slickspots (mini playas or natric sites) that act as small water basins and where the sodium and clay content is higher than adjacent, unoccupied habitat (Moseley, 1994). The East Roseworth Point Allotment contains 90 acres (5% of allotment) of potential slickspot peppergrass habitat (Map 5). A GIS model was developed to help focus inventory and clearance 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 56 acres of high potential, 34 acres of low potential, and 1,880 acres of non-habitat for slickspot peppergrass. The nearest known occupied habitat for slickspot peppergrass is 19 miles to the west, on the west side of Clover Creek.

**Table 13. Slickspot Peppergrass Potential Habitat (Acres).**

<b>Pasture</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>	<b>Non-habitat</b>
East	3	0	28	1,564
West	53	0	6	316

DRAFT

**Map 5. Slickspot Peppergrass Potential Habitat**



### Animals:

Presence of various sensitive wildlife species are based upon primarily incidental observations by BLM personnel and data entered into the Idaho Natural Heritage Center database by other individuals. Species with the potential to occur on the East Roseworth Point Allotment are discussed below.

There are no BLM sensitive or federally listed fish or aquatic invertebrates or their habitat 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 and slowly move towards wetter areas like wet meadows, irrigated farmland, or streams and springs where forbs are still green and growing. 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 through the winter. Sage-grouse may either migrate to different seasonal habitats or may remain 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% canopy cover of sagebrush, perennial herbaceous cover should average at least 7" in height with at least 10% canopy cover for grasses and at least 5% for forbs and a diversity of forb species during spring (Connelly et al., 2000).
- Late brood rearing habitat should support 10-25% 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% canopy cover of sagebrush with at least 10-14" exposed above the snow (Connelly et al., 2000).

The East Pasture burned in 1981 Lillygrade Fire and 1985 Lilly Fire. The fires burned the entire area west of the irrigation drainage and along the northeastern side of the pasture adjacent to the

canyon rim. Based on vegetation mapping from 2013, the East Roseworth Point Allotment contains 1,349 acres mapped as sagebrush (68% of the allotment). Sagebrush occurs in the following pastures: East (1,034 acres, 65% of pasture), and West (316 acres, 84% of pasture).

Sage-grouse have been observed year round in the adjoining allotments. Sage-grouse habitat extends from the East Roseworth Point Allotment into the Cedar Butte Eastside and Roseworth Point Allotments (Map 6).

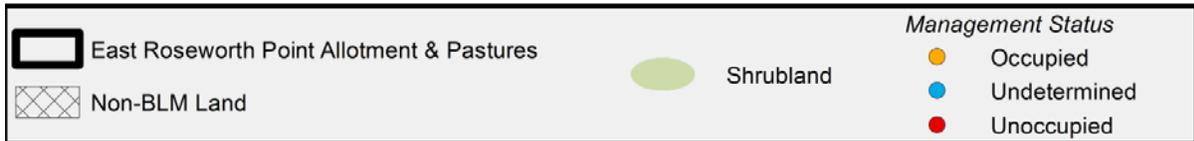
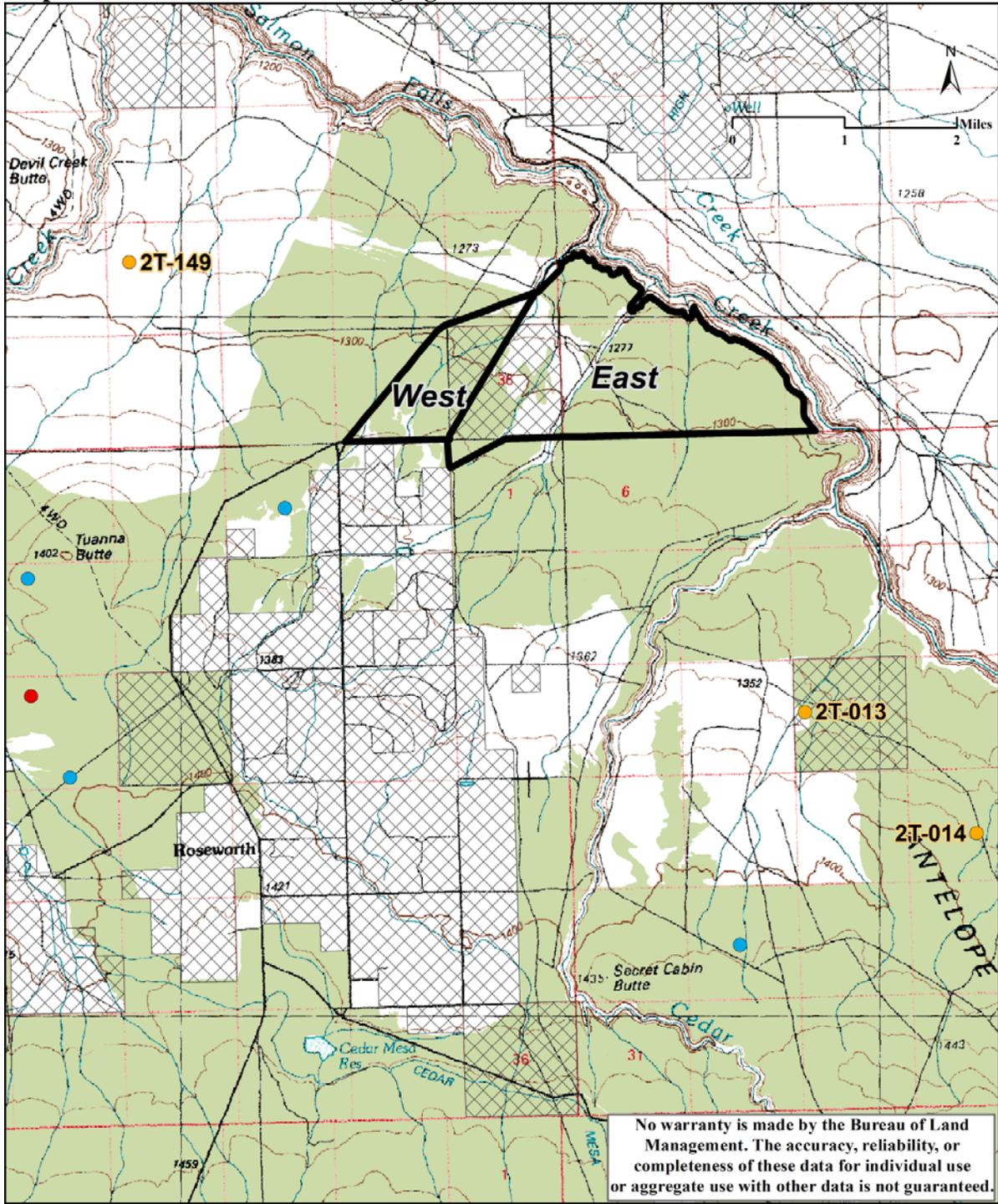
The East Roseworth Point Allotment does not contain any sage-grouse leks. Within five miles there are 3 occupied, 4 undetermined (due to a lack of recent surveys), and 1 unoccupied sage-grouse leks (Map 6). Sage-grouse attendance at occupied leks within five miles of the allotment are shown in Table 14. Leks are considered occupied if there has been documented sage-grouse activity within the past five years.

**Table 14. Sage-grouse Attendance at Occupied Leks within Five Miles of the East Roseworth Point Allotment, 2000-2014.**

Lek	Location	Survey Year <sup>1</sup>														
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
2T-149	2.5 miles W	18	16	12	--	--	2	3	--	0	8	0	4	12*	16	9
2T-013	2.6 miles S	--	--	--	--	--	--	0	--	0	--	--	--	0	--	14
2T-014	4.0 miles SE	--	--	--	--	--	--	--	--	0	--	--	--	2	--	--

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

**Map 6. Shrubland Habitat and Sage-grouse Leks**



*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 2012 at HAF sites **EP\_1**- East Pasture and **WP**- West Pasture. An assessment was also conducted in 2013 at HAF site **EP\_2**- East Pasture (Map 4). Locations of sage-grouse habitat suitability assessments (HAF sites) are shown in Map 4.

Sage-grouse droppings were observed at both sites in the East Pasture during the assessments. A successful sage-grouse nest from 2011 was observed 5 meters from the EP\_1 site cover transect. Winter use of the allotment by sage-grouse was confirmed during the winter of 2010-2011. Sage-grouse habitat suitability assessments are not necessarily an indication of rangeland health; they are merely indicators of habitat suitability. However, vegetation data collected as part of the habitat suitability assessments may be used to inform and interpret other rangeland health information and observations. Sage-grouse habitat suitability assessments are shown in Table 15.

**Table 15. 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	<b>15 – 25%</b> EP_1(21%)	<b>10 - &lt; 15% or &gt; 25%</b> WP(28%)	<b>&lt; 10%</b> EP_2(5%)
Average Sagebrush Height	<b>12 - 30"</b> EP_1(27"), EP_2(27"), WP(25")	<b>10 -11" or &gt;30"</b>	<b>&lt; 10"</b>
Sagebrush Growth Form	<b>Spreading</b> EP_1, EP_2	<b>Mix of spreading and columnar</b> WP	<b>Columnar</b>
Average Grass Height	<b>≥ 7"</b> EP_1(9")	<b>5 - &lt; 7"</b> WP(6.7")	<b>&lt; 5"</b> EP_2(2.3")
Average Perennial Grass Canopy Cover	<b>≥ 10%</b> EP_1(51.5%), EP_2(52%), WP(56%)	<b>5 - &lt; 10%</b>	<b>&lt; 5%</b>
Average Forb Canopy Cover	<b>≥ 5%</b>	<b>3 - &lt; 5%</b>	<b>&lt; 3%</b> EP_1(0%), EP_2(0%), WP(0%)
Preferred Forb Abundance and Diversity	<b>Forbs common with at least a few preferred species common</b>	<b>Forbs common, but only 1 or 2 preferred species present</b>	<b>Forbs rare to sparsely present</b> EP_1, EP_2, WP
<b>Overall Site Evaluation</b>		<b>EP_1</b>	<b>EP_2, WP</b>
<b>Pasture Evaluation</b>			<b>East, West</b>

The East Pasture contains two HAF sites. HAF site EP\_1 is in the central portion of the pasture in an area mapped as Wyoming sagebrush/ Sandberg bluegrass. The other site EP\_2 is located in

the northwestern portion of the pasture in an area mapped as Wyoming sagebrush/ crested wheatgrass. Attributes at HAF site EP\_1 were rated suitable for all habitat indicators except for average forb canopy cover and preferred forb abundance and diversity (both unsuitable). The site has a general absence of forbs. Seven forb species were observed during the habitat suitability assessment; however, no forbs were encountered in any of the Daubenmire frames (100 frames surveyed with each frame being 0.1m<sup>2</sup>). Cheatgrass was recorded at 2% cover (all layers). HAF site EP\_2 is located in an area that burned in the 1981 Lillygrade Fire and 1985 Lilly Fire. Sagebrush remains limited in the area (5% cover) despite having decades to recover. Sagebrush height, sagebrush growth form, and perennial grass cover were all rated suitable. Grass height, average forb canopy cover, and preferred forb abundance and diversity were all rated unsuitable. Forbs are rare to sparsely present at the site with only 5 species observed. Cheatgrass was recorded at 21% cover (all layers). Overall, the East Pasture is generally unsuitable as nesting and early brood rearing habitat.

One HAF site is located in the West Pasture (HAF site WP). The site is located in an area mapped as Wyoming sagebrush/ Sandberg bluegrass. Attributes at the site were suitable for sagebrush height and perennial grass cover, marginal for sagebrush height, growth form, grass height, and unsuitable for forb canopy cover and preferred forb abundance and diversity. The site has a general absence of forbs. Seven forb species were observed during the habitat suitability assessment; however, 99% of the Daubenmire frames did not contain a perennial or sage-grouse preferred forb. Cheatgrass was not encountered along the line point intercept transect. Overall, the West Pasture is generally unsuitable as nesting and early brood rearing habitat due to a lack of forbs at the site and low grass height.

The southwest corner of the allotment is adjacent to private agricultural lands in the Roseworth area and the western edge of the allotment borders a paved road (approximately 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). Ravens and black-billed magpies were confirmed to be nesting in some of the Russian olives (*Elaeagnus angustifolia*) and western junipers (*Juniperus occidentalis*) in the allotment. Moderately sized stick nests were seen in some of the trees on private land. Common ravens prey on sage-grouse eggs and recently hatched chicks (Autenrieth, 1981; Coates, 2007).

#### *Late Brood Rearing Habitat*

The East Pasture contains two livestock ponds that are each approximately 0.3 acres in size. A third pond is within a wildlife enclosure (approximately 4.5 acres in size) but the enclosure is undersized to protect the wet meadow area. The East and West Pastures also contain drainages that carry agricultural runoff to Salmon Falls Creek. The drainage in the East Pasture is

approximately 1.4 mile in length while the drainage in the West Pasture is approximately 0.5 mile in length. Both of these drainages are high use areas for livestock. Noxious weeds such as bull thistle, Canada thistle, and Scotch thistle also occur along both of these drainages. These artificial water sources along the drainages provide some late brood rearing habitat for sage-grouse since they maintain succulent forbs and contain a higher abundance of preferred forbs than the surrounding uplands. However, these drainage ditches and ponds do not always receive waste water from the adjacent private agriculture lands due to the conversion of irrigation systems to closed systems (sprinklers/pivots). One drawback is that several Russian olive and western juniper trees occur along the drainages which provide perching and nesting habitat for ravens and black billed magpies. Overall both pastures provide marginal late brood rearing habitat for sage-grouse.

#### *Winter Habitat*

Shrub height (25-27") and cover (21-28%) are suitable for wintering sage-grouse in all pastures. During winter snow depths are usually less than 12" leaving most sagebrush above the snow and available for wintering sage-grouse.

#### 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 frequently 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.

Ferruginous hawks (*Buteo regalis*) a BLM sensitive species are not known to nest in the allotment. However, trees of suitable size for nesting occur in the East Pasture (approximately 50 junipers and 5 Russian olives mostly along the irrigation drainage) and West Pasture (approximately 18 trees, mostly Russian olives along the irrigation drainage). Both pastures provide suitable habitat for mammalian prey (black-tailed jackrabbit, mountain cottontail, ground squirrels, etc.) favored by ferruginous hawks.

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

Brewer's sparrows are typically associated with sagebrush steppe. Brewer's sparrows 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%), with spiny hopsage (*Grayia spinosa*) (10%), antelope bitterbrush (*Purshia tridentata*) (6%), and yellow rabbitbrush (*Chrysothamnus viscidiflorus*) (3%) (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 9 inches from the top of the sagebrush and averaged 7 inches from the edge of the shrub canopy (Rotenberry et al., 1999). These sparrows feed on small insects and seeds (Rotenberry et al., 1999).

Brewer's sparrows have been observed and are expected to be common in sagebrush habitats within the East Roseworth Point Allotment. At this time sagebrush height and density are suitable for Brewer's sparrow nesting.

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 (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 have been observed on the allotment and would be expected to nest and forage on the allotment. At this time sagebrush of suitable height for nesting occurs in the both the East and West Pastures. The tallest sagebrush on transect in the East Pasture (site 1) was 46", the East Pasture (site 2) was 35", and the West Pasture was 40". The East Pasture also contains fourwing saltbush that was seeded following the Lilly Fire of 1985. The fourwing saltbush has been hedged due to livestock browsing. Russian olives and junipers in both pastures could also be used for nesting.

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 (*Sarcobatus vermiculatus*) and bunchgrasses (Martin and Carlson, 1998). In general sagebrush sparrow nests are placed 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 the allotment. Sagebrush height and density is suitable for sagebrush sparrow nesting.

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

Pygmy rabbits are sagebrush obligates that are usually found in areas with tall dense stands of big sagebrush and deep soils (Green and Flinders, 1980; Heady and Laundré, 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%) in a generally small area (less than 200 feet radius [3 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% 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 surveys for pygmy rabbits have been conducted in the East Pasture (approximately 600 acres have been surveyed). While no pygmy rabbits were documented during surveys, potential habitat does occur in the allotment. All pastures in the allotment contain sagebrush, but the number of species and density of forbs are limited.

Due to past vegetation treatments in the West Pasture in the 1950s or 1960s, the majority of the pasture lacks the sagebrush density preferred by pygmy rabbits. Also the West Pasture is rocky and contains limited areas with deep soils. However, areas of suitable habitat remain. The vegetation map does not reflect habitat suitability or some of the historic seedings. The East Pasture burned in 1981 Lillygrade Fire and the 1985 Lilly Fire. The fires burned the entire area west of the irrigation drainage and along the northeastern side of the pasture adjacent to the canyon rim. Areas that burned in the East Pasture currently do not contain sagebrush of sufficient density for pygmy rabbit burrows. Areas of potentially suitable habitat do occur in the central portion of the pasture (area mapped as Wyoming sagebrush/Sandberg bluegrass). Overall, both the East and West Pastures are marginal for pygmy rabbits.

#### 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 in 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 in the allotment, the BLM does not have distribution data on ground squirrels within the allotment. Sagebrush habitat in each pasture is suitable to maintain a relatively stable Piute ground squirrel population (Steenhof et al., 2006).

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

Spotted bats are typically found in arid portions of the western United States where it forages primarily on moths (Adams, 2003). It roosts 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 Salmon Falls Creek on the northern border of the East Pasture. The West Pasture does not contain roosting habitat. Spotted bats may forage over the allotment and along Salmon Falls Creeks. Water is found along Salmon Falls Creek and the drainages and the associated ponds in the East and West Pastures. Salmon Falls Creek contains water year round. The drainages and associated ponds generally contain water from April into October.

**Evaluation for Standard 8**

There are no known BLM sensitive or federally listed plants within the East Roseworth Point Allotment. However, systematic inventories for other special status plants have not been conducted in the allotment. GIS modeling predicts that the allotment contains 191 acres of high potential, 7 acres of medium potential, and 4 acres of low potential habitat for slickspot peppergrass. The nearest known occupied habitat for slickspot peppergrass is 18 miles to the west, on the west side of Clover Creek.

There are 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. Overall habitat ratings for each species are shown in Table 16.

**Table 16. Overall Habitat Suitability for BLM Sensitive Wildlife Species in the Allotment.**

Species Name and Type of Habitat	East	West
Sage-grouse (nesting & early brood rearing)	U	U
(late brood rearing)	M	M
(winter)	S	S
Ferruginous hawk (nesting)	S	S
(foraging)	S	S
Brewer's sparrow (nesting)	S	S
Sagebrush sparrow (nesting)	S	S
Loggerhead shrike (nesting)	S	S
Pygmy rabbit (year round)	M	M
Piute ground squirrel (year round)	S	S

Species Name and Type of Habitat	East	West
Spotted bat (roosting)	S	U
(foraging)	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 unsuitable in both pastures due to a general absence of forbs despite both pastures having areas with favorable shrub height and cover. Grass heights were suitable in the East Pasture and marginal in the West Pasture. Drainages that carry agricultural runoff in some years, in the East and West Pasture offer some late brood rearing habitat for sage-grouse. Sagebrush heights and cover in all pastures provide suitable winter habitat for sage-grouse.

More than an adequate number of potential nest trees are present for ferruginous hawk nesting in both pastures. Both pastures contain habitat that supports prey species such as mountain cottontail, black-tailed jackrabbit, and ground squirrels usually hunted by ferruginous hawk.

Shrub height and cover is suitable for Brewer's sparrow, sagebrush sparrow, and loggerhead shrike nesting in both pastures.

Pygmy rabbit habitat was rated as marginal in both pastures. Due to past vegetation treatments in the West Pasture in the 1950s or 1960s, the majority of the pasture lacks the sagebrush density preferred by pygmy rabbits. Also the West Pasture is rocky and contains limited areas with deep soils. However, areas of suitable habitat remain. The East Pasture burned in 1981 Lillygrade Fire and the 1985 Lilly Fire. The fires burned the entire area west of the irrigation drainage and along the northeastern side of the pasture adjacent to the canyon rim. Areas that burned in the East Pasture currently do not contain sagebrush of sufficient density for pygmy rabbit burrows. Areas of potentially suitable habitat do occur in the central portion of the pasture (area mapped as Wyoming sagebrush/ Sandberg bluegrass).

All pastures contain suitable habitat to maintain a stable population of Piute ground squirrels due to adequate shrub and grass cover. Steenhof et al. (2006) reported ground squirrel abundance was greater in areas with sagebrush compared to grassland. They additionally reported Piute ground squirrels in areas with sagebrush and Sandberg bluegrass had heavier body weight compared to ground squirrels in grassland which may improve over winter survival.

Spotted bat roosting habitat was rated suitable in the East Pastures due to cliffs being present along the northern edge of the pasture. The West Pasture does not contain roosting habitat. Sagebrush and grassland habitats in the allotment provide adequate insect diversity and abundance for spotted bat foraging. Water that can be used by bats is found along Salmon Falls Creek and the drainages and the associated ponds in the East and West Pastures.

***Evaluation Finding – East and West Pastures are:***

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

***Rationale for Evaluation Finding***

The East Roseworth Point Allotment is suitable to marginal for the majority of special status species. However, perennial forbs and sage-grouse preferred forbs are generally absent in the allotment. These forbs are necessary to support a variety of insects which are critical to the growth of young sage-grouse. Without these forbs, the allotment was rated unsuitable for sage-grouse during nesting and early brood rearing. Both pastures contain drainages that carry agricultural runoff to Salmon Falls Creek. These drainages are high use areas for livestock and contain numerous species of noxious weeds.

In portions of the east pasture, deep rooted perennial grasses have decreased. These grasses are important in providing nesting cover for sage-grouse. In addition the northwestern portion of the east pasture only had 5% sagebrush cover despite having decades to recover following the 1981 Lillygrade Fire and 1985 Lilly Fire.

Therefore, the East and West Pastures are not meeting Standard 8.

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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
<b>Perennial Grasses</b>			
<i>Achnatherum thurberianum</i>	Thurber's needlegrass	Native	EP_1
<i>Agropyron cristatum</i>	Crested wheatgrass	Exotic, Seeded	EP_2, WP
<i>Elymus elymoides</i>	Squirreltail	Native	EP_1, WP
<i>Poa secunda</i>	Sandberg bluegrass	Native	EP_1, EP_2, WP
<b>Annual Grasses</b>			
<i>Bromus tectorum</i>	Cheatgrass	Exotic, Invasive	EP_1, EP_2, WP
<b>Perennial Forbs</b>			
<i>Allium nevadense</i>	Nevada onion	Native	EP_1
<i>Astragalus lentiginosus</i>	Freckled milkvetch	Native	EP_2, WP
<i>Astragalus purshii</i>	Woollypod milkvetch	Native	EP_1, WP
<i>Calochortus bruneaunis</i>	Bruneau mariposa lily	Native	EP_2
<i>Castilleja angustifolia</i>	Northwestern Indian paintbrush	Native	EP_1, WP
<i>Crepis acuminata</i>	Tapertip hawksbeard	Native, Sage-grouse Preferred	EP_1
<i>Cymopterus spp.</i>	Springparsley	Native, Sage-grouse Preferred	WP
<i>Erigeron spp.</i>	Fleabane	Native, Sage-grouse Preferred	EP_2
<i>Erigeron pumilus</i>	Shaggy fleabane	Native, Sage-grouse Preferred	EP_1, WP
<i>Iva axillaris</i>	Povertyweed	Native	EP_2
<i>Lomatium dissectum</i>	Fernleaf biscuitroot	Native, Sage-grouse Preferred	EP_1
<i>Opuntia polyacantha</i>	Plains pricklypear	Native	EP_1
<i>Phlox aculeata</i>	Sagebrush phlox	Native, Sage-grouse Preferred	EP_2, WP
<i>Phlox hoodii</i>	Spiny phlox	Native, Sage-grouse Preferred	EP_1
<i>Tragopogon dubius</i>	Yellow salsify	Exotic, Sage-grouse Preferred	EP_1, EP_2
<i>Zigadenus venenosus</i>	Meadow deathcamas	Native	EP_1
<b>Annual Forbs</b>			
<i>Agoseris glauca</i>	Pale agoseris	Native, Sage-grouse Preferred	EP_1
<i>Ceratocephala testiculata</i>	Curvseed butterwort	Exotic	EP_1, EP_2, WP
<i>Descurainia incana</i>	Mountain tansymustard	Native	EP_2
<i>Descurainia pinnata</i>	Western tansymustard	Native	WP
<i>Draba verna</i>	Spring draba	Exotic	EP_2, WP
<i>Erodium cicutarium</i>	Redstem stork's bill	Exotic	EP_2
<i>Grindelia squarrosa</i>	Curlycup gumweed	Native	WP
<i>Lepidium perfoliatum</i>	Clasping pepperweed	Exotic	EP_1, EP_2, WP
<i>Microsteris gracilis</i>	Slender phlox	Native, Sage-grouse Preferred	EP_2
<i>Sisymbrium altissimum</i>	Tall tumblemustard	Exotic	EP_1, EP_2
<b>Shrubs</b>			
<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>	Wyoming big sagebrush	Native	EP_1, EP_2, WP
<i>Atriplex canescens</i>	Fourwing saltbush	Native	EP_2
<i>Ericameria nauseosa</i>	Rubber rabbitbrush	Native	WP

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