United States Department of the Interior
Bureau of Land Management

RANGELAND HEALTH ASSESSMENT AND EVALUATION REPORT

TURNER CEDAR BUTTE ALLOTMENT #01000

October 16, 2015

DRAFT

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ALLOTMENT INFORMATION

Field Office: Jarbidge Field Office (JFO)
Name of Permittee: Devil Creek Ranch, Inc
Allotment Name/Number: Turner Cedar Butte (01000)
Date of Field Assessment: July 30, 2013
Stream Miles on Public Land (miles): 0

Table 1: Turner Cedar Butte acres

Total Acres	BLM Acres	State Acres	Private Acres	Other Acres
5,871	2,402	637	2,832	0

Table 2: Assessment participants

Name	Position
Darek Elverud	JFO Fisheries Biologist
Kate Crane	TFD Fisheries Biologist
Jim Klott	JFO Wildlife Biologist
Michael Haney	JFO Wildlife Biologist/Botanist
Dan Strickler	JFO Rangeland Management Specialist
Bonnie Ross	TFD GIS Specialist

CURRENT PERMITTED LIVESTOCK GRAZING USE

Total Active Use: 745 Animal Unit Months (AUMs)
Livestock Type: Cattle
Livestock Numbers/Season of Use:
100 Cattle from 04/15 to 10/15
550 Cattle from 11/05 to 01/10
Current Land Use Plan: 1987 Jarbidge Resource Management Plan (RMP)
Current Stocking Level: 3 Acres/AUM

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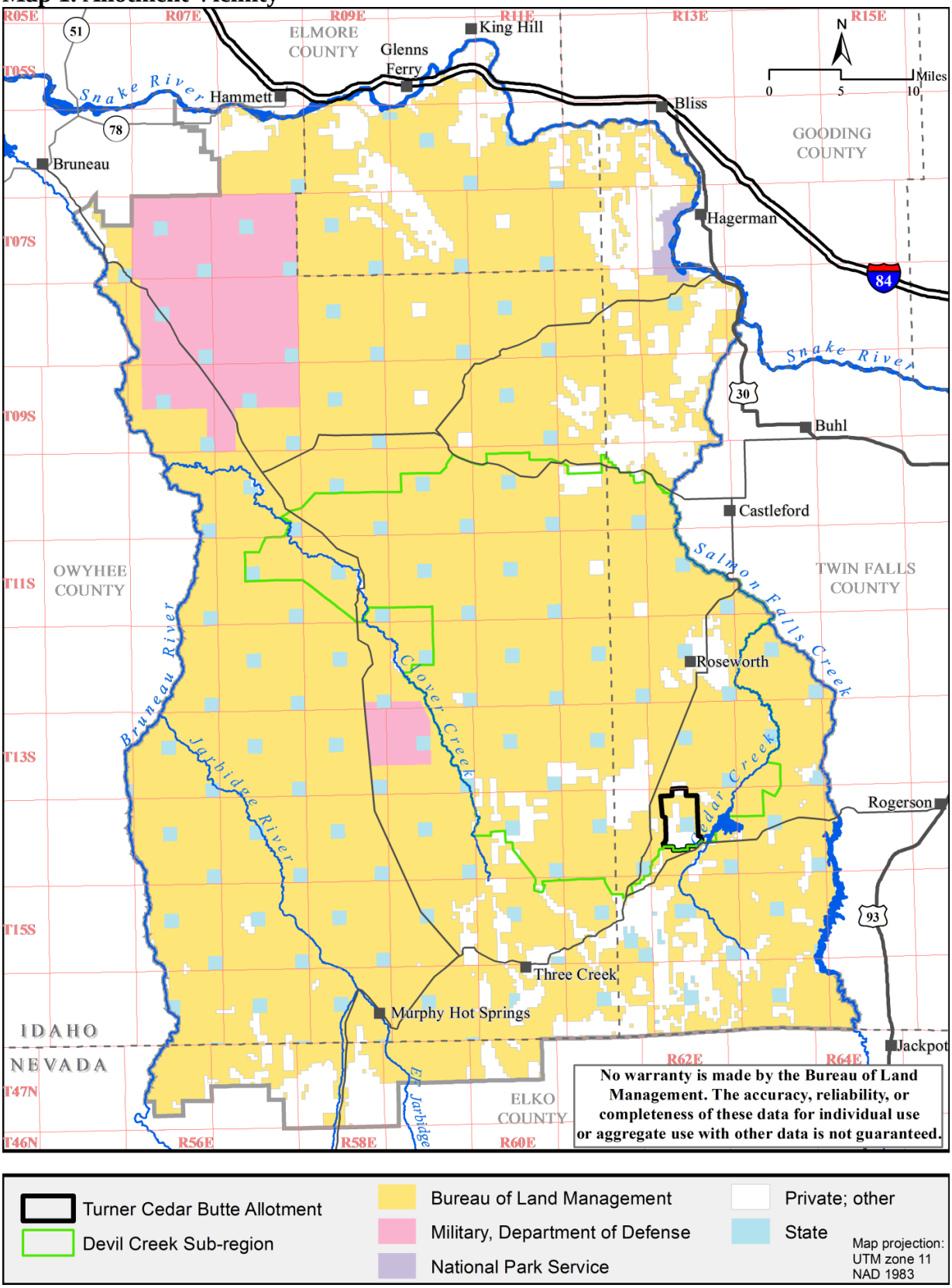
Map 1. Allotment Vicinity



ALLOTMENT PROFILE

The Turner Cedar Butte Allotment is located approximately 12 miles south of Castleford, Idaho (Map 1). The elevation ranges from approximately 5,350 feet to 5,785 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 Turner Cedar Butte Allotment ranges from 10 to 13 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 seventeen miles northwest of the Turner Cedar Butte 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, ad 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

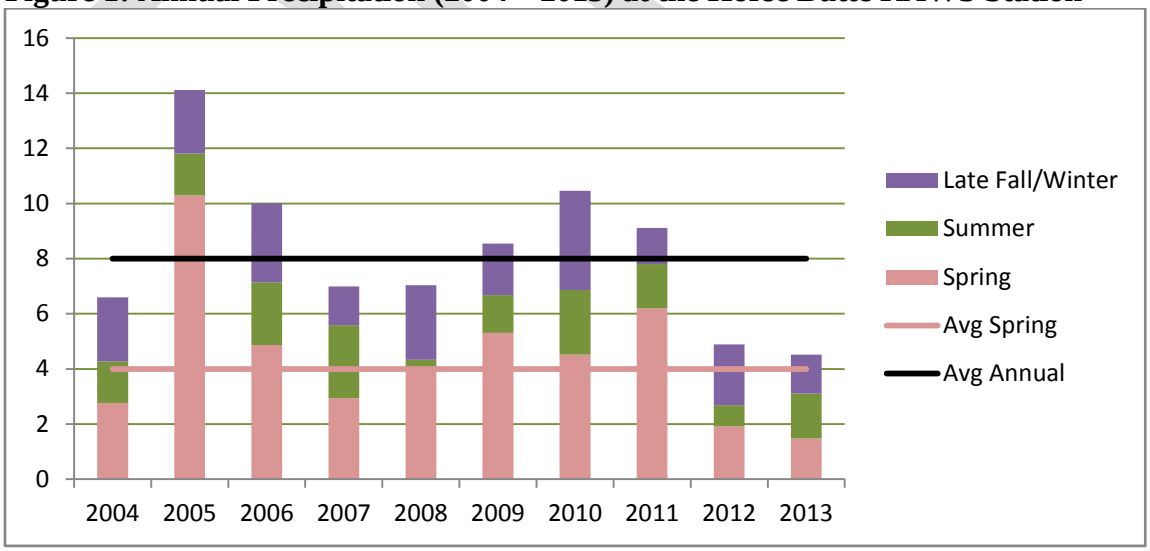
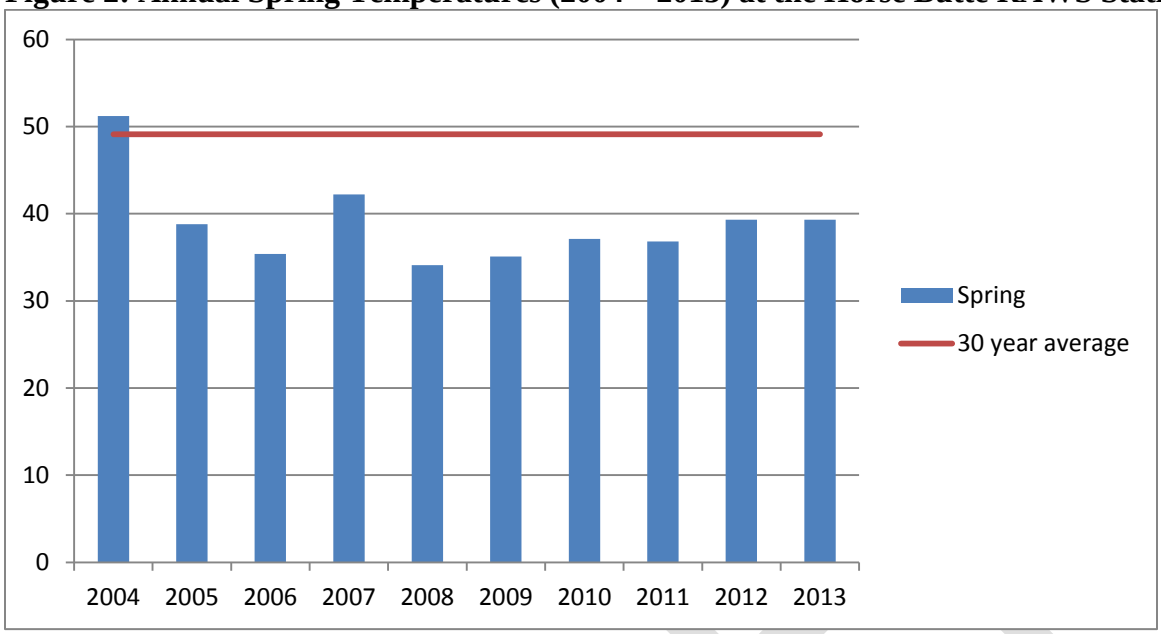


Figure 2: Annual Spring Temperatures (2004 – 2013) at the Horse Butte RAWS Station



Grazing Management

The allotment is split into three pastures: East Turner, West Turner, and House Creek (Table 3). The Turner Cedar Butte Allotment and its pastures are completely fenced. There are 12.7 miles of exterior fences and 3.8 miles of interior fence. Livestock water is available in the East and West Turner pastures via an underground pipeline (2.3 miles) and associated water troughs. Two troughs are located in the West Turner Pasture and one in the East Turner Pasture. Livestock water in the House Creek Pasture is provided by a small reservoir and House Creek, both of which are located on private land. Map 2 shows the location of range improvement projects in the allotment.

Table 3: Acreage by pasture and ownership in Turner Cedar Butte Allotment

Pasture Name	Public	State	Private	Total*
East Turner	1,361	0	643	2,004
West Turner	721	0	0	721
House Creek	320	637	2,189	3,146
Allotment Total^	2,402	637	2,832	5,871

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

Most of the BLM lands have been seeded to crested wheatgrass or intermediate wheatgrass. Some areas of native vegetation are found in the East Turner Butte Pasture. House Creek transverses the House Creek Pasture and is located entirely on private land. No other creeks or springs are located in the allotment.

Active permitted livestock use in the Turner Cedar Butte Allotment authorizes 745 cattle AUMs. The season of use is split into two timeframes: April 15 to September 30 and November 5 to January 10.

Livestock are managed in the allotment using a 3-pasture deferred rotation grazing system. A Final Grazing Decision issued in 1999 changed the grazing season. Prior to 1999 the permitted season of use was April 10 to November 30. Season of use was changed to better incorporate private and State of Idaho lands into the allotment and allow for a formal grazing system to be implemented. The grazing system was designed to periodically defer livestock grazing in a pasture during critical plant growth. It also provides for fall use to encourage seed dissemination and plant recruitment. The West and East Turner pastures are used during the first portion of the grazing season. The spring/early summer use period typically occurs from April 15 to June 20. The late summer use period is from June 21 to September 30. Late fall and winter use occurs in the House Creek Pasture. The 1999 grazing decision also set utilization levels for both seeded and native plant communities at 50%.

Actual livestock use in the Turner Cedar Butte Allotment during 2004 through 2009 is shown in Table 4. Actual use was not collected by pasture during most of this time period. Actual livestock use was below permitted active use in 2004, 2005, and 2006. Most of the non-use has occurred during the fall/winter season.

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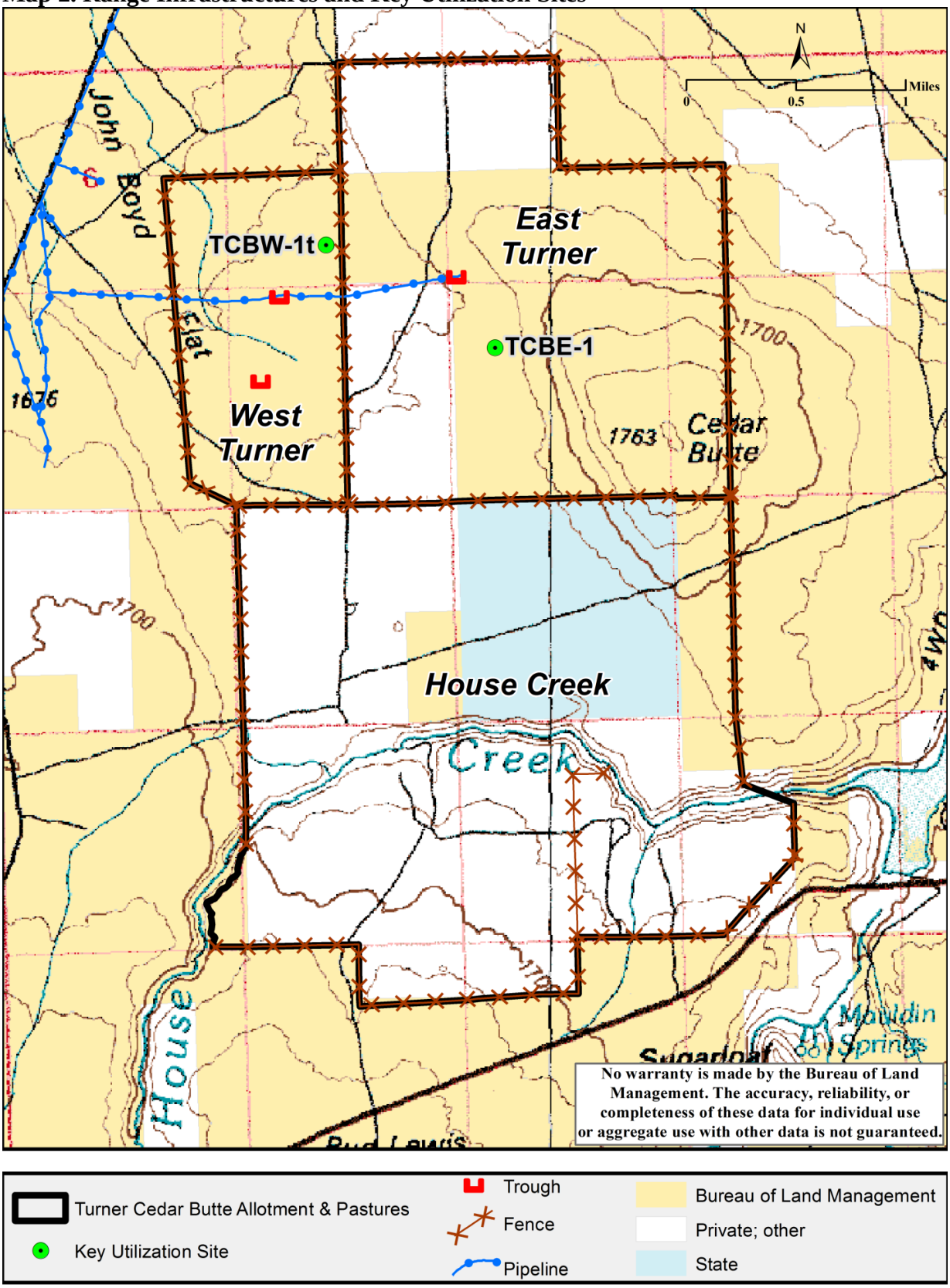
Map 2. Range Infrastructures and Key Utilization Sites



Most of the Turner Cedar Butte Allotment burned in the 2007 Murphy Complex Fire. As a result, livestock use was cut short resulting in only 128 AUMs being used. During 2007 and the spring/summer of 2008 the areas burned in the Murphy Complex Fire were not grazed by livestock to allow vegetation to recover naturally.

Table 4: Actual Use from 2004 – 2009

Year	Season of Use	Actual Use
2004	04/15 to 10/15	229
	11/05 to 01/10	417
Total Use		**646**
2005	04/15 to 10/15	216
	11/05 to 01/10	203
Total Use		**419**
2006	04/15 to 10/15	168
	11/05 to 01/10	267
Total Use		**435**
2007	04/15 to 10/15	128
	11/05 to 01/10	0
Total Use		**128**
2008	04/15 to 10/15	0
	11/05 to 01/10	474
Total Use		**311**
2009	04/15 to 10/15	61
	11/5 to 01/10	447
Total Use		**455**

Table 5 shows actual use by pasture from 2010 to 2013. Since the Murphy Complex Fire, deferment in the West Pasture has not occurred. Actual use has been less than permitted active use, but has increased annually since the fire. Again, most of the non-use has occurred during the fall/winter season.

Table 5: Actual Use by Pasture from 2010 – 2013

Year	Pasture	Season of Use*	AUMs
2010	West Turner	04/15 – 06/10	87
	East Turner	11/01 – 01/10	317
	House Creek	-	-
Total Use			404
2011	West Turner	04/15 – 06/10	73
	East Turner	06/11 – 09/30	153
	House Creek	11/01 – 01/10	246
Total Use			472
2012	West Turner	04/15 – 06/10	99
	East Turner	06/11 – 09/30	231
	House Creek	11/01 – 01/10	176
Total Use			506
2013	West Turner	04/15 – 06/10	82
	East Turner	11/01 – 01/10	307

Year	Pasture	Season of Use*	AUMs
	House Creek	06/11 – 09/30	187
	House Creek	11/01 – 01/10	117
Total Use			693

Table 6 describes average utilization in the allotment. Utilization data has not been routinely collected in the Turner Cedar Butte Allotment. Utilization data were collected using the Height-Weight Method (Cooperative Extension Service et al., 1999). Utilization was not collected in the House Creek Pasture since most of it is privately owned.

Utilization in the West Turner Pasture was collected for two years and ranged from 2% to 10% (Table 6). Utilization data were collected for 4 years in the East Pasture and ranged from 3% to 22%. All measurements were taken on crested wheatgrass. Average utilization on crested wheatgrass during these years was 11%. Map 2 shows the locations of where utilization was collected in the allotment.

There are no livestock trailing authorizations for this allotment.

Table 6: Utilization Summary

Pasture	Year	Actual Use		Utilization (%)
		Season of Use*	AUMs	Crested Wheatgrass
West Turner	2011	04/15 – 06/10	73	10
	2012	04/15 – 06/10	99	2
East Turner	2006	Unknown	168	3
	2010	11/01 – 01/10	317	15
	2011	06/11 – 09/30	153	22
	2012	06/11 – 09/30	231	16

Vegetation

Vegetation in the Turner Cedar Butte 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). 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 percent or more shrub cover rather than the national standard of more than 25 percent 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). 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 vegetation communities at a finer-scale.

Vegetation in the Turner Cedar Butte Allotment was historically a Wyoming sagebrush/bluebunch wheatgrass plant community. However, the native plant community has

been greatly impacted by wildfire. Over the past 50 years much of the allotment has burned twice with some areas burning as much as five times. Most of the public land in the allotment has been seeded to crested wheatgrass as a result of these older fires, which include the 1978 Cedar Mesa Fire, 1981 Pigtail Butte Fire, 1984 John Boyd Fire, and 1985 House Creek Fire. The Murphy Complex Fire burned most of the allotment in 2007 (Map 4). Both the West and East Turner pastures were completely burned, effectively removing any shrub species that may have been there. Vegetation prior to the 2007 fire was well established and therefore, no ESR vegetation treatments were completed in the allotment after the Murphy Complex Fire.

Vegetation in the Turner Cedar Butte Allotment consists of both native and non-native perennial grasses. Native plant communities consist primarily of Sandberg's bluegrass and bluebunch wheatgrass with several forb species present. Both intermediate wheatgrass and crested wheatgrass have been planted in vegetation treatments following wildfires (Map 3, Table 7). Sagebrush is not present and appears to be a result of the numerous wildfires that have burned through the allotment. There is no current Ecological Site Inventory (ESI) or trend data available for the Turner Cedar Butte Allotment.

Table 7: Vegetation communities on public land in acres and percentage by pasture

Vegetation Community	**East Turner Pasture** (1,361 Acres)	**House Creek Pasture** (319 Acres)	**West Turner Pasture** (721 Acres)
Bluebunch wheatgrass	0 (0%)	42 (13%)	333 (46%)
Crested wheatgrass	1,361 (100%)	0 (0%)	388 (54%)
Bluegrass	0 (0%)	277 (87%)	0 (0%)

Noxious Weeds

The State of Idaho has listed 65 plant species as noxious weeds. One noxious weed (diffuse knapweed (*Centaurea diffusa*)) is known to occur within the Turner Cedar Butte Allotment (Map 3). There is one known diffuse knapweed occurrence that is mapped within the allotment; located in the House Creek Pasture. The occurrence was chemically treated in 2008. 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 included in this analysis.

Many of the known noxious weed infestations are found and treated through the Twin Falls District (TFD) Emergency Stabilization and Rehabilitation (ESR) program. Approved ESR plans allow three year funding for weed control and play a vital part in the reestablishment of naturally recovering vegetation, as well as in the successful establishment of newly seeded areas. Weed personnel grid the burned areas and treat noxious weed occurrences in order to allow for reduced competition during reestablishment of desired vegetation. Crews also treat road corridors throughout the field office which helps prevent the spread of weeds from vehicles that may be

transporting weed seeds to new areas. Control methods used within the TFD for the treatment of noxious weeds include biological, mechanical, and chemical.

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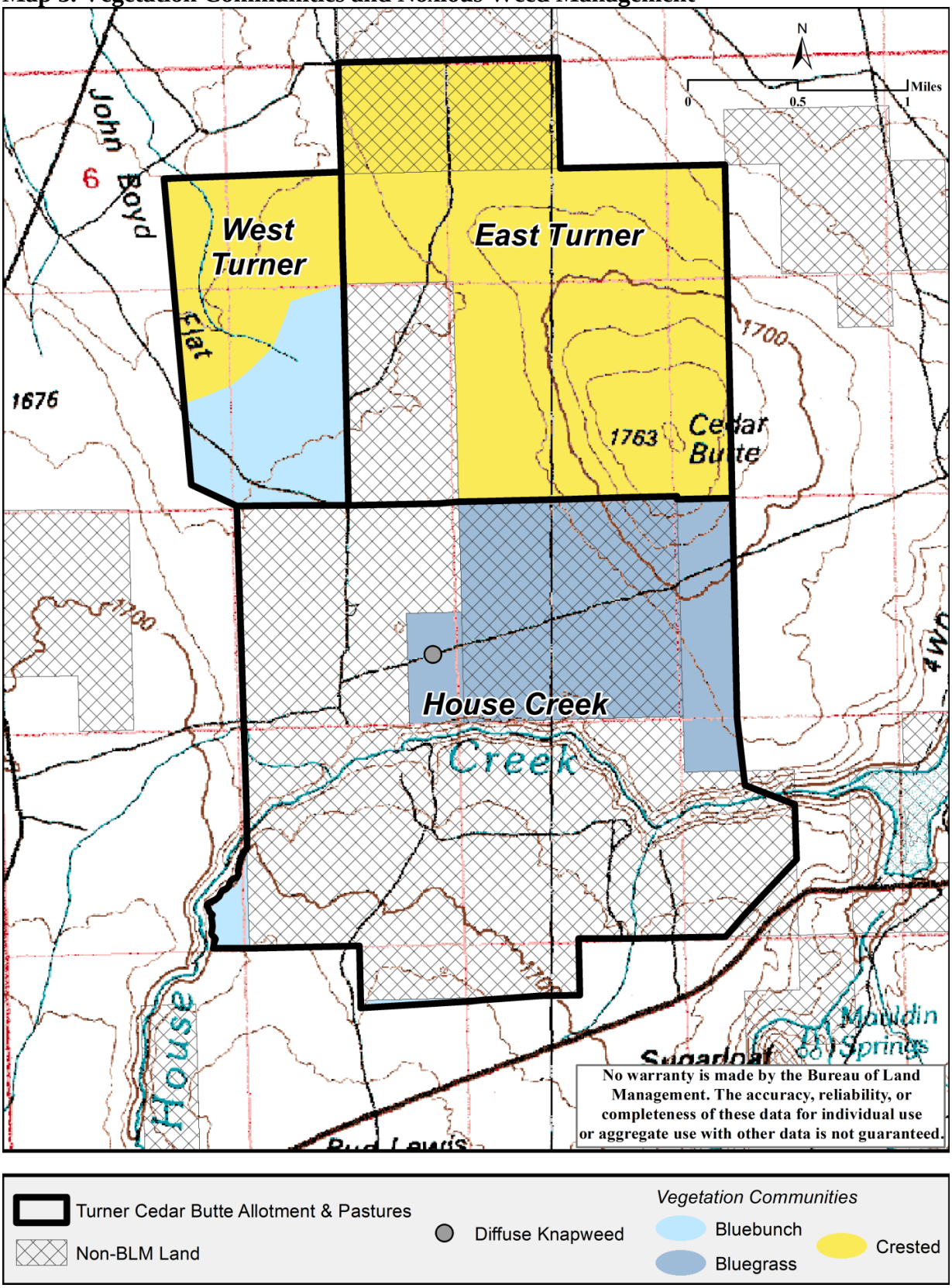
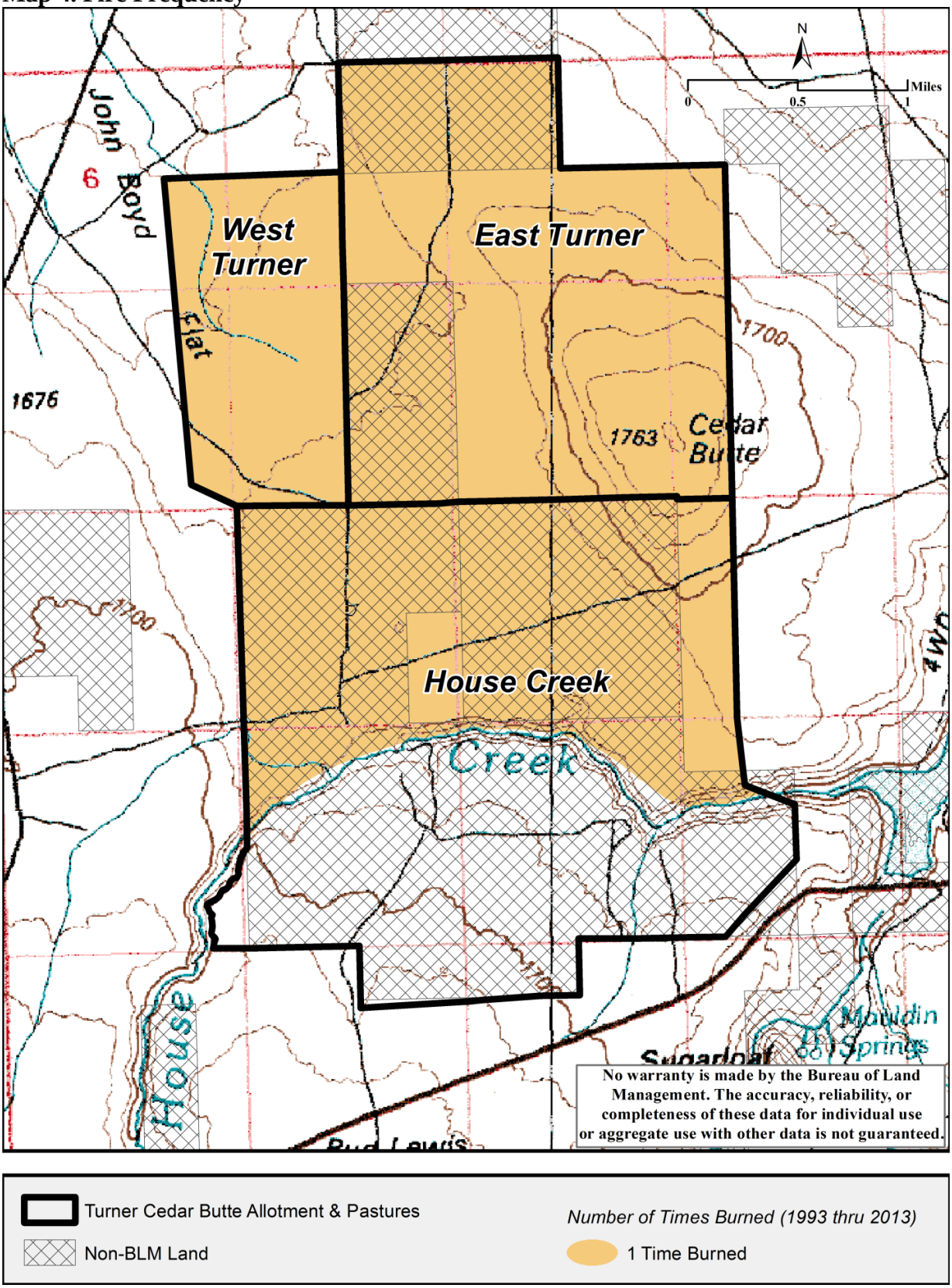
Map 3. Vegetation Communities and Noxious Weed Management



Map 4. Fire Frequency



IDAHO RANGELAND HEALTH STANDARDS ASSESSMENT

Eight standards for healthy rangelands have been developed for Idaho BLM lands. However, not all of the standards apply to the public lands within the Turner Cedar Butte Allotment due to variances in the land type, vegetation, and geographical area. The following standards are applicable to the Turner Cedar Butte Allotment:

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

- **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 the Turner Cedar Butte Allotment**

Table 8: Standards Applicable to the Turner Cedar Butte Allotment by Pasture.

Standard	Pastures
1	All Pastures (East Turner, House Creek, West Turner)
2	Not applicable
3	Not applicable
4	Not applicable
5	All Pastures (East Turner, House Creek, West Turner)
6	Not applicable
7	Not applicable
8	All Pastures (East Turner, House Creek, West Turner)

An interdisciplinary (ID) team conducted Interpreting Indicators of Rangeland Health (IIRH) field evaluations at one sage-grouse Habitat Assessment Framework (HAF) (Stiver et. al 2010) site representative of the plant communities within the Turner Cedar Butte Allotment during July of 2013 (Map 7).

HAF sites were randomly generated through a GIS process (Appendix A). Key utilization sites were selected in representative areas based on the presence of key forage species, distance from livestock water, and accessibility of the area to livestock grazing. When the ID Team conducted IIRH field evaluations, the HAF sites were visited first. If the HAF site(s) was not representative of the vegetation community, an Ecological Site Inventory (ESI) site was then selected if available within that vegetation community. If no ESI site was available, a key utilization site was used. When the ID Team determined that none of the pre-determined sites were representative of the vegetation community, a new location was selected that was representative

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of the vegetation community. The IIRH evaluation was conducted at a sage-grouse HAF site in the West Pasture.

Indicators of rangeland health (Table 9) were used to evaluate three rangeland health attributes (Table 10): Soil and Site Stability, Hydrologic Function, and Biotic Integrity (Pellant et al., 2005). The IIRH evaluation sheet was completed at the 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 two HAF sites (IIRH site is HAF site in West Turner Pasture) in the allotment following the line point intercept method as described in the Sage-grouse HAF (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.

In addition to evaluating rangeland health indicators at the IIRH site, the ID Team also examined other areas to ensure the evaluation site was representative of the vegetation communities throughout each pasture. Data collected at the evaluation site was compared to the Natural Resource Conservation Service's (NRCS) Ecological Site Description (ESD) reference sheet for the soil types and potential vegetation communities in the Turner Cedar Butte Allotment. The IIRH site occurred in the Loamy 10-13" Wyoming Big Sagebrush/Bluebunch wheatgrass ecological site. The ESD reference sheet describes the expected condition of the ecological site in state 1, phase A of the reference state.

The Loamy 10-13" Wyoming big sagebrush/bluebunch wheatgrass (R025XY019ID) plant community should have Wyoming big sagebrush in the overstory with bluebunch wheatgrass dominating the understory. Thurber's needlegrass should be the subdominant grass. Other significant species included in the ESD are Sandberg bluegrass, squirreltail, and arrowleaf balsamroot. There can be a variety of other grasses, forbs, and shrubs in minor amounts. The natural fire frequency should be 50-70 years.

Indicator ratings at the IIRH site is shown in Table 9. Rangeland health attributes ratings are shown in Table 10.

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Table 9: Summary of 17 Rangeland Health Indicators

Indicators	Attributes	Degree of Departure from Ecological Site Description and/or Ecological Reference Area(s)				
	S = Soil & Site Stability H=Hydrologic Function B = Biotic Integrity	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
1. Rills	S, H					X
2. Water-flow Patterns	S, H					X
3. Pedestals and/or terracettes	S, H					X
4. Bare ground	S, H					X
5. Gullies	S, H					X
6. Wind-scoured, blowouts, and/or deposition areas	S					X
7. Litter movement	S					X
8. Soil surface resistance to erosion	S, H, B					X
9. Soil surface loss or degradation	S, H, B					X
10. Plant community composition and distribution relative to infiltration	H				X	
11. Compaction layer	S, H, B					X
12. Functional/structural groups	B				X	
13. Plant mortality/decadence	B					X
14. Litter amount	H, B		X			
15. Annual production	B					X
16. Invasive plants	B					X
17. Reproductive capability of perennial plants	B					X

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 9 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 10.

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Table 10: 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					X
Hydrologic Function					X
Biotic Integrity				X	

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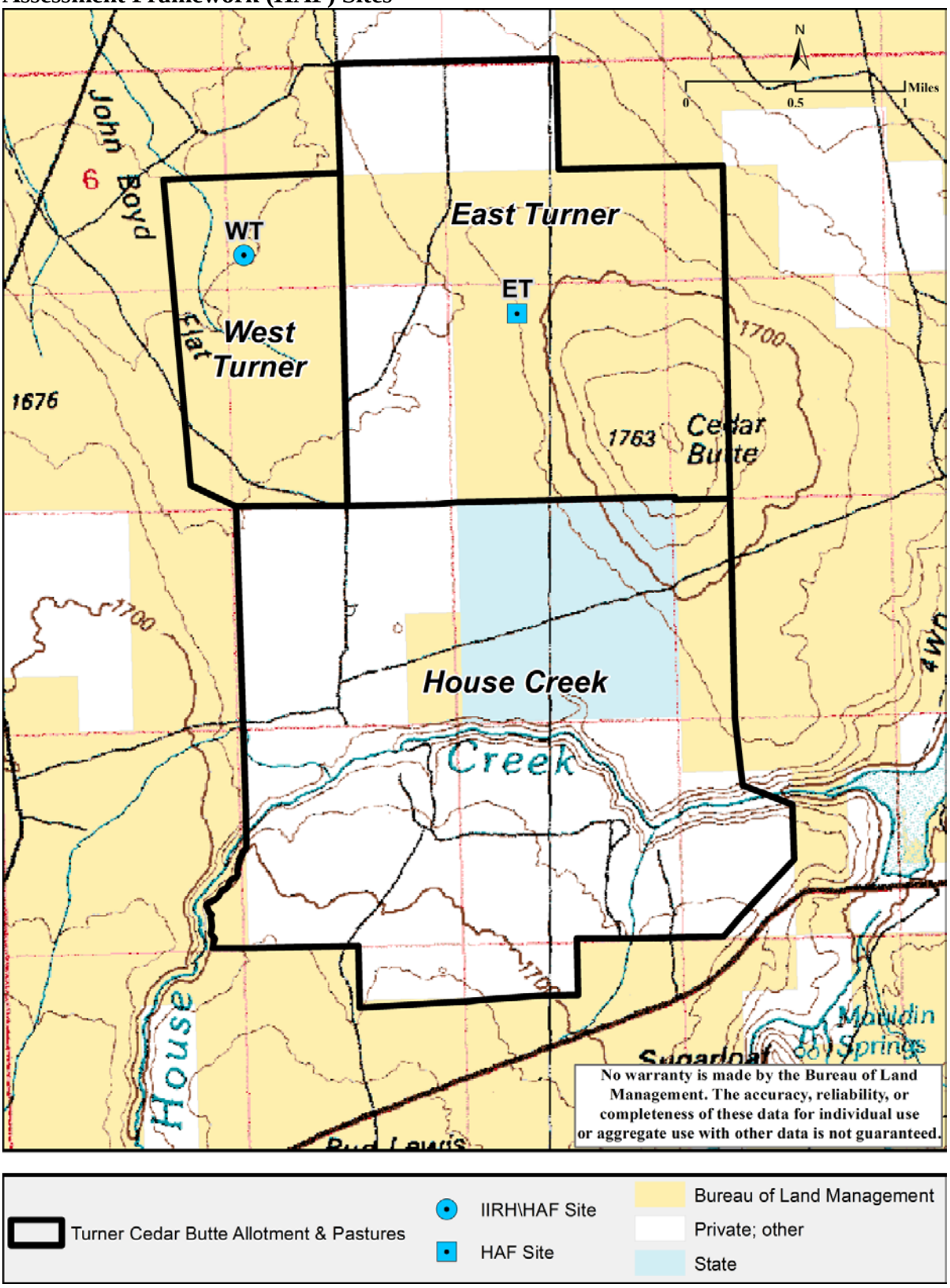
Map 5. Interpreting Indicators of Rangeland Health (IIRH) and Sage-grouse Habitat Assessment Framework (HAF) Sites



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

The IIRH site was evaluated using the ESD (R025XY019ID) reference sheet for the Loamy 10-13" Wyoming big sagebrush/bluebunch wheatgrass ecological site (USDA and NRCS, 2013a). The reference sheet for the ESD indicates bare ground should range from 30 to 40 percent cover (top layer), litter should range from 5 to 10 percent (cover for all layers), and the soil stability test value should range from 4 to 6. 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 percent, HAF data collected within the allotment show that litter values actually range from 65 to 70 percent cover for 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 in the 2012 and 2013 HAF data (Tables 11 and 12) ranges from 14 to 17% cover (top layer). In addition, a soil stability test (Pellant et al., 2005) was completed at the IIRH site and resulted in an average soil stability value of 4.4, indicating adequate soil surface resistance to erosion.

Multiple soil series exist in the Turner Cedar Butte Allotment. Soils are typically silt loams. The majority of the allotment is relatively flat. The Soil Survey Geographic (SSURGO) Database (NRCS, 2012) shows that 90% of the allotment has a moderate wind erosion hazard. The database also shows 85% of the allotment has a high water erosion hazard and 15% has a medium water erosion hazard. The remainder of the soils found in the allotment either have a non-erosional factor or there is no information available.

Although the soil survey shows potential for both wind and water erosion in this area, no indications of active erosion or soil loss were noted during the 2013 IIRH field visit. Adequate soil cover is present within the allotment to reduce potential erosion. Abundant perennial vegetation is present to provide protection for site stability throughout the majority of the allotment (Table 11 and 12).

Table 11: Percent ground cover (top layer) at IIRH site

Ground Cover	IIRH Site WT
	West Turner Pasture
Perennial Grasses	38.5%
Annual Grasses	0.0%
Perennial Forbs	1.0%
Annual Forbs	1.0%
Shrubs	0.0%
Biological Soil Crust	0.0%
Bare Ground	13.5%
Litter	45.5%

Ground Cover	IIRH Site WT
	West Turner Pasture
Rock	0.5%

West Turner Pasture

IIRH Site WT (Loamy 10-13)

Site WT is located in a seeded vegetation community where crested wheatgrass is the dominant grass species (34% cover). The ID Team determined that this site is representative of all three pastures within the allotment (East Turner, West Turner, and House Creek). The site is of relatively flat topography and was burned in the 2007 Murphy Complex Fire. A soil stability test (Pellant et al., 2005) was completed at the site during IIRH and the soil stability value averaged 4.4, indicating adequate soil surface resistance to erosion.

The indicator for plant community composition and distribution relative to infiltration was rated slight to moderate departure from the reference condition due to the low abundance of shrubs at the site. Field notes indicate that yellow rabbitbrush is present at the site in low abundance.

The indicator for litter amount was rated a moderate to extreme departure from the reference condition due to an increased amount of litter (69.5% cover for all layers) found at the site.

Some pedestals were present but appeared to be inactive. Pedestalling may have occurred immediately following the 2007 Murphy Complex Fire. Soils likely stabilized as perennial vegetation recovered from the burn. Soil movement after a wildfire is not unexpected considering the high water and moderate wind erosion hazards identified for the allotment.

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.

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Photo 1: Soil Profile (West Turner Pasture)

Evaluation of Standard 1

Some evidence of soil loss was observed at the site within the West Turner Pasture. Field notes indicate that some soil loss may have occurred following the 2007 Murphy Complex, as evidenced through some slight historic pedestalling. It was also noted that the pedestalling was minor and did not appear to be active; therefore, the indicator for pedestals and/or terracettes was rated none to slight.

The site was rated slight to moderate departure for plant community composition and distribution relative to infiltration and runoff due to the low abundance of shrubs at the site.

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.

The Soil and Site Stability and Hydrologic Function attributes were rated none to slight departure from the reference condition.

Evaluation Finding – Allotment/watershed is:

_X_ Meeting the Standard
___ Not meeting the Standard, but making significant progress towards meeting
___ Not meeting the Standard

Rationale for Evaluation Finding
Abundant perennial vegetation is present within the Turner Cedar Butte Allotment to provide protection for site stability. Additionally, bare ground is lower than expected throughout the allotment.

Observations made by the ID Team during 2013 IIRH efforts, as well as cover data (Tables 11, 12) collected within the Turner Cedar Butte Allotment indicate that ground cover (vegetation, litter, etc.) is sufficient for soil stability. Adequate vegetation and litter are present to protect the soil surface from erosion. While some evidence of past soil loss, in the form of slight pedestal formation, was observed, pedestals were noted to be minor and inactive. It was also noted that the minor soil loss likely occurred after the site burned in 2007. Additionally, no signs of soil loss, or active pedestal formation, were noted in any other areas of the allotment. Moreover, other signs of accelerated erosion, such as active rills, water flow patterns, gullies, or other indications of soil erosion were 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.

Due to recent wildfire (2007), shrubs are of lower abundance within the plant communities of the allotment. Wildfire has essentially eliminated shrubs in these areas, although some remnant mature plants remain at low abundance. Shrubs trap snow and have a taproot that penetrates deep into the soil profile; therefore, the lack of shrubs has the potential to affect infiltration and retention of soil moisture. However, some shrub species, as well as abundant deep-rooted perennial bunchgrasses, are present to carry soil moisture deep into the soil profile. Furthermore, although wildfire has effectively removed the above-ground biomass of the shrubs, it is likely that some root structure is still present to assist infiltration deep into the soil profile. In addition, perennial grasses appeared vigorous and were producing seedheads, suggesting that the reduction of shrub cover is not negatively affecting infiltration to the point of reducing plant vigor or reproductive capability.

The litter amount indicator ratings deviated from the reference condition found in the ESD at the site. However, litter is providing cover for site protection, replenishing nutrients, and does not appear to be negatively affecting ecological processes. The higher amounts of litter can be attributed to seeded perennial grasses, and appeared to be decaying and incorporating into the soil, indicating appropriate nutrient cycling.

Therefore, all pastures within the Turner Cedar Butte Allotment are meeting Standard 1.

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

__X__Standard Doesn't Apply

House Creek runs through the House Creek Pasture of the allotment, but is entirely on private land. No intermittent streams, perennial streams, riparian vegetation, springs or wetlands are present on lands administered by the BLM in the Turner Cedar Butte Allotment. Riparian Proper Functioning Condition (PFC) assessments have not been conducted within the allotment as no riparian vegetation is present on BLM administered lands. Therefore, Standard 2 does not apply to the Turner Cedar Butte Allotment.

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.

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 includes native plant species, most of the vegetation communities in the Turner Cedar Butte Allotment have been affected by seedings and are dominated by seeded native or non-native species. Therefore, the JFO ID Team determined that the allotment should be assessed as a seeded community rather than a native plant community.

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

Standard 5 applies to the entire Turner Cedar Butte Allotment; each pasture in the allotment has burned in wildfire and has been subsequently altered by seedings. Much of the Turner Cedar Butte Allotment has been seeded to crested wheatgrass which occupies approximately 73% of the allotment (Table 7, Map 3).

Vegetative cover data were recorded in 2012 and 2013 following the Line Point Intercept method, as described in the Sage-grouse HAF (Stiver et al., 2010) protocol. This cover data is summarized below in Table 12. Vegetative cover data was collected at multiple layers; however, Table 12 displays only the top layer.

Table 12: Percent Vegetative Cover

Vegetation Class	Species	% Cover	
		ET HAF Site (2013)	IRRH/HAF Site WT (2012)
		East Turner Pasture	West Turner Pasture
Perennial Grasses	Bluebunch Wheatgrass	5%	0.0%
	Crested Wheatgrass	29%	34.0%
	Intermediate Wheatgrass	1%	0.0%
	Sandberg's Bluegrass	19%	4.5%
Perennial Forbs	Longleaf Phlox	0%	0.5%
	Lupine	1%	0.5%
Annual Forbs	Bur Buttercup	1%	0.0%
	Small Eyed Mary	0%	0.5%
	Yellow Salsify	0%	0.5%
	Vegetation Total	**56%**	**40.5%**
Other Cover	Bare Ground	17%	13.5%
	Biotic Crust	1%	0.0%
	Litter in Contact with Soil	21%	25.0%
	Litter Standing	2%	20.5%
	Rock or Gravel	3%	0.5%
	Grand Total	**100%**	**100%**

West Turner Pasture

IIRH Site WT *(Loamy 10-13)*

Site WT is located in a seeded vegetation community where crested wheatgrass is the dominant grass species (34% cover). The ID Team determined that this site is representative of the public land within all three pastures of the allotment. The site is of relatively flat topography and was burned in the 2007 Murphy Complex Fire. A soil stability test (Pellant et al., 2005) was completed and the soil stability value averaged 4.4, indicating adequate soil surface resistance to erosion. Neither cheatgrass nor noxious weeds were observed in the allotment during the evaluation.

The indicator for functional/structural groups was rated as a slight to moderate departure from the reference condition due to the low abundance of shrubs at the site. Field notes indicate that yellow rabbitbrush is present at the site in low abundance. Although only a few forbs were measured along the cover transect, several species were noted to occur at the site. Plant species not recorded along the cover transects but observed at the evaluation site are listed in Appendix A.

The indicator for litter amount was rated a moderate to extreme departure from the reference condition due to an increased amount of litter (69.5% cover for all layers) found at the site.

All other indicators related to the Biotic Integrity attribute were rated none to slight departure from the reference condition. Therefore, the Biotic Integrity attribute was rated as a slight to moderate departure.

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Photo 2: IRRH Evaluation Site WT (West Turner Pasture)

Evaluation of Standard 5

The attribute for biotic integrity was rated a slight to moderate departure from the ESD reference sheet. The departure was based mostly on the absence of shrubs in the plant community. In 2007, the Murphy Complex Fire burned most of the allotment. Therefore, the absence of shrubs is expected and within the variability of the Loamy 10 to 13" site as described in the ESD state and transition model. Vigorous, robust perennial grasses contribute significantly to nutrient cycling by extracting nutrients from the soil and releasing them back into the soil through microbial activity after a plant or a plant part dies. They also capture snow during the winter providing moisture to the site. The allotment's seeded plant communities are creating litter, minimizing erosion, and protecting the soil. They also provide habitat to those native animals that use grasslands for all or part of their life cycle.

The litter amount indicator was rated moderate to extreme departure at the site. While the litter amount indicator rating deviated from reference condition, the increased litter amount did not appear to be negatively affecting ecological processes.

Evaluation Finding – Allotment/watershed is:

_X_ 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 is as expected for a seeded area. Perennial species are productive and capable of reproduction and recruitment of new seedlings. Total ground cover of perennial forbs was 1% across both cover transects. While perennial forbs average a low percentage of the total cover along each transect, this is expected within seeded plant communities. In addition, field notes indicate that the diversity and amount of perennial forbs varies across the seeded plant communities.

More litter is present in the seeded plant communities than expected; however, it is providing cover for site protection and replenishment of nutrients and does not appear to be negatively affecting ecological processes. The higher amounts of litter can be attributed to seeded perennial grasses, and appeared to be decaying and incorporating into the soil, indicating appropriate nutrient cycling.

No noxious weeds or cheatgrass were noted in the seeded areas during field evaluations. Hence, noxious weeds or other invasive species are not increasing and the abundance of perennial vegetation is sufficient to hinder the establishment or spread of noxious and invasive species.

The current plant community lacks vertical structure due to the 2007 Murphy Complex Fire burning through it and removing any shrubs present prior to the fire. Use by native wildlife dependent on sagebrush for their habitat (i.e. sage thrasher (*Oreoscoptes montanus*), sagebrush vole (*Lemmiscus curtatus*), sagebrush lizard (*Sceloporus graciosus*), least chipmunk (*Neotamius minimus*), and Vesper sparrow (*Pooecetes gramineus*) is limited at this time. As shrubs re-establish and mature these animals should return to the area. In the meantime, the crested wheatgrass plant community provides habitat for grassland [Savannah sparrow (*Passerculus sandwichensis*), grasshopper sparrow (*Ammodramus savannarum*), and montane vole (*Microtus montanus*)] and generalist wildlife species [horned lark (*Eremophila alpestris*), Western meadowlark (*Sternella neglecta*), deer mouse (*Peromyscus maniculatus*), and coyote (*Canis latrans*)]. It also can provide seasonal forage for mule deer (*Odocoileus hemionus*), pronghorn (*Antilocapra americana*), and elk (*Cervus elaphus*).

The seeded vegetation communities in the Turner Cedar Butte Allotment are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow, and the hydrologic cycle. Therefore, all pastures within the Turner Cedar Butte Allotment are meeting Standard 5.

<u>Standard 6 (Exotic Plant Communities, Other than Seedings)</u>
Exotic plant communities, other than seedings, will meet minimum requirements of soil stability and maintenance of existing native and seeded plants. These communities will be rehabilitated to perennial communities when feasible cost effective methods are developed.

_X_Standard Doesn't Apply

The plant communities within the Turner Cedar Butte Allotment are dominated by 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

No intermittent streams, perennial streams, riparian vegetation, springs or wetlands are present on lands administered by the BLM within the Turner Cedar Butte Allotment. 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.

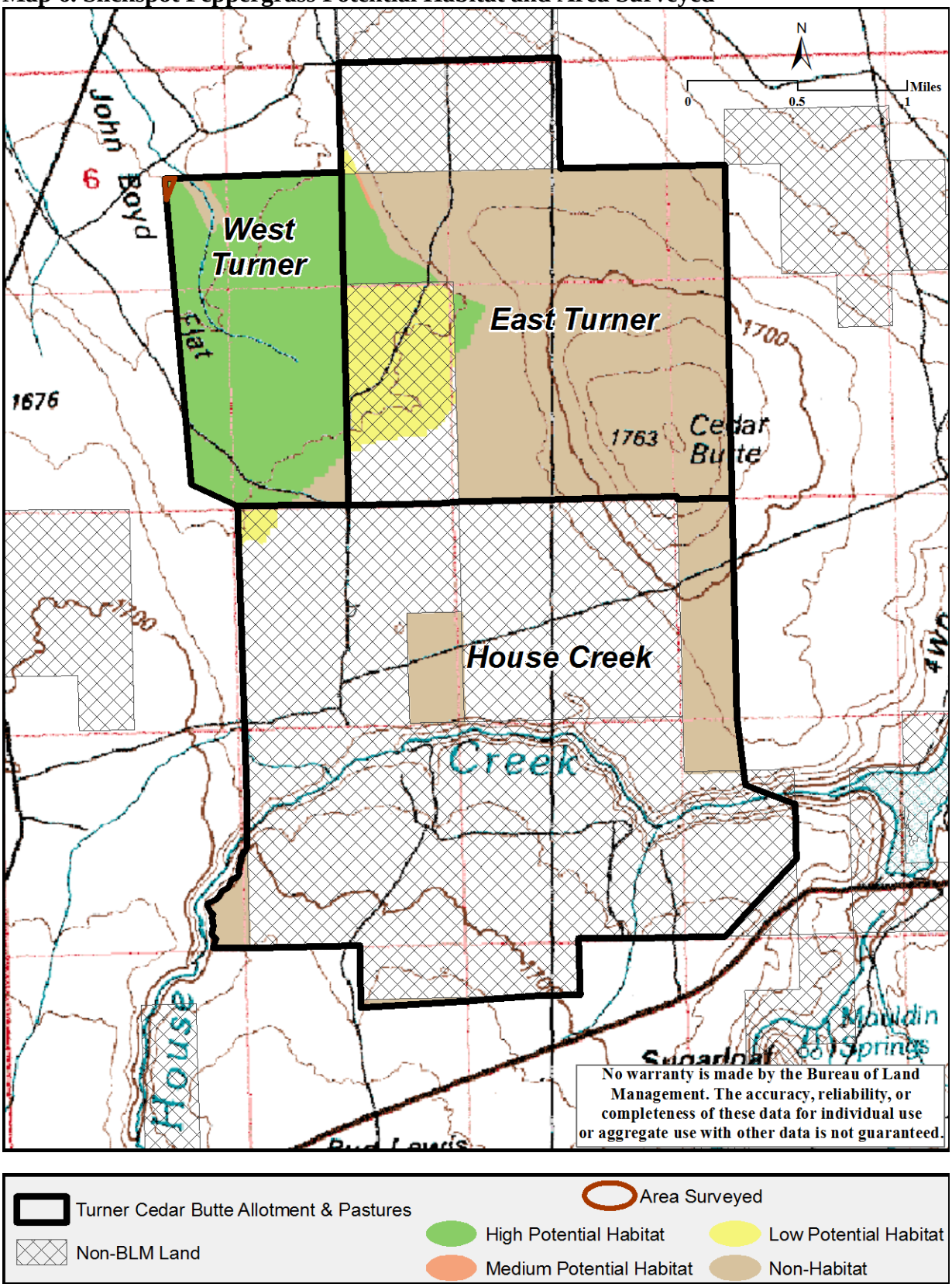
Rangeland Health Assessment
Plants:
There are no known BLM sensitive plants within the allotment. In the JFO special status plants are generally associated with distinct soil types that occur on scattered portions of the field office. None of these soil types occur within the allotment based on SSURGO soil data (NRCS, 2012). Potential habitat occurs for one sensitive plant species, slickspot peppergrass (*Lepidium papilliferum*; Proposed Endangered, BLM sensitive species). Approximately 2 acres have been surveyed for slickspot peppergrass; no slickspot peppergrass plants were identified during the survey. Systematic inventories for other special status plants have not been conducted in the allotment. No special status plant species have been recorded during other monitoring efforts (e.g., IIRH field visits, sage-grouse habitat assessments, fire rehabilitation monitoring, etc.).

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 Turner Cedar Butte Allotment contains 759 acres (32% of allotment) of potential slickspot peppergrass habitat (Map 6). 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 756 acres of high potential, 2 acres of medium potential, 1 acre of low potential, and 1,643 acres of non-habitat for slickspot peppergrass (Table 13). The nearest known occupied habitat for slickspot peppergrass is 12 miles to the west, on the west side of Clover Creek.

Table 13: Slickspot Peppergrass Potential Habitat (Acres).

Pasture	High	Medium	Low	Non-habitat
East Turner	77	1	0	1,282
House Creek	0	0	0	320
West Turner	678	1	1	41

Map 6. Slickspot Peppergrass Potential Habitat and Area Surveyed



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 found in the Turner Cedar Butte Allotment are discussed below.

There are no BLM sensitive or federally listed fish or aquatic invertebrates or their habitat within the allotment. Approximately 2.8 miles of House Creek occurs on private land in the House Creek Pasture.

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 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 1981 Pigtail Butte Fire, the 1984 John Boyd Fire, the 1985 House Creek Fire, and the 2007 Murphy Complex Fire eliminated all sagebrush in the allotment. Following the fires, sagebrush was not reseeded in the allotment. No sagebrush was observed during the IIRH field visits or during the sage-grouse habitat assessments.

Wildfires have also eliminated sagebrush in adjacent allotments to the north, east, and west. Despite this, large areas of sagebrush still occur in allotments to the south, on the south side of the Three Creek Highway (Map 7).

The Turner Cedar Butte Allotment does not contain any sage-grouse leks. Within five miles there are 10 occupied, 12 undetermined (due to a lack of recent surveys), and 1 unoccupied sage-grouse leks (Map 7). Lek 2T-210 was first identified in 2014. Sage-grouse lek attendance at occupied leks within five miles of the alloment 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 Turner Cedar Butte Allotment, 2000-2014.

Lek	Location	Survey Year[1]														
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
2T-157	0.6 mile W	18	16	8	--	15	13	14	10*	9	7	5	5	8	--	2
2T-133	1.1 mile S	10	5	4	3	13	0	14	13	8	7	6	10	10	4	0
2T-133a	1.6 mile S	--	--	--	--	--	--	--	--	--	--	--	--	18	16	28
2O-098	2.7 miles SW	11	0	2	2	0	4	2	0*	2	8	6	13	15		
2T-155	2.7 miles SW	6	0	1	--	--	--	--	--*	0	0	--	2	0	--	0
2T-210	3.2 miles N															18
2T-202	3.3 miles SE	--	--	--	--	--	--	--	3	--	--	7	4	--	--	4
2T-148	3.5 miles SE	--	--	--	--	--	--	--	--	--	5	0	0	0	--	2
2T-150	4.2 miles E	13	13	10	3	0	3	8	3	4	5	6	4	15	7	6
2T-168	4.3 miles NE	16	--	--	--	--	--	--	--	--	--	--	--	--	--	4

[1]Where the table is blank the lek had not yet been identified; in years marked by dashes (--) the lek was not surveyed. An asterisk indicates area around lek burned in a wildfire that year (*).

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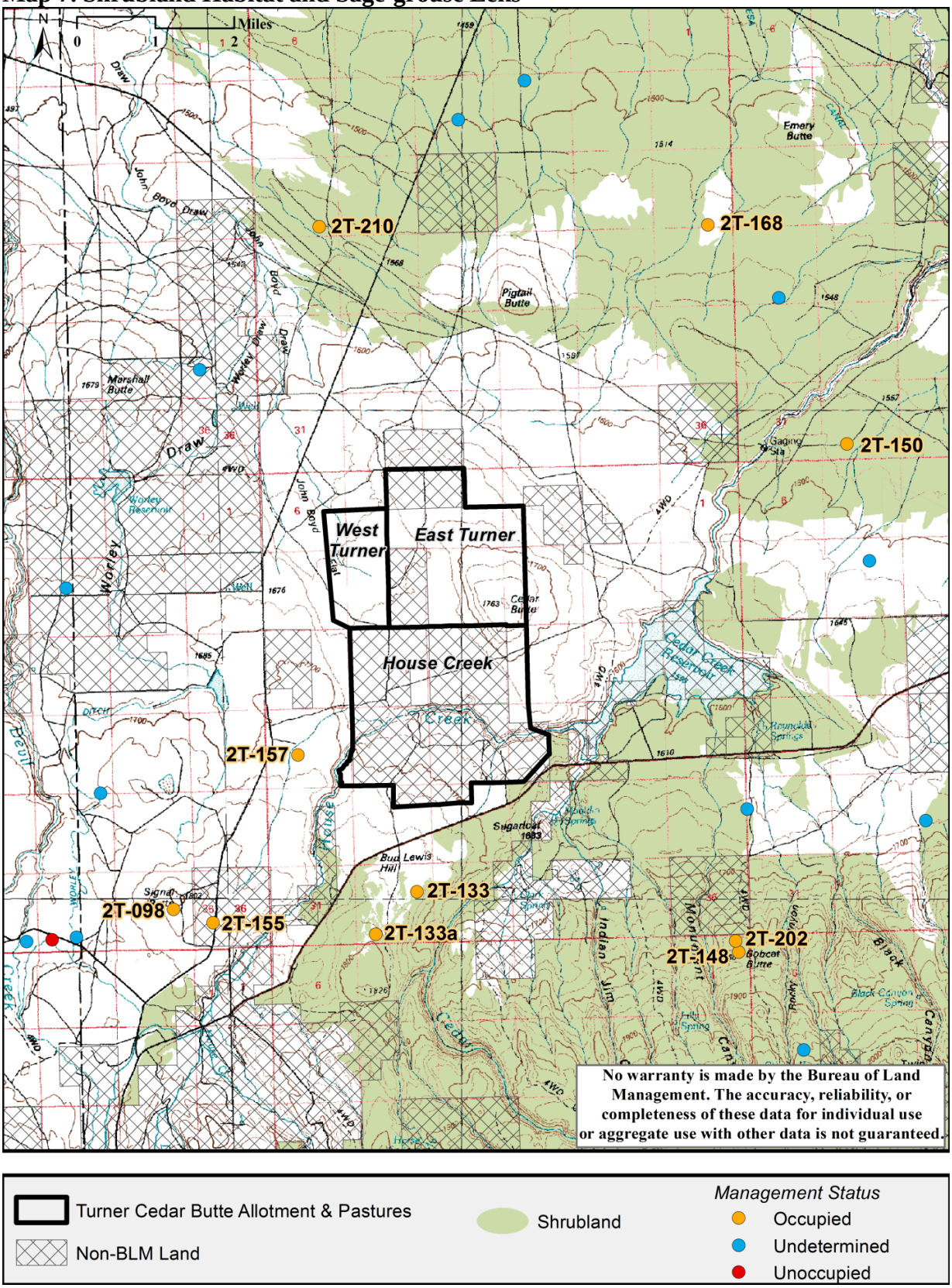
Map 7. Shrubland Habitat and Sage-grouse Leks



Turner Cedar Butte Allotment & Pastures

Non-BLM Land

Shrubland

Management Status

Occupied

Undetermined

Unoccupied

Nesting and Early Brood Rearing Habitat
The current conditions of sage-grouse seasonal habitats were assessed following protocols outlined in the Sage-grouse HAF (Stiver et al., 2010). Sage-grouse habitat suitability assessments were conducted in 2012 at HAF site **WT** in the West Turner Pasture and in 2013 at HAF site **ET** in the East Turner Pasture. Locations of sage-grouse habitat suitability assessments (HAF sites) are shown in Map 5.

No sage-grouse droppings were observed during the assessments or during the IIRH field visits. 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	**15 – 25%**	**10 - < 15% or > 25%**	**< 10%**
			ET(0%), WT(0%)
Average Sagebrush Height	**12 - 30”**	**10 -11” or >30”**	**< 10”**
			ET(0%), WT(0%)
Sagebrush Growth Form	**Spreading**	**Mix of spreading and columnar**	**Columnar**
			ET, WT
Average Grass Height	**≥ 7”**	**5 - < 7”**	**< 5”**
	ET(7”)	WT(6.7”)	
Average Perennial Grass Canopy Cover	**≥ 10%**	**5 - < 10%**	**< 5%**
	ET(61%), WT(40%)		
Average Forb Canopy Cover	**≥ 5%**	**3 - < 5%**	**< 3%**
			ET(2%), WT(2%)
Preferred Forb Abundance and Diversity	**Forbs common with at least a few preferred species common**	**Forbs common, but only 1 or 2 preferred species present**	**Forbs rare to sparsely present**
	ET		WT
Overall Site Evaluation			**ET, WT**
Pasture Evaluation			**East Turner, House Creek, West Turner**

The East Turner Pasture contains one HAF site. Wildfires have eliminated all sagebrush in the pasture making it unsuitable for sage-grouse (Photo 3). HAF site ET is located in an area mapped as a crested wheatgrass vegetation community. No shrubs were encountered along the transects. Photos of the site show that yellow rabbitbrush plants are generally small and only occur at trace levels. Grass and forb indicators were all rated suitable at the site except for average forb canopy which was rated unsuitable. Twelve species of forbs were observed and they occurred at low density (0.94 forbs per 0.1 m^2 plot). The most common forbs were sagebrush phlox (*Phlox aculeata*), onion (*Allium* spp.), pale agoseris (*Agoseris glauca*), and

freckled milkvetch (*Astragalus lentiginosus*). Cheatgrass was not recorded along the transects at the site. Without a sagebrush seed source, recovery is not expected to occur.

Photo 3: HAF Site ET (East Turner Pasture)

The West Turner Pasture contains one HAF site. Wildfires have eliminated all sagebrush in the pasture making it unsuitable for sage-grouse (Photo 4). HAF site WT is located in an area mapped as a crested wheatgrass vegetation community. No shrubs were encountered along the transects. Photos of the site show that yellow rabbitbrush plants only occur at trace levels. Grass canopy cover was rated suitable at the site. Grass height was rated marginal and forb cover and preferred forb abundance and diversity were both rated unsuitable. Only 7 forbs were observed and they occurred at low density (0.61 forbs per 0.1 m^2 plot). The only common forb was longleaf phlox (*Phlox longifolia*). Cheatgrass was not recorded along the transects at the site. Similar to the East Turner Pasture, sagebrush in the West Turner Pasture is not expected to recover without a suitable seed source.

No HAF sites occur in the House Creek Pasture. The entire pasture has also burned and is unsuitable for sage-grouse.

A list of plants species observed at each site, including preferred sage-grouse forbs is included in Appendix B.

Photo 4: HAF Site WT (West Turner Pasture)

Late Brood Rearing Habitat
No late brood rearing habitat is present in the allotment. The allotment does not contain areas where moisture collects to maintain forbs throughout the summer. House Creek occurs along the bottom of a steep canyon on private land in the allotment. Riparian areas associated with steep drainages or canyons are not used by sage-grouse (Stiver et al., 2010).

Winter Habitat
The allotment is unsuitable for wintering sage-grouse since sagebrush has been eliminated by wildfire. Cover of grasses and forbs for wintering habitats generally is irrelevant, because of the complete reliance of sage-grouse upon sagebrush during this period (Homer et al., 1993).

Ferruginous Hawk (*Buteo regalis*; BLM sensitive species)
Ferruginous hawks typically inhabit flat and rolling terrain in grasslands and shrub-steppe regions (Bechard and Schmutz, 1995). They primarily nest in trees or less 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. One clutch of 2-4 eggs is laid in spring and parents care for the young until several weeks after fledging (Bechard and Schmutz, 1995).

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 are not known to nest in the allotment. The nearest active nest is 0.9 mile to the west in the Signal Butte Allotment. Pastures in the Turner Cedar Butte Allotment do not contain suitable nesting trees for ferruginous hawks. The allotment is predominately a perennial grassland that provides marginal 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 sparrow place nests primarily in shrubs, but also occasionally nest on the ground. The nest shrub is typically taller and denser than other shrubs in the surrounding habitat (Rotenberry et al., 1999). Brewer's sparrows primarily nest in big sagebrush (81%), but also nest in other shrubs, such as spiny hopsage (*Grayia spinosa*) (10%), antelope bitterbrush (*Purshia tridentata*) (6%), and rabbitbrush (*Chrysothamnus visicidflorus*) (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, and averaged 9 inches from the top of the shrub and 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).

Wildfire has eliminated the sagebrush in the allotment making it unsuitable for Brewer's Sparrow nesting. The East Turner, House Creek, and West Turner Pastures all contain patches of yellow rabbitbrush which occur at low densities. These patches are uncommon and do not occur at densities suitable for 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 (*Sarcobatus vermiculatus*) 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.

Wildfire has eliminated sagebrush and junipers in the allotment making it unsuitable for Loggerhead shrike nesting. While some yellow rabbitbrush is present in the allotment it occurs in low density patches and is generally too short 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 sparrow nest in shrubs, in bunchgrasses, or occasionally nest on the ground at the base of a shrub (Martin and Carlson, 1998). The nest shrub is usually taller than the surrounding vegetation (Martin and Carlson, 1998). In Idaho sagebrush sparrows nest in big sagebrush, however, in Oregon they may also use antelope bitterbrush, rabbitbrush, greasewood, and bunchgrasses (Martin and Carlson, 1998). In general sagebrush 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).

Wildfire has eliminated sagebrush from the allotment making it unsuitable 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 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.

Without sagebrush, the allotment is unsuitable 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. Wildfires have converted shrub-steppe habitats in the allotment to perennial grass communities. Because shrub habitats provide more favorable environments for ground squirrels than grass habitats (Yensen et al., 1992; Van Horne et al., 1997), pastures in the allotment were rated marginal for Piute ground squirrels.

Spotted bat (*Euderma maculatum*; BLM sensitive species)
Spotted bats are typically found in arid portions of the western United States where it forages primarily on moths (Adams, 2003). It roosts in rock crevices in tall cliffs (Watkins, 1977). Little is known about the behavior and population size of spotted bats.

Tall cliffs that would provide suitable roosting habitat for spotted bats are not present on BLM land in the allotment. Some potential roosting habitat lies along the cliffs associated with House Creek which occurs on private land in the allotment. Other potential roosting habitat occurs along Cedar Creek and Devil Creek which are 2 and 4 miles away, respectively. Spotted bats may forage over the allotment and may drink and forage along House Creek.

Evaluation of Standard 8
There are no known BLM sensitive or federally listed plants within the Turner Cedar Butte Allotment. Approximately 2 acres have been surveyed for slickspot peppergrass. However, systematic inventories for other special status plants have not been conducted in the allotment. GIS modeling predicts that the allotment contains 756 acres of high potential, 2 acres of medium potential, and 2 acres of low potential habitat for slickspot peppergrass. The nearest known occupied habitat for slickspot peppergrass is 12 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. House Creek occurs on private land in the allotment.

Habitat for BLM sensitive wildlife species occurs within the allotment. Overall habitat ratings for each species by pasture are shown in Table 16.

Table 16: Overall Habitat Suitability for BLM Sensitive Wildlife Species by Pasture.

Species Name and Type of Habitat	East Turner	House Creek	West Turner
Sage-grouse (nesting & early brood rearing)	U	U	U
(late brood rearing)	U	U	U
(winter)	U	U	U
Ferruginous hawk (nesting)	U	U	U
(foraging)	M	M	M

Species Name and Type of Habitat	East Turner	House Creek	West Turner
Brewer's sparrow (nesting)	U	U	U
Sagebrush sparrow (nesting)	U	U	U
Loggerhead shrike (nesting)	U	U	U
Pygmy rabbit (year round)	U	U	U
Piute ground squirrel (year round)	M	M	M
Spotted bat (roosting) (foraging)	U S	U S	U 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 since wildfire has eliminated sagebrush in the allotment. Grass height was rated suitable in the East Turner Pasture and marginal in the West Turner Pasture. Forb abundance and diversity was suitable in the East Turner Pasture and unsuitable in the West Turner Pasture. No late brood rearing habitat is found within the allotment. Without sagebrush, wintering habitat was rated unsuitable.

Pastures in the allotment do not contain suitable nesting trees for ferruginous hawks. The allotment contains marginal habitat for prey species such as mountain cottontail, black-tailed jackrabbit and ground squirrels usually hunted by ferruginous hawk.

Without sagebrush the allotment was rated unsuitable for Brewer's sparrow, loggerhead shrike, and sagebrush sparrow nesting. Pygmy rabbit habitat was also rated as unsuitable.

Wildfires have converted shrub-steppe habitats in the allotment to perennial grass communities. Because shrub habitats provide more favorable environments for ground squirrels than grass habitats (Yensen et al., 1992; Van Horne et al., 1997), pastures in the allotment were rated marginal for Piute ground squirrels.

Spotted bat roosting habitat is not found in the allotment. Spotted bat may forage over the allotment and along House Creek.

Evaluation Finding – Allotment is:

__ Meeting the Standard
__ Not meeting the Standard, but making significant progress towards meeting
X Not meeting the Standard

Rationale for Evaluation Finding

The allotment contains unsuitable habitat for the majority of special status species, primarily because wildfires have converted shrub-steppe habitats in the allotment to perennial grass communities. Therefore, the Turner Cedar Butte Allotment is 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: shrub-lands, 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 shrub-lands 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.

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APPENDIX B: SPECIES LIST ACCUMULATED DURING UPLAND ASSESSMENTS

Scientific Name	Common Name	Species Type	Site(s) where species occurred
Perennial Grasses			
Agropyron cristatum	Crested wheatgrass	Exotic, Seeded	ET, HC, WT
Elymus elymoides	Bottlebrush squirreltail	Native	HC
Leymus cinereus	Basin wildrye	Native	HC, WT
Pascopyrum smithii	Western wheatgrass	Native	WT
Poa secunda	Sandberg bluegrass	Native	ET, HC, WT
Pseudoroegneria spicata	Bluebunch wheatgrass	Native, Seeded	ET, HC
Thinopyrum intermedium	Intermediate wheatgrass	Exotic, Seeded	ET
Perennial Forbs			
Allium spp.	Onion	Native	ET
Allium acuminatum	Tapertip onion	Native	HC, WT
Astragalus atratus	Mourning milkvetch	Native	ET, HC
Astragalus lentiginosus	Freckled milkvetch	Native	ET, WT
Balsamorhiza hookeri	Hooker's balsamroot	Native	ET
Crepis acuminata	Tapertip hawksbeard	Native, Sage-grouse Preferred	ET, HC
Lomatium spp.	Desertparsley	Native, Sage-grouse Preferred	HC, WT
Lomatium dissectum	Fernleaf biscuitroot	Native, Sage-grouse Preferred	ET
Lupinus spp.	Lupine	Native	ET, HC, WT
Onobrychis viciifolia	Sainfoin	Exotic, Sage-grouse Preferred	HC, WT
Phlox aculeata	Sagebrush phlox	Native, Sage-grouse Preferred	ET, HC, WT
Phlox longifolia	Longleaf phlox	Native, Sage-grouse Preferred	ET, HC, WT
Senecio integerrimus	Lambstongue ragwort	Native	ET
Taraxacum officinale	Common dandelion	Exotic, Sage-grouse Preferred	WT
Tragopogon dubius	Yellow salsify	Exotic, Sage-grouse Preferred	HC, WT
Zigadenus venenosus	Meadow deathcamas	Native	ET, HC, WT
Annual Forbs			
Agoseris glauca	Pale agoseris	Native, Sage-grouse Preferred	ET, HC, WT
Cerastium nutans	Nodding chickweed	Native	WT
Ceratocephala testiculata	Curveseed butterwort	Exotic	ET, HC
Collinsia parviflora	Maiden blue eyed Mary	Native	HC, WT
Descurainia pinnata	Western tansymustard	Native	HC
Epilobium brachycarpum	Tall annual willowherb	Native, Sage-grouse Preferred	HC, WT
Microsteris gracilis	Slender phlox	Native, Sage-grouse Preferred	ET, WT
Sisymbrium altissimum	Tall tumblemustard	Exotic	WT
Noxious Weeds			
Onopordum acanthium	Scotch thistle	Exotic, Invasive	HC
Shrubs			
Chrysothamnus viscidiflorus	Yellow rabbitbrush	Native	ET, HC, WT

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

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