Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management

For Public Lands Administered by the Bureau of Land Management in the State of Wyoming

Joe Henry Allotment #00011

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BLM

Worland Field Office, Wind River/Bighorn Basin District, Wyoming

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1.0 INTRODUCTION

The Bureau of Land Management (BLM) grazing regulations at 43 CFR 4130.3-1(c) require that grazing permits issued by the BLM contain terms and conditions that ensure conformance with BLM regulations at 43 CFR 4180, which are the regulations under which the Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Land Administered by the Bureau of Land Management in the State of Wyoming were developed. Recently, the Worland Field Office completed an assessment of the achievement of these standards on the Joe Henry Allotment. The results of this assessment are presented in this report. This assessment will serve to inform the BLM's determination as to whether these standards are being met, and, if they are not met, whether existing grazing management practices contribute to their lack of attainment.

1.1 Standards

The approved standards for rangeland health are as follows:

Standard #1: Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

Standard #2: Riparian and wetland vegetation has structural, age and species diversity characteristic of the state of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide ground water recharge.

Standard #3: Upland vegetation on ecological site consists of plant communities appropriate to the site which are resilient, diverse, and able to recover from natural and human disturbance.

Standard #4: Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.

Standard #5: Water quality meets State standards.

Standard #6: Air quality meets State standards

2.0 Affected Environment-Allotment Description, Resource Values, and Uses

2.1 Location and Land Ownership

The Joe Henry Allotment is located in T45N, R88W which is approximately 14 miles south of Ten Sleep, WY in Washakie County. The allotment consists of 7,083 acres as described on the grazing permit; 6,552 acres is public land according to the Washakie RMP. Elevations within the allotment range from 4,800 feet to 5,070 feet above sea level.

2.2 Hydrology

This allotment is located within two different USGS Hydrologic Units or (HUC) Level #6 watersheds (Table 1). The Nowood River-Mud Gulch watershed, HUC # 100800080301, contains drainages that flow in a northeastern direction and drains the northern portion of the allotment into the Nowood River. The southern portion of the allotment contains drainages that flow in an eastern direction to Buffalo Creek and downstream to the Nowood River.

Table 1–Watersheds

Watershed Name-Level #6 (HUC #)	Total (Mi^2)	(Mi^2)within allotment	(%) Mi^2 of watershed in the allotment
Nowood River- Mud Gulch 1008000802301	37.1	7.8	21.0
Nowood River-Buffalo Creek 100800080201	68.4	4.98	7.2

The main stem of Buffalo Creek is identified as a Rosgen F type channel with a moderate width to depth ratio and a gradient that ranges from 2-4 percent. The drainages that are located west of the Nowood River are generally having an intermittent or ephemeral flow pattern depending on watershed size and length of segment. There are no inventoried riparian or wetland areas in the allotment. Mud Gulch and Buffalo Creek are designated as class 3B streams by the Wyoming DEQ and are considered to support minimal aquatic life during times of flow during the year. When flowing, the unnamed drainages in the allotment are tributaries to Mud Gulch Draw and the North Fork of Buffalo Creek and secondary tributaries to the Nowood River. There is no actual flow or water quality data available for these drainages. These drainages are classified as 3B streams are defined by the Wyoming DEQ *as waters are tributary waters, including adjacent wetlands, that are not known to support fish populations or drinking water supplies and where those uses are not attainable. Class 3B waters are intermittent and ephemeral streams with sufficient hydrology to normally support and sustain communities of aquatic life, including invertebrates, amphibians, or other flora and fauna that inhabit waters of the State at some stage of their life cycles*. The drainages are therefore they are not listed on the Wyoming DEQ 303d for impaired water bodies within the State which means the above definition is being met for these streams. These drainages are not a DEQ Water Quality Limited Segments (WQLS). Potential management impacts to water quality from rangelands as outlined in (Binkley, 1993) such as: excessive livestock waste production, resource extraction, stream channel modification, bank erosion from floods, erosion following wildfires, or erosion from overgrazing in uplands. There is no BLM, USGS, or other state agency water quality data for these segments.

2.3 Air Quality/Climate

An air quality monitoring station was recently established in the Bighorn Basin, but no monitoring data is available at this time. Annual precipitation ranges from 10-14 inches per year. The nearest BLM rain gauge is Spring Creek which is approximately 4 miles northeast of the allotment. The average annual precipitation from 1984 to 2009 was 13.35 inches and the average annual growing season precipitation for the same time period was 6.11 inches.

The normal precipitation pattern shows the least amount of precipitation in December, January, and February, increasing to a peak during the latter part of May. Amounts decrease through June, July, and August and then increase some in September. Much of the moisture that falls in the latter part of the summer is lost by evaporation and much of the moisture that falls during the winter is lost by sublimation.

Average snowfall exceeds 20 inches annually. Wide fluctuations may occur in yearly precipitation and result in more dry years than those with more than normal precipitation.

Temperatures show a wide range between summer and winter and between daily maximums and minimums, due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks from Canada in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Chinook winds may occur in winter and bring rapid rises in temperature. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring.

Winds are generally not strong as compared to the rest of the state. Daytime winds are generally stronger than nighttime and occasional strong storms may bring brief periods of high winds with gusts to more than 75 mph.

Growth of native cool-season plants begins about April 15 and continues to about July 15. Cool weather and moisture in September may produce some green up of cool season plants that will continue to late October.

The following information is from the "Thermopolis 2" climate station:

	Minimum	**Maximum**	**5 yrs. out of 10 between**
Frost-free period (days):	74	149	May 23 – September 16
Freeze-free period (days):	112	180	May 8 – October 1
Mean Annual Precipitation (inches):	7.6	21.9	

Mean annual precipitation: 12.35 inches
Mean annual air temperature: 46.2°F (30.1°F Avg. Min. to 62.3°F Avg. Max.)

For detailed information visit the Natural Resources Conservation Service (NRCS) National Water and Climate Center at http://www.wcc.nrcs.usda.gov/ website. Other climate station(s) representative of this precipitation zone include "Grass Creek 1E", "Thermopolis", "Thermopolis 25NW", "Buffalo Bill Dam", and "Black Mountain", (United States Department of Agriculture (USDA) NRCS Technical Guide Section IIE Rev. 08/12/05).

2.4 Soils

The soils reflect the mid level elevation in which they formed. They are highly variable, reflecting differences in parent material (sandstone, shale and/or mixed alluvium), position on the landscape, slope and aspect. Soil depth ranges from a few inches to over 60 inches. These soils typically have a light brown surface layer. Surface textures are loams, very fine sandy loams, fine sandy loams, loams, and clay loams. In many places the subsoil reflects an increase in clay and calcium carbonate, being expressed argillic or calcic horizons. Slopes range from 0 to 70 percent, but are generally less than 40 percent.

The Joe Henry Allotment sits on the break between the 5 to 9 inch and the 10 to 14 inch precipitation zones. This is reflected in the soil mapping and the ecological sites assigned to the various soil map units. The ecological sites found in the in the allotment are listed below:

Loamy 10-14 in. pz.	R032XY322WY
Sandy 10-14 in. pz	R032XY350WY
Shallow Sandy 10-14 pz.	R032XY366WY
Shallow Clayey 10-14" pz.	R032XY358WY
Clayey 10-14 in. pz.	R032XY304WY
Shale 5-9 in. pz.	R032XY154WY
Saline Upland 10-14 in. pz.	R032XY344WY
Lowland 10-14 in. pz.	R032XY328WY

Two (2) rangeland health assessments were conducted at established key areas. Key Area 1 located in the western part of the allotment is in Map Unit 34 Kishona -Shingle-Rock Outcrop Association. Soils at this location are similar to the Kishona soil series. Key Area 2 located in the southeastern part of the allotment is in Map Unit 35 Kishona-Shingle Association. The soils at this location are also very similar to the Kishona soil series. Both key areas support a Loamy 10-14" pz. ecological site.

Refer to Map 3 - Soil and Ecological Sites that follows this discussion.

2.5 Upland Vegetation

The uplands consist of Loamy, Shallow Loamy, Shallow Clayey, range sites. The Loamy sites make up the majority of the allotment acres.

The Perennial Grass/Big Sagebrush Plant Community is the predominant state associated within the above mentioned sites. This plant community is a closely associated state of the Bluebunch Wheatgrass/ Rhizomatous Wheatgrass HCPC for the site. The Perennial Grass/Big Sagebrush Plant Community can move to the HCPC since important plant species remain present in the community. Plant composition within the allotment observed on July 2009 and June 2010 included Big sagebrush *(Artemisia tridentate)* with understory and interspaces filled with Bluebunch wheatgrass (*Pseudoroegneria spicata*) Needle-and-thread *(Hesperostipa spicata)*, Western wheatgrass *(Pascopyrum smithii)*, Sandberg bluegrass *(Poa secunda)*, Prairie junegrass *(Koeleria macrantha)*, Green needlegrass (*Nassella viridula*) Cheatgrass *(Bromus tectorum)*, Field Brome (*Bromus arvensis*) Cactus *(Opuntia polyacantha)*, Wooly plantain *(Plantago patagonica)*, Fringed sagewort *(Artemisia frigid)*, Hood's Plox *(Phlox hoodii) and* Scarlet globemallow (*Sphaeralcea coccinea*). Juniper (*Juniperus spp.*) tended to dominate the steeper slopes and ridges on the east side of the allotment. This list is not all inclusive; however the vegetation noted are those that are quite evident and readily found.

2.6 Invasive Species

Noxious weed species documented within the allotment include Canada thistle, common burdock and saltcedar. All infested areas are confined to small patches within dry reservoir beds. Cheatgrass occurs across the allotment in varying abundances, but perennial grasses and sagebrush are still present.

2.7 Range

For management priorities the Joe Henry Allotment is categorized as an "I" (Improve) in the Washakie RMP and is a common allotment consisting of three separate operators as shown along with their schedules in Table 2. The Lazy Bighorn Ranch is authorized for both cattle and sheep grazing, however sheep use has never occurred under the current schedule and the terms and conditions allow unused sheep AUMs to be used as Cattle AUMs within the some schedule dates. The allotment has approximately 552 acres of private land fenced off within its boundaries but is not owned or used by any of the operators.

Table 2 – Grazing Operators and Schedule

Operator	Livestock Number	Livestock Kind	Begin	End	PL %	AUMS
Breeden Brothers	200	Cattle	4/26	4/30	100	33
	230		5/1	6/10		310
	195		11/5	12/29		353
Greet Ranch Inc.	74	Cattle	4/25	6/5	96	98
	77		11/6	12/26		124
Lazy Bighorn Ranch	50	Cattle	4/26	6/10	100	76
	400	Sheep	4/26	6/16		137
	40	Cattle	11/15	12/14		39
	400	Sheep	11/15	12/31		124

2.8 Wildlife

The predominate habitat within this allotment is rolling sage brush grassland with scattered juniper on the steeper slopes and a mix of perennial grasses throughout. The topography slopes to the east, dropping off into the Nowood Creek near the allotment boundary on that side. A large portion of the allotment is designated as big game crucial winter range for elk and mule deer. The habitat is suitable for use by a wide variety of wildlife species including elk, mule deer, pronghorn, numerous passerines, small mammals & predators, and raptors.

2.9 Threatened or Endangered Species

2.9.1 Threatened, Endangered, Candidate, and BLM Sensitive -- Plant Species

No threatened and endangered or sensitive plant species have been found in the Joe Henry Allotment.

2.9.2 Threatened, Endangered, Candidate, and BLM Sensitive – Wildlife Species

No threatened or endangered wildlife species have been observed or recorded utilizing the habitat on the Joe Henry allotment. Although there are no active leks on the allotment, habitat exists that is suitable for Sage Grouse and its proximity to active leks in nearby allotments makes it likely that there is some nesting and early brood rearing activity by Sage Grouse within the allotment boundary. The entire allotment lies within a designated sage grouse core area. Although none have been documented through formal surveys, the sage thrasher, Brewer's sparrow and loggerhead shrike are three BLM sensitive species that are known to be resident in other similar sagebrush dominated communities. The only other BLM sensitive species likely to occur within this allotment is the ferruginous hawk, although none have been documented.

3.0 Summary of Monitoring Data & Assessment

Rangeland Health Assessments were conducted at both Key Areas by an interdisciplinary team on 7/7/2010 using the 17 Indicators of Rangeland Health as described in BLM Technical Reference 1734-6. Individual ratings for the *Rangeland Health Indicators* are displayed for each transect location below in Table 3.

Table 3 – Rangeland Health Summary

Indicator	Departure from Reference	
	Key Area #1	**Key Area #2**
1. Rills	*None to Slight*	*Slight to Moderate*
2. Water Flow Patterns	*Moderate*	*Slight to Moderate*
3. Pedestals and/or Terracettes	*Moderate*	*None to Slight*
4. Bare Ground %	*None to Slight*	*None to Slight*
5. Gullies	*Slight to Moderate*	*Slight to Moderate*
6. Wind- Scoured, Blowouts, and /or Deposition Areas	*None to Slight*	*None to Slight*
7. Litter Movement	*Slight to Moderate*	*Slight to Moderate*
8. Soil Surface Resistance to Erosion	*Slight to Moderate*	*None to Slight*
9. Soil Surface Loss or Degradation	*Moderate*	*Slight to Moderate*
10.Plant Community Composition and Distribution Relative to Infiltration	*Slight to Moderate*	*Moderate*
11. Compaction Layer	*Slight to Moderate*	*None to Slight*
12. Functional/Structural Groups	*Slight to Moderate*	*Moderate*
13. Plant Mortality/Decadence	*Slight to Moderate*	*Slight to Moderate*
14. Litter Amount	*None to Slight*	*Moderate*
15. Annual Production	*None to Slight*	*Slight to Moderate*
16. Invasive Plants	*Slight to Moderate*	*Moderate to Extreme*

17. Reproductive Capability of Perennial Plants	*None to Slight*	*None to Slight*
Overall Attribute Rating		
Soil & Site Stability	*Moderate*	*Slight to Moderate*
Hydrologic Function	*Moderate*	*Slight to Moderate*
Biotic Integrity	*Slight to Moderate*	*Moderate*

3.1 Upland Vegetation

Very little historical vegetation monitoring data has been collected on the Joe Henry Allotment. Some one-time photo points and a few periodic allotment inspections over the years have not identified any significant management problems on the allotment. In the summer of 2009, two key management areas (key areas) for the purpose of vegetation monitoring were selected on the allotment. Key areas are indicator areas that are able to reflect what is happening on a larger area as a result of on-the-ground management actions. Ecological site, soil type, vegetative community, topography, location of water sources, and livestock grazing history are some of the factors that were considered in the selection of these key areas. These key areas were designated as Key Area #1, and Key Area #2. Also, three wildlife habitat assessment transects were established at both Key areas and one in the southern part of the allotment. A map showing the key area and monitoring locations, and photographs of each area, are located at the end of this document.

At Key Area #1 the summers of 2009 and 2010, the Sample Point method was used to estimate cover and basic species composition, in addition a 300 foot Sagebrush canopy cover was ran over the same transect. In July 2010 at Key Area #2, a 100 foot Line-Point Intercept transect was used to estimate cover and basic species composition, also a 100 foot Sagebrush canopy cover was ran on the same transect. A summary of the cover data collected from each key area is shown below in Table 4:

Table 4 – Vegetation Monitoring Data

Site Name	Range Site	Method	Date	Vegetative Cover %	Litter %	Bare Ground %	Sagebrush Canopy Cover %
Key Area 1	Loamy 10-14	Sample Point	Aug. 2009	42.6%	31.3%	24.7%	16.4%
			June 2010	41.0%	25.6%	29.6%	17.2%
Key Area 2	Loamy 10-14	Line-Point Intercept	July 2010	64.0%	8.0%	16.0%	19.1%

3.2 Hydrology

The hydrologic factors as observed in Table 4 indicate “Moderate” and “Slight to Moderate” departure from the reference ecological sheet for this site. During the field visit several photos were taken of pedestals and other water created erosion features in the allotment (see photos at end of report).Due to the expansion of cheatgrass in the allotment, infiltration rates have been slightly reduced from the original reference state. There was evidence of minor nick points and erosion that commonly is associated with the roads in the allotment. Field observations also indicate primarily ephemeral flow regimes for the drainage segments with flow occurring in the channel on average less than 10 percent of the year. The drainages exhibit a losing stream segment, that means surface water is lost to ground water through the length of the drainages. There are no known or inventoried springs, seeps, or other wetlands within the allotment. There are twelve reservoirs located in the allotment and according to a recent study (Anderson, 2009) there were 4 viable reservoirs that were found to be holding water during the summer 2009. The North Fork of Buffalo Creek was also analyzed as a potential water storage location for off channel future water development projects for the Wyoming Water Development Commission in the Nowood watershed. There are no water wells or other USGS data sites in the allotment.

3.3 Soil and Site Stability

As part of this investigation, two rangeland health determinations were conducted on July 7, 2010 at two Key Areas. Standard 1 for Healthy Rangelands was evaluated based on the attribute ratings for *Soil and Site Stability* and *Hydrologic Function* using rangeland health indicators 1 through 11 and 14. Field observations were compared to the Reference Sheet for the Loamy 10-14" pz. (R032XY322WY) dated 5/1/2008 to determine departures from normal.

Key Area 1

Rill formation is restricted to areas of shale rock outcrop on slopes greater than 40 percent where they are natural phenomena. Waterflow patterns are 5 to 6 feet long becoming interconnected near gullies. One inch pedestals are common at the base of sagebrush; none were observed with bunchgrasses. No terracettes were observed. Transect data determined bare ground to be 16 percent and litter cover was determined to be 14 percent, due in part to the presence to cheatgrass. Both bare ground and litter are within the guidelines described in the reference sheet and are adequate to maintain hydrologic function. . Litter is well distributed across the site and there is no evidence of litter movement. A historic gully network often emanating from two-track trails is part of the modern landscape. No active nick points or headcuts were observed. The gully network is well vegetated and showing signs of healing and stability as evidenced by rounded shoulders; the healing and stability however are due in part to the presence of cheatgrass. There is no evidence of wind-scouring or blowout areas. The soil stability index (SSI), an indicator of soil surface resistance to erosion is 4.1. When combined with cover values, this soil is stable and resistant to rain drop impact and the erosive forces of overland flow. The stability is further enhanced by the presence of the soil biological crusts which were determine to make up 10 percent of the surface cover. The A horizon is only 2 inches deep, indicating that there has been some historic soil loss. The plant community composition and distribution is adequate to facilitate infiltration and reduce runoff, due in part to the amount of cheatgrass. No soil compaction was observed.

Based on the observations discussed above the attribute rating for *Soil and Site Stability* and *Hydrologic Function* were rated as "Slight to Moderate".

Key Area 2

No rill formation was observed at this key area. Waterflow patterns are 6 to 8 feet long and are frequently connected. Three inch pedestals are common at the base of sagebrush and 3 to 4 inch terracettes are common. Transect data determined bare ground to be 25 percent and litter cover was determined to be 31 percent. Both bare ground and litter are within the guidelines described in the reference sheet. Litter is well distributed across the site and there is no evidence of litter movement. Few gullies were observed in this western part of the allotment. A two-track trail that had become gullied is healing. No active nick points or headcuts were observed. There is no evidence of wind-scouring or blowout areas. The soil stability index (SSI), an indicator of soil surface resistance to erosion is 3.4; though this is within the parameters described in the site guide, it is a low rating. When combined with cover values, this soil is reasonably stable and is resistant to rain drop impact and the erosive force of overland flow. The stability is only marginally enhanced by the presence of the soil biological crusts which were determine to make up only 1.3 percent of the surface cover. The A horizon is only 1 inch deep, indicating that there has been some historic soil loss. The plant community composition and distribution is adequate to facilitate infiltration and reduce runoff. Slight soil compaction was observed as evidenced by weak, platy soil structure observable at a depth of 2 to 3 inches.

Based on the observations discussed above the attribute rating for *Soil and Site Stability* and *Hydrologic Function* were weighted in favor of a "Moderate" rating.

3.4 Wildlife Habitat

In June and July of 2010 three transects, were ran to determine habitat suitability for Sage Grouse. Line-Intercept with height, Belt Transect, and Daubenmire plots were the methods used in data collection. The data indicates that all the sites are highly suitable for Sage Grouse Nesting, Early Brood-rearing and Wintering habitat. Table 5 summarizes the data found from each site and Map 4 shows the transect locations.

Table 5 –Habitat Assessment Data										
Allotment / Site Name		Sagebrush* Canopy Cover *(Percent)*		Average Height *(Inches)*			Sagebrush* Age Class *(Percent)*			
		Live	Dead	Sagebrush*	New Herbaceous	Residual Herbaceous	Young	Mature	Decadent	Dead
Joe Henry	**001** *(Key Area 1)*	17	3	12	9	3	0	70	9	21
	002 *(Key Area 2)*	15	3	12	8	5	3	71	11	15
	003	12	4	14	9	4	0	74	19	6

**Artemisia tridentata* Nutt. ssp. *wyomingensis*

4.0 Conclusions

This section draws conclusions and makes determinations regarding:

A. Progress towards or attainment of the standards for rangeland health, and
B. Whether livestock management is in conformance with the guidelines, and
C. Whether existing grazing management or levels of grazing use are significant factors in failing to achieve the standards or conform to the guidelines.

4.1 Standard 1

Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff. ***MET***

Rationale: The attribute ratings for *Soil and Site Stability and Hydrologic Function* were rated as "Slight to Moderate" at Key Area 1 and "Moderate" at Key Area 2. Overall the soil surface is stable and does not readily slake or disperse in water. Throughout most of the allotment the vegetative and litter cover are providing are adequate to protect the soil from rain drop impact and the erosive forces of overland flow however, this somewhat compromised in a few locations as evidence by the assessment conducted at Key Area 2. Due to the abundance of sagebrush and the accompanying reduction in perennial grasses water is not being retained on the landscape as well as it should. Water erosion indicators (waterflow patterns, pedestals, terracettes, and litter movement) indicate minor levels of active erosion. A historic gully network is present throughout much of the allotment. These gullies are stable and healing; no nick points or headcuts were observed. Shallow soil pits indicates historic soil loss. The A horizon is only 1 inch deep. The official soil series description describes the Kishona soil series as having a 4 deep inch A horizon. There was evidence of minor compaction at Key Area 2; this level of soil compaction is not viewed as a significant issue in the allotment.

4.2 Standard 2

Riparian and wetland vegetation has structural, age and species diversity characteristic of the state of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide ground water recharge. ***NOT APPLICABLE***

Rationale: There are no inventoried or other known riparian or wetland areas within the allotment, therefore this standard is not applicable.

4.3 Standard 3

Upland vegetation on ecological site consists of plant communities appropriate to the site which are resilient, diverse, and able to recover from natural and human disturbance. ***MET***

Rationale: The attribute rating for Biotic Integrity deviation from that which would be expected for the range site were rated as "Slight to Moderate" at Key Area 1 and "Moderate" at Key Area 2. This determination was made using rangeland health indicators 8, 9, and 11 through 17, as well as the data collected from both Key Area transects.

The cool season bunchgrasses were found to have been moderately reduced but still common with favorable reproductive capabilities. Cheatgrass does occur throughout the allotment in varying abundances; however, its densities are not limiting perennial grass productivity or diversity.

Assessment sites represented 10-14" loamy ecological sites. These sites were characterized as currently representing the Perennial grass/ Big sagebrush state in the State and Transition Model in the NRCS Tech Reference. These sites are in a dynamic equilibrium with the Historic Climax Plant Community for these sites. This means that at this time these sites have appropriate pathways available to them to respond to proper grazing strategies, favorable environmental conditions, and environmental events such as wildfires. Currently permitted grazing use would allow this to occur. According to the NRCS Tech Reference, this situation lends further credence to the current plant communities being *"*resilient, diverse, and able to recover from natural and human disturbance". Nevertheless, the presence of cheatgrass in the present plant community is a concern. Wildfire could reduce/eliminate the sagebrush component in affected areas. The presence of cheatgrass could limit/retard the re-establishment of sagebrush, an important vegetative aspect of the community for wildlife.

This qualitative analysis of the allotment shows that the rating variance of the indicators (vegetative cover, plant composition, diversity and vigor, bare ground & litter, and erosion) are appropriate for the ecological sites found on the allotment. Overall, the biotic community is stable, intact, and well adapted to grazing.

4.4 Standard 4

Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced. ***MET***

Rationale: Mule deer and pronghorn antelope utilize the area on a year-long basis, as do numerous additional species such as coyote, badger, various small mammals and raptors, and a variety of grassland passerines. A large portion of the area has been designated as big game crucial wintering area.

Sage Grouse have been documented using leks nearby the allotment, and sagebrush cover is adequate for nesting and early brood-rearing habitat. Live sagebrush canopy cover transects conducted during the growing season of 2010 show cover ranging from 12 to 17 percent with an average height ranging from 12 to 14 inches.

Transect data did indicate a possible concern with the age class of sagebrush with relatively high proportion of decadent plants and very few young plants present. In addition to Wyoming Big sagebrush, numerous diverse plant species appropriate to the habitat were recorded, such as; broom snakeweed, Yellow salsify, Needle and thread, Bluebunch, Sego lily, Paintbrush, Lichen, Sandberg bluegrass, scarlet globemallow, bitter root, sandwort, and Japanese brome.

Wildlife species observed during monitoring and assessment were Sage Grouse, mule deer, antelope, and a variety of grassland passerines. The Perennial grass/ Big sagebrush (Big sagebrush <25%) state which represents the majority of the allotment (See Standard #3) provides an appropriate mix of grasses and forbs along with an adequate amount of sagebrush to meet wildlife needs. The diverse plant species and composition recorded are well within appropriate parameters for this type of habitat, and the presence of wildlife across seasons is indicative of the habitat's capability of sustaining viable populations of plant and animal species appropriate to the habitat.

4.5 Standard 5

Water quality meets State standards. ***UNKNOWN***

Rationale: Compliance with Wyoming State Water Quality Standards is unknown, but nothing within available data indicates Standard Number 5 is not being met.

4.6 Standard 6

Air quality meets State standards. ***UNKNOWN***

Rationale: No information is currently available to indicate that this standard is or is not being met. An air quality monitoring station was recently established in the Bighorn Basin, but no monitoring data is available at this time. Until specific data becomes available, the determination for this standard is UNKNOWN, per direction from the BLM Wyoming State Office.

5.0 Resource Specialist Signatures

4/15/2011

X

Michael Peck
Rangeland Management Specialist

4/15/2011

X CJ Grimes

C.J. Grimes
Natural Resource Specialist, Weeds

4/20/2011

X

Ted Igleheart
Wildlife Biologist

4/19/2011

X Mike Tietmeyer

Mike Tietmeyer
Supervisory Rangeland Management Specialist

4/15/2011

X

Jared Dalebout
Hydrologist

4/20/2011

X

Michael Phillips
Assistant Field Manager, Resources

4/18/2011

X

Steve Kiracofe
Natural Resource Specialist, Soils

6.0 Determination

Based on the information provided in this assessment, ***I have determined that <u>all standards ARE being met,</u> with the exception of Standard 6, Air Quality, which is determined to be UNKNOWN (per direction from the BLM Wyoming State Office). Current <u>livestock grazing IS in conformance</u> with the standards.***

4/20/2011

X _____

Michael Phillips
Acting Field Manager, Worland Field Office

Based on the information provided in this assessment, ***I have determined that <u>all of the standards are NOT being met</u> but that <u>livestock grazing is in conformance</u> with the standards.***

X _____

Michael Phillips
Acting Field Manager, Worland Field Office

Based on the information provided in this assessment, ***I have determined that <u>all of the standards are NOT being met</u> and that <u>livestock grazing is NOT in conformance</u> with the standards.***

X _____

Michael Phillips
Acting Field Manager, Worland Field Office

7.0 References

Anderson Consulting Engineers, 2009. Nowood River Storage/Watershed Study. Wyoming Water Development Commission Report pp 3.100.

Binkley, D., Brown, T. 1993.Management Impacts on Water Quality of Forests and Rangelands. USDA Forest Service. General Technical Report RM-239. pp 5-6.

DEQ, 2008. Wyoming's 2008 305(b) Integrated State Water Quality Assessment Report .p 28. http://deq.state.wy.us/wqd/events/public%20notices/2008%20Draft%20305_b_.pdf

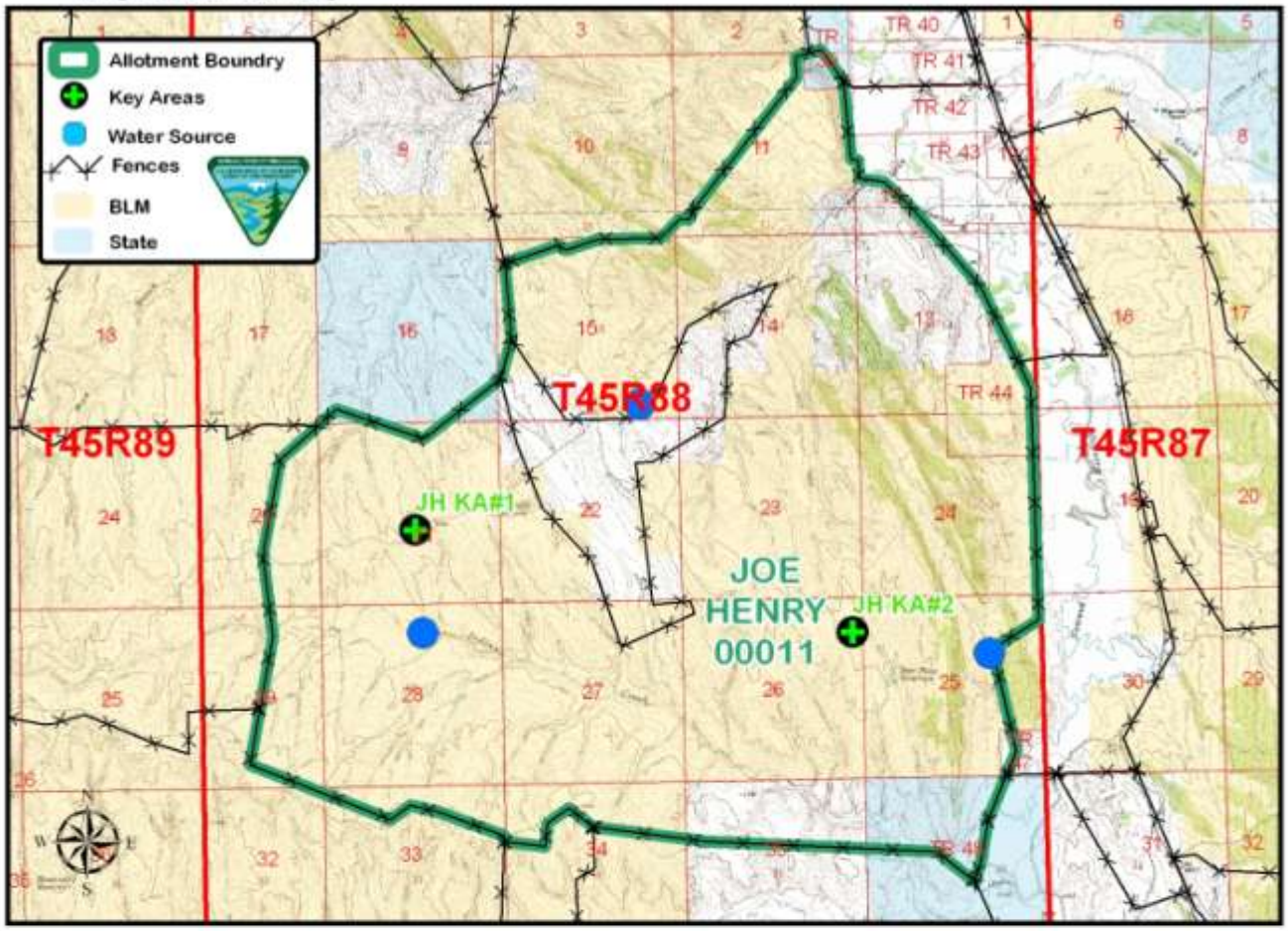
SamplePoint: USDA Agricultural Research Service, Rangeland Resources Research Unit in Cheyenne, WY, USDI BLM Wyoming State Office; 2009; Software code, Robert Berryman; Installation file, Nullsoft Install System v 2.11.

USDA Natural Resources Conservation Service, Technical Guide for Ecological Site Descriptions, Northern Intermountain Desertic Basins, Loamy (Ly) 10-14" Foothills and Basins East Precipitation Zone; R032XY322WY.

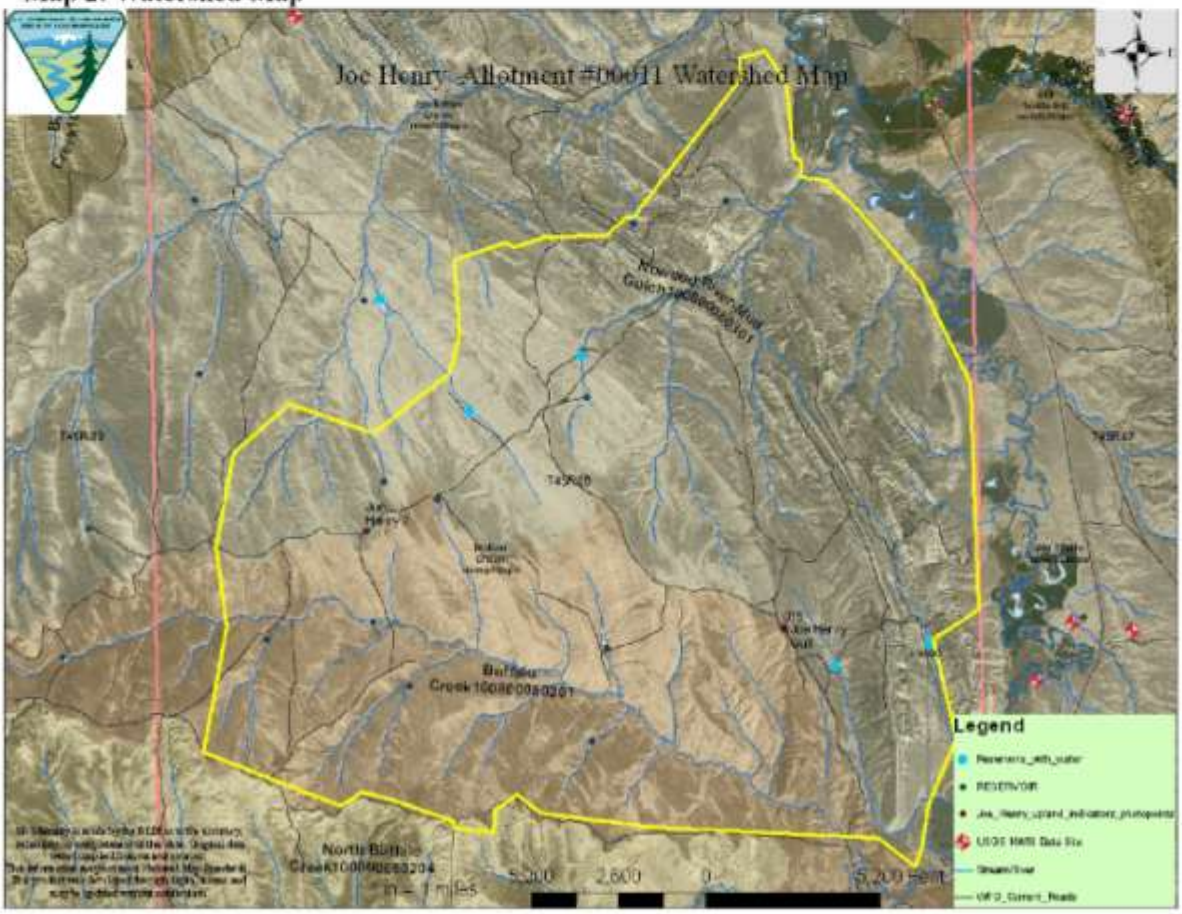
USDI - BLM. 1998. Implementation Plan, Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the State of Wyoming.

USDI-BLM. 1988. Washakie Area Resource Management Plan (RMP), Record of Decision and Approved Resource Management Plan for the Washakie Resource Area, Worland, WY.

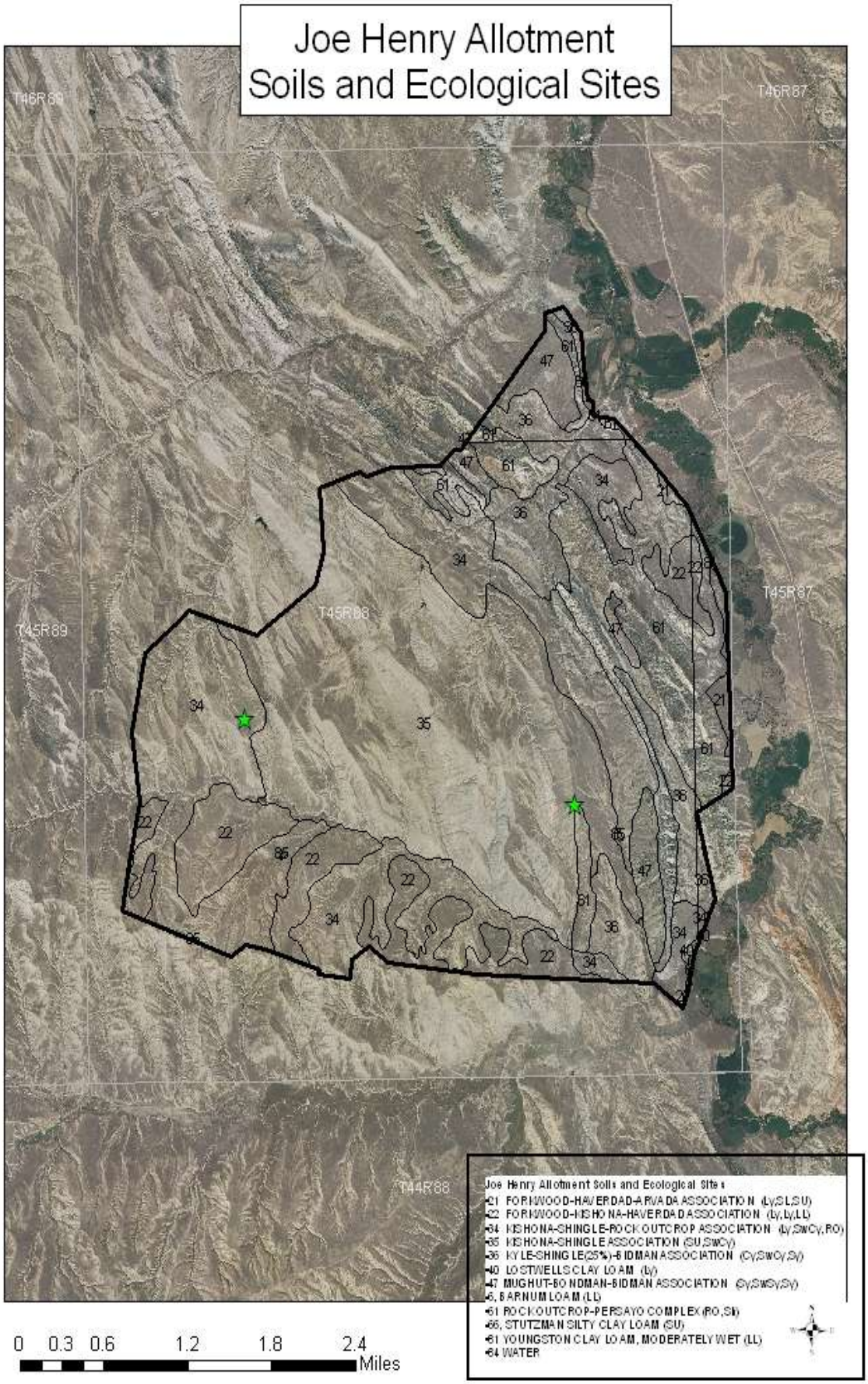
Map 1:Allotment Map



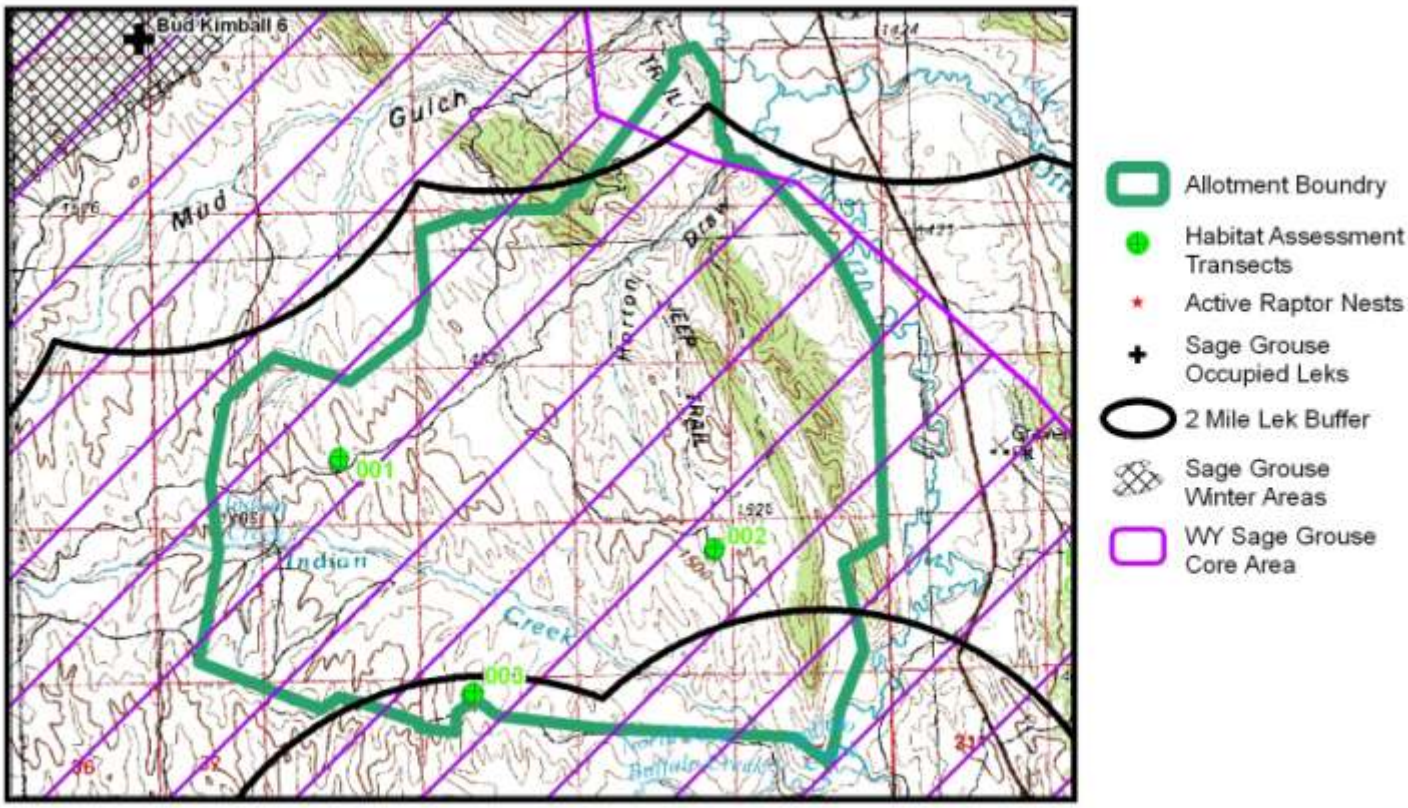
Map 2: Watershed Map

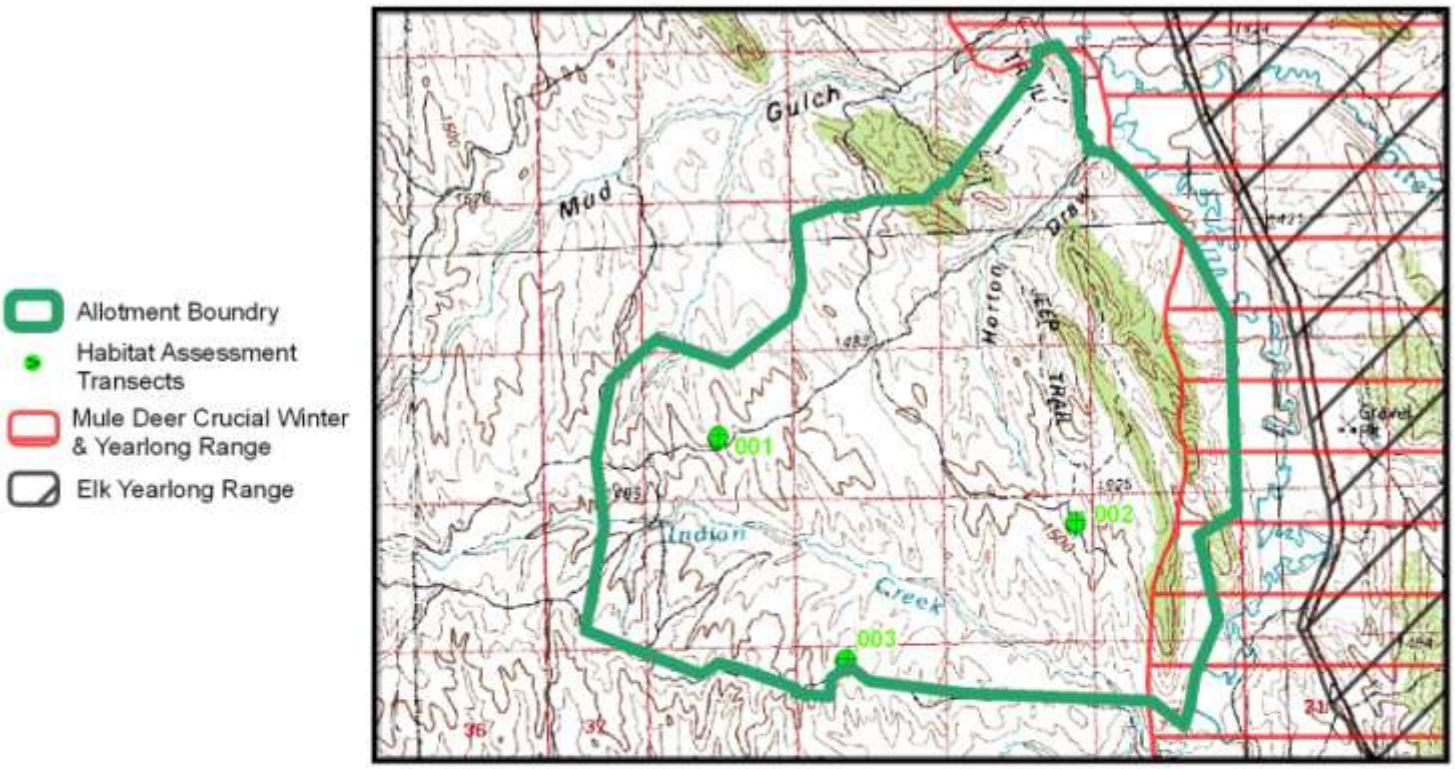


Map 3: Soils/Range Sites



Map 4: Wildlife





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No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

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Photo 1:

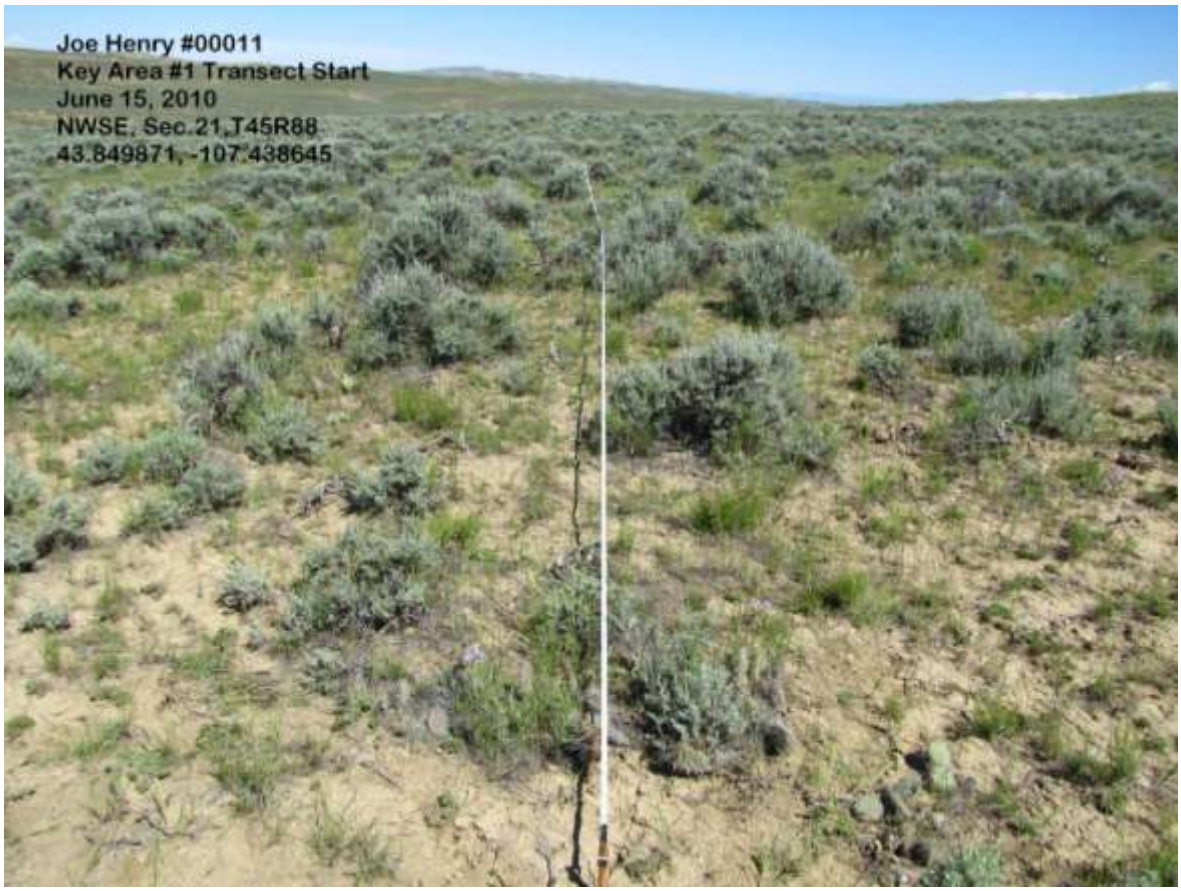
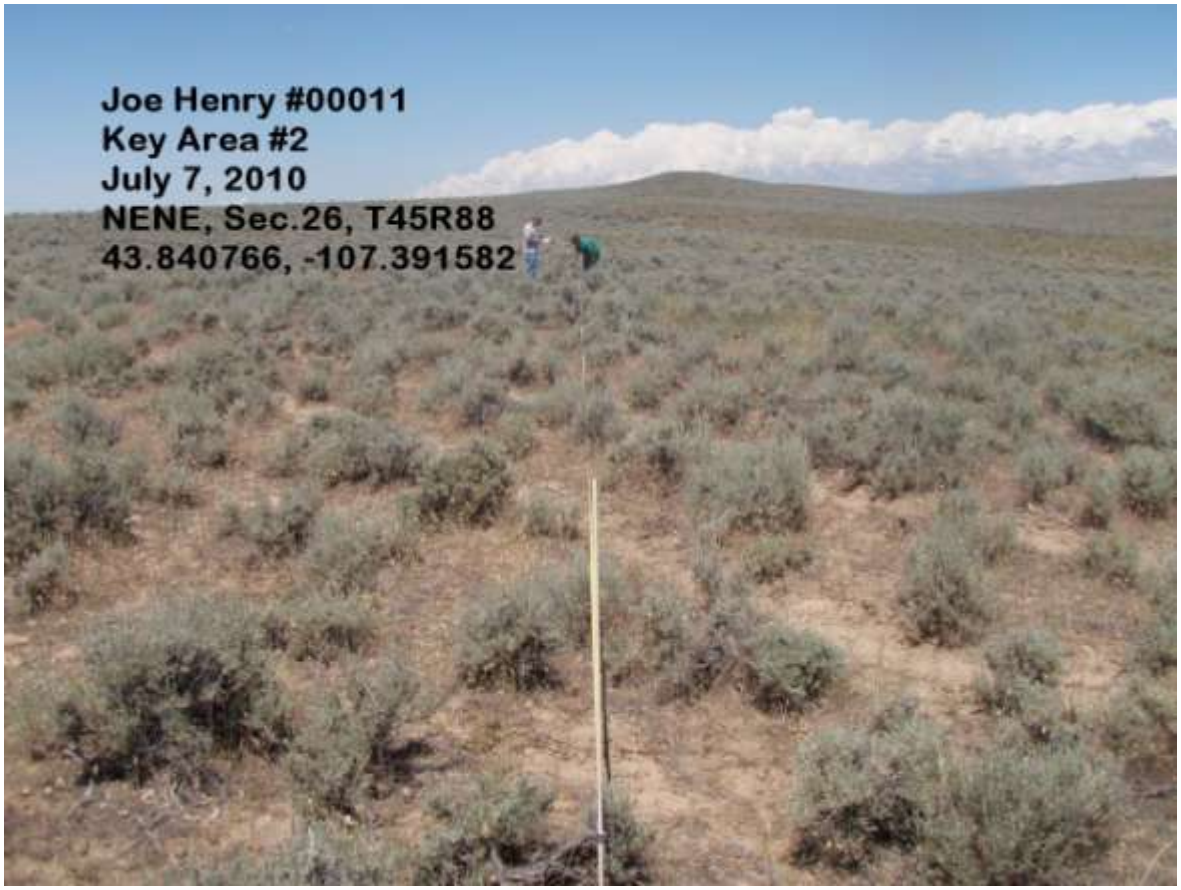
Photo 2.