

Rangeland Health Assessment
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

Grass Point Allotment No. 00545

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

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The BLM's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

TABLE OF CONTENTS

1.0 INTRODUCTION.....	4
1.1 STANDARDS	4
2.0 AFFECTED ENVIRONMENT-ALLOTMENT DESCRIPTION, RESOURCE VALUES, AND USES.....	4
2.1 LOCATION AND LAND OWNERSHIP	4
2.2 HYDROLOGY	4
2.3 CLIMATE	5
2.4 SOILS	5
2.5 VEGETATION	6
2.6 INVASIVE SPECIES	6
2.7 RANGE	6
2.8 WILDLIFE	7
2.9 THREATENED OR ENDANGERED SPECIES.....	7
3.0 SUMMARY OF MONITORING/ASSESSMENT DATA.....	7
RANGE/UPLAND VEGETATION	8
RIPARIAN HYDROLOGY	11
WATER QUALITY	15
SOILS/SITE STABILITY AND HYDROLOGIC FUNCTION	16
4.0 CONCLUSIONS	19
4.1 STANDARD 1	19
4.2 STANDARD 2	19
4.3 STANDARD 3	19
4.4 STANDARD 4	20
4.5 STANDARD 5	22
4.6 STANDARD 6	22
5.0 SPECIALIST SIGNATURES.....	23
6.0 DETERMINATION	24
7.0 REFERENCES.....	25

MAPS, PHOTOGRAPHS AND TABLES

TABLE 1: WATERSHED AREA	5
TABLE 2 RANGELAND HEALTH INDICATORS/RATINGS.....	8
TABLE 3 RIPARIAN SEGMENTS.....	12
TABLE 4: DEQ USE DESIGNATIONS.....	16
MAP 1: ALLOTMENT MAP.....	26
MAP 2: GRASS POINT ALLOTMENT WILDLIFE RESOURCES MAP.....	27
MAP 3: HYDROLOGY/RIPARIAN.....	28
MAP 4: SOILS.....	29
ONSITE PHOTOS.....	30

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 Grass Point 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 Grass Point Allotment is located in approximately 10 miles southeast of Meeteetse, Wyoming - Hot Springs County. The allotment is comprised of approximately 4,138 public acres and 1,773 private/state acres. Elevation in the allotment varies from approximately 6,040 feet to 5,350 feet above sea level. The topography varies from steep ridges to gentle slopes dissected by multiple ephemeral drainages with one perennial stream named Buffalo Creek. The creek dissects the north and south pastures. The water within the channel is produced water from Little Buffalo Basin Oil field.

2.2 Hydrology

The Grass Point allotment is located in the Gooseberry Creek watershed in Upper Bighorn River sub-basin. Within the allotment there are three different level #6 sub-watersheds that are also identified by the United States Geological Survey (USGS) by name and Hydrologic Units Codes or (HUC) (Map 1). All of the sub-watersheds are tributaries to Gooseberry Creek.

The majority of the allotment (6.9 mi²) is located in the Lower Buffalo Creek watershed. The contributions of the allotment to each sub-watershed are outlined below (Table 1). Gooseberry Creek is a perennial creek with its headwaters originating from the Absoroka mountain range that lies to the west. Buffalo Creek flows in a southeastern direction through the allotment and provides perennial produced water that has developed riparian characteristics throughout the entire length in the allotment. The produced flow is supplemented by storm water runoff following storm events primarily during the period of May through August when summer thunderstorms are most likely in the area.

Table 1: Watershed Area

Watershed Name-Level #6 (HUC #)	Total (Mi ²)	(Mi ²)within allotment	(%) Mi ² of watershed in the allotment
Lower Buffalo Creek-Gooseberry Creek- (100800070706)	34.6	6.94	20.1
Gooseberry Creek-Enos Creek (100800070704)	57.7	1.87	3.2
Gooseberry Creek-Gilles Draw(100800070707)	53.7	0.41	0.8

There is 5.84 stream side miles of riparian habitat of Buffalo Creek in the allotment. This habitat is primarily from produced water that is discharged into the channel several miles upstream in the Little Buffalo Basin oil field. Without the produced water; historic channel conditions, precipitation zone, and geomorphology indicators suggest the creek likely would have an intermittent flow regime.

2.3 Climate

The following climate data was prepared by the UNITED STATES DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE for a Shallow Loamy (SwLy) range site. Annual precipitation ranges from 10-14 inches per year. 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
 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 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”.

2.4 Soils

The soils reflect the piedmont environment 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, fine sandy loams, sandy loams with limited areas of clay loams and silty clay loams. The subsoil commonly reflects an increase in clay, being expressed argillic horizon. Slopes range from 0 to 40 percent.

Based on the Soil Survey data for Hot Springs County, the ecological sites found in the in the allotment are listed below:

Shallow Loamy 10-14” pz. R032XY362WY
 Loamy 10-14” pz.. R032XY322WY
 Shallow Sandy 10-14” pz. R032XY366WY

Sandy 10-14" pz.	R032XY350WY
Clayey 10-14" pz. 10-14" pz.	R032XY304WY
Saline Upland 10-14" pz.	R032XY122WY
Saline Lowland 10-14" pz.	R032XY338WY

Six rangeland health assessments were conducted as a part of this investigation. Three (3) assessments were conducted at Key Areas. Three (3) additional assessments were conducted to evaluate ridge tops, and to compare burned and unburned areas.

Two assessments were conducted in the Highway Pasture, one at the key area and a second on the ridge located above the key area. The key area is within Map Unit 393 Olney-Bowbac Fine Sandy Loams within the 10-14" precipitation zone. The Olney series is a deep and well drained with an argillic horizon. The Bowbac series is moderately deep and well drained and has an argillic horizon. The assessment conducted along the ridge top was within Map Unit 111 Rock Outcrop-Shingle-Tassel Complex supporting a Shallow Loamy 10-14" pz. ecological site. The Shingle Series is shallow having formed over soft shale bedrock. The Tassel series is also shallow but formed over sandstone bedrock.

One assessment was conducted at the North Pasture Key Area. This key area is located within Map Unit 703-Fort Collins-Cushman Loams, supporting a Loamy 10-14" pz. ecological site. The Fort Collins Series is deep and well drained with an argillic horizon. The Cushman series is moderately deep and well drained; it too has an argillic horizon.

One assessment was conducted at the South Pasture Key Area. This key area is located within Map Unit 700-Stoneham-Cushman Loams, supporting a Loamy 10-14" pz. ecological site. The Stoneham series is deep and well drained with an argillic horizon. The Cushman series is moderately deep and well drained; it too has an argillic horizon.

Two assessments were conducted in close proximity to one another in the Pit pasture, one in a burned area and a second in an unburned area. Both are in Map Unit 393- Olney-Bowbac Fine Sandy Loams within the 10-14" precipitation zone. The Olney series is a deep and well drained with an argillic horizon. The Bowbac series is moderate deep and well drained and has an argillic horizon; it formed over interbedded shale and sandstone.

2.5 Vegetation

Vegetation of the allotment is variable and dependent upon the range site. The uplands are comprised primarily of grasses such as bluebunch wheatgrass, needleandthread grass, junegrass, western wheatgrass, sandberg bluegrass, blue grama, upland sedges. Other vegetation found includes sagebrush, junipers, rushes, sedges, foxtail barley, little bluestem, and multiple and various forbs and shrubs. This list is not all inclusive however the vegetation noted are those that are quite evident and readily available.

2.6 Invasive Species

Noxious weed species inventoried/treated within the allotment as recently as 2008 include whitetop, Russian knapweed, and Canada thistle. These infestations were all located on the private lands or state lands within the allotment. Russian olive and saltcedar occur just outside the allotment. During monitoring of the allotment in 2010 *Bromus tectorum* was documented within the allotment.

2.7 Range

The allotment is classified by the Grass Creek Resource Management Plan (1998) as a class "I", Improve allotment. The objective is to improve resource conditions and productivity to enhance multiple use opportunities.

In 1985 the Animal Unit Months (AUMs) were reduced by 25% to the current Active AUMs of 547 and a plan to develop and Allotment Management Plan (AMP) was introduced. In 1986 the BLM entered into an AMP with the permittee and a four pasture deferred rotational grazing system was implemented on the allotment. In addition to the 4 pastures there is a fifth pasture that is used strictly as a horse pasture during the winter and is not used in the rotation. As part of the AMP a prescribed burn plan was implemented. Beginning in 1987 and ending in 1995 there was approximately 860 total acres treated within the allotment. In 2000, the first Standards for Healthy Rangelands Assessment were completed for the allotment at which time it was determined that all 6 of the standards were met and the grazing was in conformance with the standards for healthy rangeland.

As a whole the public land is stocked at approximately 8 acres per AUM (4138 Acres/547 AUMS). The ESD for a shallow loamy range site recommends a stocking rate of approximately 6 Acres per AUM for a Perennial Grass/Mixed Shrub plant community, the ESD for a loamy range site recommends a stocking rate of approximately 3 Acres per AUM for a Perennial Grass/Big sagebrush plant community, and the ESD for a Sandy range site recommends a stocking rate of approximately 3 Acres per AUM for a Perennial Grass/Big sagebrush plant community.

Currently there is one grazing permit for grazing on the allotment – held by Tim and Cathy Upton via a Base Property Lease with Karl Shafer. The grazing permit is issued as follows:

Tim and Cathy Upton
Grass Point Allotment

103C	5/15-12/17	70%PL	514 AUMs
15H	10/1-12/30	70%PL	31 AUMs

Active AUMs = 547 Suspended AUMs = 183 Permitted Use AUMs = 730

2.8 Wildlife

This allotment provides habitat for several big game species, as well as many other none game and special status wildlife species, during all seasons of the year. The allotment is predominantly a patchwork of sagebrush grasslands and shallow soil ridges and rim rock with scattered juniper and limber pine. The entire allotment is mapped as crucial winter range for mule deer, and the northeastern 25% of the allotment provides crucial winter range for antelope. Other species like the badger, bobcat, and a variety of small mammals, passerines, and raptors species inhabit this allotment as well.

2.9 Threatened or Endangered Species

The fairly continuous large patches of sagebrush grasslands throughout the allotment are likely providing some nesting and brood rearing habitat for sage-grouse, as well as breeding, nesting and foraging habitat for other sagebrush obligate bird species like the sage thrasher, sage, Brewer's, and vesper sparrow and loggerhead shrike. These habitats comprise approximately 50% of the allotment. No sage-grouse leks or winter concentration areas have been identified in this allotment, but in the neighboring allotments to the east and north a large active lek about 2 miles northeast, and 2 winter concentration areas to the north and northeast, have all been documented, and monitored for years. The eastern 2/3rds of the allotment is also within sage-grouse core area, (see map).

3.0 Summary of Monitoring/Assessment Data

Monitoring of the allotment for the purpose of observing and recording the indicators of rangeland health occurred during the summer of 2010 over multiple field visits.

Within the 5 pastures of the allotment 6 different sites were identified as representative of the public uplands. Two assessment sites were done in the Pit pasture, two assessment sites were done in the Highway pasture, 1 assessment site was done in the North pasture and 1 assessment site was done in the South Pasture. At these sites the 17 indicators were observed/noted/measured, cover transects were completed, measurements of production by species was completed, and photographs were taken and/replicated.

Within the transect areas the 17 indicators of rangeland health were observed and recorded. The 17 indicators are broken into 3 categories - soil stability, hydrologic function, biotic integrity. The measurement of these indicators is based upon a departure from that which would be expected for the specific range site. The "measuring stick" to judge against is provided by the United States Department of Agriculture, Natural Resources Conservation Service in the form of an Ecological Site Description and Reference Sheet for each specific range site and precipitation zone. The indicators and the assessed departure are found in the Table 2 below.

Table 2 Rangeland Health Indicators/Ratings

Indicator	Departure from Reference Sheet					
	Pit Pasture Unburned-Sy	Pit Pasture Rx Burn-Sy	Highway Pasture Key Area-Sy	Highway Pasture Ridge-Swly	North Pasture Key Area-Ly	South Pasture Key Area-Ly
1. Rills	N-S	N-S	N-S	N-S	N-S	N-S
2. Water-flow patterns	N-S	N-S	N-S	N-S	S-M	S-M
3. Pedestals and/or terracettes	N-S	N-S	N-S	N-S	S-M	N-S
4. Bare ground	N-S	N-S	N-S	N-S	N-S	N-S
5. Gullies	M	N-S	M	S-M	M	M
6. Wind-scoured, blowouts, and/or deposition areas	N-S	N-S	N-S	S-M	N-S	N-S
7. Litter movement	N-S	N-S	N-S	N-S	N-S	N-S
8. Soil surface resistance to erosion	N-S	N-S	N-S	N-S	S-M	S-M
9. Soil surface loss or degradation	N-S	N-S	N-S	N-S	S-M	S-M
10. Plant community composition and distribution relative to infiltration	S-M	M	S-M	S-M	S-M	S-M
11. Compaction layer	N-S	N-S	N-S	N-S	N-S	N-S
12. Functional/structural groups	S-M	M	M	S-M	N-S	M
13. Plant mortality/decadence	N-S	N-S	N-S	N-S	N-S	N-S
14. Litter amount	N-S	N-S	N-S	N-S	S-M	N-S
15. Annual production	N-S	N-S	N-S	N-S	N-S	N-S
16. Invasive plants	S-M	M	M	N-S	S-M	S-M
17. Reproductive capability of perennial plants	N-S	N-S	N-S	N-S	N-S	N-S
Soil and Site Stability Rating (1,2,3,4,5,6,7,8,9,11)	N-S	N-S	N-S	N-S	S-M	N-S
Hydrologic Function Rating (1,2,3,4,5,8,9,11,14)	N-S	N-S	N-S	N-S	S-M	S-M
Biotic Integrity Rating (8,9,11,12,13,14,15,16,17)	N-S	N-S	N-S	N-S	S-M	N-S

N-S None to Slight S-M Slight to Moderate M Moderate M-E Moderate to Extreme E-T Extreme to Total

Range/Upland Vegetation

There were two (2) upland sites in the Pit pasture and one (1) site –the key area- within the Highway Pasture which are located on a fine sandy loam range site in the 10-14 inch precipitation zone (Sandy ESD was used). The Historic Climax Plant Community for this site is a Needleandthread/Indian ricegrass plant community. This community would be dominated by cool season grasses (75%) followed by a nearly even balance of woody species (10%) and forbs (15%). With moderate continuous season long grazing and/or extended droughts/lack of fire a transition from HCPC to a Perennial Grass/Big Sagebrush site may occur. This site is represented by cool season grasses, however warm season grasses/forbs are now a part of the system and sagebrush makes up the majority of the overstory. The state has a hydrologic, soil, and biotic community that is stable and intact. From this state, with frequent and severe grazing the vegetative state can be converted to a Big sagebrush/Bare ground community or a Threadleaf sedge sod community. Herbaceous production will decline, the undesirable species increase as the desirable species decrease, and the ability to move towards HCPC becomes is greatly diminished without mechanical treatments, reseeding efforts, soil remediation efforts, and intense grazing management. In the case of the Big sagebrush/Bare ground community the annual production of herbaceous feed is reduced and the shrub production increases. In the case of the Threadleaf sedge sod community not only are the cool season grasses reduced but so are

the woody species - big sagebrush. Production of this site would be greatly reduced, even more so than the Big sagebrush/Bare ground community. States beyond the Perennial grass/Big sagebrush community are likely to have a biotic, soil, and hydrologic function that is at risk or not functioning.

At the unburned area of the Pit Pasture the ground cover was determined to be 86% which yields 14% bare ground. The ESD/Reference Sheet prescribes a range of 10-30% bare ground. Of the vegetative hits encountered in the cover transect; grasses accounted for approximately 66%, forbs accounted for 6%, and woody species accounted for 4% while lichens and biological soil crusts accounted for 12%. Total production for the unburned area was determined to be 1,014 pounds per acre with grasses and forbs (the herbaceous) making up 491 lbs/ac. Based upon composition by weight, grasses and grass like species account for 49% of total production (dry weight), woody species account for 29% of the total production and forbs account for 22% of total production. The data collected indicates that the site is in the Perennial Grass/Big sagebrush community state. There is an abundance and dominance of perennial cool season grasses such as needleandthread, bluebunch wheatgrass, and junegrass and complimenting the grass community there is a pronounced community of sagebrush on site. The vegetative community, the ground cover, and soil surface attributes were noted, measured and compared to the Ecological Site Description (ESD) produced by the NRCS to determine a rating to apply to the Biotic Integrity portion of the assessment through the use of the 17 indicators of rangeland health (Indicators 8, 9, and 11 through 17). The rating is dependent upon the assessment of the indicators and can vary from "none to slight" to "extreme to Total" deviation from the applicable ESD and corresponding reference sheet. The Biotic Integrity for this site was rated as a "none to slight" departure from the ESD/Reference Sheet.

At the burned area of the Pit Pasture the ground cover was determined to be 90%, which yields 10% bare ground. The ESD/Reference Sheet prescribes a range of 10-30% bare ground. Of the vegetative hits encountered; grasses accounted for approximately 76%, forbs accounted for 23%, and biological soil crusts accounted for the balance. Total production for the burned area was determined to be 536 pounds per acre with grasses and forbs (the herbaceous) making up 506 lbs/ac. Based upon composition by weight, grasses and grass like species account for 88% of total production (dry weight), woody species account for 0% of the total production, forbs account for 6% of total production and cheatgrass accounts for 6% of the total production. The data collected indicates that the site is in a transitional phase between the Perennial Grass/Big sagebrush community state and HCPC. This transition is a direct result of a prescribed burn done in 1995. There is an abundance and dominance of perennial cool season grasses however at this current time there is a lack of woody species within the burn area. It should be noted that on a landscape basis sagebrush has not been eliminated and is still very much part of the ecosystem. The vegetative community, the ground cover, and soil surface attributes were noted, measured and compared to the Ecological Site Description (ESD) produced by the NRCS to determine a rating to apply to the Biotic Integrity portion of the assessment through the use of the 17 indicators of rangeland health (Indicators 8, 9, and 11 through 17). The rating is dependent upon the assessment of the indicators and can vary from "none to slight" to "extreme to Total" deviation from the applicable ESD and corresponding reference sheet. The Biotic Integrity for this site was rated as a "none to slight" departure from the ESD/Reference Sheet.

Within the *Highway pasture* there were two upland sites that were assessed-*the Key Area and the Ridge*. The established key area is on a fine sandy loam (sandy range site) in the 10-14 inch precipitation zone which represents the bowls or small ephemeral valleys of the pasture- many of which underwent prescribed fire treatments in the late 1980's. The ground cover was determined to be 92% -thus yielding 8% bare ground. The ESD/Reference Sheet prescribes a range of 10-30% bare ground. Of the vegetative hits encountered; grasses accounted for approximately 64%, forbs accounted for 25%, woody species accounted for 2%, lichens accounted for the 7%, and cheatgrass accounted for 3%. Total vegetative production was determined to be 959 pounds per acre with grasses and forbs (the herbaceous) making up 373 lbs/ac. Based upon composition by weight, grasses and grass like species account for 33% of total production (dry weight), woody species account for 0% of the total production, forbs account for 63% of total production and cheatgrass accounts for 4% of the total production. The data collected indicates that the site is in a transitional phase between the Perennial Grass/Big sagebrush community state and HCPC. This transition is likely a result of a prescribed burn done in 1995. Data of the cover transect indicates that there is an abundance and dominance of perennial cool season grasses and there are forbs however at this current time there is a lack of woody species within the burn area-which was the goal of the prescription burn. It should be noted that on a landscape basis sagebrush has not been eliminated and is still very much part of the ecosystem. The vegetative community, the ground cover, and soil surface attributes were noted, measured and compared to the Ecological Site Description (ESD) produced by the NRCS to determine a rating to apply to the Biotic Integrity portion of the assessment through the use of the 17 indicators of rangeland health (Indicators 8, 9, and 11 through 17). The rating is dependent upon the assessment of the indicators and can vary from "none to slight" to "extreme to Total" deviation from the applicable ESD and corresponding reference sheet. The Biotic Integrity for this site was rated as a "none to slight" departure from the ESD/Reference Sheet.

Within the allotment there was one (1) sampling site-called the Ridge- located on a shallow loamy range site in the 10-14 inch precipitation zone. (Shallow Loamy ESD was used). The Historic Climax Plant Community for this site is a Bluebunch wheatgrass/Needleandthread plant community. This community would be dominated by cool season grasses (75%) followed by a nearly even balance of woody species (15%) and forbs (10%). With moderate continuous season long grazing or extended droughts a

transition from HCPC to a Perennial Grass/Mixed shrub state may occur. This state is dominated by cool season grasses but short warm season grasses and various forbs are present and shrubs would be a conspicuous part of the site. The state has a hydrologic, soil, and biotic community that is stable and intact. From this state, with frequent and severe grazing, lack of fire, or a severe grazing in conjunction with wildfire or brush control the vegetative state can be converted to a Mixed Shrub/Bare ground community, a Blue grama sod community, a salt tolerant shrub/ bare ground community and from there to a salt tolerant shrub/rhizomatous wheatgrass state. States beyond the Perennial grass/Mixed shrub community are likely to have a biotic, soil, and hydrologic function that is at risk or not functioning. Herbaceous production will decline, the undesirable species increase as the desirable species decrease, and the ability to move towards HCPC becomes is greatly diminished without mechanical treatments, reseeding efforts, soil remediation efforts, and intense grazing management.

The other upland site (*called Ridge*) within the Highway pasture is on a shallow loamy range site representing the multiple ridges of the allotment. These areas were not prescribed burned. The ground cover was determined to be 89.5% thereby yielding 10.5% bare ground. The ESD/Reference Sheet prescribes a range of 15-45% bare ground. Of the vegetative hits encountered; grasses accounted for approximately 49%, forbs accounted for 9%, and woody species accounted for 21%, while lichens and biological soil crusts accounted for the 21%. Total vegetative production was determined to be 572 pounds per acre with grasses and forbs (the herbaceous) making up 423 lbs/ac. Based upon composition by weight, grasses and grass like species account for 59% of total production (dry weight), woody species account for 26% of the total production, forbs account for 15% of total production. The data collected indicates that the site is in a transitional phase between the Perennial Grass/Mixed Shrub community state and HCPC. Data of the cover and production transects indicate that there is an abundance and dominance of perennial cool season grasses and shrubs that make up slightly more than is recommended for HCPC but within that recommended for the Perennial Grass/Mixed shrub community. The vegetative community, the ground cover, and soil surface attributes were noted, measured and compared to the Ecological Site Description (ESD) produced by the NRCS to determine a rating to apply to the Biotic Integrity portion of the assessment through the use of the 17 indicators of rangeland health (Indicators 8, 9, and 11 through 17). The rating is dependent upon the assessment of the indicators and can vary from “none to slight” to “extreme to Total” deviation from the applicable ESD and corresponding reference sheet. The Biotic Integrity for this site was rated as a “none to slight” departure from the ESD/Reference Sheet.

Within the allotment there are two (2) key areas on loamy range sites within the 10-14 inch precipitation zone (Loamy ESD). These key areas are located within the North and South Pastures. The Historic Climax Plant Community for this site is a Bluebunch wheatgrass/Rhizomatous wheatgrass plant community. This community would be dominated by cool season grasses (75%) followed by a nearly even balance of woody species (15%) and forbs (10%). With moderate continuous season long grazing or extended droughts a transition from HCPC to a Perennial Grass/Big sagebrush state may occur. This state is dominated by cool season grasses but short warm season grasses and various forbs are present and shrubs would be a conspicuous part of the site. The state has a hydrologic, soil, and biotic community that is stable and intact. From this state, with frequent and severe grazing, lack of fire, extended droughts or a severe grazing in conjunction with wildfire or brush control the vegetative state can be converted to a Blue grama sod community, a Big Sagebrush/bare ground community, a salt tolerant shrub/ bare ground community and from there to a salt tolerant shrub/rhizomatous wheatgrass state. States beyond the Perennial grass/Big sagebrush community are likely to have a biotic, soil, and hydrologic function that is at risk or not functioning. Herbaceous production will decline, the undesirable species increase as the desirable species decrease, and the ability to move towards HCPC is diminished without mechanical treatments, reseeding efforts, soil remediation efforts, and intense grazing management.

Within the North pasture of the allotment there is one key area representing a loamy range site with some clay influence. The ground cover was determined to be 83.5% thereby yielding 16.5% bare ground. The ESD/Reference Sheet prescribes a range of 10-30% bare ground. Of the vegetative hits encountered; grasses accounted for approximately 61.7%, forbs accounted for 17.8%, and woody species accounted for 7.9%, while lichens and biological soil crusts accounted for the 12.5%. Total vegetative production was determined to be 666 pounds per acre with grasses and forbs (the herbaceous) making up 324 lbs/ac. Based upon composition by weight, grasses and grass like species account for 46% of total production (dry weight), woody species account for 23% of the total production, forbs account for 31% of total production. The data collected indicates that the site is in the Perennial Grass/Big sagebrush community state. There is an abundance and dominance of perennial cool season grasses such as needleandthread, bluebunch wheatgrass, and junegrass. Complimenting the grass community is a pronounced community of sagebrush on site which by percent composition would be greater than expected at HCPC but within that expected for the Perennial Grass/Big sagebrush community. The vegetative community, the ground cover, and soil surface attributes were noted, measured and compared to the Ecological Site Description (ESD) produced by the NRCS to determine a rating to apply to the Biotic Integrity portion of the assessment through the use of the 17 indicators of rangeland health (Indicators 8, 9, and 11 through 17). The rating is dependent upon the assessment of the indicators and can vary from “none to slight” to “extreme to Total” deviation from the applicable ESD and corresponding reference sheet. The Biotic Integrity for this site was rated as a “none to slight” departure from the ESD/Reference Sheet.

Within the South pasture of the allotment there is one key area representing a loamy range site with some clay influence. The ground cover was determined to be 82% thereby yielding 18% bare ground. The ESD/Reference Sheet prescribes a range of 10-30% bare ground. Of the vegetative hits encountered; grasses accounted for approximately 56%, forbs accounted for 18%, woody species accounted for 18%, lichens and biological soil crusts accounted for the 7%, and cheatgrass made the

remaining 1%. Total vegetative production was determined to be 718 pounds per acre with grasses and forbs (the herbaceous) making up 232 lbs/ac. Based upon composition by weight, grasses and grass like species account for 32% of total production (dry weight), woody species account for 40% of the total production, forbs account for 28% of total production. The data collected indicates that the site is in the Perennial Grass/Big sagebrush community state. There is an expected community of perennial cool season grasses such as needleandthread, bluebunch wheatgrass, and junegrass. Complimenting the grass community is a pronounced community of sagebrush on site which by percent composition would be greater than expected for the Perennial Grass/Big sagebrush community, possibly attributable to a lack of fire, which as stated above may move or is in the process of moving the current state to a less desirable state. The vegetative community, the ground cover, and soil surface attributes were noted, measured and compared to the Ecological Site Description (ESD) produced by the NRCS to determine a rating to apply to the Biotic Integrity portion of the assessment through the use of the 17 indicators of rangeland health (Indicators 8, 9, and 11 through 17). The rating is dependent upon the assessment of the indicators and can vary from “none to slight” to “extreme to Total” deviation from the applicable ESD and corresponding reference sheet. The Biotic Integrity for this site was rated as a “none to slight” departure from the ESD/Reference Sheet, however it should be noted that of the 9 indicators of biotic integrity, 5 were rated as N-S, 3 were rated as S-M, and 1 was rated as M which may indicate that the sites biotic integrity could be rated as S-M. The site displays the expected vegetation, ground cover, bare ground and the allotment is under a rotational grazing system however there is an abundance of sagebrush on site.

Riparian Hydrology

Original inventory and baseline stream information was collected by the BLM in the early 1980’s for this segment of Buffalo Creek. Data included stream stability and other hydrologic indicators for the system. The riparian area along Buffalo Creek on public land was evaluated by an interdisciplinary team for this assessment during the 2010 field season along with one historic assessments performed in 2004. The segments were evaluated for Proper Functioning Condition using BLM Technical Reference 1737-15 (BLM, 1998) (Table 3). The segment were also rated using the Rosgen Stream Classification System (Rosgen 1996), by in order to better understand the riparian potential and classification of the flow regime and flow conditions. The width to depth ratio, meanders, and gradient indicated a C type classification. On both assessments a Proper Functioning Condition rating was given, with note in 2004 of it being grazed but holding together considering the drought conditions at the time. There were no signs of horizontal or vertical instability along the creek that would justify a Functioning at Risk category.

There are headcuts along tributaries to Buffalo Creek that are migrating up some of the drainages. Some of the cuts were 6 to 7 feet in height and likely introduce slightly elevated amounts of sediment into Buffalo Creek during storm water runoff events. The headcuts are migrating upstream and have relatively steep angles with minor advancement occurring following storm events of sufficient magnitude to produce runoff. Tributaries in the allotment have established sagebrush below headcut areas in the bottoms that suggest tributaries are stabilizing.



The banks along Buffalo Creek were covered and stable at the assessment areas. The riparian vegetation was comprised of only herbaceous plants of sedges, rushes, and cattails. Previous attempts of planting willow poles in the late 1980’s were unsuccessful with the cause of failure not determined. It is suspected however that the water qualities in the creek combined with the salt in the soil creates unsuitable growth conditions for willow production even though available free water in the soil is likely present. Further investigation is needed as to the potential for woody riparian species development along Buffalo Creek in the allotment. There is no

evidence of historic woody riparian vegetation along the creek. What appears to be an old utilization cage is located in the floodplain which could represent the potential of the site. No woody species are evident but it must be remembered that this cage represents a very small sample of the area. Bare ground adjacent to the cage does not represent the drainage as a whole.



There is evidence of salt build up along some stretches of the floodplain areas that are saturated following flood events. Photos of the assessment and monitoring points for each location are given below.

Table 3 Riparian Segments

Table – Riparian Segments									
BLM ID#	Riparian Area	(mi)	Water Type	Date Monitored	Gradient (%)	Rosgen Class	Function	Trend	Rating Scale
I0114X	Buffalo Creek	5.84	Perennial/ Produced	8/23/2010	< 2.0	C	PFC	N/A	11
Total:		5.84							
PFC=Proper Functioning Condition FAR=Functioning at Risk N/A= Not Apparent U=Unknown Rating Scale= 0- Non Functioning, 1-9 Functioning at Risk, 10-19-PFC, 20=Potential Natural Community.									

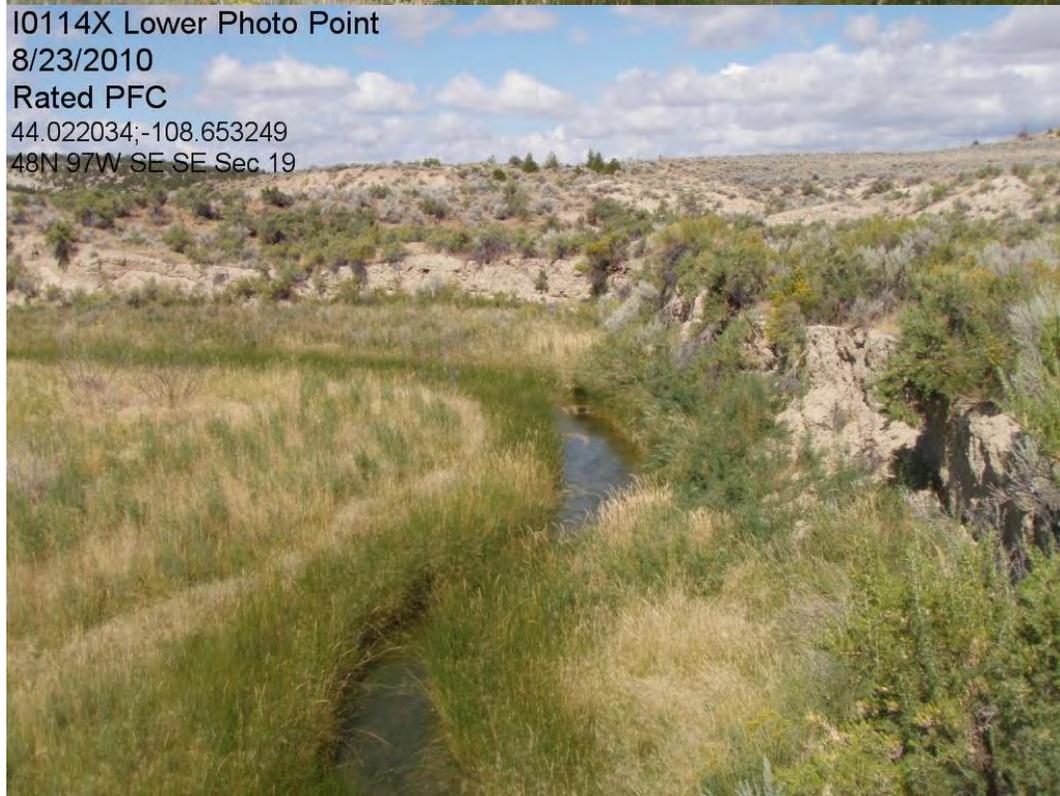
The stream has relatively easy access to the floodplain and the floodplain is inundated in relatively frequent events that occur every 2-3 years. There were slight improvements in the vigor of the riparian vegetation from the 2004 assessment that occurred during drought conditions. The precipitation and flows in the basin were near normal to slightly above normal for the 2010 hydrologic season. There are several cut off meanders and oxbows along the creek with a wide shallow floodplain.

I0114X Overview
44.04153;108.68523
Rated PFC



I0114X- Overview
44.041529,-108.685226





I0114X-Upper Section
Rated PFC
View downstream
44.02203;108.65325



I0114X
Upper Section
Rated PFC
44.02203;108.65325



Water Quality

The produced water in the channel from the Little Buffalo Basin oil field upstream is regulated by the Wyoming Department of Environmental Quality (DEQ). The Buffalo Creek is classified by the DEQ as a class 3B stream.

Class 3B 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 (Table 4).

Table 4: DEQ Use Designations

Surface Water Classes	WY DEQ Use Designations									
	Drinking Water	Game Fish	Non-Game Fish	Fish Consumption	Other Aquatic Life	Recreation	Wildlife	Agriculture	Industry	Scenic Value
2AB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2C	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3B	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes

Grazing is considered a non point source activity with potential impacts to water quality (EPA, 1993 p.1). Grazing does occur on this allotment. However, conformance with other cover indicators for soil and vegetation, and the riparian areas that are in proper functioning condition suggest grazing at appropriate levels is occurring; therefore water quality impacts from livestock is not affecting this allotment.

Soils/Site Stability and Hydrologic Function

As part of this investigation, six (6) rangeland health determinations were conducted in July and August of 2010. 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 Sheets for the Sandy, Loamy and Shallow Loamy 10-14” pz. ecological sites to determine departure from normal. Taken together, these two Attribute Ratings provide a snapshot of watershed function.

Hydrologic functions were rated to determine the upland health of the watershed in relation to surface water erosion processes. The amount of bare ground is a key indicator to determine if adequate vegetation and litter is present to protect the surface from raindrop impact erosion processes. The amounts of vegetation and litter were all above acceptable thresholds for their respective ecological sites.

In the Pit, South, and North pasture key areas there was a moderate rating given to the presence of gullies. A moderate rating for gullies is described as “Moderate in number with indications of active erosion; vegetation is intermittent on slopes and/or bed. Occasional headcuts may be present.” (1734-6 rev05, pg. 83). A few areas had some nice points located within the drainage bottoms that typically receive more use and have less cover. The presence of cheatgrass (*Bromus tectorum*) has the potential to reduce the infiltration capacity of the soils compared to the native perennial grasses that have higher related infiltration rates and caused a slight-moderate rating for item #10 in the assessments.

Highway Pasture Key Area

Rills, waterflow patterns, pedestals and terracettes were not observed. Transect data determined bare ground to be 8 percent which conforms to that prescribed by the reference sheet. Litter cover was determined to be 34 percent; the reference sheet states litter ranges from 15-30% of total canopy measurement with total litter (including beneath the plant canopy) from 30-70% expected. Gullies and wind-scour areas were not observed. Litter movement was not observed. The soil stability index (SSI), an indicator of soil surface resistance to erosion was not determined; nonetheless, all indications are that the soil surface is stable and able to withstand the erosive forces of raindrop impact and overland flow. There has been no soil loss. There is no soil compaction. The composition of the plant community is dominated by herbaceous species resulting from prescribed burns conducted in the mid 1990s. The post burn plant community is maximizing infiltration and reducing runoff. In the unburned areas, the vegetation composition is similar to that described in the ESD and is also allowing for maximum infiltration and minimal runoff. The shrub component in the unburned areas may capture more wind-blown snow compared to the burned areas.

Based on the observations discussed above the attribute rating for *Soil and Site Stability* and *Hydrologic-Function* were rated as “None to Slight”.

Highway Pasture Ridge

Extensive rock outcrop and shallow soils are characteristic of the ridgetops and rocky hill slopes in the allotment where erosion indicators can be expected to be more strongly expressed. At the evaluation area rills are rarely observed and where observed, they were restricted to steeper slopes. Water flow patterns are short and disconnected. Pedestals and terracettes are only present on steeper slopes. Transect data determined bare ground to be approximately 11 percent; the reference sheet ranges bare ground between 15 and 45 percent. Litter cover was determined to be 22 percent; the reference sheet states litter ranges from 10-25% of total canopy measurement with total litter (including beneath the plant canopy) from 52-65% expected. Gullies where present, are restricted to very steep slopes in association with areas of rock outcrop. Minor wind-scour can be observed along the ridge line to a degree that is expected for exposed surfaces dominated by rock outcrop and shallow soils. The soil stability index (SSI), an indicator of soil surface resistance to erosion was not determined; nonetheless, all indications are that the soil surface is stable and able to withstand the erosive forces of raindrop impact and overland flow. There is no soil compaction. The grass composition is slightly less than that described in the ESD while the shrub component is slightly greater; it is unlikely that this shift is having any significant effect on infiltration and runoff.

Based on the observations discussed above the attribute rating for *Soil and Site Stability* and *Hydrologic-Function* were rated as “None to Slight”.

North Pasture Key Area

Rills were not observed. Short and disconnected waterflow patterns were observed. Some pedestalling was noted at the base of bunch grass plants though this phenomenon is not extensive. Transect data determined bare ground to be 17 percent; the reference sheet ranges bare ground between 10 and 30 percent. Litter cover was determined to be 19 percent; the reference sheet states litter ranges from 5-30% of total canopy measurement with total litter (including beneath the plant canopy) from 30-70% expected. A few gullies were observed however, vegetation is becoming reestablished in these gullies; an indication that they are not rapidly advancing and are stabilizing. Wind-scour areas were not observed. No litter movement was observed. The soil stability index (SSI), an indicator of soil surface resistance to erosion was not determined; nonetheless, all indications are that the soil surface is stable and able to withstand the erosive forces of raindrop impact and overland flow. Though soil loss does not appear to be extensive, there are limited areas where historic soil loss has occurred. Soil compaction was not observed. The grass composition is slightly less than that described in the ESD while the shrub component within the prescribed ranges, as a result infiltration could be slightly reduced.

Significant headcuts were observed along a tributary of Buffalo Creek in the North Pasture. One such head cut is over 6 feet deep. See photo on page 17. It is estimated that there is between 3 and 10 headcuts associated along Buffalo Creek tributaries. These headcuts appear to be in response to the historic down cutting of Buffalo Creek. The intermittent drainages that are tributaries to Buffalo Creek are continuing to adjust to the base level established when Buffalo Creek became incised. The advancement of headcuts working their way into the uplands can be considered to be a natural response to historic down cutting of Buffalo Creek. Indications are the advancement of these headcuts is slow, as evidenced by the following: 1) the rounded shoulders of the channels near the nick point; 2) grass and shrub establishment below the nick point.

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

South Pasture Key Area

Rills were not observed. A few water flow patterns were observed along the transect. They are short (<2 feet) and disconnected. Pedestals and terracettes were not observed. Transect data determined bare ground to be 18 percent; the reference sheet ranges bare ground between 10 and 30 percent. Litter cover was determined to be 27 percent; the reference sheet states litter ranges from 5-30% of total canopy measurement with total litter (including beneath the plant canopy) from 30-70% expected. One active gully was observed running parallel to the two-track road adjacent to the key area. All indications are that this gully is stabilizing; vegetation is becoming reestablished and it appears that advancement has slowed. Wind-scour areas were not observed. No litter movement was observed. The soil stability index (SSI), an indicator of soil surface resistance to erosion was not determined; nonetheless, all indications are that the soil surface is stable and able to withstand the erosive forces of raindrop impact and overland flow. However, some interspaces appear to be lacking adequate litter. Though soil loss does not appear to be extensive, there are limited areas where historic soil loss has occurred. Soil compaction was not observed. The grass composition is slightly less than that described in the ESD while the shrub component within the prescribed ranges as a result infiltration could be slightly reduced.

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

Pit Pasture - Burned Area

Rills, waterflow patterns, pedestals and terracettes were not observed. Transect data determined bare ground to be 10 percent. The reference sheet ranges bare ground between 10 and 30 percent. Litter cover was determined to be 36 percent; the reference sheet states litter ranges from 15-30% of total canopy measurement with total litter (including beneath the plant canopy) from 30-70%

expected. Gullies and wind-scour areas were not observed. Litter movement was not observed. The soil stability index (SSI), an indicator of soil surface resistance to erosion was not determined; nonetheless, all indications are that the soil surface is stable and able to withstand the erosive forces of raindrop impact and overland flow. There has been no soil loss. There is no soil compaction. As a result of prescribed burning, the plant community composition has been temporarily shifted to be dominated by herbaceous species. Infiltration is being maximized with minimal runoff.

Based on the observations discussed above the attribute rating for *Soil and Site Stability* and *Hydrologic-Function* were rated as “None to Slight”.

Pit Pasture - Unburned Area

Rills, waterflow patterns, pedestals and terracettes were not observed. Transect data determined bare ground to be 14 percent; the reference sheet ranges bare ground between 10 and 30 percent. Litter cover was determined to be 39 percent; the reference sheet states litter ranges from 15-30% of total canopy measurement with total litter (including beneath the plant canopy) from 30-70% expected. Several gullies were observed in this portion of the allotment. Wind-scour areas were not observed. Litter movement was not observed. The soil stability index (SSI), an indicator of soil surface resistance to erosion was not determined; nonetheless, all indications are that the soil surface is stable and able to withstand the erosive forces of raindrop impact and overland flow. There has been no soil loss. There is no soil compaction. The grass composition is slightly less than that described in the ESD while the shrub component is slightly greater; it is unlikely that this shift is having any significant effect on infiltration and runoff.

Based on the observations discussed above the attribute rating for *Soil and Site Stability* and *Hydrologic-Function* were rated as “None to Slight”.

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 varied between “None to Slight” and “Slight to Moderate”. An overall rating of “Slight to Moderate” could be assigned to the allotment as a whole. Erosion indicators (waterflow patterns, pedestals, terracettes, litter movement and wind-scouring) are within the parameters set by the ESD. Erosion indicators are most strongly expressed where bedrock is a predominant landscape component and the soils are shallow. Gullies are present on the landscape, often associated with two-track trails or large expanses of rock outcrop. In addition, several of the ephemeral drainages that flow into Buffalo Creek are incised with active nick points and headcuts slowly working their way into the uplands. This is viewed as a natural process as these drainages continue to adjust to the current base level of Buffalo Creek. Field observations indicate that gullies are healing, as evidenced by the establishment of shrubs and grasses in channels. This would also indicate that they are not advancing rapidly and that they are stabilizing. Soil loss is mostly restricted to the gullies. There is nothing to indicate that there has been wide-spread loss of the A horizon. Soil compaction was not observed. The plant community composition has shifted to the Historic Climax Plant Community (HCPC) where prescribed burns have been conducted as documented at two of the assessment locations (Highway Key Area and the burned area evaluated in the Pit Pasture). As evidenced by a minimal expression of erosion indicators, this management action appears to have increased infiltration and reduced runoff. Elsewhere in the allotment, there has been a slight shift in the plant community whereby grass species are slightly reduced compared to that described in the ESD and the shrub component is slightly greater than that described in the ESD. Even in this setting infiltration is nearly that which would be expected for the site and runoff is minimum.

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. MET

Rationale:

The riparian areas along Buffalo Creek were rated to be in Proper Functioning Condition in both 2004 and in 2010. The channel is stable and has access to the floodplain to sustain proper riparian ecosystems along the creek. The riparian vegetation is providing stability to the banks and is horizontally and vertically stable with no signs of excessive erosion. The creek has likely stabilized from the introduction to produced water into the creek upstream when the Little Buffalo Basin oil field was developed in the early 1900's. This has changed the flow regime to a perennial regime that is capable of supporting aquatic life and riparian vegetation. There is currently no woody riparian vegetation along the creek and no evidence of historical woody species. The riparian area along Buffalo Creek is at risk if produced water were ceased to flow into the channel; however the overall functionality of the ecosystem is functioning properly. Other potentially impacting resources to riparian ecosystems such as recreation use or mineral extraction are not impacting this standard. Therefore the allotment is currently meeting the definition as outlined above.

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:

Assessment sites represented 10-14” shallow loamy, loamy and sandy ecological sites. These sites were characterized as currently representing the Perennial grass/Mixed shrub state (shallow loamy), a Perennial Grass/Big sagebrush state (loamy), and a Perennial grass/Big sagebrush state (sandy) in the State and Transition Model of 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 meets the requirement for this to occur. This situation lends further credence to the current plant communities being “resilient, diverse, and able to recover from natural and human disturbance”.

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: The Hillberry Rim 2 lek, as well as a large winter concentration area, is approximately 1.5 - 2 miles northeast of the allotment. Lek monitoring data for Hillberry Rim 2 show the average sage-grouse attendance through the 1980s was 50 birds, the 90s was 72, and for the 2000s was 63 sage-grouse, representing little change since the 80s anyway. Lek counts can be quite variable, and are not always the best indicator of habitat quality. Weather and/or predators can often affect lek activity and lek monitoring. As stated earlier sagebrush habitats in neighboring allotments to the north and northeast of this allotment are providing sage-grouse winter concentration habitats, but none has been documented within this allotment. And because of the proximity to the large lek to the northeast, some level of sage-grouse nesting and brood rearing are likely occurring throughout the suitable habitats in the Grass Point allotment as well. Other species like the Mountain lion, chukar, and a variety of passerines, raptors, small mammals and predator species inhabit this allotment throughout the year.

Six key area transect locations were chosen in the allotment for monitoring and evaluation purposes. Three were selected primarily for sage-grouse habitat and assessment, and three to measure soil and vegetative parameters and to conduct the evaluation of the 17 indicators of rangeland health. The Sage-grouse habitat key area transect locations were in the east, northeast, and northwest portions of the allotment and were intentionally located in what appeared to be some of the best sage-grouse habitat in the allotment, (see transect photos). These locations were also within mule deer crucial winter range and probable sage-grouse nesting and brood rearing habitats. The sage-grouse habitat key areas are shown on the wildlife resources map below (see map). The other key area transect locations where the 17 indicators of rangeland health were assessed were in basically the same locations as those run for sage-grouse habitat and assessment, and these locations were chosen as representative of the typical grazing areas of the allotment in general. The East transect location was approximately 2 miles southwest of the active sage-grouse lek mentioned above. Sagebrush canopy cover measured at this key area transect was found to be 15%, which for Wyoming is barely within the suitable range of sagebrush canopy covers anticipated for sage-grouse nesting (15-25%). Sagebrush canopy cover for the second Northeast transect was found to be 11%, and for the third Northwest transect was 8%. For the Standards and Guides field evaluations, plant community composition and distribution as well as the functional structural groups (indicator #s 10 and 12) were found to be none to slight and moderate deviation from those anticipated for the north central transect location talked about above. Habitats within the rangelands evaluated here are providing wildlife forage and cover needs, and are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to these habitats.

Photo of East Sage-grouse Habitat Key Area Transect



4.5 Standard 5

Water quality meets State standards. MET

Wyoming's water quality laws are administered by the Wyoming Department of Environmental Quality (DEQ), Water Quality Division (WQD). The water quality is administered by the DEQ Non-Point Source program that oversees section 303d of the federal Clean Water Act. The WYDEQ publishes an annual 305 (b) using assessment methodology to determine surface water quality standards and associated uses of different waters as approved by the US Environmental Protection Agency.

Buffalo Creek is not listed by the Wyoming Department of Environmental Quality (DEQ) on the 2010 305 (b) annual report to the EPA Integrated State Water Quality Assessment Report (DEQ,2010). According to the DEQ Wyoming Use Classification list Buffalo Creek is currently classified as a type 3B stream (Table 4). A class 3B stream is the default classification given to drainages like Buffalo Creek. The produced water introduced into the creek is regulated by the DEQ as to not cause any downstream degradation of water quality to higher classified waters. Gooseberry Creek downstream is a Class 2B water and is considered to have a warm stream fish habitat use.

Buffalo Creek is not listed and it is therefore assumed that the creek is meeting the designated beneficial uses for a Class 3B stream according to DEQ standards.

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.

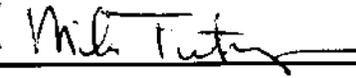
5.0 SPECIALIST SIGNATURES

X



Rangeland Management Specialist

X



Supervisory Rangeland Management Specialist

X



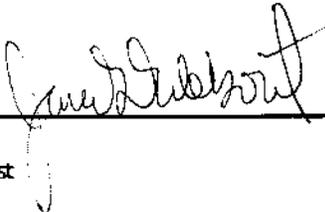
Wildlife Biologist

X



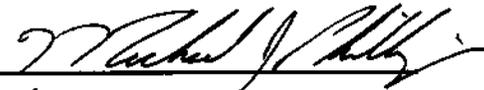
Natural Resource Specialist, Weed Coordinator

X



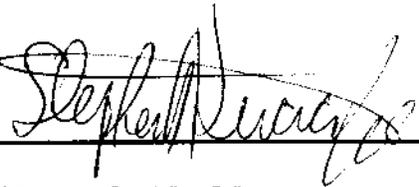
Hydrologist

X



Other AFM Resources

X



Natural Resource Specialist, Soils

X

Other _____

6.0 DETERMINATION

Based on the information provided in this assessment, *I have determined that all standards ARE being met, with the exception of Standard 5, Water Quality and Standard 6, Air Quality, which are determined to be UNKNOWN. Current livestock grazing IS in conformance with the standards.*

X Karla Bird 6/16/2011

Karla Bird
Field Manager, Worland Field Office

Based on the information provided in this assessment, *I have determined that all of the standards ARE NOT being met but that livestock grazing IS in conformance with the standards.*

X

Karla Bird
Field Manager, Worland Field Office

Based on the information provided in this assessment, *I have determined that all of the standards ARE NOT being met and that livestock grazing IS NOT in conformance with the standards.*

X

Karla Bird
Field Manager, Worland Field Office

7.0 REFERENCES

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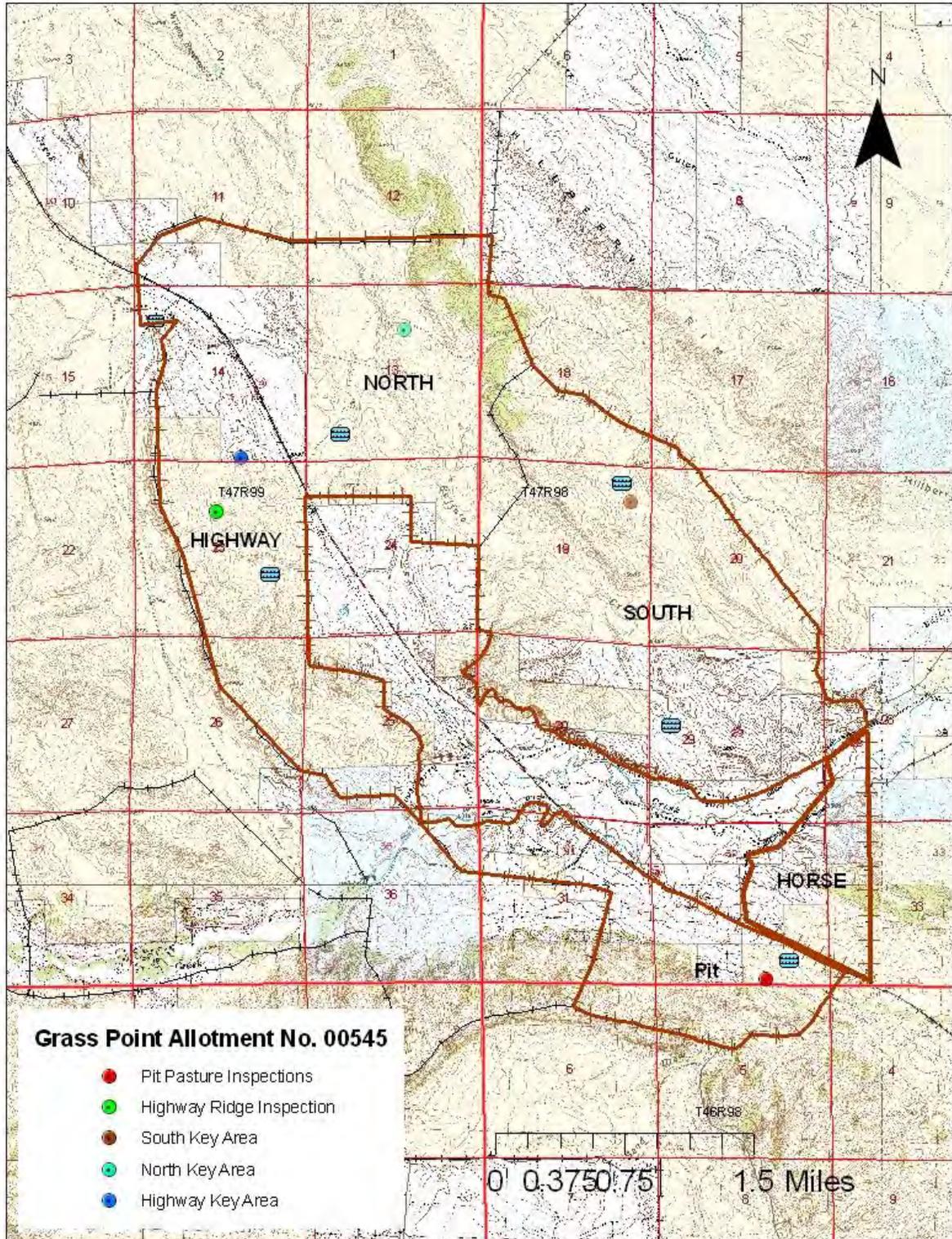
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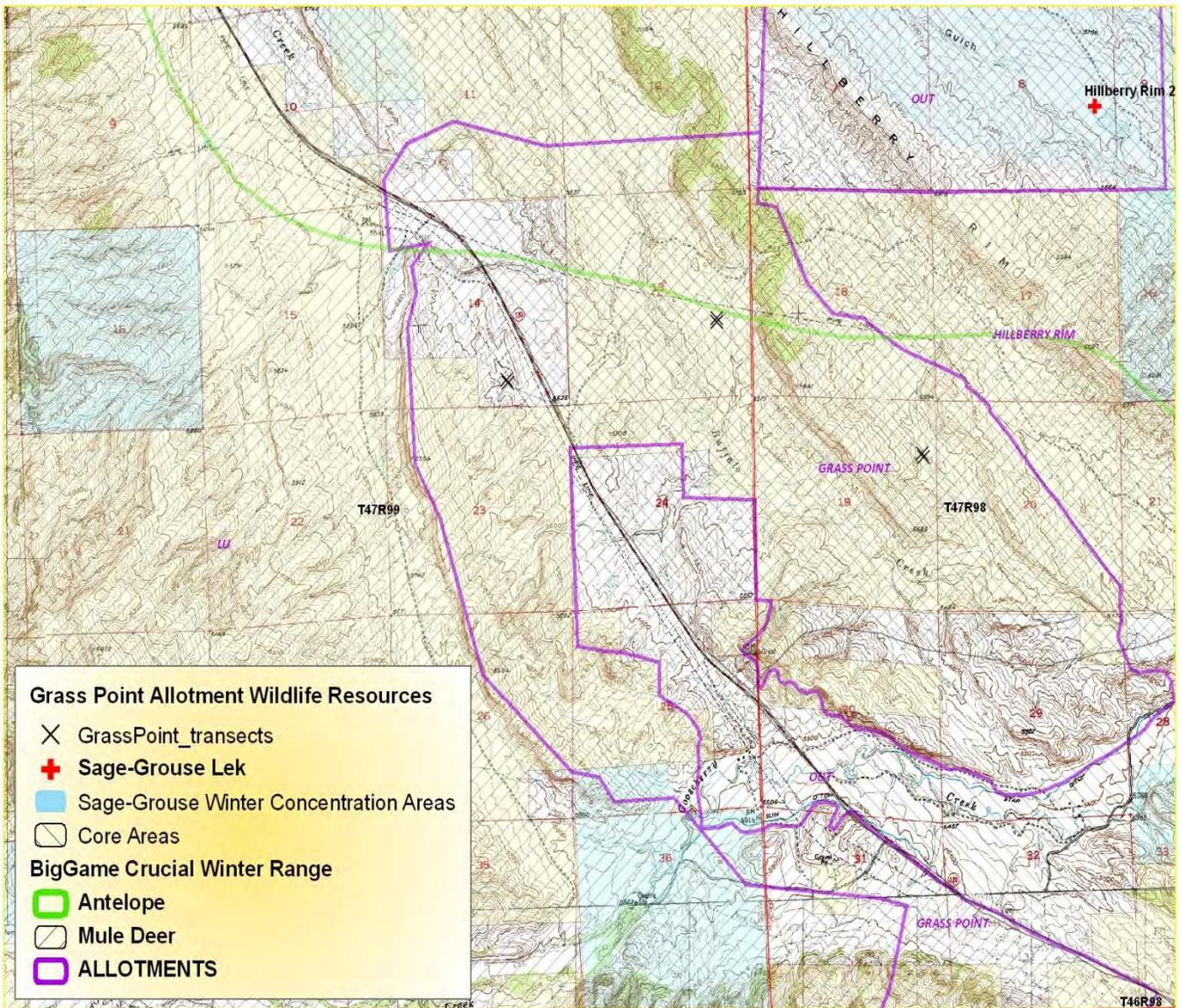
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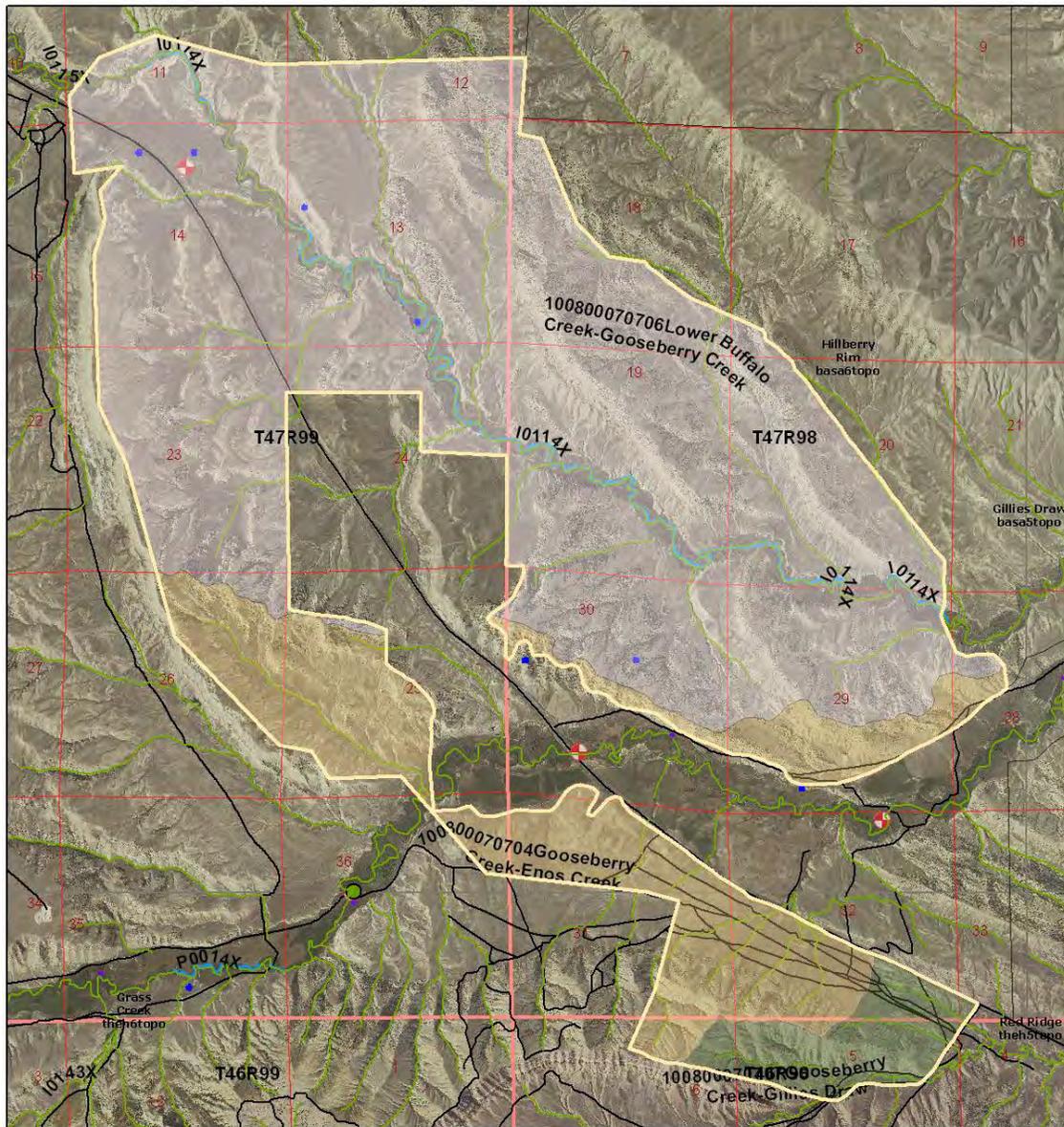
Map 1: Allotment Map



Map 2: Grass Point Allotment Wildlife Resources Map



Map 3: Hydrology/Riparian



Grass Point Allotment Watershed Map

USGS Sub-Watersheds

HU 12 NAME, HUC 12#

- Gooseberry Creek-Enos Creek, 100800070704
- Gooseberry Creek-Gillies Draw, 100800070707
- Lower Buffalo Creek-Gooseberry Ck, 100800070706
- Stream/River

RAIDS

Flow Type

- Perennial
- Produced
- SEO_Wells

USGS NWIS Data Site



No Warranty is made by the BLM as to the accuracy, reliability, or completeness of this data. Original data were compiled from various sources. This information may not meet National Map Standards. This product was developed through digital means and may be updated without notification.

1 in = 3,167 feet



Map 4: Soils



ONSITE PHOTOS



Unburned



Unburned



Rx Burn 1995



Highway Pasture Key Area 2010, Rx Burn 1988



Highway Pasture Ridge Transect, 8/17/2010



North Key Area



South Key Area