

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

**Adam Weiss Peak Allotment
No. 00637**

Worland Field Office



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.

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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 *Adam Weiss 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 Adam Weiss Peak Allotment is located in approximately 5 miles southwest of Grass Creek, Wyoming - Hot Springs County. The allotment is comprised of approximately 3,681 public acres and 2,612 private/state acres. Elevation in the allotment varies from approximately 5,800 feet to 7,200 feet above sea level. The terrain is primarily comprised of rolling to steep hills dissected by multiple ephemeral drainages.

2.2 Hydrology

The Adam Weiss Allotment is located in the Cottonwood Creek watershed in Upper Bighorn River sub-basin. Within the allotment there are three different level #6 sub-watersheds that are identified by the United States Geological Survey (USGS) by name and Hydrologic Units Codes or (HUC) (Map 3). All of the sub-watersheds are tributaries to Cottonwood Creek.

The majority of the allotment is located in the Middle Grass Creek sub-watershed and consists of 17.9% of the total sub-watershed area. A very minor portion is in the Upper Grass Creek sub-watershed and there is a watershed divide along the southern boundary where a minor portion of the allotment drains into the Prospect Creek watershed to the south (Table 1). The area is in the middle of the overall Cottonwood Creek watershed and contains peaks and steep drainages on private and public land in the sub-watershed.

The hydrogeology of the allotment consists of surface outcrops of Tertiary formations of the Willwood and Fort Union formations of fine grained mudstones and shales that outcrop at lower elevations. The upper elevations consist of mainly sandstones, shales and terrestrial deposits of Cretaceous age formations along the foothills of the Absaroka Mountain range.

Table 1: Watershed Area

Watershed Name-Level #6 (HUC #)	Total (Mi ²)	(Mi ²)within allotment	(%) Mi ² of watershed in the allotment
Middle Grass Creek- (100800070607)	48.9	8.76	17.9
Upper Grass Creek - (100800070606)	45.9	0.03	0.1
Prospect Creek- (100800070605)	41.5	0.87	2.1

There are a few reservoirs along drainages that provide a watering source in sections 4 and section 9. Other wells have been developed with pipelines in the allotment that provide water to upland areas in the allotment. There are no known or natural perennial streams on public land that are present in the allotment. Some areas may have minor seeps or springs at the bases of drainages but have not been inventoried. Other areas around pits and reservoirs do not have riparian characteristics. According to US Fish and Wildlife National Wetland Inventory data along with personal visits to the allotment there are no naturally occurring wetlands in the allotment.

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 mountain environment in which they formed. They are highly variable, reflecting differences in parent material (sandstone, shale, mixed alluvium and occasional conglomerate), position on the landscape, slope and aspect. Soil depths are generally 20 to 40 inches, but can range from a few inches to over 60 inches. These soils typically have a light brown surface layer. Surface textures are loams, cobbly and very cobbly loams. The subsoil often reflects an increase in clay being expressed argillic horizon. Slopes range from 0 to 60 percent.

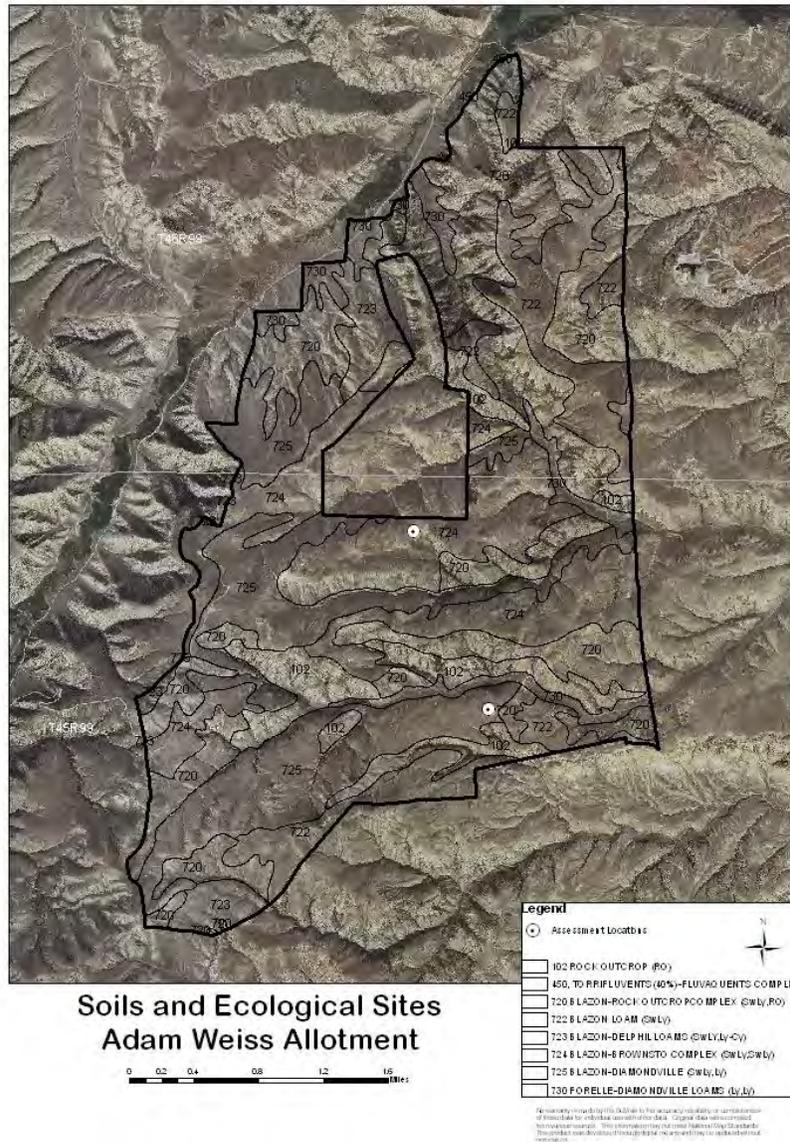
Based on the Soil Survey data for Hot Springs County, the ecological sites found in the in the allotment are listed below:

Shallow Loamy 10-14" pz.	R032XY362WY
Loamy 10-14" pz..	R032XY322WY
Clayey 10-14" pz. 10-14" pz.	R032XY304WY

Two (2) rangeland health assessments were conducted as a part of this investigation at previously established monitoring sites, referred to as Key Areas 3 and 4. Key area 3 is within Map Unit 725 Blazon-Diamondville Loams which supports Shallow Loamy and Loamy ecological sites. Key Area 4 is within Map Unit 734 Blazon-Brownsto Complex, predominantly supporting a Shallow Loamy Ecological Site.

The Blazon soil series is a shallow, well drained soil having formed over sandstone and shale parent materials. The Diamondville series is moderately deep and well, drained and also formed over shale and sandstone parent materials. The Brownsto series is very deep; it formed in calcareous alluvium from conglomerate and glacial outwash. In addition to being deep, the Brownsto soils are further differentiated by significant gravel and cobble size rock fragments.

Refer to Soils Map below for details.



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, muttongrass, idaho fescue, upland sedges. Other vegetation found includes sagebrush, junipers, lichens, biological soil crusts, fringed sagewort, rabbitbrush, as well as many other 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 observed/inventoried/treated within the allotment include Russian knapweed, Canada thistle and musk thistle. Cheatgrass is also present. These infestations were located on both private lands and public lands within the allotment.

2.7 Range

The allotment is located within the Grass Creek Resource Area and the Grass Creek Resource Management Plan (1998) classified the allotment as an “I”, Improve allotment.

Originally in 1935 the allotment was allocated for use of 1,880 Animal Unit Months. Thereafter, the AUMs were reduced to 1,466 AUMs. In 1985 an AMP was developed for the allotment which is comprised of several small pastures with little or no public land and two larger pastures with a dominance of public land. In about 1995 the

AUMs were reduced to 625 federal AUMs-529 for use in the Big Pasture and 96 for use in the remaining small pastures. In 1998, the first Standards for Healthy Rangelands Assessment were completed for the allotment at which time it was determined that all 6 for the standards were met and the grazing was in conformance with the standards for healthy rangeland. From 2000 through 2009 the average number of AUMs utilized has been 385 (62% of permitted) with the most being utilized in 2009 (562 AUMs) and the fewest being used in 2007 (224 AUMs).

As a whole the public land is stocked at approximately 6 acres per AUM (3681 Acres/625 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 that produces 250-650 pounds per acre. The ESD for a loamy range site recommends a stocking rate of approximately 3.3 Acres per AUM for a Perennial Grass/Big sagebrush plant community that produces 400-900 pounds per acre. Production, in 2010, at key area 4 which is a shallow loamy range site was determined to be 706 lbs. per acre. Production at key area 3, a loamy range site, was determined to be 716 lbs per acre.

Currently there is one grazing permit for grazing on the allotment – held by John Leroux. The grazing permit is issued as follows:

Adam Weiss Allotment

8C	3/1-2/28	100%PL	96AUMs
200C	6/1-9/30	66%PL	529 AUMs

Active AUMs = 625 Suspended AUMs = 841 Permitted Use AUMs = 1466

2.8 Wildlife

This allotment provides habitat for several big game species, as well as many other non-game and special status wildlife species, during all seasons of the year. The allotment is predominantly rolling benches separated by small canyons and draws. It is typical mountain foothill topography with the expected amount of scattered juniper and limber pine at shallow soil areas and a mix of Wyoming and Mountain sagebrush, with the Mountain sagebrush being primarily at the western and upper elevations of the allotment. Throughout the year smaller numbers of resident elk and mule deer use the allotment, but from late fall through early spring the majority of this allotment provides winter range for larger herds. The entire allotment is mapped as crucial winter range for mule deer and general winter range for elk. Only a small portion of the southern end is mapped as crucial winter range for elk. But over the past 5 to 10 years winter and spring elk use has increased considerably in this allotment. Significant numbers of mule deer will use the area as transition range in the spring and again in late fall during the rut as well. Antelope can also occasionally be observed throughout this allotment, particularly in the spring and summer.

2.9 Threatened or Endangered Species

The fairly contiguous benches of rolling sagebrush habitat, primarily in the southern part of the allotment, also likely provide nesting and early brood rearing habitats for sage-grouse, as well as breeding, nesting and foraging habitat for other sagebrush obligate bird species like the sage thrasher, sage, Brewer’s, Baird’s and vesper sparrow and loggerhead shrike. These habitats comprise about 50% of the allotment. No sage-grouse leks or wintering concentrations have been identified in this Allotment, but two active leks has been documented, and monitored for years, on the neighboring allotment to the southeast. The southern 2/3rds of this allotment is 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 the BLM.

Within the allotment there are 2 key areas with existing data. Photo replication, annual production measurements, and cover transects were completed. Also, within the transect areas the 17 indicators of rangeland health were observed and recorded.

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.

Table 1. Rangeland Health Indicators/Ratings

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

Key Area 3 is on loamy range site within the 10-14 inch precipitation zone (Loamy ESD). This key area is located nearer the southern end of the allotment. 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.

The ground cover was determined to be 87% thereby yielding 13% bare ground. The ESD/Reference Sheet prescribes a range of 10-30% bare ground. Of the vegetative hits encountered; grasses accounted for approximately 45%, forbs accounted for 9%, and woody species accounted for 39%, while lichens and biological soil crusts accounted for the 7%. Total vegetative production was determined to be 716 pounds per acre with grasses and forbs (the herbaceous) making up 424 lbs/ac. Based upon composition by weight, grasses and grass

like species account for 48% of total production (dry weight), woody species account for 41% of the total production, forbs account for 11% 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 bluebunch wheatgrass, rhizomatous wheatgrasses, and needleandthread grass, and junegrass. Complementing the grass community is a pronounced community of sagebrush on site which by percent composition would be greater than expected at HCPC but near what could be 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.

Key Area 4 is 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 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 is diminished without mechanical treatments, reseeding efforts, soil remediation efforts, and intense grazing management.

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 71%, forbs accounted for 10%, and woody species accounted for 16%, while lichens accounted for 3%. Total vegetative production was determined to be 706 pounds per acre with grasses and forbs (the herbaceous) making up 579 lbs/ac. Based upon composition by weight, grasses and grass like species account for 71% of total production (dry weight), woody species account for 17% of the total production, forbs account for 12% 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 just 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.

Hydrology-Riparian

An interdisciplinary team of BLM resource specialists evaluated Grass the allotment through two assessments in key areas using the “*Interpreting Indicators of Rangeland Health*”, Technical Reference 1734-6 and other monitoring data as described in the tables above. The 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. Attributes 2, 5, and 10 in key area 3 were rated as slight-moderate departure from the reference state due to some evidence of surface flow and change in plant community that can affect surface runoff conditions and erosion processes.

There is no water quality data for the allotment due to the absence of perennial streams in the allotment. The wells in the allotment provide suitable quality water for livestock and wildlife.

Soil/Site Stability and Hydrologic Function

As part of this investigation, two (2) rangeland health determinations were conducted on July 22 at Key Area 4 and on July 26, 2010 at Key Area 3. 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 both the Loamy 10-14" pz. 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.

Key Area 3

Rills were not present. Waterflow patterns are short and disconnected. Pedestals and terracettes were not observed. Transect data determined bare ground to be 13 percent; the reference sheet ranges bare ground between 10 and 30 percent. Litter cover was determined to be 26 percent; the reference sheet describes litter cover as being between 30 and 70 percent which takes into account litter beneath the plant canopy. A few gullies were observed along the abandoned road leading to the key area. With the abandonment of this road, these gullies are healing and are no longer advancing. 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. There has been no soil loss. There is no soil compaction. The grass composition of the plant community 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".

Key Area 4

Rills, waterflow patterns, pedestals and terracettes were not observed. Transect data determined bare ground to be 11 percent. The reference sheet ranges bare ground between 15 and 45 percent. Litter cover was determined to be 34 percent; the reference sheet describes litter cover as being between 25 and 65 percent which takes into account litter beneath the plant canopy. 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 similar to the described in the ESD; 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".

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 “None to Slight” at each of the Key Areas. Despite a slight shift in the grass and shrub component relative to the ESD at Key Area 3, the plant community composition and distribution is allowing for maximum infiltration and minimizing runoff. As a result erosion indicators are only being minimally expressed on the landscape. Shallow gullies formed along an abandoned two-track trail are no longer advancing and are healing, aided in no small part from the overall vegetative health of the allotment. Erosion indicators (waterflow patterns, pedestals, terraces, litter movement and wind-scouring) are barely observable throughout the allotment. Soil loss and subsurface soil compaction were not observed.

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 is a spring in the allotment that is located on private land. There are no other inventoried riparian or wetlands that occur on public land within the allotment. There is also no historical evidence of any historical riparian areas that may have been converted to dry upland areas. Therefore this standard is not applicable for this allotment.

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 and loamy ecological sites. These sites were characterized as currently representing the Perennial grass/Mixed shrub state (shallow loamy) transitioning near HCPC and a Perennial Grass/Big sagebrush state (loamy) 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. Recent 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: These leks, *Spring Gulch 1* and *Spring Gulch 3*, as well as a winter concentration area, are all approximately ½ mile east from the SE corner of the allotment. Lek monitoring data for *Spring Gulch 1* show the

average sage-grouse attendance through the 1980s was in the single digits, the 90s was 11, and for the 2000s was 35 sage-grouse. For *Spring Gulch 3*, the 1980s was 27, the 90s was 5, and the 2000s was 7. While attendance at one lek has increased since the 1980s, it has decreased during this time period for the other lek. This most likely represents a rather static population with a change in preference for leks. 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 just southeast of the Adam Weiss allotment are providing sage-grouse winter concentration habitats. This wintering use has been documented with both ground and air surveys within the past 5 years. And because of the proximity to the lek to the southeast, sage-grouse nesting and brood rearing are likely occurring throughout these habitats 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.

Occasional Grizzly bear and wolf occurrence is possible in this allotment. Grizzly bear occurrence would most likely be in early spring when bears leave den sites and move down to lower elevations in search of winter kill carcasses and green vegetation. Usually by May most Grizzly bears have moved up in elevation, following green-up as it progresses to higher elevations. Wolf occurrence would most likely occur during winter when elk concentrations are present.

Four key area transect locations were chosen in the allotment for monitoring and evaluation purposes. Two, primarily for sage-grouse habitat and assessment, and the other two 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 west central and southeastern portion 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, elk general 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 the central and southeast portions of the allotment and were more representative of the allotment in general. The southeastern transect location was the same location for both the sage-grouse habitat and 17 indicators assessments. This location was approximately 2.5 - 3 miles west southwest of the active sage-grouse leks already mentioned. Sagebrush canopy cover measured at this key area transect was found to be 17%, which for Wyoming is within the suitable range of sagebrush canopy covers anticipated for sage-grouse nesting (15-25%). Sagebrush canopy cover for the second transect at the west central location was found to be 27%. This is a bit high for suitable nesting habitat, but this transect site was in Mountain sagebrush, unlike the other transect that was in Wyoming sagebrush. 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.

4.5 Standard 5

Water quality meets State standards. **UNKNOWN**

The Wyoming Department of Environmental Quality (WYDEQ) has not listed any of the drainages as impaired on the *DEQ 2010 305b Water Quality Assessment Report*. The drainages in the allotment are not rated by the WYDEQ for any specific use classification due to the allotment occurring in upland areas is therefore unknown. Due to the fact that there are no perennial streams on public land within the allotment, there is little to no indirect potential impacts to water quality. The upland hydrologic indicators suggest the quality of surface water that leaves the allotment is likely meeting state standards.

There is no BLM, USGS, or other state agency water quality data for these segments. Therefore compliance with Wyoming State Water Quality Standards is unknown, but nothing within available data indicates Standard Number 5 is not being met.

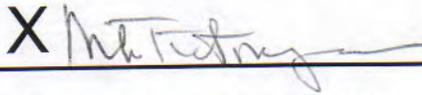
4.6 Standard 6

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.

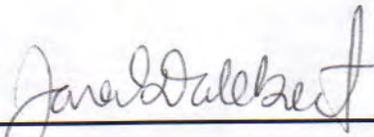
5.0 SPECIALIST SIGNATURES

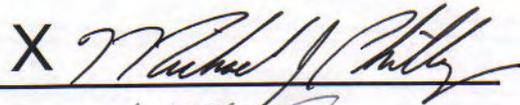
X 
Rangeland Management Specialist

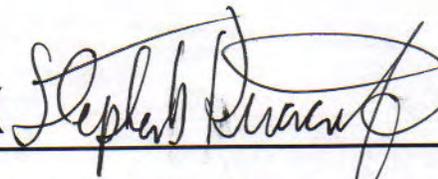
X 
Supervisory Rangeland Management Specialist

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 3-16-2012

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.*

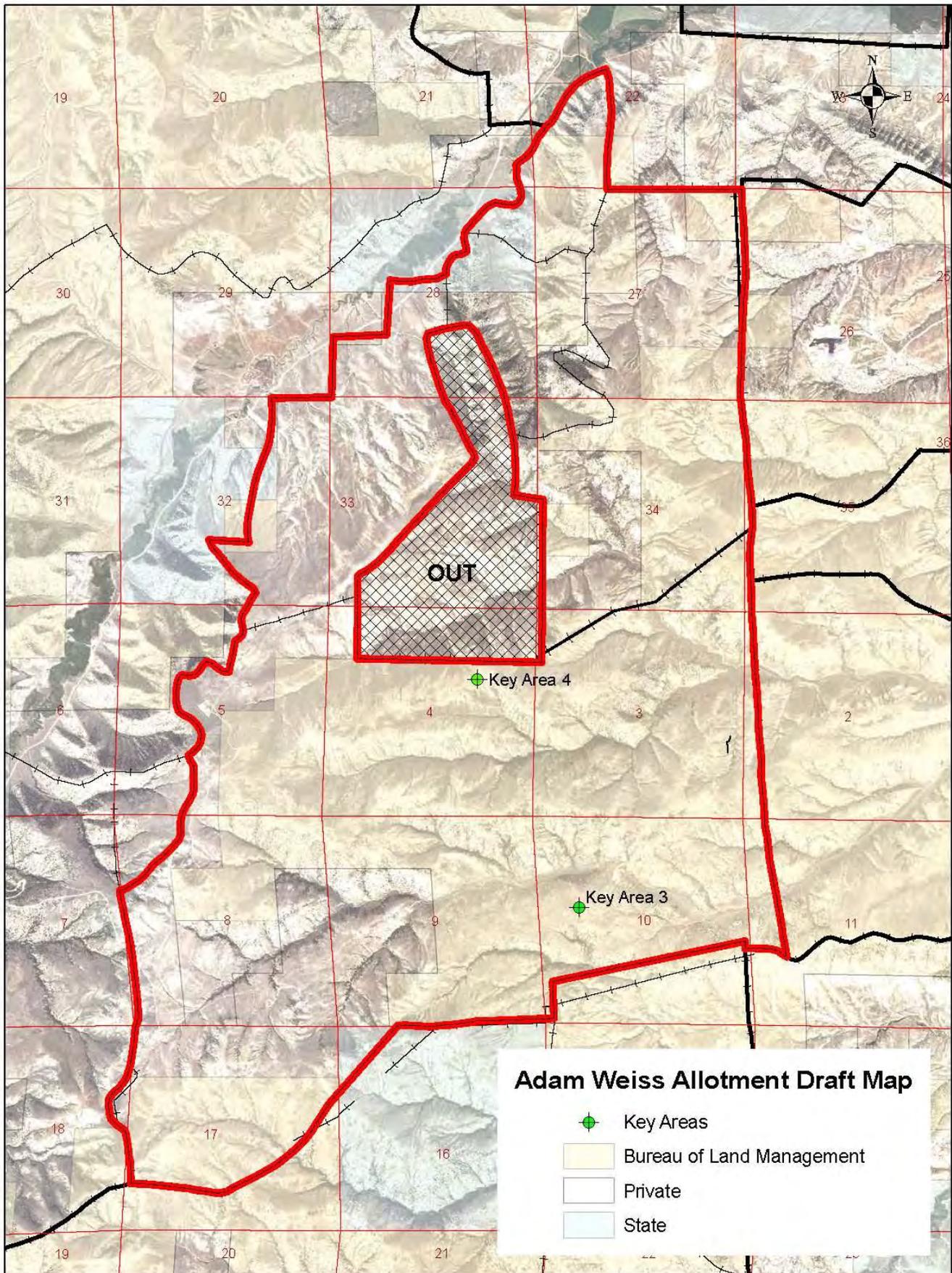
X

Karla Bird
Field Manager, Worland Field Office

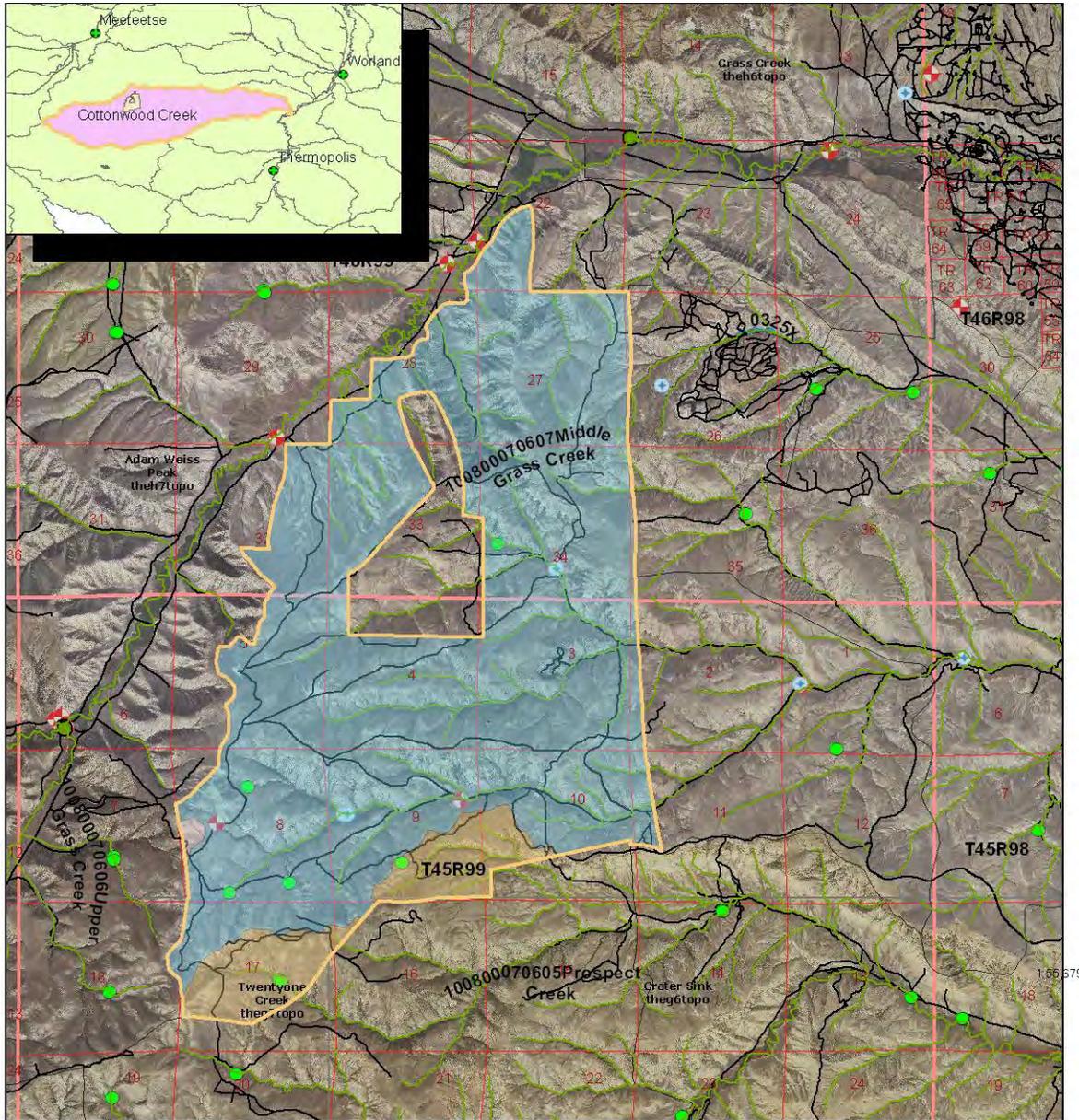
7.0 REFERENCES

DEQ, 2010. Wyoming's 2010 305(b) Integrated State Water Quality Assessment Report .p 28. Found at the following website. <http://deq.state.wy.us/wqd/watershed/Downloads/305b/2010/WY2010IR.pdf>

Map 1: Allotment Map



Map 3: Hydrology/Riparian



Adam Weiss Allotment Watershed Map

No Warranty is made by the ELM 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.



- Middle Grass Creek, 100800070607
- Prospect Creek, 100800070605
- Upper Grass Creek, 100800070606
- Stream/River
- WFO_Springs
- USGS NWIS Data Site



ONSITE PHOTOS





Photo of SE Sage-grouse Habitat Key Area Transect

